Using Data in Leadership Practices: Perceptions of High School Principals

A Dissertation submitted
to the Graduate School
Valdosta State University

in partial fulfillment of the requirements
for the degree of

DOCTOR OF EDUCATION

in Leadership

in the Department of Curriculum, Leadership, and Technology
of the Dewar College of Education

July 2011

Helene Dutcher

MED, Valdosta State University, 1999
MED, Valdosta State University, 1993
BS, Michigan State University, 1973

This dissertation, “Using Data in Leadership Practices: Perceptions of High School Principals,” by Helene Dutcher, is approved by:

Dissertation Committee Chair

_____
Nicole Morgan Gibson, Ph.D.
Associate Professor of Curriculum, Leadership, and Technology

Committee Member

_____
Patrick Biddix, Ph.D.
Associate Professor of Curriculum, Leadership, and Technology

_____
Ronny Green III, Ph.D.
Associate Professor of Curriculum, Leadership, and Technology

_____
Verilette Hinkle, Ed.D.
Associate Professor of Curriculum, Leadership, and Technology

_____
Gerald Siegrist, Ed.D.
Professor of Curriculum, Leadership, and Technology

Interim Dean of the College of Education_____
Karla M. Hull, Ed.D.
Professor of Special Education

Dean of the Graduate School

_____
Alfred F. Fuciarelli, Ph.D.
Professor of Chemistry

FAIR USE

DUPLICATION

I authorize the Head of Interlibrary Loan or the Head of Archives at the Odum Library at Valdosta State University to arrange for duplication of this dissertation for educational or scholarly purposes when so requested by a library user. The duplication shall be at the user's expense.

Signature _____

I refuse permission for this dissertation to be duplicated in whole or in part.

Signature _____

ABSTRACT

Mixed methods were used to examine the views of high school principals collected from surveys and interviews regarding aspects of data-based decision making. The perceptual data gathered from surveys ranked 1) how principals use data in standards-based leadership practices, 2) how principals build capacity for using data in the school, and 3) how districts support principals in using data for school improvement. Comparisons were made for different groups of principals based on the status of the school in terms of Adequate Yearly Progress (AYP). Principals were most frequently using state standardized assessment data to determine the strengths and weaknesses in the curriculum and to analyze student levels of achievement. Principals were engaged less frequently in gathering and using needs assessment data for addressing multicultural and ethnic concerns in the school and community, and for collecting data to develop a school vision that ensures educational equity for all learners. An Analysis of Variance (ANOVA) of three groups of principals revealed a significant difference between perceptions of principals of schools in Needs Improvement (NI) status and principals of schools that have met AYP or schools not in NI status. Compared to the other two groups of principals, the principals of schools in NI status indicated less engagement and support in the three aspects of data-based decision making that comprised the study. Qualitative data enhanced the interpretation of the quantitative findings and further illuminated the impact made by accountability mandates and leadership standards on the behaviors of high school principals.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

I am immensely grateful to those who had a hand in the completion of this study. I owe my gratitude to those who have made this dissertation possible and helped me become a better educator.

I am grateful for the guidance of my committee chair, Dr. Nicole Gibson. I want to thank her for sharing her wisdom and knowledge and guiding me in every step along the way. I greatly appreciated the input and guidance I received from the members of my committee; they were always there for me, giving me prompt feedback and support. Dr. Ronny Green made me think more deeply about the real purpose of my study and Dr. Verilette Hinkle helped me pay attention to the important details in the writing of it. Dr. Patrick Biddix gave me valuable suggestions regarding the design and analysis of the study and Dr. Siegrist kept me on track and motivated. To every member of the committee, I thank you for your support throughout and your praise at the conclusion of the journey.

A special thank you goes to Dr. Richard Schmertzing for encouraging me to apply for the doctoral program and for instructing me well in the mixed methods approach to research. I am especially appreciative of Dr. Don Leech, department chair, for his unwavering support throughout my doctoral studies.

I also wish to thank Janie Baxter and Harold Chambers of the Coastal Plains Regional Educational Service Agency for their technical assistance and support. Along with the rest of the staff at RESA, they work tirelessly to provide professional development and support to principals and teachers.

This study would not have been possible without the high school principals from throughout the state who generously gave up precious time in their busy day to take part in a survey and to the eight principals who willingly and without hesitation allowed me to come to their school and interview them for this study.

I have a great depth of gratitude to the members of my family who supported me throughout this journey. I thank my husband, my sons and their families, and my daughter for their cheerful words of encouragement and love.

DEDICATION

I dedicate this dissertation to my husband, Jim Dutcher, my best friend and partner for life. I love you dearly and cherish everything about you.

I also dedicate this to my precious children, their spouses, and my grandchildren who mean the world to me – Alec, Sue, and darling Sydney; Michael, Cristen, and charming Jack; and Sarah, whose music brings joy to my heart.

Finally, I dedicate this to the memory of my parents, Janek and Katarzyna Grajek, who brought me to America and instilled in me the value of an education.

Chapter I

INTRODUCTION

The passage of the *No Child Left Behind Act (NCLB) of 2001* (U.S. Department of Education, 2002) dramatically changed the way principals do things. In establishing a new era of reform reliant on the collection and analysis of data, NCLB paved the way for increasing the use of data in leadership practices of principals. An early hint of this new direction is found in the report, *Leadership for Student Learning: Reinventing the Principalship* (Institute for Educational Leadership, 2000). The report identifies data-driven decision making as a key role that principals of the 21st century should fulfill in order to strengthen teaching and learning. In the new role, principals are expected to make data-based decisions in order to improve student performance. The prominent effect of NCLB is having principals lead schools in the analysis of data and respond to patterns found in multiple sources of data (Irvin & White, 2004). Under NCLB, using data in leadership practices of secondary school principals is no longer an option but a fundamental skill for doing things intended to raise student achievement and graduate all students prepared to live and work in the 21st century.

Background to the Study

The job description of the high school principal changed after the mandated arrival of educational accountability. NCLB influenced the leadership practices of high school principals in a way that transformed what principals think about and do on a daily basis. In the years before "making" Adequate Yearly Progress (AYP) was a priority for

schools and districts, few principals spent a significant portion of their time examining data in order to close achievement gaps for students who were economically or socially disadvantaged, limited English proficient, or disabled (Popham, 2008/2009; Reeves, 2008/2009). Prior to the need to make AYP, few principals actively collected data for the purposes of making decisions to provide equitable access to the curriculum and instruction or for improving school operations in order to ensure success for all students (Hess, 2008/2009). The assertion that few principals were concerned about using data prior to NCLB should not be surprising for anyone conducting a closer examination of the kinds of textbooks used to train educational leaders before the era of accountability. For example, in the renowned college text edition of *The Principal as Leader* (Hughes, 1994), the concept of principals using data to make informed decisions for school improvement is not developed to the extent needed in the practices of principals working today. Scant attention is provided in the text to using data for guiding decisions and the concept of accountability is placed at the classroom level rather than at the principal level. Principals earning their credentials from that era were unprepared and caught off guard when using data became the key focus of attention in the new wave of large-scale school reform for improving student performance (Earl & Fullan, 2003). Leading schools in the analysis of data and responding to trends found in multiple sources of data, affects what principals need to know, understand, and do (Irvin & White, 2004). After NCLB was implemented, using data became an important, if not essential, skill for a principal.

Recognizing the need to address high school reform, the *Breaking Ranks* model was first introduced in a report from the National Association of Secondary School Principals (1996); and was thereafter followed by a series of publications promoting the

use of research-based strategies by high school principals. The idea of developing a capacity to systematically analyze and use data as a core component of improving secondary schools is described in *Data-Driven High School Reform: The Breaking Ranks Model* (Lachat, 2001). Lachat suggests that motivating staff to use data is an essential task. A principal in the study, using the model's collaborative inquiry process with data, described it in this way, "My issue is how do I get faculty members to at least examine and appreciate the data and then to make teaching and instructional changes, that's the ultimate reason for trying to push the use of data" (p. 52).

In *Breaking Ranks II: Strategies for Leading High School Reform* (National Association of Secondary School Principals [NASSP], 2004), there is a synopsis for the strategic use of data calling for principals to embrace a collaborative leadership that facilitates and enables a team to collect data for identifying and tracking opportunities for improvement. *Breaking Ranks II* essentially assists principals in implementing data-based strategies for carrying out three specific recommendations originally outlined in *Breaking Ranks: Changing an American Institution* (NASSP, 1996). The first recommendation demands accountability, saying that a high school will "assess and report the extent to which a set of objectives are met to ensure that teaching and learning serve the needs of the students to the fullest extent" (p. 52). In the second recommendation, high schools are to "use a variety of ways to assess the academic progress of students so that a clear and valid picture emerges of what they know and are able to do" (p. 53). Thirdly, the 1996 report recommends assigning meaningful roles in the decision making process to all stakeholders in order to promote student learning in a climate of participation, ownership, and responsibility.

