

University of Nevada Reno

**The Beliefs that School Administrators Hold about the Role
of Data in Driving School Improvement**

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in
Educational Leadership

By

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THE GRADUATE SCHOOL

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prepared under our supervision by

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ABSTRACT

Public policy and the popular press advocate for the use of data driven decision making by administrators in order to make Adequate Yearly Progress (AYP) and avoid No Child Left Behind sanctions. Requirements such as State Senate Bill 1 and the Student Achievement Gap Elimination (SAGE) school improvement process also emphasize data driven decision making. However, empirical evidence about data driven decision making is lacking, and not much is known about the current practices of school administrators or their beliefs towards using data to drive decisions.

The focus of this study was to construct an understanding of the beliefs that school administrators held about the role of data in driving school improvement. Information was gathered through semi-structured interviews of school administrators in a medium-sized school district in a Western state to discover their beliefs in regard to school data and use of data to facilitate school improvement. During the course of this study, the inquiry was guided by the following question: What beliefs did school administrators hold about the role of data in driving school improvement?

An analysis of interview transcripts revealed three interrelated and reinforcing themes: (a) I'm sure we're doing the "right" things; if only I could show people, they would value us; (b) Although I am not comfortable with data, collecting it is the "right" thing to do; and (c) I accept being held accountable, but the way that it is being implemented is unfair. The three themes each contain a qualifier. These qualifiers are indicative of the dissonance felt by school administrators. This dissonance is caused by the inconsistency between the beliefs held by school administrators that they are already doing the right things and their beliefs about the outcomes of the AYP process.

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CHAPTER ONE: INTRODUCTION

In January of 2002, President George W. Bush signed Public Law 107-110, otherwise known as the No Child Left Behind (NCLB) Act of 2001. The legislation was a reauthorization of the Elementary and Secondary Education Act and was enacted to close the achievement gap that persists between various groups in education in the United States (No Child Left Behind Act of 2001, 2002). The act, which was supported by both Republicans and Democrats, encompassed four major components: “stronger accountability for results; greater flexibility for states, school districts and schools in the use of federal funds; more choice for parents of children from disadvantaged backgrounds; and an emphasis on teaching methods that have been demonstrated to work” (U.S. Department of Education, 2002, p. 9). In June of 2003, the State legislature ensured that the state was in compliance with NCLB with passage of State Senate Bill 1 – a bill which built upon the State Education Reform Act of 1997 (Nevada Senate Bill 1, 2003). The rationale for basing the bill on the State Education Reform Act of 1997 was to provide “a sound cornerstone from which to launch a new era of accountability” (paragraph 8). In reference to the relationship between NCLB and State Senate Bill 1, La Marca (2006) stated the following:

At the heart of both the federal and revised state statutes is a conservative school, school district, and state accountability model working under the auspice of guaranteeing all students the opportunity for and access to a challenging and meaningful education experience. Toward this end and on an annual basis, schools, school districts, and the state as a whole are judged against a set of adequate yearly progress (AYP) criteria. The judgment of success is based

largely on performance on assessments aligned to state content standards administered on an annual basis, and by attending specifically to the performance of disparate subgroups of students. (p.2)

The sweeping reforms brought about by both NCLB and Senate Bill 1 are characterized by a focus on educational accountability.

Accountability in education is not new. Since a Nation at Risk (1983), the demand for accountability in schools has continued to elevate. However, the accountability system introduced by NCLB was different from prior accountability models in two respects: the bipartisan legislation was “developed without the collaboration of state and local officials” (Wong & Sunderman, 2007, p. 338) and was designed to appeal “to a public concerned with student performance” (p. 338). By appealing to public opinion about the quality of the American school system, the authors of the legislation were able to capitalize on the growing anxiety of many members of the public who believed that schools were underperforming. Indeed, despite the seating of a Democratic Congress in 2007, NCLB “is likely to receive bipartisan support. Once performance-based accountability is instituted, there is no longer political risk associated with the federal direction in holding districts and schools accountable for results” (Wong & Sunderman, p. 347). As a result, future reauthorizations of the legislation will likely focus on clarifying and correcting specific aspects of the law; accountability most likely will not be eliminated.

To meet the challenges associated with an increased focus on school accountability, many school administrators (i.e., principals and assistant principals) have been encouraged to move in the direction of data driven decision making. In reference to

the current period of accountability, Jalongo (2006) identified ‘evidence-based practice’ and ‘data-driven decisions’ as “buzzwords of the current era in education” (p. 99). In the State, data driven decision making has been intermingled with the school improvement process. The effective use of data to continuously improve teaching and learning is one of the fundamental goals behind the Student Achievement Gap Elimination (SAGE) school improvement process that has been adopted by the State Department of Education (2007). Dean (2007) defined data driven decision making in a way that summarized the SAGE school improvement model as “a cyclical improvement process, applied by educational leaders to assist in the decision-making process through the collection, analysis, and interpretation of relevant data” (p. 8).

The current emphasis placed on accountability and the high stakes environment in the field of education indicates that “schools must deliver results – quickly, consistently, and for all students” (Carr, 2001, p. 34). The implication is that school administrators must be able to use data driven decision making to “collect, analyze, and interpret meaningful school improvement data to make a positive impact on curriculum, instruction, and student learning” (Rudy & Conrad, 2004, p. 40). The concept of using data to demonstrate improvements is further reinforced by federal and state legislation in the United States as well as in other countries throughout the world. Earl and Katz (2006) summarized the importance of data driven decision making,

The “theory of change” underlying large-scale reform policy agenda like No Child Left Behind (NCLB) and Every Child Matters (U.K.) is that once schools have the necessary data, educators will be in a position to diagnose areas of strength and areas in need of improvement...the capacity requirement underlying

such policies is that educators know how to use data in order to make the necessary consequent decisions. (p. 7)

Data driven decision making is a consistent theme within recent school improvement efforts. The rationale is that administrators who have the capacity to use data will be able to make decisions that will result in increased student achievement.

However, Creighton (2001) stated, “Too many of our school leaders make decisions based on ‘informed intuition.’ Meaningful information can be gained only from a proper analysis of data” (p. 11). Although a connection has been established between data driven decision making and school improvement, many school administrators continue to rely on hunches and gut feelings to make decisions rather than to make decisions based on an appropriate analysis of data. In addition, although federal and state mandates have been successful in increasing the amount of data available to all educators:

They have not been effective in encouraging teachers to use student achievement results to undertake the kinds of analysis and self-reflection that can lead to improved teaching and learning. That work must be done in the schools. The schools must engage teachers in analyzing student performance in relation to their objectives for their next lesson, their next semester, their next year. (Petrides, 2006, p. 41)

Data driven decision making “has become a school-reform mantra that is celebrated, but widely misunderstood, and is often ignored (despite its hype) or actively feared” (Doyle, 2003, p. 19). As a result, questions related to understanding, knowledge, and beliefs that educators hold in regard to the use of data and the school improvement

process arise. Do school administrators fail to use data driven decision making because they do not understand the process? Do school administrators perceive available data driven decision making tools too complicated or too difficult to use? Do school administrators hold beliefs about data driven decision making that are contrary to the school improvement process?

Data driven decision making has many advocates, yet the concept has failed to reach many of the administrators who are on the front lines (Doyle, 2003). Why has this happened? Do school administrators lack the capacity to use data? Do hidden beliefs keep school administrators from fully implementing data driven decision making? The analysis of standardized test scores is important in this era of increased educational accountability; however, attention should also be paid to the beliefs and expectations of school administrators who must facilitate the school improvement process. Resnick (2006) stated,

States and districts that are serious about making a standards-based system work will need evidence not just on what is happening to scores over time, but also on whether the policies are gaining authority in the view of educators who must enact them. For this purpose, policy makers will want to examine the changing beliefs of educators as they attempt to work within accountability systems. (p.37)

Federal and state legislation and practices, such as NCLB, Senate Bill 1, and SAGE, have been enacted that emphasize data driven decision making but little is known about the beliefs held by school administrators.

In regard to data driven decision making, the research literature is limited; not much is known about the current practices or about how such practices are influenced by

the many recently developed data driven tools (Bruner et al., 2005). However, before a study is undertaken to gain knowledge of the current practices of school administrators, a better understanding of the beliefs held by school administrators about data driven decision making is appropriate. The purpose of this research was to take that step back, to dig deeper, and to gain an understanding of the beliefs that school administrators held in regard to use of data in the school improvement process.

Research Design

The focus of this study was to construct an understanding of the beliefs that school administrators held about the role of data in driving school improvement. The study utilized an exploratory case study design. Information was gathered through semi-structured interviews of school administrators to discover their beliefs in regard to school data and use of data to facilitate school improvement. During the course of this study, the inquiry was guided by an overall question. What beliefs did school administrators hold about the role of data in driving school improvement? The specific questions were:

1. What beliefs did school administrators hold about “school improvement” as a concept?
2. What beliefs did school administrators hold in regard to externally driven demands for accountability?
3. What beliefs did school administrators hold in regard to the relationship between data and school improvement?

Significance of the Study

Public education policy and stakeholder expectations have created an increased demand for accountability in schools. Along with these increased demands for

accountability are pressures for school administrators to improve academic achievement as measured by data, implying a driven decision making process. However, many school administrators appear to continue to make decisions that are not data driven (Creighton, 2001). Thus it appears that legislative mandates and public policy have not been sufficient motivators for school administrators to use appropriate data in making decisions regarding school improvement. Indeed, other influences appear to be driving management decisions in schools; as such, these variables appear to be limiting school improvement.

The first step in exploring these other influences is to examine the beliefs held by school administrators regarding their use of data in school improvement. How do school administrators understand data in general? What are their values regarding data? What do they believe about school improvement? What do they understand about relationships between data and school improvement? An understanding of their beliefs about these key issues may assist education leaders in developing strategies to support school administrators in effective use of data to drive school improvement decisions.

Background of the Study

The school district selected for this study was intentional. School districts in the state where this study was conducted are coterminous with the geographical boundaries of the counties. The school district selected for this study (District) is located in the capital city/county of the state. Often, when the state legislature is in session, the District serves as a sample of convenience for the entire population of school districts in the state. When in session, legislators often visit schools in the District rather than travel back to their home counties to observe the happenings and applications of practices in the field of

education. In addition, the District has high visibility with the State Department of Education whose main branch is located in the state capital. As with the state legislature, the State Department of Education often utilizes the District as a sample of convenience. The District is close in proximity to the State Department of Education and is viewed as being representational of many of the small and medium school districts in the state.

The District has had a history of promoting school administrators from the teacher and lower administrative ranks. For example, during the 2007-2008 school year, three principals and an assistant superintendent were needed to replace school/district administrators who had retired. In the end, all of the administrators who were hired came from within the District, except for one who was hired from an adjacent school district. This practice is longstanding in that the District has policies and procedures in place that facilitate vertical articulation of district employees. Because of this characteristic, the District's culture provided an important window to explore embedded beliefs.

Definition of Terms

Several terms related to data driven decision making and school improvement have specialized meanings and were important in reporting the data. Many of the terms are used commonly by educators and school administrators, but often with different meanings or interpretations. Therefore, the following terms are defined for the purpose of this study:

- Adequate Yearly Progress (AYP) – “An aspect of the federally mandated accountability system used to determine if schools are making progress toward narrowing the achievement gap, and in ensuring all students are proficient in the areas of mathematics and English Language arts by the 2013-2014 school year” (Nevada

Department of Education, 2007, p. 9). Schools that do not make AYP for one year are put on a Watch List. After two consecutive years of not making AYP, schools are labeled as being In Need of Improvement.

- Beliefs – The ideas, thoughts, and conceptions held by an individual about a specific topic.
- Cognitive Dissonance – The discomfort that one feels when they are forced to hold two competing cognitions (beliefs, attitudes, behaviors, etc.).
- District Administrator – The associate superintendent of educational services. This individual is responsible for all school improvement initiatives in the District.
- District leadership – Superintendents, associate superintendents, and others in positions of power at the district level that are able to initiate and mandate change.
- Educational Accountability – The process of holding schools/districts/administrators accountable for the success or failure of school improvement efforts.
- In Need of Improvement – “Refers to schools, districts, or states which have not yet demonstrated adequate yearly progress in the same area for two consecutive years” (Nevada Department of Education, 2007, p. 9). The In Need of Improvement label is publicly reported on school, district, and state report cards and carries the connotation that the school is failing.
- Red Cell – A school receives a red cell any time a subpopulation does not make AYP, based on participation or due to failure to meet a specified AYP target. Red is associated with being in need of improvement and has a negative connotation by the public. Red cells are publicly reported on school, district, and state report cards. One red cell or more results in a school not making AYP.

- Respondents – The eighteen school administrators and the one district administrator that were interviewed for this study.
- School Administrator – A principal or assistant principal of a school. These individuals are responsible for all school improvement initiatives in their schools.
- School Improvement – The process of raising the student academic achievement levels of all subpopulations covered by NCLB.

Limitations

This research was based on the following limitations:

- The interviews were conducted by an employee of the District. The employee did not have any supervisory authority but did work in a support position at the district level. Although the investigator did not have direct supervisory power, there is a possibility that the participants perceived the existence of indirect supervisory power.
- Only school principals, assistant principals, and the associate superintendent of educational services were interviewed. Other pertinent on-site educational leaders were not included which could be perceived as a form of selection bias. However, the focus was on school administrators, which did not include all school level leaders.
- The interviews were conducted over two months. Any events that occurred during this time could have impacted the interviews. For instance, an interview the day before test results were delivered from the state could be different for the same administrator if done on the day after test results were delivered from the state.
- The findings from the study pertain to the school district in which the study was conducted. While other school districts may use the results to inform their own decision making processes, the findings were not intended to be generalizable.

- With qualitative research, the possibility exists for an unintended interaction between the perspective and knowledge of the researcher and with how the data is gathered, interpreted, and shared. Because of this, all interviews were recorded and transcribed verbatim.

Summary

The focus of this study was to develop an understanding of the beliefs that school administrators held about the role of data in driving school improvement. In particular, the following question was addressed: What beliefs did school administrators hold about the role of data in driving school improvement? Within the environment of No Child Left Behind, the role of data driven decision making has become an important tool. This paper provides a summary of the study and is composed of five chapters. The first chapter includes an introduction to the research questions and makes a case for the significance of the study. The second chapter includes a review of the literature. The following topics are covered in detail: accountability in education, school improvement, current uses of data by school administrators, data driven decision making, the construct of beliefs, and cognitive dissonance. The role of federal and state actions to create a demand for continuous school improvement, documented proof, and corresponding data analysis are discussed. Therefore, a need exists to gain a deep understanding of the beliefs held by school administrators about the role of data in driving school improvement.

The third chapter includes a detailed description of the research methodology that was employed and contains discussion of the following: research design, description of the case, data collection, and data analysis. This exploratory case study design was

employed to construct an understanding of the beliefs held by school administrators in regard to the role of data to drive school improvement. The fourth chapter includes discussion of the three interrelated and reinforcing themes that emerged from an analysis of interview transcripts: (a) I'm sure we're doing the "right" things; if only I could show people, they would value us; (b) Although I am not comfortable with data, collecting it is the "right" thing to do; and (c) I accept being held accountable, but the way that it is being implemented is unfair.

In the fifth, and final, chapter, the research questions are addressed. In addition, the final chapter includes discussions of implications for practice and future research. In summary, this study suggests that the beliefs held by school administrators represent a significant barrier to school improvement. Until beliefs are addressed, traditional efforts to promote school improvement by means of accountability will be for naught.

CHAPTER TWO: REVIEW OF THE LITERATURE

This section contains a review of the literature that pertains to the use of data as a vehicle for school administrators to drive school improvement. In addition to the historical background of the current accountability movement, the following topics are covered in detail: accountability in education, school improvement, current uses of data by school administrators, data driven decision making, the construct of beliefs, and cognitive dissonance. To provide clarity, the review of the literature has been divided into seven sections. The first section is an overview of the events that have culminated in the current accountability era. Events covered include the Coleman report through No Child Left Behind. The second section provides background and definitions for accountability and standards. The third section includes coverage of school improvement with a particular emphasis on using data to drive continuous school improvement. An explanation of some of the current uses of data by school administrators is discussed in the fourth section. The fifth section includes a discussion of what has come to be regarded as data driven decision making. The sixth section includes a discussion on the construct of beliefs, and the seventh section a discussion of cognitive dissonance.

Historical Background

Lashway (2001) used an excerpt from a school clerk's notebook, which documented the dismissal of a school teacher, to describe the concept of educational accountability during the 19th century. From the notebook, Lashway discerned:

School boards in 1849 didn't demand much of their teachers – good moral character, an orderly schoolhouse, slightly more knowledge than their students – but when they were disappointed, they didn't hesitate to act. Accountability was

a simple matter: If the board judged that a teacher was not living up to expectations, it dismissed her. (p. 1)

In such instances, accountability was a matter of individual responsibility; therefore, such a dismissal would not be perceived as an indication that schools or teachers in general were in need of increased accountability. Teachers were held accountable for their own individual actions; they were not held accountable for the actions of the profession as a whole.

Today, the concept of accountability has changed drastically and possesses different meanings for different stakeholders: policymakers, teachers, parents, educational critics, etc. (Lashway, 2001). The concept of accountability has grown in complexity and is a major driving force in the current education era, yet is still in the process of being defined. Lashway raised the following questions that have yet to be answered in regard to accountability in education: “accountability from whom?” (p. 14), “accountability to whom?” (p. 17), “accountability how?” (p. 18), and “accountability for how long?” (p. 19). The first question – accountability from whom? – asks who should be accountable. Should accountability be expected of teachers, school leaders, students, parents, or all of these groups combined? Should certain groups be held more accountable than others? Is learning equally everyone’s responsibility? The second question - accountability to whom – asks whether or not educators are accountable to the state legislatures who control education or to the students who are the recipients of the knowledge provided by the educational system. Should educators be accountable to the concerns of the legislature, to the learning needs of their students, or others such as business leaders or future employers? The third question – accountability how? – is

focused on the methods used to measure accountability. Should the accountability system be based on punishment and rewards or intrinsically motivating factors? The fourth question asked how long accountability will be a driving force in education.

The Coleman Report: From Inputs to Outputs

The report entitled Equality of Educational Opportunity, better known as the Coleman Report, was published in 1966 and contained the language and vocabulary relating to the quality of public schools and accountability that is still used in the present day (Sloan, 2007). The authors of the report “sought to identify factors that influenced the achievement gap between white and black students” (p. 3). Before the study, the authors of the report were under the impression that the difference in achievement between black and white students could be explained by the gap in funding between better-funded and less-funded schools (Sloan, 2007). The authors believed that the achievement gap would be less significant in better-funded schools. The researchers were aware that if their preconceived notions were verified by the study, the results would have served as an impetus for the federal government to provide more funding for public schools.

The findings in the Coleman Report disputed initial assumptions made by the report’s authors (Sloan, 2007). The funding gaps between schools attended by black and white students were not as large as once thought. In addition, the authors of the report found that the level of funding was not as highly correlated with test scores as they had anticipated either. The conclusion of the Coleman report was that student achievement had little to do with the amount of school funding provided by the government but that the wealth of the households that students belonged to were more indicative of student

success. As a result of the Coleman report, the language used to discuss the quality of education changed from a focus on inputs to a focus on outcomes, or student achievement. Because of the focus on outputs, testing became more influential and widely used to measure student achievement.

A Nation at Risk: Birth of Current Accountability Movement

In 1983, the National Commission on Excellence in Education released a report that was commissioned by the Secretary of Education, T. H. Bell, which was highly critical of the quality of education in the United States (The National Commission on Excellence in Education, 1983). The report was written using alarmist language such as the following:

Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken throughout the world....If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. (p. 5)

The report provided five recommendations for reform of the educational system. The first recommendation was to increase school graduation requirements and provided guidelines for the number of credits that should be required in the subjects of English, math, science, social studies, and computer science. The second recommendation was that schools should adopt more rigorous and measurable standards and that 4-year colleges should adopt stronger admission requirements. The third recommendation was that more time be devoted to English, math, science, social studies, and computer science education. The fourth recommendation included seven parts, all of which were “intended

to improve the preparation of teachers or to make teaching a more rewarding and respected profession” (p. 30). The final recommendation was directed at all citizens and not just educators or elected officials. The recommendation asked for citizens to hold educators and elected officials responsible for implementing the other recommendations and to “provide the fiscal support and stability required to bring about the reforms” (p. 32).

The blame for the impending crisis discussed in *A Nation at Risk* was directed at incompetent teachers and lazy students (Sloan, 2007). Although the Reagan administration was unable to implement the recommendations from the report, many states followed the advice in the report and initiated more/new legislation and regulations pertaining to education than they had in the prior two decades. Since the publication of *A Nation at Risk*, “policymakers have steadily pursued the idea that schools must show better results, and school boards, administrators, and teachers have slowly come to realize that it is not just a passing fad” (Lashway, 2001, p. 175). Bowsler (2001) referred to the current accountability movement as a revolution which “would continue at least another 12 years” (p. 3) and which may even last for more than 50 years.

A Nation at Risk was a key factor in advancement of the standards movement and the current use of standardized testing. In reference to *A Nation at Risk*, Hayes (2006) stated that the report called “for ‘measurable standards’ as well as ‘standardized tests of achievement’ in the five basic subjects. It would be these recommendations that would eventually come to dominate the education reforms following the issuance of the *A Nation at Risk* report” (p. 64).

Goals 2000: The Standards Movement Gains Steam

After A Nation at Risk defined problems for the U.S. educational system, the Goals 2000: Educate America Act of 1994 (1994) served as a catalyst for standards based reform. The purpose of Goals 2000 was “to improve schools by providing national goals to ensure fair educational opportunities and high student achievement” (p. 3). The legislation supported “state efforts to develop rigorous standards to guide what every student should know and be able to do. The improvement efforts were focused on improving student achievement according to standards” (p. 4).

During the presidency of George H. W. Bush, the six original goals for Goals 2000 were published. Two additional goals were added during the Bill Clinton administration. The eight stated goals of the act cover the topics of school readiness, school completion, student achievement and citizenship, teacher education and professional development, mathematics and science, adult literacy and lifelong learning, safe, disciplined, alcohol- and drug-free schools, and parental participation (Goals 2000: Educate America Act, 1994).

No Child Left Behind: The Current Accountability Movement

After A Nation at Risk and Goals 2000, the groundwork was laid for the passage of the No Child Left Behind Act of 2001 (NCLB) (Sloan, 2007). Sloan (2007) explained that “the stated goal of NCLB is to boost academic achievement for all students and to close the historic achievement gap among students from different racial and economic backgrounds” (p. 16). The act included major provisions that cover testing requirements, teacher quality, parent involvement, scientifically based teaching methods, and public school choice. Darling-Hammond (2004) stated, “According to the legislation, too many [students] are attending failing or unsafe schools; too many receive poor teaching and are

performing well below potential; and too many are leaving all together. The bill intends to change this...” (p. 3).

NCLB legislation was passed with the bipartisan support of both Democrats and Republicans (U.S. Department of Education, 2004). Ted Kennedy, a Democrat from Massachusetts, and Judd Gregg, a Republican from New Hampshire, were the bill’s chief sponsors in the Senate; George Miller, a Democrat from California, and John Boehner, a republican from Ohio were the bill’s chief sponsors in the House. NCLB passed in the Senate with a vote of 87-10 and passed in the House with a vote of 381-41.

Although NCLB was passed with bipartisan support, the current legislation has many critics. Citing problems with NCLB, Neil (2004) argued, “Many education reformers believe that NCLB is a fundamentally punitive law that uses flawed standardized tests to label schools as failures and punish them with counterproductive sanctions” (p. 101). Neil went on to state that the law should be changed so that the focus is shifted to school improvement; a task which would truly leave no child left behind.

A Nation at Risk and Goals 2000 did not specifically address implementation or consequences for increased accountability; the enforcement of accountability was brought about by NCLB. Because of NCLB legislation, all states had to create accountability systems which:

- Set academic standards in each content area to show what students should know and be able to do.
- Collect data through tests aligned with the academic standards.
- Use test data to identify strengths and weaknesses in the system.
- Report school condition and progress to parents and communities.

- Empower parents to take action based on school information.
 - Celebrate schools that make progress.
 - Direct changes in schools that need help. Some examples are public school choice, supplemental student services like tutoring, after school help, and summer school.
- (Won & Lam, 2007, pp. 5-6).

Abernathy (2007) concluded that NCLB “is an imperfect vehicle, to be sure, but it is noble in its flaws, promising in its failures” (p. 150) and further commented that to fix NCLB, “we need to hold schools – or more accurately, those who run and operate them – accountable for factors that they can control and that matter to student achievement yet not hold them accountable for factors beyond their control” (p. 150). Although NCLB is a federal mandate, many of the provisions included for implementation and enforcement of the legislation have been left up to state governments.

Accountability and Standards in Education

Sloan (2007) identified the following assumptions that are the basis for current accountability policies:

- Greater transparency and visibility leads to increased accountability.
- Fear motivates schools and educators to change or make improvements in student achievement.
- Fear motivates students to achieve, for example, high stakes testing.
- Standardized tests are valid measures of school performance, quality teaching, and student ability.