The NASSP (2004) describes the appropriate collection of data as critical to improving high school performance and essential in establishing a baseline that identifies and tracks specific areas targeted for improvement. In *Breaking Ranks: A Field Guide for Leading Change* (NASSP, 2009) high school principals are guided in creating a process of using data for school improvement based on a shared vision, promoted by collaborative leadership, and supported by professional development. The 2009 report suggests potential sources of data for a collaborative team to examine by identifying demographic, assessment, and perceptual data critical to identifying problems, evaluating progress, and enacting high school reforms.

In the aftermath of NCLB, the bar has been raised for what a principal needs to know and be able to do to improve instruction and raise student achievement; hence, a greater emphasis has been placed on the principal's ability to act on data (Knapp, Swinnerton, Copland, & Monpas-Huber, 2006). Principals, facing the dual mandate of ensuring equity and being held accountable for learning in the classroom, have been required to make decisions based on accurate and meaningful data about student learning and achievement (Lachat, 2001). The mounting policy demands of federal and state laws, holding school leaders increasingly accountable for raising student achievement among students from all population subgroups, became a major reason for updating the national leadership standards used to guide state standards for preparing and assessing school leaders (Council of Chief State School Officers [CCSSO], 2008a; National Policy Board for Educational Administration [NPBEA], 2009).

The newest standards for school leaders, renamed the *Educational Leadership Policy Standards: ISLLC 2008*, provide a framework for guiding principals' practices that

include expectations for using data to drive school improvement (CCSSO, 2008b). High school principals have been asked to ensure that all students have access to high-quality instruction and they are being held accountable for student learning; this is reflected in the new standards by the way data has become an integral component of the expectations and indicators associated with ISLLC 2008 standards. Various states, including Georgia, have used the ISLLC 2008 standards as a foundation for guiding the development of state standards of leadership practices (CCSSO, 2008a; 2008b). In developing Georgia's set of ten broad strands of leadership performance standards called the Leader Keys^{SM}, the use of data is referred to in each standard as something to be collected, examined, or analyzed in meeting the standard (Georgia Department of Education [GADOE], 2010a). This is made evident in the rubrics measuring the level of performance for each standard of the Leader Keys^{SM}. Using data is clearly reflected in the standards of principals' practices.

Focusing on student achievement data and using data for planning and decision making has been a major cultural shift for most high school principals during the past decade (Reeves & Burt, 2006). The cultural shift has led to a closer examination of principal leadership practices and has advanced principals to the forefront of accountability (Mandinach, Honey, & Light, 2006; Wallace Foundation, 2009). Higher expectations have engendered a greater emphasis on the monitoring process that determines the degree of progress being made in meeting expectations (Goldring, 2008). No longer are only teachers made accountable for learning, there is an emerging trend in making principals more accountable; we are seeing this across states and districts using leadership standards anchored in ISLLC standards to improve the process of evaluating principal effectiveness (Goldring, Porter, Murphy, Elliott, & Cravens, 2007).

In recognizing that the quality of school leadership is essential to student success and that improving leadership preparation and assessment is the key to quality leadership, a growing number of initiatives have been developed to advance educational reforms through specific programs for developing and retaining effective principals. Georgia's initiative for increasing leader effectiveness and providing professional learning to ensure that all educators know how to access, analyze, and use data appropriately is addressed in a list of targeted reforms that Georgia included in its *Race to the Top CFDA 84.395A* federal grant application (U.S. Department of Education, 2010; GADOE, 2010b). The goal to develop strong education leaders at the building level, as part of Georgia Department of Education's strategic plan (GADOE, 2009), has been supported through the field-testing of the Leader Keys^{SM} research-based evaluation instrument. Developed for implementation in the fall of 2010, the Leader Keys^{SM} serves as a standards-based leadership appraisal tool (GADOE, 2010a). The Leader Keys^{SM} was designed for school and district leaders to use as both a formative and summative instrument for rating the principal's level of performance on a specific standard aligned with ISLLC 2008 and the 8 Roles of School Leaders ™ developed by Georgia's Leadership Institute for School Improvement [GLISI] (2006).

The National Association of Secondary School Principals has played a key role in the development of another proposed initiative called the *Teacher and Principal Improvement Act* (NASSP, 2010a). The aim of the act was to fund grants that create principal development programs using research-based leadership standards, such as those contained in 2008 ISLLC, to improve key principals' skills including planning and articulating a shared school-wide vision and strategy for increasing student achievement,

and collecting, analyzing, and utilizing data to improve student learning and achievement. A third initiative, entitled the *Effective Teachers and Leaders State Grant Program,* is aimed at improving principal effectiveness and supporting the development of instructional teams that use data to improve student learning (NASSP, 2010b). These initiatives demonstrate the importance of standards of leadership in: (a) emphasizing the data-based leadership practices principals are to use for raising achievement and improving teaching and learning in schools; and (b) developing programs that prepare, support, and evaluate principals carrying out the demands of accountability.

Statement of the Problem

Fueled by demands of federal and state mandates, high school principals are being held more accountable than ever to graduate and prepare *all* students to live and work in the 21st century (NASSP, 2009). Consequently, principals are faced with the problem of finding quality data and transforming the data into information that will enable them to work effectively towards meeting that goal. Principals have more data-based information at their disposal than ever before because of accountability mandates, and the amount of available data can be overwhelming for principals unsure about how to process the information in the first place (Williamson & Blackburn, 2009). At the high school level, dealing with data has become an increasingly complex task making the problem particularly acute. More achievement data along with other forms of data are accumulated for secondary students than for those in lower grades and as the information on data collected over time increases it should ideally be aggregated into a meaningful set of longitudinal data during students' years in high school (Laird, 2008). Deciding which types of data are worth further consideration and knowing what to do with the data once

you have it, is the problem principals face (Thomas, 2010). The leadership approach taken by the principal in dealing with an ever-increasing volume of data makes the difference in whether or not a viable school improvement plan for raising student achievement is created and followed; simply gathering data is not enough, principals must establish a culture for using data (Skalski & Romero, 2011). The practices of finding quality data and transforming the data into knowledge used to improve schools clearly takes planning, expertise, and commitment from principals (Mills, 2006).

Although principals are expected to make data-based decisions in their leadership practices to ensure that all students have equal access to high-quality instruction, Shen and Cooley (2008) contend, "the promise of data usage has not been realized" (p. 320) to the extent that it should be a tool for not only looking at student achievement, but also for making school improvements leading to high school reform. The task of building a capacity to access and effectively use various types of data from multiple sources is at the center of implementing comprehensive high school reforms (Bernhardt, 2004; Lachat, 2001). Yet, having the necessary access and skills required to use available tools for manipulating the data in a way that helps answer questions is still a hurdle faced by many principals (Lachat, Williams, & Smith, 2006; Means, Padilla, Gallagher, & SRI, 2010). Although gains have been made in recent years, the training that builds principals' data literacy and expertise has not kept pace with the need to make sense of available data and to build a capacity for using data effectively (Thomas, 2010). Important findings reported by Means et al. (2010) were that "while professional development is one of the most important district strategies for building school capacity for using data, the quality of this training is uneven" (p. 35) and "related to the challenge of providing adequate

professional development to school staff is a lack of teacher and principal preparation in how to use data" (p. 45).

The main problem addressed in this study is accountability mandates and an emphasis on standards-based leadership practices have changed the conditions in which high school principals operate demanding changes in principals' behaviors for effectively promoting school improvement. The federal and state mandates for schools to make AYP have stimulated incremental progress towards raising achievement levels of all students. How much of an incentive is making AYP to principals' use of data in school improvement? Does the AYP status of the school make a difference? How are high school principals responding to greater expectations for using data that are linked to the leadership standards by which they are evaluated? How has dealing with data affected what they do on a daily basis as school leaders? Valuable insight can be gained by asking principals in the field these kinds of questions. Given the wealth of available data and the opportunities for collecting data, how are principals prioritizing the process of data collection and what they do with data once they have it? Do principals spend more time examining certain types of data at the expense of others? Given the importance of data, what kinds of support do principals value for using data to improve teaching and learning? This research study of principal perceptions addresses a problem faced by principals of responding with quality and effectiveness to accountability mandates and the emphasis on standards-based leadership practices.