As a result of NCLB, all of these principles are components of the current accountability era. To comply with NCLB, schools are required to have school, district, and state report

cards that document their successes and failures. If schools do not make adequate yearly progress, the public must be informed and the school is at risk of facing consequences which get more severe with each year that they are unable to make adequate improvement. These consequences are intended to promote improvements in instructional methods so that student achievement, as measured on standardized tests, will improve. In addition, high stakes assessments, such as those that must be passed in order to graduate, put pressure on students to perform better in school. In many states, the primary measurement of student achievement is standardized testing.

Foote (2007) summarized the relationship between standards, accountability, and NCLB as follows:

The basic premise behind ‘standards and accountability’ is quite simple. First, states determine which content and skills – the ‘standards’ – their students need to learn. Teachers then teach to these standards, and state tests measure whether students have indeed met them. Then various players are then held ‘accountable’ for the results as a wide range of punishments and rewards kick in. (p. 360)

If schools, districts, and states are unable to meet the challenge of teaching to high standards as measured by standardized tests, they will be subject to sanctions which get more severe with each year of failure. Along with the stick, carrots may be offered to counterbalance the harsh consequences. Some states and districts are willing to offer incentives, such as incentive pay, that are linked to student achievement (Foote, 2007). However, when results are not achieved, sanctions are often put into action.

Resnick (2006) identified the following four basic tenets that serve as the main elements of a standards-based education model:

- A public process is used to determine standards for what students should know and be able to do at earlier grade levels and upon high school graduation.
- Assessments aligned to the standards should be developed. Such assessments should provide clear targets that can be used by teachers, as well as students, to guide instruction and learning.
- Districts and school should enact instructional programs and professional development that are aligned with the standards.
- Accountability systems should be based upon whether students are meeting the standards that are publicly created and then assessed.

Standards are set and assessments are developed that align with the standards. Districts provide instruction that is aligned with the standards and the assessments. Schools and school administrators are then held accountable based on how well students perform on the assessments.

Internal Accountability

Although reform efforts such as NCLB are based on the principle of improvement through accountability, the same legislation may result in different actions by different schools, districts, and states. Schools implement accountability efforts based upon their own capacities and understandings of what exactly accountability means for their particular site. Elmore (2003) stated,

Schools construct their own conceptions about accountability – to who they are accountable, for what, and how. A common misconception of policymakers is the belief that policies determine how individuals and organizations think and act –

what problems they regard as important, how they organize themselves to work on those problems, what results they regard as evidence of their success (p. 195). As a result, all schools have varying degrees of internal accountability which is a key determinant in how they are able to respond to external accountability systems, such as NCLB. Elmore (2003) defined internal accountability as “the shared norms, values, expectations, structures, and processes that determine the relationship between individual actions and collective results in schools” (pp. 198-199).

State Standards

The proliferation of standards adopted by states and school districts is evidence of the growing consensus on how to improve schools. Schmoker (1996) posited that “goals drive us” (p. 18); but “unfortunately, most schools do not make the connection between goals, motivation, and improvement” (p. 18). Standards can be an influential component of a school improvement initiative but they can also be influential in hindering motivation and school improvement if they are not used appropriately.

Schmoker (1996) stated that “specific goals are the most vital ingredient of purpose. Improvement cannot occur without them” (p. 23). Without standards, an organization is unable to identify what exactly they are striving to achieve. In addition, without standards, they are unable to identify when, or if, they accomplished whatever they set out to achieve. Standards allow organizations to set goals and to assess whether, and when, those goals are achieved.

Schmoker (1996) further stated that “when specific goals do not exist, one-shot staff development or high-sounding programs often fill the void” (p. 26). Because specific standards are not in place, an evaluation of the impact of the professional

development or the school program is not possible. As a result, many students are forced to participate with a curriculum that is not linked to increased student achievement.

Student Centered Accountability

Reeves (2004) explained that “for many educators, *accountability* has become a dirty word” (p. 5) because accountability is often characterized by an analysis of test scores reported for groups of students despite the role of teaching which is “far more complex than what can be measured by students’ performance on a single test” (p. 5). As a result of the negative connotation associated with accountability, educators can “rail against the system, hoping that standards are a passing fad, or [educators] can lead the way in a fundamental reformulation of educational accountability” (p. 5). In essence, schools, districts, and states can wait for NCLB to go away or they can take charge of accountability as a means to improve the educational systems in their jurisdictions.

In order to refocus the scope of educational accountability, Reeves (2004) proposed that educators should move away from traditional approaches to accountability, which are characterized primarily by an examination of tests scores, and move in the direction of student centered accountability. In addition to test scores, student centered accountability includes “specific information on curriculum, teaching practices, and leadership practices” (p. 6) – both qualitative and quantitative – with a focus on the progress of individual students. Student centered accountability relies on data that pertains to teaching, leadership, curriculum, and parent and community involvement.

Student centered accountability is better than traditional accountability for teachers for three reasons; student centered accountability is more accurate, more constructive, and better for motivation of faculty and staff. Student centered

accountability provides a more accurate description of the progress of students by providing context for test scores. Inclusion of multiple accountability measures is a better indicator than reliance on one accountability measure, primarily a single test score. In addition, “because [student centered learning] focuses on the improvement of teaching and learning rather than merely rendering an evaluation and the publication of a report” (Reeves, 2004, p. 8), student centered accountability is more constructive and better able to result in improved teaching and learning. Student centered accountability gives faculty and staff control over the accountability system and can be motivating because, with traditional accountability, “an important source of the resulting teacher disengagement is a sense of futility and lack of control over the accountability process” (p. 9).

School Improvement

Plan, Do, Study, Act

Bernhardt (2002) stated, “A continuously improving learning organization understands the impact each process, procedure, and product has upon the other. In conjunction with evaluation data, the learning organization determines what to improve and makes those improvements on an ongoing basis” (p. 18). In order to meet the demands of the current accountability era, schools must transform and become learning organizations. Many acceptable practices today will not be acceptable tomorrow; therefore, schools must take proactive steps to implement continuous improvement efforts.

Jenkins (2003) stated, “Change is a neutral word; it can represent a positive or a negative. Improvement, on the other hand, is defined as positive change” (p. 7).

Schools, districts, and states cannot be content with merely implementing change. On the

contrary, such changes must be continuously monitored and evaluated to determine how improvements can be made that will result in positive school achievement.

Johnson (2002) stated, “The barriers to change – and the conditions that must be created to allow for change to take hold – are significant. But what must give us hope is that many schools have risen and continue to rise to these challenges, using data inquiries at every stage to inform their direction” (p. 10). Changes that result in positive gains do not happen automatically; on the contrary, such changes are intentional and happen with the input of school administrators.

Johnson (2002) identified five fundamental stages to the change process:

- Getting started: building the leadership and data teams....
- Killing the myth/building dissatisfaction....
- Creating a culture of inquiry: assessing where you are, why you are there, and what needs to change....
- Creating a vision and plan for your school....
- Monitoring progress. (pp. 11-12)

The first step that an administrator can take to implement a change process is to identify leadership and data teams. Such teams are necessary to guide the change process, to set a baseline, and to evaluate results. Data must be collected at the onset to determine whether or not change is necessary, and, if so, to identify the best strategy utilize resources to yield positive results. Questions must be asked, actions implemented, and the impacts monitored using data.

School administrators cannot be content with the current state of affairs; they must take proactive steps to improve. Tucker (1996) stated,

Regardless of what data tell you about how your school currently performs – whether you are very high or very low on the scale – everything in your school can get better and better. Every single process – learning, teaching, discipline, food service, assessment, professional development, and so forth – can be continuously improved by people working together using quality improvement methods. (p. xv)

The same quality improvement methods that have proven successful in the business sector can lead to success in schools as well. All schools, districts, and state educational systems have room for improvement.

School improvement is an intentional act that requires the use of data to establish baselines and to evaluate levels of success. Schmoker (1996) stated, “Regular monitoring, followed by adjustment, is the only way to expect success. History has demonstrated that translating theory into practice, though important, is not enough. We also need an ongoing concern with the real impact we are having” (p. 5). School programs, activities, etc. must be evaluated using data to determine how they can be improved or if they should be replaced.

One strategy used to implement continuous improvement in educational settings is Deming’s plan-do-study-act cycle. Jenkins, Roettger, and Roettger (2007) summarized the four steps of Deming’s plan-do-study-act cycle. During the planning stage, baseline data is collected, current data is analyzed, and an experiment (activity) is planned. During the doing stage, the planned experiment is conducted. In the study stage, data from the results of the experiment are analyzed. Then, in the act stage, two different actions may be taken depending on the outcome of the previous stage. If the experiment

was successful, action must be taken “to cement the improvement into the normal processes of the organization” (p. 28). However, if the experiment was unsuccessful, the cycle should begin with a new experiment, or a modification to previous experiment. Overall, the organization should be “always striving to make improvements” (p. 28).

The plan-do-study-act cycle is commonly used in educational settings; sometimes without the awareness of the educator who uses the cycle. Tucker (1996) stated,

Educators are not strangers to the Plan-Do-Check-Act cycle. They *plan* a lesson – *do* the lesson – *check* to ascertain whether students have learned the material – and *act* on that knowledge by moving forward or reviewing the lessons. It is easy for educators to understand this principle because it is used constantly in the classroom. (p. 73)

For schools to constantly improve, action must be taken to ensure that the cycle is implemented school wide so that all processes and activities can benefit from continuous improvement.

In regard to data driven decision making, Streifer (2002) stated, “Data-driven decision-making is just a set of tools – it is not an end in and of itself, and it must not be conducted in a vacuum. It should be practiced within the context and purpose of providing feedback for continual improvement” (p. 99). Data should be used by school administrators. However, data should not be used only to meet reporting requirements. Data should be used in an effort to maintain continuous improvement.

Strategic Planning and Improvement

Fidler, Edwards, Evans, Mann, and Thomas (1996) defined strategic planning as “the creation and implementation of strategy in response to and in anticipation of future

events and trends in the outside world....It consists of analysis, decision-making, implementation and evaluation” (p. 50). While discussing the knowledge base of school improvement, Fidler (2002) stated that the “two main constraints on change are likely to be: the reluctance of many staff to change their practices and acquire new skills and how to find ways of working together on change whilst also maintaining most current activities” (p. 4). In order to plan and implement change, school administrators must take proactive steps to minimize these two constraints. Change is not likely to occur or be maintained if teachers are unwilling or unable to modify their current practices. In addition, the outcome of the change may not lead to the anticipated results if the daily operation of the school fails to be maintained as a consequence of the new activity.

School improvement occurs at many levels in addition to the classroom; school improvement must be managed strategically and must emphasize that schools are “organisations with teaching (or, rather, learning) as their main purpose” (Fidler, 2002, p. 5) and not merely “collections of teachers” (p. 5). To be effective, school improvement strategies cannot focus primarily on the needs of individual teachers. School improvement must focus on the needs of the organization with input from individual teachers. As stated by Sallis (2002), “Strategy must be based around the various customer groups and their expectations, and from these develop policies and plans which can deliver the mission and progress the vision” (p. 122).

In addition to a focus on the organization, school improvement must be managed strategically. In order to implement effective strategic planning, Davies and Ellison (2003) recommended a focus on “futures thinking” which is developed through the facilitation of “futures dialogue” with the intention of building a “futures perspective” (p.

7). By looking to the future, a strategic thinker can anticipate the future landscape so as to move the strategic plan in the direction of least turbulence in an effort to increase positive outcomes. To implement effective and efficient strategic planning, school administrators cannot act as site level managers but must act as leaders who think to the future and who build the futures thinking capacities of all teachers.

Strategic planning, as a tool for school improvement, can be broken into three conceptual stages (Fidler, 2002). In the first stage, strategic analysis involves the use of internal and external scanning to determine the present and future context of the school and how those contexts impact the present and future school program. In the second stage, educators use their knowledge of those contexts to formulate strategic options to move the school in the direction of the school's vision and mission. Before any solutions are decided upon, the options are evaluated and discussed to determine which ones are most appropriate. The strategic leader encourages the teachers "to explore a range of possible alternatives before narrowing to specific goals and asks the team to be open-minded, and not to be defensive or justify present methods of operation" (Stone, 1987, p. 5). The third stage includes strategic implementation which is the process of implementing the strategic solutions over time, refining them, and then making "changes to structures and systems, staff and deployment of resources (Fidler, 2002, p. 86). Although the three conceptual stages are often implemented in sequential order, the strategic planning process is often more complex, and at times chaotic; therefore, there may be movement back and forth across the conceptual stages as experience and knowledge are gained during the strategic planning process.

Current Uses of Data by School Administrators

Fears Associated with Use of Data

Holcomb (2004) listed the following barriers to data usage in schools that he identified through personal research, personal conversations with school administrators, and district observations:

- Lack of (proper) training.
- Lack of time.
- Feast or Famine.
- Fear of evaluation.
- Fear of exposure.
- Confusing a technical problem with a cultural problem. (p. 27)

Many school administrators have yet to receive proper training on appropriate and efficient collection and use of data. As a result, they are often weary that collecting and using data will take up too much time, thereby taking away from other leadership activities. In regard to feast or famine, Holcomb (2004) explained that initially, school administrators do not feel as though they have any data; but when they dig deeper, they are often overwhelmed by the number of data resources at their disposal. In addition, teachers are often fearful that data will be used to punish them or to expose them, even when they are model teachers. The cultural problem alluded to by Holcomb is the isolation within which teachers work. Data analysis and monitoring requires teamwork, which is non-existent in many educational settings.

Johnson (2002) agreed with the assumptions of Holcomb (2004) and further added the fear of statistics when he stated,

Sometimes educators are afraid of showing the data, because they may be perceived negatively. Other times educators are simply plagued by a kind of phobia that suggests that you must be a statistician or mathematician to understand or work with data. Being overwhelmed and having “data overload” are also conditions that plague some schools and districts. (p. 35)

In regard to fear that school administrators have towards statistics, Creighton (2001) stated, “Statistics is not advanced mathematics. The majority of statistical analyses useful to the principal and teacher can be completed with a basic understanding of mathematics and involve conceptual understanding more than complex calculations.” (p. 2). Sometimes, statisticians are required to perform analyses of school data; however, these instances are rare. Most of the analyses, such as looking for trends, are well within the capabilities of individuals with only a basic understanding of mathematics.

Schmoker (1996) insisted that the primary reason that school administrators do not use data is out of fear; however, he did not cite any empirical research to make this argument. He asked, and then answered the following question: “Why do we avoid data? The reason is fear – of data’s capacity to reveal strength and weakness, failure and success....Data almost always point to action – they are the enemy of comfortable routines. By ignoring data, we promote inaction and inefficiency” (p. 33). By not using data, one is able to carry on with the status quo. But if one is to use data, the result is that action must follow, either in the form of termination of a program or improvement.

In addition, Schmoker (1996) stated that “fatalism feeds fear. Teachers have a limited confidence in their ability to ‘raise achievement’” (p. 33) and “in such a climate, any expectation for improvement seems unrealistic – and generates fear” (p. 34). Many

school administrators do not feel as though they are capable of improvement. Or, they feel as though they are not capable of improvement that is expected of them in the time frame that is required. As a result, many school administrators are fearful that data will not be of benefit to them or the schools under their control.

Many educators have been forced, or extrinsically motivated, to use data by means of legislation such as NCLB. As a result, many educators are not yet intrinsically ready to use data. Earl and Katz (2006) argued that using data for school improvement is a conceptual change for educators because

All of their past experiences form the basis for educators' beliefs about using data. Their views are a product of their ways of thinking and of what they have come to know. Human beings are all predisposed to preserve existing understandings of the world. We all attempt to make new things familiar by transforming them to be consistent with what we already know (or believe to be true). (p. 7)

As a result, many school administrators are fearful of changes associated with using data and with accountability. In some instances, data is used not as a means for school improvement or evaluation, but as a means to reinforce the status quo.

In general, when considering data driven decision making resources, many school administrators place emphasis on available hardware and software; however, people resources should be of paramount concern (Picciano, 2006). Picciano further stated that as in any technological endeavor, the people resources and staff development needed for using data effectively in decision-making activities are most important....Initial as well as ongoing training of all staff members who are expected to maintain and use the data systems is necessary. (p. 36)

Professional development for use of data cannot be a one-time activity; professional development must be an ongoing process and provide continuous support to individuals.

In addition to professional development, Schmoker (1996) stated that “goal-setting that uses data to monitor progress can be a threatening endeavor...and [practitioners] can reduce this threat without eliminating accountability” (p. 35) by doing the following:

- Not using data primarily to identify or eliminate poor teachers.
- Not introducing high stakes prematurely.
- Collecting and analyzing data collaboratively and anonymously by team, department, grade level, or school.
- Being cautious in implementing pay-for-performance schemes, especially in the beginning.
- Allowing teachers, by school or team, as much autonomy as possible in selecting the kind data they think will be most helpful.
- Inundating practitioners with success stories that include data.

If data is used primarily to eliminate underperforming teachers, all teachers will be distrustful and fearful of the process. Data should be used as a mechanism to facilitate improvement, promote motivation, and highlight growth. School leaders and teachers should work collaboratively on data analysis without fear of reprisals. In addition, teachers should be provided with autonomy to select what types of data are most useful to them and to determine which programs and activities to improve. At the very least, school administrators should provide teachers with examples of school success stories

that include data so that teachers can become more accustomed to less fearful uses of data.

Throughout the United States, and the rest of the world as well, accountability and the use of data are the core of reform efforts in education (Earl & Katz, 2006). Although data is at the core of education reform, “many school leaders find themselves caught in a ‘data dilemma.’ They mistrust data, they fear data, and many do not have the skills to use data wisely and effectively” (p. 3). These and similar reasons for the lack of the use of data have been shared in the literature; however, empirical research has not been conducted to validate such findings. This further illustrates the need for a study on the beliefs held by school administrators in regard to data driven decision making and school improvement.

Using Data to Meet Requirements

Creighton (2001) stated, “School districts across the nation collect and maintain many forms of educational data....However, most schools use the collection of these data to satisfy administrative requirements rather than to assess and evaluate school improvement” (p. 1). School report cards, a requirement of NCLB, are an example of how data is used for compliance rather than school improvement. The function of the report cards is to report how schools are doing but do not provide feedback as to how a school can improve. Data should be used to satisfy reporting requirements; however, the primary use of data should be a focus on school improvement. Levesque, Bradby, Kristi, and Teitelbaum (1998) agreed with Creighton (2001) and stated, “Most schools and school districts across the nation maintain a wide variety of educational data....Although

these data can serve many purposes, they are typically used to satisfy administrative requirements, rather than to support improvement efforts” (p. 1).

In regard to the reauthorization of the Elementary and Secondary Education Act, otherwise known as NCLB, Picciano (2006) stated, “Compliance with these new requirements, which is critical to education funding, will be almost impossible without an efficient and accurate data delivery and data analysis support system” (p. 5). However, school leaders must take data analysis to the next level and implement systems that support school improvement efforts. If such efforts do not occur, resources will be spent solely for the purpose of using data to meet administrative requirements.

Available Data Sources

Won and Lam (2007) identified three primary data sources: “student data, professional practice data, and school community perception data” (p. 8). Student data pertains to attendance and other forms of data associated with academic achievement. Professional practice data corresponds to data from teacher observations and professional development. School community perception data is composed of data from school culture and success surveys. Streifer (2002) added, “Addressing critical school improvement problems requires analyses across all three categories of data (inputs, processes, and outcomes) to fully understand the range of possible solutions and interventions that have a chance to succeed” (p. 8). Different types of data cannot be analyzed in a vacuum. On the contrary, all types of school data must be analyzed simultaneously to gain the best understanding of effective improvement strategies.

Bernhardt (2000) went further and identified four categories of data available to schools: demographics, student learning, school processes, and perceptions data. She then

stated, “Public schools cannot control who the students are, where they come from, or why they think the way they do. They can only control a portion of the student learning results – through their processes (i.e., programs, practices, and instructional strategies)” (p. 136). Of the four categories of data identified by Bernhardt (2002), schools have the most control over school processes data. Schools have no control over demographic data; the kid who walks in the door is the kid who walks through the door and the education system can do nothing to change his skin color, ethnicity, free and reduced lunch status, etc. In addition, student learning can be measured but is impacted by many components outside of school. Students learn from a multitude of sources; some knowledge is gained at home, on the streets, etc. However, school leaders have total control over school programs, practices, and instructional strategies. Like Streifer (2002), Bernhardt (2004) argued that all forms of data should be examined simultaneously and stated, “Analyses of demographics, perceptions, student learning, and school processes provide a powerful picture that will help us understand the school’s impact on student achievement...these measures give schools the information they need to improve teaching and learning and to get positive results” (p. 20).

Data Driven Decision Making

What is Data Driven Decision Making?

Picciano (2006) defined data driven decision making as “the use of data analysis to inform, when determining courses of action involving policy and procedures. Note the analysis is used to inform; it does not replace the experience, expertise, intuition, judgment, and acumen of competent educators” (p. 6). Data analysis does not supersede a school administrator’s expertise or judgment but rather serves as a compliment to make

better informed decisions. Streifer (2002) added school improvement to the definition and defined data driven decision making “as the process of selecting, gathering, and analyzing data to address school improvement or student achievement problems and challenges and acting on those findings.” (p. 8).

Leaders in Corporate America have been using data driven decision making to make critical decisions for decades (Streifer, 2002). Data driven decision making has been used extensively in the business sector where organizations are complex and have the need to make critical life and death decisions. Although the impact of educational decisions are not immediate – decisions affecting elementary students may not show an impact until high school – educational decisions are just as important. Streifer (2002) stated, “Schools are every bit as complex and dynamic as major corporations with respect to their need to analyze data and make ‘mission critical’ decisions” (p. 95).

The Need for Data Driven Decision Making

Wong and Lam (2007) defined data as “facts, simple and pure. Without data support, any statements, claims, or decisions for improvement will just be the opinion of yet another person” (p. xi). In regard to the use of data to make decisions in educational settings, Earl and Katz (2006) stated,

There was a time in education when decisions were based on the best judgments of the people in authority...Data played almost no part in decisions. In fact, there was not much data available about schools. Instead, leaders relied on their tacit knowledge to formulate and execute plans” (p.1).

Although this may have been true in the past, over the last several decades, the education field has become “awash with data” (p. 2). Coupled with the accessibility of computers

and technology, educators must now play catch up and find methods “to transform data into information, then into knowledge, and ultimately into constructive action” (p. 2).

Bernhardt (2000) made a case that data driven decision making should be part of the repertoire of school leaders:

In the last decade, we as a nation, spent billions of dollars on school improvement, with limited success. Most of the schools that successfully improved their organizations and increased student achievement scores can credit their successes to the use of data. (p. 113)

Appropriate data driven decision making can result in school improvement. In addition, data can be used to evaluate the impacts of programs, process, and funding on school improvement initiatives.

The use of data driven decision making can serve as an impetus to initiate and sustain improvement efforts. Johnson (2002) stated, “Properly used, data can be a compelling means of launching, sustaining, and institutionalizing a reform effort” (p. 35). Baseline data can be used to identify areas of strengths and weaknesses. In addition, when data use becomes part of the culture of a school, data can help to sustain improvement until the initiated reform effort becomes institutionalized. In regard to the link between data and sustainability of reform efforts, Bernhardt (2004) stated, “Schools that gather, analyze, and use information about their school communities make better decisions, not only about what to change but also how to institutionalize systemic change” (p.2).

School administrators can use data to facilitate school improvement rather than merely using data to fulfill district and/or state requirements. Earl and Katz (2006)

stated, “Making a move from accountability as surveillance to accountability for improvement situates educators as the prime consumers of data in order to make informed decisions” (p. 17). Rather than just meeting the reporting requirements of NCLB and other state statutes, improved achievement can result if school administrators use data to promote continuous improvement of student achievement.

Levesque et al. (1998) listed four reasons why a school should use data and develop a performance indicator system:

- Take charge of assessing your own performance....
- Identify strengths and weaknesses....
- Produce evidence of what improvement strategies are and are not working....
- Disseminate results to better inform the public about student learning and school performance. (p. 3)

Rather than rely on state standardized assessment results, schools should adopt, adapt, or develop aligned formative assessments. By assessing performance, schools and districts position themselves to better ascertain strengths and weaknesses. In addition, such school districts are better able to document practices that work in their schools and share successes with the public. For instance, the state standardized test scores may be lower than expected this year, but the school district may have formative assessment results that show growth and improvement.

Using Data

Earl and Katz (2006) stated, “Having data is a beginning, but it is not enough. Schools need to move from being data-rich to being information-rich and knowledge-rich as well” (p. 14). Schools must move beyond merely having access to information, data,

and must turn that information into knowledge which happens when data “is shaped, organized, and embedded in a context that gives it meaning and connectedness” (p.15). Data, in and of itself, is not beneficial; however, the appropriate analysis of data can help school administrators to gain a better understanding of where they have been, where they are now, and where they are headed in the future.