Purpose of the Study

Principals are secondary to teachers in having an impact on student achievement (Hallinger & Heck, 1996; Leithwood, Louis, Anderson, & Wahlstrom, 2004) is a

conclusion that reinforces the importance of principals' practices in influencing instruction. More recent studies of data-based decision making in schools consistently point to the principal exerting the greatest influence on a school's data-based approach to school improvement (Wayman, 2005; Kerr, Marsh, Ikemoto, Darilek, & Barney, 2006; Mandinach et al., 2006; Goldring et al., 2007; Deike, 2009). However, further studies relating principal leadership behaviors to building a capacity for using data are needed to gauge how much progress is being made (Goodnow & Wayman, 2009). Conducting research on what high school principals actually do with data will serve to identify the extent to which specific principal behaviors of leadership practice occur in the current climate of accountability. Knowing that principals can no longer afford to rely on just intuition when making decisions (Bernhardt, 2004), the emergence of data-driven decision making of the last ten years calls on principals to make data-based decisions and to set priorities for the kinds of data they consider important. Research on how principals work towards using data in ways that are more effective is intended to provide a greater understanding of how principals are responding to the challenges of accountability and high school reform.

The aim of this research study is to contribute perceptual information to a body of knowledge assessing the degree to which progress is being made by principals in using data effectively for high school improvement and reform. Thomas (2010) elaborates on the need in this way:

> Despite all the speeches, articles, and meetings about data-based instructional decision making, my observations after more than 20 years of working with middle and high school teams is that teachers and

> administrators often make important instructional decisions on the basis of historical precedent, anecdotal information, experience, or intuition, rather than by using information they have collected in a systematic manner (p. 53).

After acknowledging case studies conducted by Lachat and Smith (2005) on how data were used in five low performing high schools, Datnow, Park, and Kennedy (2008) pointed to the insufficient amount of research on data-driven decision making in secondary schools as the impetus for conducting a study examining data-use in four secondary schools identified as actively engaged in using data.

Specifically, the purpose of this study is first, to determine high school principals' perceptions of using data in leadership practices; and second, to compare the perceptions of different groups of principals based on the level of school performance measured annually in terms of AYP. In the present context of school performance standards and accountability, principals know they must collect and use data from a variety of sources to inform the school improvement process (King, 2002). The fact that educational leaders are being asked to do much more with data is evident from a review of Georgia's Leader Keys^{SM} evaluation system (GADOE, 2010a), a set of sixty-six performance standards and rubrics defining highly effective practices organized into ten broad strands or Leader Keys^{SM}. In each standard of performance rubric there is a listing of data sources to be collected and used by leaders in meeting the standard. In essence, there is a data connection for each of the sixty-six standards of leadership performance. With the overwhelming connection of data to leadership practice, it is important to learn how principals prioritize their actions in dealing with data. A survey containing items, aligned

to leadership standards of Georgia's Leader Keys[SM] appraisal program, that are linked to the indicators of ISLLC 2008 Standards and GLISI's 8 Roles of School Leaders[TM], is intended to determine the extent to which principals perceive they are taking action in using data for school improvement and for building a capacity for using data at the high school level. According to Irvin and White (2004), using data effectively is considered to be the best tool for principals in initiating and sustaining change. However, research of 16 principals, conducted by Shen and Cooley (2008), indicates that the predominant use of data is for accountability purposes rather than for improving teaching and learning. Although leaders have embraced student achievement data in the form of standardized test scores, Hess (2008/2009) contends they have paid scant attention to collecting and using other forms of data that are more relevant to improving the performance of schools. Hess and others (Shen & Cooley, 2008; Reeves, 2006) warrant further investigation into how principals are using data to guide decisions that go beyond a focus of using data *of* learning to using data *for* learning.

An increased scrutiny of principals' practices gives impetus to principals reflecting about the priorities they place on certain data-based behaviors and the kinds of support they receive in using data. An emphasis on collaboration at all levels should include opportunities for practicing and aspiring high school principals to gain a better understanding of how colleagues have come to terms with increased expectations for using data. Previous studies of principals' perceptions, conducted in northeastern and midwestern states, have indicated frustrations in assuming the new role of data leadership (Deike, 2009; Lachat, 2001; Lachat & Smith, 2004, 2005; Reeves & Burt, 2006). Research on the perspectives of principals from a southern state may corroborate or

expand upon what we already know while indicating emerging trends and attitudes in using data.

As Georgia implements its standards-based leadership evaluation system known as the Leader Keys[SM], the current leadership practices associated with high school principals working in data-rich environments merit study. Understanding how high school principals intersect the use of data with leadership practices, through perspectives that detail the experience, can provide a more vivid picture of an important process considered essential to raising a schools' level of performance. The study expands a limited area of knowledge intended to ascertain the prevalence of certain practices linked to establishing a culture of data-based decision making for improving and reforming high schools.

Research Questions

This study is primarily focused on examining the leadership practices of Georgia high school principals in using data for informed decision making. The standards-based leadership practices of the Georgia Leaders Keys[SM] appraisal program aligned with ISLLC 2008 Standards and GLISI's 8 Roles for School Leaders[TM] is used as the framework for developing the survey instrument and the interview protocol used to collect perceptual data from public high school principals. The following research questions guide this perceptual study:

1. How are high school principals using data?
2. What actions do principals take to build capacity for data-based decision making in the high school?
3. How are districts supporting high school principals in using data to make

informed decisions in the school improvement process?

4. Are there perceptual differences between principals based on the school's level of performance in terms of Adequate Yearly Progress (AYP)?

A collection of demographic information from participating principals and the schools they are charged with leading are included in the study. The AYP status of the school is pertinent to answering the fourth research question and addressing the hypotheses.

Hypothesis 1: There is a statistical and practical difference in perceptions regarding the use of data between different groups of principals based on the AYP status of the school.

Hypothesis 2: There is a statistical and practical difference in perceptions regarding actions for building capacity for data-based decision making between different groups of principals based on the AYP status of the school.

Hypothesis 3: These is a statistical and practical difference in perceptions regarding district support for using data in the school improvement process between different groups of principals based on the AYP status of the school.

Significance of the Study

A study of how principals are acting on data for school improvement illuminates the impact of accountability on principal practices ten years after the implementation of NCLB. The analysis of data collected from the study reveals perceptions about practices of principals currently working in secondary schools with respect to data-based decision making. Principals keenly concerned about the school level of performance in terms of AYP status, may want to know how to use data more effectively for school improvement

in order to make AYP. District leaders may want to know the extent to which principals perceive the value and efficacy of district support for dealing with data. Practitioners involved in preparing future principals may find the experiences of practicing principals informative in planning leadership development programs.

The findings of Fuller and Young (2009) support the view that there is more intense pressure on secondary school principals to succeed compared with elementary school principals. In analyzing the retention rates of newly hired principals in Texas public schools between 1996 and 2008, the study reveals that high school principals had the shortest tenure and lowest retention rates across school levels compared with principals of elementary schools who had the longest tenure and greatest retention rates. In another study examining structures principals create to promote data-informed instructional decisions, Deike (2009) found that "data from the elementary principals provided detailed examples of structures that were in place to support data use, whereas the secondary schools, particularly high schools, had few structures in place" (p. 42). Wise (2008) provides a perspective on the festering problem facing secondary school principals: "Every available indicator– state, national, and international assessments of math and reading skills; high school graduation rates; college attendance and remediation rates; and employer surveys – tells the same story: Too many high school drop-outs and too many others graduating unprepared for college or employment" (p. 8). How principals use data in standards-based leadership practices affects progress in meeting the major challenges of high school reform (Quint, 2006), thus making this study significant.

Presently, high school principals are being held to a higher standard due to increased accountability and the shifting of the focus of personnel evaluation from

teacher performance to principal performance (Catano & Stronge, 2007). In a study of 100 principal evaluation instruments, Catano and Stronge reveal that 71% percent of the instruments have items with language pertaining to gathering and analyzing data to support decision making. Georgia's newly implemented Leader Keys^{SM} (GADOE, 2010a) is no exception; language related to using data is embedded within the elements of ten broad strands of leadership standards. Novice and aspiring high school principals, should find it helpful to learn what using data to inform decision making looks like through the lens of principals' practices. Every high school has an overwhelming mass of data to wade through, and how effectively principals navigate their way through it all, makes a difference in whether or not, positive changes and improvements occur (Ronka, Lachat, Slaughter, & Meltzer, 2008/2009). As principal evaluation instruments aligned to leadership standards assume a more prominent role in the accountability of principals, the need for principals to learn better ways of dealing with data has become increasingly important. If knowing that using data effectively helps principals create the more student-centered, personalized, and intellectually rigorous, standards-based learning environments recommended by the NASSP (1996, 2004, 2009) in the *Breaking Ranks* model of high school reform, then it is important for principals to know what data-based leadership looks like. Principals today cannot expect to be successful at the helm of a school without a sufficient degree of competance and support for using data.