Unfortunately, many administrators only use data minimally for reporting requirements, other state requirements, and grants. Schools would benefit if administrators embraced data and proactively used data to drive improvement. If administrators fail to proactively use the current accountability system, they will continue to be held accountable to external forces and will not have input into the process. At the present time, many school administrators are at the mercy of state accountability processes. Schmoker (1996) offered the following warning, “By failing to supplement standardized tests with richer, more meaningful alternatives, we unwittingly invite our communities to use only test scores to judge us. We set ourselves up to be judged by an assessment that few of us believe to be adequate” (p. 70).

Earl and Katz (2006) suggested that in order for an individual to become a “confident consumer and user of data” (p. 17) the individual would need to

- Develop an inquiry habit of mind,
- Become data literate, and
- Create a culture of inquiry in their school community. (p. 17).

A school leader with an inquiry habit of mind does not make assumptions about outcomes, but rather allows for a variety of outcomes, and continuously searches for

better understanding and clarity. According to Earl and Katz (2006), data literacy refers to a thinking process – a process of:

- Standing back and deciding what you need to know and why.
- Collecting or locating the necessary data.
- Finding ways to link key data sources.
- Ensuring that the data are worth considering.
- Being aware of their limitations.
- Thinking about what the results mean...
- Systematically considering an issue from a range of perspectives so that you can really feel that you have evidence to explain, support, and also challenge your point of view. (p. 45)

School administrators are not the only individuals in a school who need to be data literate. The entire school community must have the capacity to understand, collect, and use data. A school leader must create a culture within the school by overcoming “the challenge of convincing everyone who works in the school of the merits of using data for productive change and creating the conditions in which data can become an integral part of school decision making” (p. 20).

Streifer (2004) identified the following skills that are necessary for successful data-driven decision making: knowledge of basic research skills, knowledge of the data resources available, database skills, and some basic understanding of statistics. In addition, Won and Lam (2007) provided the following outline to guide school improvement efforts that involve use of data:

- Where are we now?

- a. Data analysis (need assessment)
- Where do we want to go?
 - a. Vision
 - b. Goal Rationale
 - c. Improvement strategies
- How do we know when we get there
 - a. Evaluation (p. 111)

The framework provided by Won and Lam (2007) is similar to the steps for data driven decision making provided by Picciano (2006):

- Identifying a problem, issue, or alternative courses of action....
- State a question....
- Collect relevant data....
- Analyzing the data to answer the question and to select the course(s) of action. (p. 41)

Streifer (2004) also presented a framework for using data and thinking about questions/problems. The three stage framework is as follows:

- Stage I: How did our school do compared to others?
- Stage II: What specific [content] areas (and which students) contributed to our better performance?
- Stage III: Why did we do better? Can we predict? (p. 81)

The frameworks provided by Won and Lam (2007), Picciano (2006), and Streifer (2004) can be used independently or in combination as a means to use data for decision making and school improvement.

Beliefs

After a review of the literature pertaining to definitions of beliefs used in the field of education, Pajares (1992) defined the construct of beliefs in relation to the construct of knowledge as follows: “belief is based on evaluation and judgment; knowledge is based on objective fact” (p. 313). Therefore, beliefs can be subjective; they are dependent on the individual that holds them and on the environment in which that individual exists. Beliefs are personal. Beliefs are how one perceives reality in the world around them.

The construct of beliefs is important because they are linked to the construct of behavior. Beliefs are often consistent with behavior. For example,

A person who believes a college education is a good thing will very likely encourage his children to go to college; a child who knows he will be severely punished for some misdemeanor will not commit it or at least will try not to be caught doing it. (Festinger, 1957)

Therefore, an understanding of underlying beliefs can often lead to an explanation of observable behaviors. The underlying theory is that beliefs are often a root cause of observable behaviors.

Cognitive Dissonance

Festinger (1957) combined beliefs, attitudes, values, and behaviors into what he referred to as elements of cognition. Within an individual, these elements of cognition can be consistent or inconsistent with each other. For example, an individual’s belief that stealing was bad would be consistent with that individual’s behavior if the individual did not steal anything. However, if the individual were forced to steal something to eat, the individual’s belief and behavior about stealing would now be inconsistent. Festinger

(1957) defined the term dissonance to explain “the existence of nonfitting relations among cognitions” (p. 3).

Dissonance is a motivating factor (Festinger, 1957). An individual with two inconsistent cognitions will attempt to change one of the cognitions in an effort to remove, or reduce, the dissonance. Therefore, dissonance between a belief and another cognition, say behavior, will lead to the individual either changing the belief or changing the behavior. While holding two inconsistent ideas, the individual undergoes psychological discomfort. As a result, cognitive dissonance leads to the following:

- The existence of dissonance, being psychologically uncomfortable, will motivate the person to try to reduce the dissonance and achieve consonance.
- When dissonance is present, in addition to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance.

(Festinger, 1957, p. 3)

When dissonance is present, an individual will attempt to reduce the dissonance. Stanley (1968) identified five means of reducing dissonance in the field of counseling:

(a) The individual can change his opinion to that of the communicator; (b) he can discredit the communicator and thus reduce the importance or cognitive weight of the communicator’s assertions; (c) he can devalue the importance of the issue which reduces the cognitive weights of both positions, and thus the absolute amount of dissonance created by their incompatibility; (d) he can attempt to change the communicator’s opinion and, if successful, eliminate the discrepancy; and (e) he can seek to add cognitions consonant with his opinion and thus reduce the relative cognitive weight of the communication. (p. 216)

Summary

Legislation and practices such as No Child Left Behind (NCLB), State Senate Bill 1, and the SAGE process will externally drive accountability and increase expectations and focus on school improvement. Such federal and state actions have created a demand for continuous school improvement, documented proof, and data analysis. Although appropriate analysis and use of data are fundamental components of school improvement, many school administrators do not use data to make effective decisions. Some have speculated that these shortcomings are the result of fear, lack of time, or nonexistence of training; however, empirical evidence necessary to verify such assumptions has yet to be fully documented. Therefore, a need exists to gain a deep understanding of the beliefs held by school administrators about the role of data in driving school improvement.

CHAPTER THREE: RESEARCH METHODOLOGY

The purpose of this study was to construct an understanding of the beliefs that school administrators held about the role of data in driving school improvement. This section outlines the methodology that was used to guide the research. The following topics are discussed in detail: research design, description of the case, data collection, and data analysis.

Research Design

For this research, an exploratory case study design was employed to gain an understanding of the beliefs held by school administrators in regard to the use of data as a vehicle to drive school improvement. Case study research can be identified as exploratory, explanatory, or descriptive (Hancock & Algozzine, 2006). Because the nature of this particular study was not to identify cause and effect relationships, rather to gain insight into the beliefs held by school administrators about data and school improvement, this case study was considered not explanatory. If the purpose of the case study was to provide “a complete description of a phenomenon within its context” (p. 33), the study would be classified as descriptive. However, a complete description of the phenomenon would be all-encompassing and would cover extraneous information that was not necessary to answer the guiding research question. Therefore, this case study – to gain insight into the beliefs held by school administrators about the role of data in driving school improvement – was exploratory.

During the course of this study, the inquiry was guided by the following overall research question: What beliefs did school administrators hold about the role of data in driving school improvement? Yin (2003) identified the importance of propositions in

case study research; propositions “direct attention to something that should be examined within the scope of study” (p. 22). In order to answer the overall research question, the following research questions were addressed:

1. What beliefs did school administrators hold about “school improvement” as a concept?
2. What beliefs did school administrators hold in regard to externally driven demands for accountability?
3. What beliefs did school administrators hold in regard to the relationship between data and school improvement?

Before the overall research question could be answered, data was collected on the beliefs held by school administrators on school improvement, externally driven demands for accountability, and the relationship between data and school improvement.

Description of the Case

Although case studies have been defined in terms of a process, a bounded system or unit, and an end product, Merriam (1998) “concluded that the single most defining characteristic of case study research lies in delimiting the object of the study, the case” (p. 27). For this dissertation, the case included all of the school administrators and one district administrator in one school district. A school administrator is defined as a principal or assistant principal of a school. These individuals are responsible for all school improvement initiatives in their schools. A district administrator is defined as an associate superintendent of educational services. This individual is responsible for all school improvement initiatives in the District. The number of respondents involved in the study was a finite number, 19, and they were bounded based on their employment

with the District. The research participants included six elementary principals, five elementary assistant principals, four secondary principals, three secondary assistant principals, and one associate superintendent of educational services. All of the school administrators were supervised by the associate superintendent of educational services. The school administrators and the associate superintendent of educational services were directly responsible for the climate regarding school improvement in the District.

The setting for the study was a medium-sized school district in a Western state; the District was located in the state capital. At the time of the study, the State Annual Report of Accountability indicated that the District served 7,929 students during the 2008-2009 school year (Nevada Department of Education, 2010). Of those students, 242 were identified as American Indian/Alaskan Native, 232 as Asian/Pacific Islander, 2,736 as Hispanic, 109 as Black, and 4,610 as White. In addition, 909 students were identified as IEP students, 2,974 as students who receive free or reduced lunch, and 1,322 of the students were considered limited English proficient.

At the time of this study, the District operated six elementary schools, two middle schools, one regular high school, and an alternative high school. Each elementary school had one principal, four of the elementary schools had a vice principal, and two shared a vice principal. Each middle school was led by a principal and a vice principal. The regular high school was led by a principal and two vice principals, and the alternative high school was led by one principal. All of the school administrators in the district were supervised by the associate superintendent of educational services.

According to the Core of Common Data (National Center for Education Statistics, 2007), the District was defined as a Small City – “a territory inside an urbanized area and

inside a principal city with population less than 100,000”

(<http://nces.ed.gov/ccd/commonfiles/localedescription.asp#NewLocale>). Prior to 2006, before the codes used in the Common Core of Common Data were redefined, the District was defined as a Mid-Size City – “A central city of a Census-designated Metropolitan Statistical Area or a Metropolitan Statistical Area, with the city having a population less than 250,000” (<http://nces.ed.gov/ccd/commonfiles/localedescription.asp#OldLocale>). The District is located in the capital of the State and the city limits correspond with the county limits and school district boundaries.

Data Collection

For this study, semi-structured interviews were used to collect data. The interviews were conducted in the respondents’ offices at school sites during regular business hours. The interviews were conducted during December of 2008 and January of 2009. Each interview lasted approximately one hour; however, the length of time varied for each interview. Interviews were scheduled in advance to accommodate the needs of respondents. The interviews were audio recorded using a digital recorder and then transcribed verbatim.

In regard to legal and ethical requirements, the research was conducted under the auspices of the University Institutional Review Board (IRB). In addition, the research was conducted with the approval and support of the District. If this study were not completed as partial credit toward the degree of doctorate, the study would have still been performed for the District as a matter of normal business operation.

Hancock and Algozzine (2006) identified five issues for successful interviews:

- Identify key participants.

- Develop an interview guide.
- Consider the interview setting.
- Develop a way to record the interview.
- Adhere to legal and ethical requirements.

For this study, the key participants were “whose knowledge and opinions [provided] important insights regarding the research questions” (p. 39). Semi-structured interviews were conducted with 19 respondents who were responsible for all of the school improvement initiatives in the District: six elementary principals, five elementary assistant principals, four secondary principals, three secondary assistant principals, and one associate superintendent of educational services. An interview guide based on suggestions provided by Rubin and Rubin (2005) was utilized to conduct the interviews.

The amount of structure used to conduct interviews can be viewed as a continuum with highly structured/formal interviews on one extreme and unstructured/informal interviews on the other (Merriam, 1998). Somewhere in the middle of this continuum would be the location of semi-structured interviews where “either all of the questions are more flexibly worded, or the interview is a mix of more and less structured questions” (p. 74). Semi-structured interviews allow enough structure to collect specific information from all participants and enough flexibility that “allows the researcher to respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic” (p. 74). Semi-structured interviews compliment case study research well (Hancock & Algozzine, 2006) and “invite interviewees to express themselves openly and freely and to define the world from their own perspectives, not solely from the perspective of the researcher” (p. 40).

The interview protocol was grounded in the framework that “interviews are designed around a balance of main questions, follow-up questions, and probes” (p. 152). The main questions elicited the information that was pertinent to answering the research questions associated with the study. When the information provided in regard to a main question was not sufficient to answer the question, probes were used to “help manage the conversation by regulating the length of answers and degree of detail, clarifying unclear sentences or phrases, filling in missing steps, and keeping the conversation on topic” (p. 164). For example, when more information was needed than acquired during the interview, participants were asked follow up questions.

Interview Guide

Slight variations occurred in the actual questions asked and in the order; however, the same general themes were covered in each interview. The first set of questions revolved around the themes of school background and personal experience. The following are examples of questions that were asked (numbers correspond to questions and bullets correspond to probes):

1. Tell me about your school.
 - Students.
 - Teachers.
 - Community.
2. Tell me about your professional history.
 - How did you end up becoming an administrator?
 - How did you end up in the District?