It is a challenge for leaders to know enough about using data effectively in the sense of being able to create the conditions for examining data, making sense of data, developing action plans based on data, and monitoring their progress along the way (Earl & Fullan, 2003). With more attention paid to the principal's effectiveness, the evaluation

of principals should be a process not only identifying weaknesses in their ability to effectively lead the way in data-based decision making, but also a way that provides feedback and guidance on how principals can use data in a more effective manner to raise student achievement and maintain a process of continuous school improvement. The extent to which principals perceive that they are supported in this process should illuminate practitioners at the district and state level about the significant role they play in improving the implementation of school-wide data use. To this end, it is valuable for districts conducting principal evaluations to know how principals are dealing with data given the level of support they receive from the district to do the job.

Definition of Terms

The following terms used in this study are defined here for clarity:

Adequate Yearly Progress (AYP). A measurement assessing a public school's level of performance according to specific indicators including standardized tests and the graduation rate. As part of the No Child Left Behind Act of 2001, AYP is a tool used to determine how schools need to improve (U.S. Department of Education, 2002).

Council of Chief State School Officers (CCSSO). A nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the CCSSO provides leadership, advocacy, and technical assistance on major educational issues. In recognizing that education leadership is more important than ever, CCSSO provides guidance to those making data an integral part of leadership practice through its involvement in the development of Educational Leadership Policy Standards: ISLLC 2008 (CCSSO, 2008a, 2008b).

Cycle of Inquiry. A continuous process for leading improvement in teaching and learning

embedded with the idea of working from data (Copland, 2009: Knapp et al., 2006).

Data. Any information when taken together and analyzed produces knowledge. Principals obtain a picture of how to improve learning for all students by effectively gathering, intersecting and analyzing four kinds of *data*: student learning (measurements of achievement); demographic (specific information about students, staff, school, and community); perceptual (information gathered through surveys, interviews, and observations); and school process (instructional and assessment strategies, school programs and classroom practices) (Bernhardt, 2004).

Data-Based Leadership. A combination of elements, including a shared vision, an environment of trust, and an understanding of data, are developed by the principal and other school leaders for aligning the collection and use of data with a continuous cycle of school improvement (Thornton & Perreault, 2002). Some researchers prefer the term *data-informed leadership* as a broader focus incorporating the capacity of leaders to build and support a culture of using data through cycles of inquiry. It acknowledges that data prompts questions and deliberations more than pointing to specific, "driving" decisions; that there are factors other than data in shaping educators' decisions including the core values and insight that wise leaders are likely to take into account in thinking about and acting on data (Knapp et al., 2006).

Data-Driven Decision Making (*DDDM)*. A process integrating the analysis of educational data to support decisions intended to improve teaching and learning at the school and classroom level. The practice entails regular data collection and ongoing implementation of improvements (Means et al., 2010). The successful use of data to *drive* decisions is not random, but results from a strategic focus on specific issues of

accountability and school reform (Wayman, 2005).

Educational Leadership Policy Standards: ISLLC 2008. The newest set of high-level policy standards updating the *1996 Interstate School Leaders Licensure Consortium (ISLLC) Standards for School Leaders* for education leadership clarifying the expectations for performance and professional development of principals and providing nationwide guidance to state policy makers in work to improve educational leadership preparation, licensure, evaluation, and professional development. The standards reinforce the leaders' primary responsibility as that of improving teaching and learning with the ultimate goal of raising student achievement (CCSSO, 2008a, 2008b).

Leader Keys^{SM}. A leadership performance appraisal process of the Georgia Department of Education using rubrics to identify a principal's level of performance on specific standards. As part of Georgia's comprehensive system of school improvement and support, the Leader Keys^{SM} define effective leadership practices (GADOE, 2010a).

Summary

High school principals are being held more accountable than ever before for student achievement due to federal and state mandates issued in the past decade beginning in 2002. Given the requirements of NCLB, principals have expectations to use data in reporting their school's progress and in making data-based decisions for school improvement. In leading their schools towards making incremental improvements, principals have shifted towards more data-based leadership for making decisions informed by data.

Principals are guided by national and state standards of leadership in their daily practices and these same standards reflect an embedded role of data use for assessing the

quality of principal leadership. The newly revised 2008 ISLLC standards are being used by states in the development of state leadership standards and processes for assessing principal quality. In Georgia, the use of data as a tool in principal practices is incorporated within the standards of the Leader Keys^{SM} performance appraisal process.

Given the key role principals play in influencing data-driven decision making in the school, this study examines the extent secondary principals perceive they are acting on data in the context of standards-based leadership practices and the extent to which they are supported in their actions to build a capacity for using data at the high school level and are supported by their districts in using data. Comparisons of principals' perceptions are made based on the principals' level of school performance in terms of its AYP status.

High schools are in the unique position of having to catch-up any student who has academically fallen behind to ensure that all students graduate. Data-based decision making is essential to closing the achievement gaps of high school students, improving academic performance, and raising graduation rates. Whereas, research has shown that school capacity for using data is an important matter for secondary principals who are considered the force for implementing comprehensive high school reforms, the quality of data-based leadership varies.

Reports of the National Association of Secondary Principals (1996, 2004, 2009) advocate research-based strategies of the *Breaking Ranks* model for high school reform emphasizing the critical need to build a capacity to collect appropriate data for collaborative teams to analyze. The emerging trend to make principals more accountable for what they do as leaders places greater importance on the guiding role of leadership

standards. A closer examination of what principals do with data in a climate of accountability at the secondary school level fulfills a need to add knowledge to the area of data-informed leadership, accountability, and high school improvement.

A review of the literature in Chapter 2 will introduce the impact and influence of accountability mandates on using data, particularly at the high school level. A conceptual framework for data-based decision making is presented and models for using data to guide the process of school improvement and enacting secondary school reforms will be examined. Information and research on using data to inform decision making in the context of principals' leadership practices will be presented and linked to leadership standards. Additionally, leadership factors at the school and district level affecting a capacity for the effective use of data in a school will be described. Chapter 3 will explain the methodology used to collect and analyze quantitative and qualitative perceptual data from current principals of public high schools in Georgia. The results of the study and interpretation of the findings will be presented in Chapter 4 and the conclusions drawn from the study will be discussed in Chapter 5.

Chapter II

REVIEW OF THE LITERATURE

Introduction

There is a greater expectation for high school principals to embrace data. Although they have always had a lot of data, data were not always used for school improvement until federal and state accountability mandates required schools to act on data or face sanctions. The review of literature in this chapter begins with NCLB acting as the stimulus for using data effectively to enact high school reforms. It explains how principals are expected to respond to the challenges of federal and state accountability in the context of standards-based leadership practices. Proceeding with descriptions of what using data for school improvement looks like; the review of literature presents a conceptual framework for effectively implementing data-based decision making and provides models of implementation. Next, the review addresses the role of standards for guiding high school principals in using data. It specifically looks at five recommendations for building a capacity for data use in a school in the context of the *Educational Leadership Policy Standards: ISLLC 2008* that are used along with the 8 Roles of School Leaders™ from Georgia's Leadership Institute for School Improvement to develop Georgia's state standards of leadership practices, the Leaders Keys℠. Finally, the factors affecting the success of high school principals in using data as a tool for school improvement are described.

Impact of Federal and State Accountability Mandates

Educational policy makers sent strong signals in the 1990s for establishing higher academic standards and set the stage for standards-based reforms in public schools (Earl & Fullan, 2003). However, embracing standards-based reform and achieving it was recognized by policy researchers as two different things and holding schools accountable for implementing standards-based reform became the next step (Goertz, 2001). Fifteen years of standards-based reform culminated in the test-driven accountability of *The No Child Left Behind Act* (U.S. Department of Education, 2002). Through the implementation of large-scale testing to measure student learning and instructional effectiveness, data became "the vehicle of choice for ensuring accountability" (Earl & Fullan, 2003, p. 384). NCLB created pressure for raising the achievement of all students by making every school accountable and as a result, NCLB initiated an incredible movement across the nation for schools to report, manage, and act on data in order to implement standards-based reforms (Shen & Cooley, 2008).

The high-stakes accountability environment brought on by NCLB has made the job of the high school principal increasingly more difficult (Copland & Boatwright, 2006). Nationally, high school principals are faced with the challenge madated by NCLB to graduate all students from their schools by 2014 and, although improvements in graduation rates are occuring incrementally for many principals, the task has become more arduous as the bar continues to rise and the 2014 deadline approaches. Principals are expected to use and analyze data as part of the requirement to monitor student progress towards meeting standards and to create school improvement plans (Marsh, Pane, & Hamilton, 2006). This task makes data literacy a critical tool in avoiding the

sanctions imposed for schools failing to accomplish the requirements of the federal mandate; in becoming data literate, the principal must be able to interpret data wisely and use data effectively (Knapp et al., 2006). Expectations to meet ever increasing measures of progress during tough economic times when additional resources for school improvement are limited creates a climate of intense pressure for principals who must build a leadership capacity within their schools for sound decision making based on student data (Shen & Cooley, 2008).

Responding to the federal mandate of accountability, states across the nation have created systems for improving student academic performance and reducing achievement gaps in student subgroups. These systems include: establishing high-stakes, end-of-year tests designed to measure students' knowledge on a broad range of skills and topics; requiring the administration of local benchmark testing by state districts and schools throughout the year to monitior student progress in meeting state standards; reporting of school/system results, rewards, and sanctions based on performance; and factoring student attendance and graduation rates into monitoring ratings of school performance (Marsh et al., 2006). For the purpose of this study, Georgia is used as an example of how states have responded to NCLB.

To improve education in Georgia, the Office of Educational Accountability (OEA) was created with passage of the *A+ Education Reform Act of 2000* charging the agency with developing and implementing an accountability system to measure student achievement (Georgia Partnership for Excellence in Education, 2008). In 2003, Georgia made modifications to the act and renamed its accountability agency the Governor's Office of Student Achievement (GOSA). As the reporting and accountability agency in

Georgia, GOSA (2009a) reviews student assessment data and other public school records reported by school systems to the Georgia Department of Education (GADOE). The agency confirms accuracy of reporting and in turn, provides reports of student progress and school completion within Georgia's public schools through an accountability profile. Charged with ensuring that public schools are faithful to performance accountability requirements, GOSA inspects academic records of pre-kindergarten through postsecondary schools (P-16 schools). GOSA serves as a valuable resource to principals, as well as all educators and the interested public, in supporting efforts to gauge progress towards improving student achievement and graduation rates. Annually, GOSA (2009b) releases an on-line Report Card providing accountability information with respect to: results of state and national standardized tests, student and school demographics, indicators of school performance, personnel and Full-Time Equivalent (FTE), and school comparisons. Compliant to both state and federal accountability laws, the Report Card provides specific school related information about a school's performance and its progress towards meeting goals of student achievement. Additionally, GOSA partners with the GADOE to release AYP reports and plays a prominent role in establishing a single-statewide-accountability-system merging federal law with state law to include awards and consequences. Awards are presented to schools that have met AYP and show the greatest gain in the percentage of students meeting and exceeding standards as indicated by their performance index. Consequences in the form of specific interventions are imposed upon schools falling into the Needs Improvement (NI) status based on the set of criteria established by state law (GADOE, 2006).

In holding all high schools accountable for student success, NCLB became a

powerful instrument for improving the academic achievement of high school students. The need to improve all high schools and transform severely low performing high schools was highlighted at the U.S. Department of Education High School Leadership Summit (2003). Specifically, NCLB required states to set annual measurable objectives of AYP to ensure that all students met proficiency criteria in reading and mathematics. It further emphasized that the needs of struggling students cannot be ignored with high overall levels of achievement and therefore achievement goals are set annually for each subgroup of students: economically disadvantaged, racial and ethnic minorities, students with disabilities, and English language learners. Including the graduation rate in a high school's report of AYP focused attention on the needs of students who are at greatest risk of dropping out. Reporting to parents and all other stakeholders disaggregated achievement data, the school's graduation rate, and the qualifications of its teachers are steps meant for "improving high-poverty high schools, putting a qualified teacher in every classroom, expanding options for parents and students, raising the rigor of the high school classroom, focusing on what works, and preparing every young person for the future" (p. 2-4).

Confronting the challenges involved in making AYP and avoiding the sanctions imposed by failing to meet AYP objectives resulting in NI status is a priority for principals calling for the strategic use of data recommended in *Breaking Ranks II: Strategies for Leading High School Reform* (NASSP, 2004). In breaking ranks, high school principals are advised to gather data strategically from school records and surveys in order to assess school effectiveness and make recommendation for school improvement. A new kind of leadership emerged with the implementation of standards-

based accountability under NCLB and those principals who are well-prepared to meet the challenge are the ones who are more successful in raising school achievement levels (Mitgang, 2008). Principals are recognized as the catalysts for ensuring that optimum teaching and learning occur in schools; a principal's leadership in achieving school goals is about the "building of a shared commitment and building a leadership team" (p. 2). In case studies conducted at 11 high-performing high schools, the principal played the critical role in establishing support systems for using student data to inform instructional decisions that entailed consistently monitoring student performance data by subgroups and strategically matching effective interventions to individual students needing them (Cooper, Ponder, Merritt, & Matthews, 2005). Other case studies, conducted by Lachat and Smith (2005), demonstrated that the implementation of a school-wide data-use process in low-performing high schools was enhanced by the leadership structures enacted by the principal and suggested that establishing data teams contributed to a more widespread use of data and increased the capacity for using data to improve learning.

Mandated accountability and its requirement to use data effectively have influenced the basis and process by which principals themselves are evaluated (Goldring, 2008; Goldring et al., 2007; King, 2002; Luo & Childress, 2009; Wallace Foundation, 2009). It has led to a concerted and collaborative effort to revise the national 1996 ISLLC leadership standards and resulted in the development of *Educational Leadership Policy Standards: ISLLC 2008* that were adopted by the National Policy Board for Educational Administration (NPBEA) and its member organizations, including the National Association of Secondary School Principals and 26 member states (CCSSO, 2008a; NPBEA, 2009). Although the new standards retain the six fundamental characteristics of

the original 1996 ISLLC, the updated ISLLC 2008 takes into consideration the wealth of new information and lessons learned about educational leadership over the past decade (CCSSO, 2008a; 2008b). The expectations for principals to use data in leadership practices for driving school improvement are embedded in the six functions of ISLLC 2008 related to: vision, mission, and goals; teaching and learning; support for learning; collaboration; ethics and integrity; and external community connections (CCSSO, 2008b; Goldring et al., 2007; NPBEA, 2009).

Reacting to the climate of accountability and knowing that leadership standards are intended to provide a framework for guiding principals' practices and training new principals, Georgia is among a consortium of states using ISLLC standards to guide and develop its own state leadership standards for improving the training and professional development of principals and for monitoring the quality of principals' performance (CCSSO, 2008a, 2008b). Through its development of the *Leader Keys*^{SM}*: A Leadership Evaluation System,* field tested as a performance appraisal process during the 2009-2010 school year, the Georgia Department of Education has aligned state leadership performance standards with ISLLC 2008 standards (GADOE, 2010a). Using data is referred to in each of the ten broad strands of the leadership performance standards making up the Leader Keys^{SM}, specifically: curriculum, assessment, standards-based instruction, data analysis, organizational structure, professional learning and development, performance management and improvement, managing operations, leading change, and relationship development. In using the Leader Keys^{SM} as an evaluation system for principals, the alignment of its standards to ISLLC 2008 demonstrates Georgia's desire, as a CCSSO member state, to improve the quality of leadership through

updated, research-based information.

The updated descriptions of the roles of principals in ISLLC 2008 (CCSSO, 2008b) provide clear expectations and indicators for guiding principals who are required to meet accountability mandates and who "must not only manage school finances, keep buses running on time, and make hiring decisions, but they must also be instructional leaders, *data analysts*, community relations officers, and change agents; they have to be able to mobilize staff and use all of the tools in an expanded toolbox" (CCSSO, 2008a, p. 3). As an evaluation tool aligned with ISLLC 2008, the Georgia Leader Keys℠ are used to identify a principal's level of performance as a leader on specific standards; and expectations for using data are embedded within rubrics for each standard (GADOE, 2010a). Georgia's Leader Keys℠ standards are not only aligned with ISLLC 2008, but also to the 8 Roles of School Leaders ™ developed by Georgia's Leadership Institute for School Improvement (GLISI). GLISI specifies the *Data Analysis Leader* as one of the eight roles required of principals for leading schools in the work of school improvement (GLISI, 2006). In the role of *Data Analysis Leader*, the principal "demonstrates the ability to lead teams to analyze multiple sources of data to identify improvement needs, symptoms, and root causes" (p. 4). Reddekopp (2008) makes clear the knowledge and skills of data-based leadership that are essential in meeting the mandates of accountability. He identifies the following as key roles for high school principals: (a) leading and assisting teams in the analysis and disaggregation of student achievement data, as well as other forms of school data, to reveal gaps between groups of students; and (b) determining why specific areas are in need of improvement.