The purpose of the first set of questions was to build rapport with the respondents and to develop some background for the settings in which the participants work.

The second set of questions revolved around the theme of externally driven accountability. The following were questions that were asked:

3. You are in a unique situation. The District is often put under the microscope by the legislature, the State Department of Education, and community members, parents, etc. How does this make you feel?
 - When someone wants to visit your school, what do you show them?
 - When they leave your school, what do you want them to know?
4. Let's talk about accountability. What do you think about the current system?
 - If you could change anything about the current system, what would you change?
 - If you could create a new system, what would it look like?

The purpose of the second set of questions was to find out what the respondents believed about externally driven demands for accountability in education.

The third set of questions revolved around the theme of the participants' experiences with the collection and use of data. The following are examples of questions that were asked:

5. It seems that data has become the new buzz-word in education. What is data used for at your site?
 - Do you use any perceptions data at your site? How?
 - Do you use any data on program/intervention implementation? How?
 - If you were to receive your state assessment results today, explain what exactly you would do with them.

- Who else do you involve?

The purpose of the third set of questions was to gain background on the types of data that were collected and used by the respondents and to gain an understanding of the processes used by respondents once data was available.

The fourth set of questions revolved around the theme of school improvement and how school administrators reacted when assessment results were not positive. The following are examples of questions that were asked:

6. If you were to get your assessment results back today and you had a red cell on your school report card. How would this make you feel?

- What would you do?
- How would you share this information with your staff?
- What steps would you take the following year to improve the red cell area?

The purpose of the fourth set of questions was to gain an understanding of how the respondents would react if assessment results were not high enough to meet the requirements of No Child Left Behind (NCLB).

Data Analysis

The verbatim transcriptions of the interviews were analyzed using a modification of the Van Kaam Method recommended by Moustakas (1994). The seven steps for analysis were as follows:

1. Horizontalization.
2. Reduction and elimination.
3. Clustering and thematizing the invariant constituents.
4. Validation.

5. Construction of individual textural descriptions.
6. Construction of individual structural descriptions.
7. Construction of individual textural-structural descriptions.

In the first step, horizontalization, “every expression relevant to the experience” (Moustakas, 1994, p. 120) of the participant was listed. This involved reading each interview transcript and listing the ideas, thoughts, or concepts that were shared by the respondents. Each individual transcript was read several times to develop an overall understanding of the beliefs and ideas held by the respondents. Second, invariant constituents were determined by means of eliminating horizons which were not necessary for understanding and reducing “overlapping, repetitive, and vague expressions” (p. 121). This process involved coding each transcript with the general ideas identified in the first step. It was at this point that the three final themes began taking shape.

Next, the core themes of the experience were identified by clustering and developing corresponding labels of the invariant constituents. The unique horizontalizations that remained were clustered and labeled to form invariant constituents. Clusters were analyzed, compared, and contrasted until the final themes emerged that best captured the essence of the interview transcripts.

Once core themes were identified, validation was confirmed by comparison of the themes with the transcription of the participant. The core themes were read alongside each interview transcript to ensure an appropriate fit. The comparisons were made between the core themes identified in the previous step. For example, results were compared to determine that the most appropriate themes had been identified. Appropriate is defined as the best fit for capturing the overall essence of the transcript.

Once validation was complete, individual textural descriptions were created for each participant. The textural descriptions provided a detailed explanation of the “what” of the experience and “[included] verbatim examples from the transcribed interview” (Moustakas, 1994, p. 121). This was performed for each respondent. These textural descriptions included all of the information that was necessary to capture what was stated by the individual but did not include repetition or information that was superfluous. These textural descriptions were once again compared to the original transcripts to ensure that nothing was overlooked or inappropriately added by the investigator.

Once textural descriptions were developed, the next step in the analysis process was to create structural descriptions. Structural descriptions identified the “how” of the experience and “[provided] a vivid account of the underlying dynamics of the experience” (Moustakas, 1994, p. 121). The structural descriptions took the most time to construct. The textural responses were read and analyzed for deeper meaning. Each time the analysis was performed, more and more meaning emerged for each respondent. This process was repeated until as much of the deeper meaning behind the textural descriptions was mined as possible by the investigator.

The final step in the analysis was to construct a textural-structural description for each respondent. These textural and structural descriptions were combined for each respondent. This process was less difficult than the previous step due to the amount of time that was spent on both the textural and structural responses. The textural and structural descriptions appeared to blend together well.

After a textural-structural description was developed for each respondent, a “Composite Description of the meanings and essences of the experience, representing the

group as a whole” were developed (Moustakas, 1994, p. 121). This step was facilitated by means of NVivo qualitative data analysis software. The use of the software enabled data management.

Validity and Reliability

Yin (2003) described four tests that are “commonly used to establish the quality of any empirical research” (p. 33), including case studies. The four tests are used to assess construct validity, internal validity, external validity, and reliability. In addition, the author went further and provided strategies to conduct the four tests when a case study research design is used.

Yin (2003) provided three tactics to provide for construct validity: use multiple sources of data, establish a chain of evidence, and have the draft case study report viewed by key informants. Yin (2003) has characterized the chain of evidence, in regard to case study research as a means to “allow an external observer – in this situation, the reader of the case study – to follow the derivation of any evidence, ranging from initial research questions to ultimate case study conclusions” (p. 105). By providing a chain of evidence, the reader is able to observe that there is alignment with the interview questions, methodology, and conclusions. A copy of the interview guide and a description of the methodology used to analyze the data provide this chain of evidence. Thus, the reader is able to assess the alignment of all aspects of the study. Key informants were asked to review the textual responses that were prepared from the data from their interviews; however, they were not given copies of their structural responses. By providing the key informants with their textual responses, they were given the opportunity to suggest corrections or to inform the researcher of inconsistencies or omissions.

If the case study at hand had been explanatory, rather than exploratory, action would have been needed to control for internal validity. However, Yin (2003) stated that “internal validity is only a concern for causal (or explanatory) case studies in which an investigator is trying to determine whether an event x led to event y ” (p. 36). Because this particular study was exploratory, internal validity was not considered.

An analysis of external reliability – whether the results can be generalized to other settings – could be tested by replicating the case study for other school districts. When multiple cases are examined, Yin (2003) contended that “this replication logic is the same that underlies the use of experiments (and allows scientists to accumulate knowledge across experiments)” (p. 37). For this particular study, action was not taken to ensure external reliability. This case study was intrinsically motivated and the primary focus was to understand how school administrators in the District understood the role of data in driving school improvement; therefore, generalization to other settings was not a priority.

The purpose of the test for reliability “is to be sure that if a later investigator followed the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions” (Yin, 2003, p. 37). In this study, peer checking was conducted with two university professors at each step of the analysis process beginning with the conduction of the interviews. Both professors were familiar with the study. The purpose of these checks was to ensure that investigator bias had not entered into the original analysis.

To make a case study reliable, detailed information must be provided as to how the data was collected and analyzed. The methodology and results sections of this

dissertation provide enough information “so that an auditor could repeat the procedures and arrive at the same results” (p. 39).

Although the test for reliability was not crucial for this particular case study, steps were taken to increase the degree of transferability as defined by Lincoln and Guba (1985). According to the two authors, case study research should include a thick description of the context in which an inquiry is conducted so that others who wish to transfer the results of the case study to a different context are able to assess the degree of transferability. The description of the context is important because “the degree of *transferability* is a direct function of the *similarity* between the two contexts” (p. 124).

Summary

An exploratory case study design was employed to construct an understanding of the beliefs held by school administrators in regard to the role of data to drive school improvement. The focus of the study was school administrators and the associate superintendent of educational services in the District. Data was collected using semi-structured interviews and was analyzed using a modification of the Van Kaam Method. When necessary, measures were taken to ensure the validity and reliability of the study.

CHAPTER 4: RESULTS

Three research questions guided this study:

1. What beliefs did school administrators hold about “school improvement” as a concept?
2. What beliefs did school administrators hold in regard to externally driven demands for accountability?
3. What beliefs did school administrators hold in regard to the relationship between data and school improvement?

Semi-structured interviews were conducted with 19 respondents who were responsible for all of the school improvement initiatives in the District. Three interrelated and reinforcing themes emerged from an analysis of interview transcripts: (a) I’m sure we’re doing the “right” things; if only I could show people, they would value us; (b) Although I am not comfortable with data, collecting it is the “right” thing to do; and (c) I accept being held accountable, but the way that it is being implemented is unfair. This chapter describes in detail each of the three themes. The research questions are addressed in Chapter 5.

**I’m sure we’re doing the “right” things;
if only I could show people, they would value us.**

The respondents consistently indicated that schools under their supervision were doing the “right” things. For these respondents, right primarily reflected appearance: safe and friendly schools and hard working teachers. One respondent summed it up: “It’s a caring, friendly, nice place, a safe place for kids to be, and [the students] are learning. They’re engaged and having fun doing it.”

Many of the respondents focused on providing a safe place for students. They stated that meeting the basic physical needs of students was necessary to remove barriers to learning. Students cannot learn if they are not safe or if their basic needs are not being met. One respondent stated:

This is a place where the children are safe, where they can develop a level of learning, where they can have their needs met, whether it be by safety or by physical needs, we will provide them with help to find food, or clothing, or something. If the student's hungry, they can't learn. If they're not well clothed and warm, they can't learn.

Almost all of the respondents also expressed that a positive school climate was extremely important. This sentiment was expressed by one respondent who described the school as follows:

It's a positive environment, the teachers are working their tails off, everybody supports each other, and I think that these are things that are evident, when people come in...it is student centered, that it's not chaotic, you don't hear kids screaming in the hallways or in the classrooms...you don't hear teachers screaming at kids.

Indeed, many of the respondents expressed that their schools were well managed, (e.g. kids not screaming in the hallways), which facilitated the learning process. Many of the respondents took the concept of school climate further and stated that schools needed to be welcoming places for students. One respondent shared,

I want [people] to realize that this is a very welcoming school. We care about kids. We know we have a lot of special needs students, but we feel we do a

good job at that. This is our job and this is our role and we will go the extra mile, anytime to do that.

Another focus of this theme was how hard teachers work. One respondent stated, “We have a really dedicated staff and they work really hard” and then went further and added, “I mean, every school, all teachers work hard, but this staff is really... You know, today, I didn’t go to the Professional Learning Communities and they continued without me, you know. That just speaks to the dedication of the staff.” Another respondent stressed that “the teachers work hard. They are hard workers, they want these kids to succeed....My teachers work hard and they don’t waste time.” Another respondent further explained, “We have a hard working staff that are very knowledgeable at what they do and that they are causing the kids to show great improvement.” The respondents repeatedly stressed that teachers were working hard and this was having an impact on the learning of students.

The second component of this theme was that respondents believed that visits by external stakeholders would enable them to see that the right things are occurring at the schools. Almost all of the school administrators stated that such visitations would provide opportunities to showcase their schools and to inform the public of the current state of education in their buildings. Indeed, the respondents expressed the belief that external stakeholders could not form accurate opinions about schools without actually *stepping foot* into the building. One respondent summarized this sentiment when discussing state legislators:

I’ll be honest. I wish that I would see more legislators in the actual buildings because I think, sometimes they assume that they know what’s going on in the

building, but I don't think they truly do. So, I don't think they take advantage of it as much as they should. And I think if they came in and actually saw what was happening, they could maybe make a little more, you know, informed decision making.

For these respondents, an accurate opinion of school success or failure could only be accomplished by visiting a site to observe the day-to-day happenings and operation. Further, the respondents expressed a desire for a personal relationship with people who could affect their schools. Their rationale was that they could personally show stakeholders that they are doing the right things. Respondents consistently posited that test scores on state assessments were not an accurate assessment of what was occurring in the schools.

Although respondents stated that they welcomed visits by external stakeholders, they were disappointed that such visits did not occur more often. One respondent expressed this feeling, "You know, we don't actually have that many visitors. I have to say, since I've been principal, we've had very few and that I would like to have more."

Many of the respondents stated that visits were important so that external stakeholders could see safe and friendly schools, as well as teachers working hard. In addition to visitors seeing the good work being undertaken at the school, visitations would be the only way outsiders could *feel* the school climate. One respondent stated that upon arrival, "one of the first things [visitors] always say is that there's just a good feel about the school. And I truly believe you can get a feel for the school just by walking in the front door." Respondents repeatedly reported that this feeling could only be experienced first-hand; it could not be measured by standardized tests.

In addition to wanting visitors to experience the positive school climate, almost all respondents expressed a desire to share with visitors what really happens in the classroom. The respondents placed emphasis on the delivery of instruction and classroom management. Some stated that they like to take visitors to see high performing teachers and unique programs. Individual classroom visits were considered a powerful communication tool.