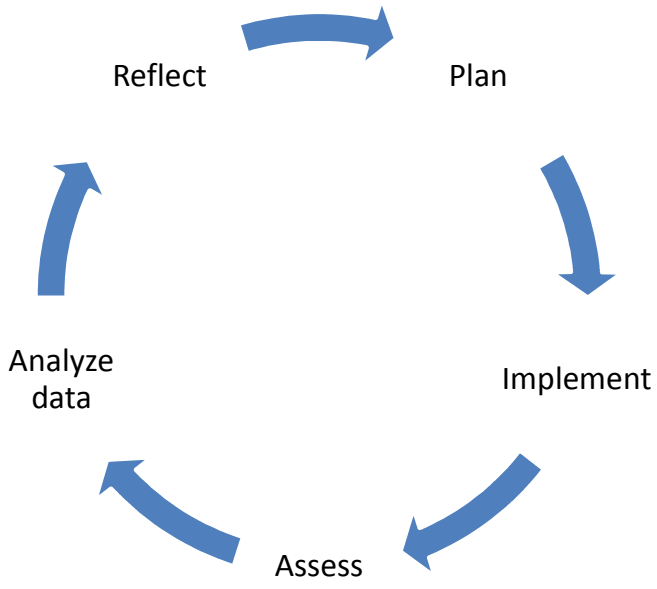
Using Data for School Improvement

The idea of using data in education originally came from successful industry practices, notably *Top Quality Management* (TQM), that focused on improvement by responding to various kinds of data (Marsh et al., 2006). Leaders in industry applying TQM study data related to material costs, production rates, and customer satisfaction to continually make company improvements. Similarly in education, a conceptual framework for DDDM recognizes that multiple types of data are used to *drive* or make decisions for school improvement which include: *input data* (e.g., demographics of the student population); *process data* (e.g., quality of instruction); *outcome data* (e.g., graduation rates or test scores); and 4) *satisfaction data* (e.g., opinions from stakeholders) (Mandinach et al., 2006; Marsh et al., 2006). Initially, collected data are raw and must be organized in the context of a situation to make sense; obtaining meaningful information from raw data happens through a process of analysis and summarization and in this format the data are transformed into actionable knowledge enabling users to inform the decision making process (Mandinach et al., 2006). Decisions may include identifying goals, recognizing needs, acting to change the curriculum, or reallocating resources. After a decision is made, the expectation is to collect new data for assessing the effectiveness of actions taken; thereby, creating a continuous cycle of collecting, organizing, and synthesizing data to support decisions (Marsh et.al., 2006). In data-driven decision making, the kinds of data collected, the method of analyses performed, and the resulting decisions are influenced by several factors including: the accuracy and accessibility of data and the degree of technical and leadership support provided for using data. Studies have found that the principal's leadership is a substantial influence in using data for

school improvement; principals who demonstrate commitment in using data through modeling and communicating a vision for data use make a difference in stimulating data-based decision making in the school (Means et al., 2010; Deike, 2009; Lachat & Smith, 2005; Mandinach et al., 2006; Marsh et al., 2006,).

Theoretically, the purpose of data-based decision making should be to collect, analyze, and interpret information in such a meaningful manner that school improvement resulting in a positive impact on curriculum, instruction, and student learning occurs (Rudy & Conrad, 2004). In a conceptual framework for data-based decision making, the processes of analyzing data, reflecting on data, planning in response to data, implementing changes, and assessing the changes become parts of a continuous cycle illustrated in Figure 1 (Means et al, 2010; Means, Padilla, DeBarger, & Bakie, 2009).

Figure 1. Conceptual Framework for Data-based Decision Making



SOURCE: U.S. Department of Education, Office of Planning, Evaluation, and Development, *Use of Education Data at the Local Level from Accountability to Instructional Improvement*, Washington, D.C., 2010. Report is in the public domain, authorization to reprint in part is granted.

In this continuous process of using data for school improvement, the starting stage may vary and there is no fixed ending stage. The key activity of the *reflect* stage is making sense of the data; through an interpretation of findings, inferences are made regarding outcomes of existing practices and areas in need of improvement are identified. The *plan* stage is the response taken to address identifed concerns, for example a plan to implement a new instructional approach may be developed during this stage in response to low math scores for a specific subgroup of students. The *implement* stage involves communicating, training, and the assignment of tasks needed to put plans or changes into place. New outcomes resulting from changes are evaluated and measured during the *assess* stage; depending on the nature of the innovation, data collected as measured by outcomes will vary and may include testing scores or surveyed opinions from teachers, parents, or students. The accumulation of data amassed from measured outcomes are evaluated in the *analyze data* stage to break down results by specific groups and to search for patterns related to a given change. We know that certain supporting conditions are necessary for building capacity and for generating a continuous cycle of data-based decision making. These supporting conditions are addressed later in this chapter.

It is important to describe what counts as *data* in the school improvement process. In order to get a holistic view of what is happening in the school, Bernhardt (2004; 2009) recommends using and intersecting four kinds of data:

1. *Demographics*. Characteristics such as enrollment, graduation rate, race/ethnicity, gender, socio-economic status, years of experience, and size, are examples of demographics used to describe students, teachers, the school, and the surrounding community.

2. *Student learning*. Various measurements of student learning may include standardized test scores, norm-criterion referenced test scores, diagnostic assessments, report card grades, and common unit and benchmark assessments.
3. *School processes*. Related to the programs and processes actually occurring in a school that affect learning are such things as schedules, attendance, discipline, extra and co-curricular activities, professional development for teachers, instructional strategies being used, and opportunities for remediation and credit recovery.
4. *Perceptions*. Surveys, questionnaires, and interviews reveal attitudes and beliefs of students, parents, teachers, and the community about the school.

According to Bernhardt, principals gain a better perspective of the various factors affecting student performance and the extent to which students with specific characteristics are achieving, by intersecting the different types of data. To improve learning for all students, it is necessary, for example, to look at student assessment results in the context of the school processes that created the results.

In a vastly rich environment of data, the challenge for principals is how to effectively collect, organize, analyze, and use relevant data to inform and guide decision making for improvement (Flowers & Carpenter, 2009). We know principals are drowning in data and there is a need to gain control over the data (Reeves, 2008/2009). With an overwhelming amount of data available for principals to examine, we also know having a plan for selecting and examining data is a way for principals to survive the "data overload" (Thomas, 2006, p. 1). A proliferation of strategies generated in the last decade for using data to improve schools present practical ways for principals to put into

practice.

From working with high schools to improve the effectiveness of using data for enacting reforms, Lachat et al. (2006) identify a few strategies for establishing a more purposeful use of data in a culture of inquiry including: organizing data use around essential questions; purposefully disaggregating data to answer essential questions by using technology; and using a data team and data coach to strengthen the use of data. Additional strategies in using data for school improvement are described as models, including: goal setting (Schmoker, 1999, 2001, 2006; O'Neill & Conzemius, 2006); and *Breaking Ranks* (NASSP, 2004, 2009). Descriptions and examples for these strategies are provided in the following discussion.

Organizing Data Use Around Essential Questions

Case studies conducted in five urban high schools by Lachat and Smith (2004, 2005) indicate that data were used more effectively when data teams were formed to develop clearly focused essential questions. The questions guided the teams in selecting and organizing pertinent data. The inquiry process in those schools began with deciding on a particular area that needed to be targeted for improvement (examples include the curriculum, instruction, graduation rate, or school climate), and developing questions to guide the process of selecting relevant data for analysis. According to studies conducted by Williamson and Blackburn (2009) and Thomas (2006, 2010), beginning with a question to determine what you want to know is the key to selecting data and getting useful information from data. Described by Copland (2009) as a cycle of inquiry, the process entails framing questions around data for leading school improvement by thoughtfully examining and identifying the kinds of data that clarify problems and

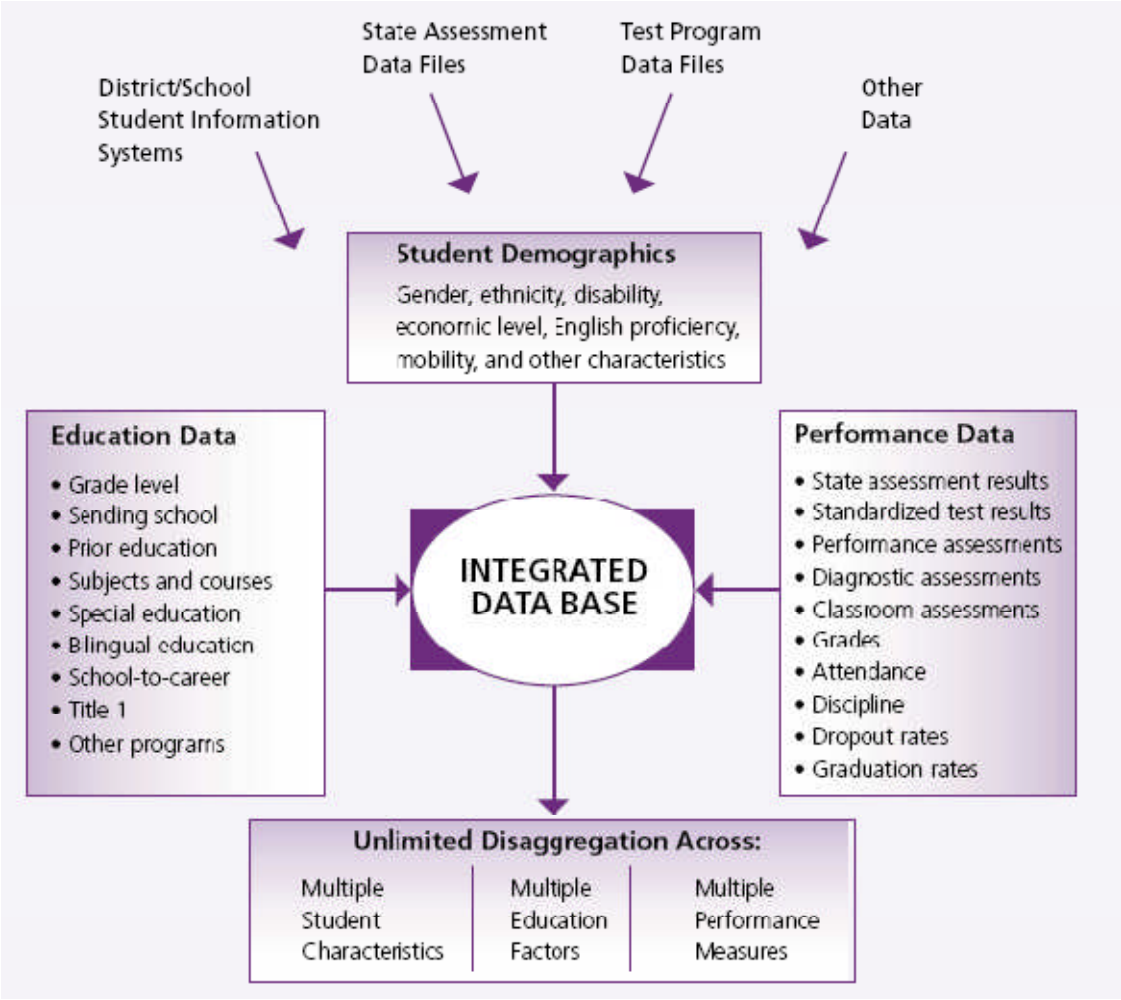
providing ongoing evidence about whether or not actions to address problems are working. Here is an example of a question framed around data: In which subgroups are we making the least progress in closing the achievement gap in math? As an example, the sample question calls for accessing a combination of student, educational, and performance data, including student demographic information, school program information, and assessment results. Questioning enhances the use of various types of data in combination with other forms of data to identify factors impacting equity and performance issues (Ronka et al., 2008/2009). Additionally, Lachat and Smith (2004) found, in their study of urban high schools, that when school leaders used a collaborative team approach to examine data focused around specific questions, the school staff becomes more data literate and a continuous cycle of inquiry was established.

Purposeful Data Disaggregation

In analyzing selected data to answer questions, it is necessary to intersect or disaggregate different types of data to gain a clearer picture of factors affecting an area targeted for improvement (Bernhardt, 2004; 2009). Having data warehousing technology that supports data disaggregation is a prerequisite for conducting a process intended to answer specific questions framed around data (Lachat, 2001; Lachat et al., 2006; Wayman, 2005), and done through intersecting assessment results by multiple student characteristics, programs, interventions, educational supports, instructional practices, and indicators such as grades. Data disaggregation is described by Lachat et.al. (2006) as a technology skill for responding to the important questions principals must answer about student performance and program effectiveness. Guided by essential questions, the disaggregation of raw, aggregated data is a way to make meaning from available data and

to more easily identify problems and successes. It involves sorting across multiple factors related to student demographic data, educational data, and student performance measures that are contained within an integrated data base. Figure 2 illustrates the scope of data disaggregation across multiple student characteristics, education factors, and measures of performance.

Figure 2. Data Disaggregation



SOURCE: Data-Driven High School Reform. Reprinted with permission from The Education Alliance at Brown University, Providence, RI Copyright © 2001. *http://www.alliance.brown.edu/pubs/hischlrfm/datdrv_hsrfm.pdf*

Lachat et al. (2006) summarizes data disaggregation this way: “It means being able to connect information about students who have particular characteristics to the programs and practices to which they have been exposed and the knowledge and skills that they have acquired” (p. 19). The importance of data disaggregation is clearly supported by research demonstrating that schools can effectively examine program impact for specific groups of students through this tool (Love, 2004; Holcomb, 2004; Ronka, et al., 2008, 2009; Means et al., 2010). Sorting assessment data into various combinations of students’ demographic characteristics with the programs in which the students are enrolled aids decision making. Intersecting the *writing scores* of *Black males* enrolled in a *support program* designed to promote literacy skills is an example of how data disaggregation can be used to base decisions on program effectiveness. Disaggregating data may also show relationships between school process information such as attendance, student mobility, and course grades when looking for factors that influence student performance.

Disaggregating data purposefully by using technology allows a team to answer questions about the performance of specific groups of students and the effectiveness of school programs and practices used with those groups (Lachat et al., 2006). To conduct a quality analysis of data, we know that principals should use technology to uncover patterns within one source and across multiple sources of data. (Thomas, 2006). Principals who learn how data, thoughtfully analyzed, fit into a larger picture of leadership practices are better equipped to make informed decisions for school improvement, and any efforts to assist principals in this endeavor serve to benefit schools (Knapp et al., 2006).

Data Team Approach

To be successful in data-driven decision making, principals must not only model the process, but also establish the conditions that support and encourage collaborative data-based inquiry (Wayman, 2005). A collaborative team approach provides an effective structure to support the use of data and ensures that data are routinely examined and used for planning school improvement (Lachat et al., 2006). To accomplish this collaboration, a data team with a mixed representation of faculty and leaders is established to focus data use on a set of essential questions. The team is tasked with identifying data that should be analyzed, interpreted, and used in setting targets for school improvement. Adding a data coach to serve as a mentor to the team strengthens the use of data in the school. In supporting a collaborative culture of inquiry by focusing around the most essential questions, the team's approach to examining data is directed towards the specific forms of data that will serve as the most important basis for decision making.

Goal Setting

Schmoker (1999, 2001, 2006) promotes a model for school improvement that focuses on using data to set goals and uses teamwork between principals and teachers in a systematic process of continually monitoring assessment results. Schmoker (1999) describes the principal as the leader who will "orchestrate a program that includes measurable goals, as well as praise and celebration of progress meeting those goals" (p. 113). The conceptual framework of data-based decision making is incorporated into a continous improvement cycle with goal setting; rather than being a single event, the starting point for continuous school improvement varies and there is no fixed end point. Schmoker (1999) considers teamwork, in an environment of a professional learning

community, as the common denominator for success in implementing components of the continuous improvement cycle; “Specific goals provide a basis for rational decision making …improvement cannot occur without them” (p. 27).

O’Neill and Conzemius (2006) extend the concept of setting goals with the idea of using data to develop *SMART Goals* and reviewing and revising the goals as needed based on data. *SMART* is an acronym defined as “strategic and specific, measurable, attainable, results-based, and time-bound” (p. 13) and such goals are considered the key towards closing achievement gaps and critical for school improvement. The process of using *SMART Goals* effectively is dependent upon the on-going collection and analysis of many different types of data and the leadership of a principal willing to facilitate the creation of collaborative *SMART* teams. In making goals, the focus of a goal set by a team has many possibilities; it may be academic performance, levels of student engagement, discipline, attendance, or the level of implementation of new teaching strategies.

What would components of a *SMART* goal for student academic performance look like? Applying the model of O’Neill and Conzemius (2006), a *SMART* goal for student Math performance created by a team would have a *baseline of measurement* (e.g., 60%) and a *measurable target* (e.g., 85%). There would also be a *specific time-frame* for accomplishing the goal (e.g., from spring, 2011 to spring, 2012). There would be *specificity for what performance is assessed* and, in this example, it could be 11^{th} grade students scoring 200 or above. The *method used to assess* would be stated, which for this example is the state Math graduation test. The *area of focus for improvement* would be represented by the specific areas of Math content (standards or domains) that were

indicated as deficiencies reported in baseline data. Taken together, these components describe a *SMART* goal for improving academic performance in Math.