Overall, respondents expressed that a primary benefit of school visits was to demonstrate that administrators and teachers are doing what is expected of them and working hard.

**Although I am not comfortable with data,
collecting it is the “right” thing to do.**

Respondents repeatedly stated that although data is necessary to guide school improvement efforts, many added that they were not comfortable with data. A respondent exclaimed, “Crap, I don’t know data!” upon realizing that decisions were to be made based upon data. Many stressed that they were not *data people* or expressed fears about data. For instance,

I struggled with data because I never really was a data person. My own personal education is that I struggled in math and those types of things. I had to work very hard to pass my classes in college and no one really [thinks] that when you’re going to become a principal that you’re going to have to learn about standard deviations and norms and all these cut scores and all that.

Another respondent expressed a similar fear of data, “Well, the first thing that I think of when I think ‘data’, I think numbers and statistics and how am I going to understand it

and because I never had any training in any of that.” For the most part, respondents expressed fear in using data due to lack of training and / or education.

For some respondents, data and use of data was understood only in terms of statistical analysis. For example, some respondents associated data with standard deviations and norms. There was a perception that one had to be an expert in mathematics to truly understand and use data. Some of the respondents viewed data in simpler terms, but most still associated data purely with numbers. Most of the respondents did not associate qualitative data with data driven decision making.

Respondents indicated that they relied on other school personnel for varying degrees of assistance to understand and use data. For example, one described the need for disaggregating data and explaining it in lay terms. Others expressed the need for assistance in consistent interpretation of the data. The list of potential individuals was dependent on the expertise available at the school sites, (i.e. other administrators, coaches, coordinators).

Almost half of the respondents also relied upon the support that they received from the District Office, the Western Nevada Regional Training Program (WNRTP), and other external sources. One respondent expressed, “I think it is crucial that the District gives us support” because “I need to be able to go to somebody [and say,] ‘Give me the data on this! I don’t have time to do it! And then, explain to me and help me go through [the data] because they don’t teach you how to do it in college and when you do your masters.’ It’s on-the-job training.” Indeed, the need for training both school personnel and administrators was expressed by almost all of the respondents.

The exceptions were respondents who had prior experience or training outside of school administration. These individuals expressed less fear of data and use of data than their counterparts who were trained or worked exclusively in the field of education as school administrators. For example, one respondent with outside experience stated, “I’m from the business world originally, so everything you do is based on information that you collect and how you use it. [Data driven decision making] is based on the philosophy that I gathered from the private industry and then brought it with me here into public education.” The impact of prior work experience or training made these respondents more accepting of the concepts of data driven decision making.

The second component of this theme was that the respondents collected data because they believed doing so was the right thing to do. In particular, respondents indicated that all school improvement efforts should be guided by data; data was one of the components of sound decision making. However, data was not necessarily considered the *be-all, end-all* but definitely was considered to have a place in the arsenal in school improvement. One respondent summarized the use of data at his/her site as follows: “There are many other things we’re looking at as well, but...one of the key ingredients in the improvement at [my site], there’s no doubt, the better use of data.” A majority of the respondents stated that they believed that data driven decision making was important, or as one respondent stated “as I evolved as a more effective instructional leader in my school, data does have a purpose. It has a very strong purpose.”

One of the values of data, according to some, was that data is useful for taking the subjectivity out of decision making. One respondents summarized this objectivity as follows:

The great thing about data is, it takes the subjectivity out of it, you know. You're looking at a set of numbers and you're no longer looking at that little kid's face, you know. It kind of takes that subjectivity out of it. You don't quite have the emotion involved in it as you do when you are face to face with somebody. And I think that's important.

Data also provided *cover* when making difficult decisions. In these situations, the decisions were not thought to be based on the personal beliefs of the respondent; rather the decisions were based on what "the data shows to be the best course of action." This allowed the respondent to take action that might otherwise be unpopular.

The respondents shared that they collected numerous types of data because they felt doing so was an expectation of the District Office or the State Department of Education. These data included classroom observations, professional development reports, individual program reports, surveys, etc. However, some stated that they were unsure about the purpose of these various data sources.

The concept of *drilling down* into the data was stated repeatedly. Drilling down had a different interpretation for different respondents. For example, some drilled down only to see which subpopulations had red cells (i.e., failed to meet proficiency benchmarks). Others drilled down to see what concepts individual students failed to master. No matter how far they drilled down, almost all of the respondents focused on red cells as the basis for school improvement plan development.

Two respondents, both at the same site, explained that they integrated data from multiple sources (as opposed to drilling down) at the end of the year. The process is summarized below:

I took the data and the last early release day of the year I took the CRT data, those printouts that show the percent and the different cognitive [levels] and all that and I took the MAP data and I took a whole bunch of other data and I just kind of divided that up and...I had the teachers go through the data and prioritize and see what the data was telling them.

At the other sites, decisions were made primarily using state assessment results and/or teacher perceptions. Some respondents shared that data is a piece of a bigger puzzle that could be used to get a better grasp on what is truly happening in a school. However, the respondents believed that some data – especially state assessment data – was much more valuable than other sources.

**I accept being held accountable,
but the way it is being implemented is unfair.**

Respondents acknowledged that NCLB has led to increased accountability and increased student achievement. Their statements reflected an appreciation that the legislation has forced educators to consider all students, including historically “ignored” subpopulations. One respondent explained, “I think a lot of administrators, schools, and districts needed a swift kick in the butt.” This comment characterized the feelings of most respondents that NCLB served as an impetus for improvement.

Almost half of the respondents expressed that they believed that the law forced school administrators and school personnel to pay attention to subpopulations with unique needs. This belief was shared by one respondent who stated, “I think the accountability system is good. I think it’s good to look at sub-pops. I think that something was lacking, at least in the State, and maybe nationwide.” Some respondents

expressed that prior to NCLB, some subpopulations (e.g., students eligible for free and reduced lunch, limited English proficient students, students receiving special education, and ethnic and racial groups) were overlooked because aggregated assessment results did not indicate lack of proficiency.

Some respondents stated that the focus on subpopulations is the most favorable component of NCLB. One respondent explained that “the best thing to me about this law is that we’re looking at every kid. I mean, I think it’s really important that we are looking at those subgroups and how they’re doing and that was something that, when I was [at the District Office], I was always concerned about.” NCLB forced school administrators to look at subpopulations that might otherwise have been overlooked.

However, they were also conflicted with the demands of NCLB. On one hand, they expressed that disaggregating data for small subpopulations was important; however, two thirds of the respondents expressed that NCLB treated schools unfairly when very small numbers of students failed. About half of the respondents stated that their school had not achieved Adequate Yearly Progress (AYP) because of one or two students.

Furthermore, one respondent shared that NCLB had helped schools focus on limited English proficient students and students receiving special education services, “but the assessment itself is just not appropriate for all of those kids.” In the view of about half the respondents, the law brought needed attention to certain subpopulations, but did not provide assessments that were suitable to accurately assess such subpopulations. Therefore, in the eyes of well over half of the respondents, the accountability outcomes

for limited English proficient students and students receiving special education services were not valid.

For some respondents, the accountability system was not only invalid for some subpopulations; the targets appeared to be unrealistic. One respondent described the impossibility of students receiving special education services meeting annual targets as follows: “at my school, at this school, I have children with IEP’s [students receiving special education services] who cognitively are functioning two grade levels or more below...They are never going to pass that test. They’re never going to meet at their grade level. They’re not, you know.”

About a third of the respondents were convinced that some of their students will never be proficient. For instance, one stated, “you know, just pragmatically, it doesn’t make much sense just to say that every child, 100%, is going to be on grade level in 12 years. Well, how can that be? You know? That’s just. It’s statistically impossible.” Another stated the same sentiment, “So, eventually, it is a system set up for failure. So, eventually, we will probably fail, along with everybody else in the country because given 100%...it’s not possible.”

Almost two-thirds of the respondents stated that they were dissatisfied that the AYP process does not take academic growth into account for special subpopulations. For many respondents, the lack of a growth component in the AYP process is the most pressing issue with NCLB. One respondent explained, “I would just change the accountability piece to have a growth model for those special populations.” Another respondent stated,

[NCLB] doesn't reward growth. It punishes not meeting a specific arbitrary number that the federal government and the State came up with. My school made more growth than other schools. Well, they started out higher than us so they are ok under NCLB. We started much lower, progressed farther, but we're still not considered good enough.

Because student populations vary from school to school and state to state, respondents expressed that they believed the lack of a growth component creates inequities that cannot be measured with a system based solely on the percent of students who are proficient.

For some respondents, making growth was more important than making AYP. One respondent stated, "And so, I'm very positive with the staff and I say again, we're going to look at growth and I've told [the teachers] a few times, I said 'We have an ELA problem and I call it a problem, not because we didn't make AYP, but because we did not show any growth.'" For some respondents, the most appropriate measure of growth was the change in the percent of proficient students from year to year.

Summary

An analysis of transcripts from 19 interviews conducted with respondents charged with implementing school improvement initiatives in the District revealed three interrelated and reinforcing themes. The three interrelated and reinforcing themes are as follows: (a) I'm sure we're doing the "right" things; if only I could show people, they would value us; (b) Although I am not comfortable with data, collecting it is the "right" thing to do; and (c) I accept being held accountable, but the way that it is being implemented is unfair. The three themes each contain a qualifier. These qualifiers are

indicative of the dissonance felt by the respondents. This dissonance is caused by the inconsistency between the beliefs held by school administrators that they are doing the right things and their beliefs about the outcomes of the AYP process.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

The purpose of this study was to explore the beliefs held by school administrators about the role of data in driving school improvement. An exploratory case study was conducted. The case consisted of a medium sized school district located in the capital city of a state in the Western United States. Three research questions guided this study:

1. What beliefs did school administrators hold about “school improvement” as a concept?
2. What beliefs did school administrators hold in regard to externally driven demands for accountability?
3. What beliefs did school administrators hold in regard to the relationship between data and school improvement?

Semi-structured interviews were conducted with 19 respondents who were responsible for all of the school improvement initiatives in the District. This chapter begins with a discussion of the findings, provides implications for practices, and concludes with recommendations for future research.

Discussion of Findings

Three themes were identified in the transcripts: (a) I’m sure we’re doing the “right” things; if only I could show people, they would value us; (b) Although I am not comfortable with data, collecting it is the “right” thing to do; and (c) I accept being held accountable, but the way that it is being implemented is unfair. The next analytical step was to relate the three themes to the research questions. The beliefs that the respondents held about school improvement and externally driven demands for accountability were intertwined and could only be described in relation to one another. Therefore, the first

two research questions were combined and addressed simultaneously. The third research question was addressed independently, but used insights gained from an understanding of the first two research questions.

Questions 1 and 2: What beliefs did school administrators hold about “school improvement” as a concept? What beliefs did school administrators hold in regard to externally driven demands for accountability?

Two sets of beliefs dominated the interviews. The first set of beliefs that the respondents appeared to hold was that the right things were happening in schools. For these respondents, right was primarily based on the appearance that schools were safe and welcoming and that teachers were working hard. The second set of beliefs that the respondents appeared to hold was a fatalistic approach to red cells (i.e. the public label of a “failing” school). For these respondents, there were certain subpopulations of students which the respondents believed could not achieve adequately yearly progress. As such, these respondents argued that the existing accountability model was unable to accurately capture the success of their schools. Their contention was that the expectations of the public, as measured by AYP results, were not a valid, or accurate measure of school success or failure. The respondents appeared to believe that the right things were happening in schools; however, they also appeared to believe that the public’s expectation of success – academic success as measured by AYP results – was not achievable.

The two beliefs were in competition; each respondent made statements that supported each concept identified above. Furthermore, the respondents held both beliefs simultaneously, suggesting internal conflict. Two competing sets of beliefs held by

respondents are illustrated in the Venn diagram in Figure I. The circle on the left represents the beliefs held by the respondents that the “right things” were happening in schools. The circle on the right represents the beliefs held by the respondents about No Child Left Behind (NCLB). In particular, the respondents believed that NCLB is all about red cells and it is inevitable that their schools will be labeled as failing. The circles overlap because the respondents believed that being held accountable and focusing on each and every student is the right thing to do. However, the relative amount of overlap is small. The portions of the circles that do not overlap reflect inconsistencies in the beliefs held by respondents. For example, the respondents appeared to believe that the right things are happening; yet, they also appeared to believe that their future AYP results will contain red cells that will cast their schools as failures that are in need of improvement.

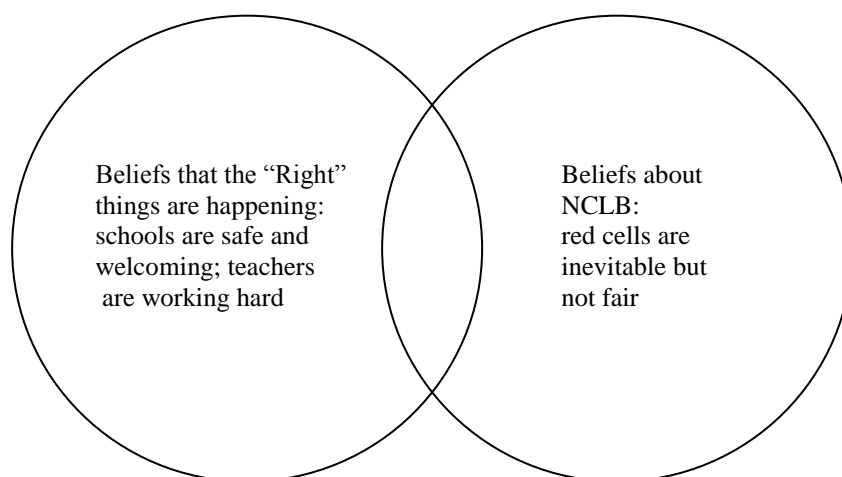


Figure I. Venn Diagram of Respondent Beliefs

The beliefs that respondents held in regard to externally driven demands for accountability were not consistent with their beliefs that the right things were happening

in schools. Because they believed that the right things were already happening, the respondents did not appear to be convinced that school improvement was necessary. They also did not appear to believe that AYP results were the correct measure for school success or failure. Therefore, negative AYP results were not perceived as an impetus for change by the respondents; they did not believe that their schools needed to improve. On the contrary, it seemed that they believed that improvements should be made to the AYP process so that the results would better coincide with their beliefs that the right things were already happening.

The internal conflict that the respondents reflected is best explained using cognitive dissonance theory. Festinger (1957) explained that cognitive dissonance occurs when an individual is forced to hold two inconsistent ideas simultaneously. The respondents in the District experienced cognitive dissonance because their beliefs that the right things were happening were inconsistent with what they believed would be the ultimate outcome of NCLB – their schools being labeled as failing. This concept is further explored in response to the third research question below.

***Question 3: What beliefs did school administrators hold in regard
to the relationship between data and school improvement?***

Internal conflict appeared to be present in many of the statements shared by the respondents during interviews. This conflict was indicative of the cognitive dissonance that the participants appeared to experience. Therefore, an understanding of cognitive dissonance theory is necessary to appropriately address the third research question.

The paradigm of the Data – Information – Knowledge – Wisdom Hierarchy (DIKW) provides a framework to explain the respondents' dilemma. Rowley (2007)

reviewed the existing literature on DIKW and found that the “the implicit assumption [of the hierarchy] is that data can be used to create information; information can be used to create knowledge, and knowledge can be used to create wisdom” (p. 164). In addition, Rowley provided the following definitions based on the work of Ackoff (1989),

- Data are defined as symbols that represent properties of objects, events and their environment. They are the products of observation. But are of no use until they are in a useable (i.e. relevant) form. The difference between data and information is functional, not structural.
- Information is contained in descriptions, answers to questions that begin with such words as who, what, when and how many.
- Knowledge is know-how, and is what makes possible the transformation of information into instructions.
- Wisdom is the ability to increase effectiveness. Wisdom adds value, which requires the mental function that we call judgment. (p. 166)

The respondents focused on two types of information. The first type of information could best be described as originating from “assumed” data about the occurrence of the right things happening. This data is characterized as assumed because it may or may not have actually existed. Respondents were adamant that visitors would observe the right things happening in their schools, but they had not formally taken any action to confirm this belief. In contrast, the respondents assumed that this data could be obtained and conceptualized that the assumed data would validate that the right things were happening in their schools.

The second type of information that respondents focused upon was obtained from

an analysis of state assessment results. In particular, respondents were most concerned with whether or not their schools received any red cells. The emphasis on red cells appeared to be driven by the fact that the red cells would be perceived by the public that the schools were failing. This in turn would indicate that the leadership, (i.e. the respondent him or herself) had failed; responses were very personal.

The relationship between data and the beliefs held by the respondents is illustrated in Figure II. The arrow that points to the left represents the information that is obtained from an analysis of assumed data about the right things. The arrow that points to the right represents the information obtained from state assessment data – primarily AYP results.

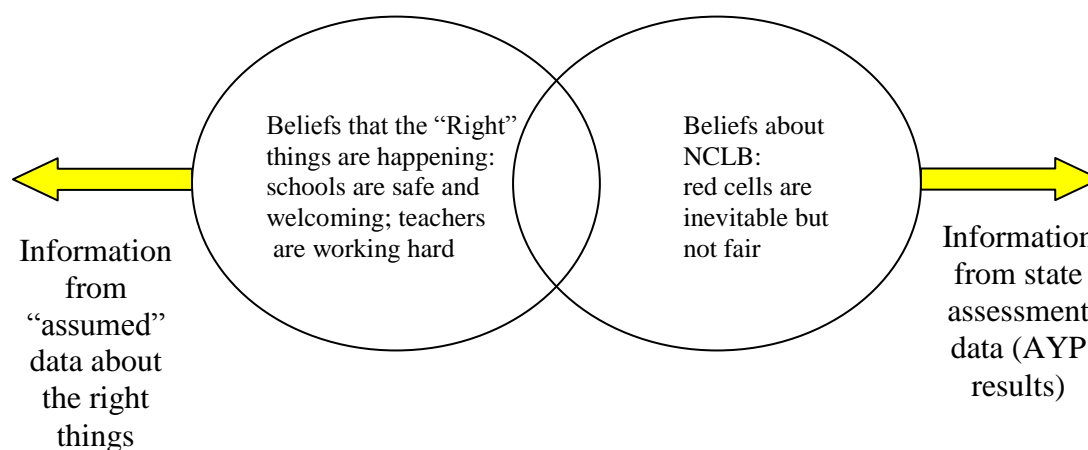


Figure II. Relationship between Data and Beliefs Held by Respondents

Data illuminated the dissonance that respondents appeared to experience. The two arrows are pointing in opposite directions because they represent the dissonance between the two sets of beliefs. The magnitude of that dissonance is dependent on the following:

- The degree to which a respondent believes that the right things are happening.
- The degree to which state AYP results are negative, based on the number and severity of red cells.

Festinger (1957) explained that cognitive dissonance occurs when an individual is forced to hold two inconsistent ideas simultaneously. While holding two inconsistent ideas, the individual undergoes psychological discomfort. As a result, cognitive dissonance leads to the following:

- The existence of dissonance, being psychologically uncomfortable, will motivate the person to try to reduce the dissonance and achieve consonance.
- When dissonance is present, in addition to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance.

(Festinger, 1957, p. 3)

Under cognitive dissonance theory, the respondents were experiencing psychological discomfort; therefore, they needed to reduce the dissonance. Stanley (1968) identified five means of reducing dissonance in the field of counseling:

(a) The individual can change his opinion to that of the communicator; (b) he can discredit the communicator and thus reduce the importance or cognitive weight of the communicator's assertions; (c) he can devalue the importance of the issue which reduces the cognitive weights of both positions, and thus the absolute amount of dissonance created by their incompatibility; (d) he can attempt to change the communicator's opinion and, if successful, eliminate the discrepancy; and (e) he can seek to add cognitions consonant with his opinion and thus reduce the relative cognitive weight of the communication. (p. 216)

In this study, three of the five means of reducing dissonance were in evidence. The first option outlined by Stanley (1968) requires a change in beliefs. This strategy was not found in the data of this study. None of the respondents indicated that they were ready to change their beliefs.

The second option is to discredit the communicator. In this study, the respondents actively discredited the public's expectation for increased academic achievement as measured using AYP results. The respondents raised questions about both the data used and the process employed for holding schools accountable. They questioned AYP results that were based on what they perceived to be a small number of students or small subpopulations. They called into question whether or not the assessments used were suitable for all students, (e.g. students receiving special education and/or English as a second language services). In addition, they discredited the law by questioning the identified proficiency targets. Some specifically stated that the mandate was unrealistic. By discrediting the accountability system, it appeared that the respondents wanted to reduce the importance of the public's expectation for increased academic achievement as measured using AYP results

The third option to reduce dissonance is to devalue the importance of both belief systems. In other words, both "the right things are happening" and "red cells are inevitable, but unfair" would be devaluated. However, this option was not in evidence in the interviews. The respondents did not devalue any of their beliefs.

The fourth option to reduce dissonance is to eliminate the discrepancy by changing the opinion of the communicator. In this study, this would be the equivalent of changing the public's expectation for increased academic achievement as measured using

AYP results. Indeed, the respondents wanted to change the public's opinion. They wanted to legitimize what visitors would see and value if the public were to visit school sites. The desire appeared to be a shift in focus from assessment data to other data that would confirm that the right things were happening in schools. In addition, respondents explained their desire to change the entire accountability process. This conclusion was drawn from their desires to either add a growth component to the current process or replace the entire process with a growth model.

The fifth option to reduce dissonance involves the individual adding evidence to support their beliefs. In this study, the respondents believed that the right things were happening in the schools. To validate this belief, they expressed a desire to have more visitors. The visitations would increase the positive perceptions and place less emphasis on test scores.

Conclusion

Because the respondents believed in the underlying concept of NCLB, there was a desire to harmonize two irreconcilable belief systems. In this study, the respondents appear to be reconciling the two belief systems in two ways. First, they attempted to legitimize assumed metrics and corresponding evidence that would document doing the right things in schools. Second, they promoted the inclusion of a growth model for accountability which would change the current NCLB accountability system.

However, the respondents' attempts to reconcile their divergent belief systems were inadequate. Accountability demands are likely to increase and the public appears to be committed to using state assessment results to hold school administrators accountable for academic achievement. The dissonance revealed in this study is likely to continue

until the respondents have a shift in their beliefs. However, because the respondents were adamant in their statements, the reduction of observed cognitive dissonance will be difficult. To address the need for school improvement, a major paradigm shift will be required. Systematic efforts to resolve the types of cognitive dissonance observed in this study are necessary.

Implications for Practice

The findings have practical implications for District leaders. An understanding of the beliefs about key educational issues may assist District leaders in developing strategies to support school administrators in effective use of data to drive school improvement decisions. Several actions should be considered to shift the beliefs of school administrators to better align with public expectations. First, communication between District leadership and school administrators should directly address the role that data plays in school improvement. Second, District leadership must model the way in relationship to appropriate use of data for decision making. A clear vision, coupled with policies and procedures that emphasize metrics related to student achievement must be realized. However, the development of the vision, policies, and procedures should not be developed in isolation; school administrators should be provided with opportunities to be involved in their development as a means of shifting beliefs.

Next, the understanding of the use of data in decision-making must be addressed. It is recommended that professional development efforts begin with the development of a shared understanding of the purpose of data within the context of public expectations. Until that occurs, a focus on skills development will be insufficient.

Only after a paradigm shift has occurred should efforts be directed toward improvement of skills and knowledge in relationship to the use of data in school improvement. At that point, the following could be considered: (a) training, coaching, and support on the analysis and use of data should be provided by appropriate personnel; (b) training, coaching, and support should be tied directly to actual school needs to increase relevancy; and (c) school administrators should be provided with opportunities to be involved in the selection of training topics related to analysis and use of data.

In summary, this study suggests that the beliefs held by school administrators represent a significant barrier to school improvement. Until beliefs are addressed, traditional efforts to promote school improvement by means of accountability will be for naught. Thus, it is recommended that District leaders implement systemic efforts to create a data-based decision-making culture.

Future Research

This exploratory case study provided evidence of *what* school administrators believed about the right things occurring in schools. However, further research is necessary to determine *why* school administrators hold these beliefs. An understanding of why they believe that the right things are already occurring may provide further insight into how to shift their beliefs into alignment with public expectations about academic achievement results as measured by AYP.

Also, research should be conducted to determine the role that the District leadership plays in shifting the beliefs of school administrators to better align with public expectations. District leadership is defined as superintendents, associate superintendents, and others in positions of power at the district level that are able to initiate and mandate

change. Is District leadership communicating the need to be data driven? Is District Leadership modeling the way in regard to appropriate use of data for decision making? What impact do the communicated mission and vision of the District have on the appropriate use of data for decision making?

The focus of this study was school administrators. A school administrator is defined as a principal or assistant principal of a school. These individuals are responsible for all school improvement initiatives in their schools. Similar research should be conducted that focuses on the beliefs of other education leaders. This includes state legislators, State Department of Education employees, teachers, instructional coaches, etc. Comparisons between these groups of individuals should be made to determine the level of agreement/disagreement in their beliefs. Finally, this study should be replicated in other school districts.

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