Goal setting models are useful in helping principals implement strategies for working with and using data. In the *SMART Goals* model, principals and teachers should be gathering and analyzing data for a purpose; data should be the basis for making informed decisions in setting goals for school improvement and in developing strategies to accomplish the goals.

Breaking Ranks

Breaking Ranks: A Field Guide for Leading Change (National Association of Secondary School Principals, 2009), presents a model for gathering and using data in the process of school improvement that is primarily focused on raising student performance through three core areas: (a) curriculum, assessment, and instruction; (b) collaborative leadership and professional learning communities, and (c) personalization. To succeed in implementing and sustaining change, it is essential that the *Breaking Ranks* process of six steps is supported by professional development, promoted by collaborative leadership, and based on a shared vision.

In "step one" (p. 27) data are gathered and analyzed from a wide variety of sources to give an overall view of the school and determine priorities or areas of greatest need. The collected data should be personalized by attaching faces to the numbers. The variety of data types (e.g., demographic, academic, diagnostic assessment, behavioral, and perceptual) combined with personalization provide a more accurate picture of the school. Each type of data to be gathered may include various kinds of information for consideration. *Demographic data* may include parents' education and rate of mobility,

poverty indicators, parents' housing, and ethnicity among other characteristics. *Academic data* may include, in addition to state scores and other test data [Scholastic Aptitude Test (SAT), Preliminary Scholastic Aptitude Test (PSAT), American College Testing (ACT), Advanced Placement (AP)], school and classroom assessments, failure rates, interim progress reports, and classroom observations. *Diagnostic assessment data* may include reading, writing, and math levels. *Behavioral data* may include attendance, referrals, suspensions, expulsions, counseling visits, bullying/harassment issues. Other *miscellaneous data m*ay include results from NASSP satisfaction surveys of staff, parents, students, business, and community; and additional *student perception data* may be obtained from forums and student shadowing. The model recognizes that in analyzing data to determine the greatest need, it is necessary to sort or disaggregate by subgroups to look for patterns, and ascending or declining trends over time. Intersecting these across courses and grade levels provides the kinds of information needed to explore possible solutions to areas in need of improvement.

Possible solutions that will lead to improved student performance in areas determined to be in the greatest need are explored in "step two" (p. 67). Data are used to inform the process of deciding on the solution to be pursued. Solutions may be found by considering places where changes can be made to raise student performance, including the curriculum, instruction, assessment, professional development, program accessibility, and academic support.

In the "third step" (p. 83), knowing what changes need to be made determines what must be in place to implement the needed changes and build a capacity to enact them. It means analyzing the needs of the staff in terms of readiness to carry out proposed

solutions – what professional learning is needed, what school structures need to be set up, and what resources will be required to move forward. Targeting professional development, revising structures in the school, and providing additional resources serves to build capacity for carrying out proposed solutions to improve areas of need.

In the "fourth step" (p. 105), all stakeholders need to know what goals have been established to improve student performance and what plans have been made to meet the goals. Therefore, creating and communicating an improvement plan that clearly incorporates information from the previous step for improving student performance is important.

Implementation of the plan guided by *Breaking Ranks* strategies and tools includes capturing new data once implementation has started; and this "fifth step" (p. 117) is closely connected to the "sixth step" (p. 120-121), that monitors progress with a schedule of regular check points and makes necessary adjustments. As the last step, it entails collecting and analyzing additional data to make adjustments, sharing results, and repeating surveys or assessments at regular intervals.

In the *Breaking Ranks* model for school improvement, using data to make decisions for school improvement is the basic part of a process that identifies key areas for improvement in raising student performance: collaborative leadership and professional learning communities; personalization of the school environment; and curriculum, instruction and assessments. The model is considered by principals as a useful guide to daily decision making that makes the process of school improvement workable and in the "forefront" rather than in a filing cabinet (Nori, 2009, p. 52).

Building Capacity for Using Data in the Context of Standards

The findings of Mandinach et al. (2006) attribute the leadership of the principal as having the most influence in building a capacity for data-based decision making to improve teaching and learning in the school. Leithwood et al. (2004) describe three broad sets of leadership practices linked to improved student learning: (a) setting directions by the articulation of a shared vision of purpose, high expectations, and using data to monitor progress and performance; (b) developing people through modeling of effective practices and providing adequate support and training to succeed; and (c) redesigning the organization to achieve the shared vision of effective teaching and learning through the strengthening of school culture and the modification of organizational structures and practices. The leadership practices essential to building a capacity for data use in the school are incorporated within the Educational Leadership Policy Standards, ISLLC 2008 and referenced through recommendations given in the Institute of Educational Sciences (IES) *Using Student Achievement Data to Support Instructional Decision Making* (Hamilton, Halverson, Jackson, Mandinach, Dupovitz, & Waymon, 2009). Informed by research, Hamilton et al. provide a framework of five recommendations for principals to follow in conducting data-based decision making. While acknowledging the need for additional research, the recommendations from the group of researchers reflect their best advice in using data to improve student achievement. Intended to help principals build a capacity for using data in the school, these recommendations are described here and linked in context to standards-based leadership practices of ISLLC 2008 that are used by states such as Georgia in developing leadership standards by which principals are evaluated.

"Make data a part of an ongoing cycle of instructional inquiry aimed at ongoing instructional improvement" (Hamilton et al., 2009, p. 10) is the first recommendation. The researchers maintain collecting and preparing a variety of data about student learning for analysis should be part of a cyclical process rather than a one-time event. The cyclical process, described as a "data use cycle" (p. 10), includes a cycle of: (a) collecting and preparing a variety of data about student learning; (b) interpreting data and developing hypotheses about how to improve learning; and (c) modifying instruction to test hypotheses and increase student learning. Educators may find it useful to begin the data use cycle with the collection of data; however, the cycle can begin at any point.

In a case study of a high school using the data use cycle, the school examined demographic, language proficiency, attendance, course history, and standardized test score data seeking answers to three questions: "How are we doing? Are we serving all students well? And what are our relative strengths and weaknesses?" (Hamilton et al., 2009, p. 56). After collecting and analyzing data, the school found achievement gaps in 10^{th} grade math among students who had come from several different feeder middle schools. In following the data use cycle, a hypothesis was made that students coming from one middle school have higher achievement in 10^{th} grade math than students from the other schools due to the continuity or vertical alignment in the math curriculum between the middle school and high school. Taking the next step in the data use cycle entailed testing the hypothesis by modifying the curriculum and instruction for students coming from feeder schools with a discontinuity in the math curriculum. To improve student learning, additional support was provided for helping students catch up to their peers who were coming from the school with a more vertically aligned curriculum.

Examining new data resulting from the modification of the curriculum and instruction continues the cyclical nature of using data for instructional improvement.

The first recommendation for principals to consider in using data for instructional decision making, illustrated by the previous case study, is linked to the following leader functions for creating and implementing a plan for promoting continuous improvement and stated in Standard 1 of ISLLC 2008: "Function B. Collect and use data to identify goals, assess organizational effectiveness, and promote organizational learning; Function C. Create and implement plans to achieve goals; and Function D. Promote continuous and sustainable improvement" (CCSSO, 2008, p. 14). By asking questions, the school in the case study focused on the goal of serving students well and once it was established by data that students were not all doing well in math, action was taken to improve the curriculum and instruction in order to close the gap between students coming from different feeder schools. Taking additional data to assess the effectiveness of the action taken is an ongoing process that leads to ensuring sustainability of a plan for improvement.

"Teach students to examine their own data and set learning goals" (Hamilton et al., 2009, p. 19) is the second recommendation in the framework for principals' use of data. Effective data use by classroom teachers is more likely to emerge when it is supported and facilitated by the school leadership. Guidance on how teachers can instruct students in using classroom assessment data to develop goals for student achievement serves to motivate student performance and inform instructional practices. For example, student access at the beginning of the school year to diagnostic measures of achievement in a subject such as writing becomes the venue of self-reflection identifying specific

strengths and weaknesses and the basis for setting improvement goals. Assisting students in making data-based decisions to develop personal goals gives students ownership and responsibility for learning. The key for success in this strategy is the utilization of rubrics and tracking student progress over time, viewing this as an opportunity for improvement rather than a reflection of student ability. “Helping students understand assessment tools and analyze feedback puts students at the vanguard of the school’s culture of data use” (p. 26) is linked to ISLCC 2008 Standard 2 and its functions C and E: “An education leader promotes the success of every student by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and staff professional growth...Function C. Create a personalized and motivating learning environment for students…Function E. Develop assessment and accountability systems to monitor student progress” (CCSSO, 2008, p. 14).

“Establish a clear vision for school-wide data use” (Hamilton et. al., 2009, p. 27) is a third recommendation calling for ongoing data leadership. It recognizes that any success schools have with developing and maintaining a data use culture can be attributed to leadership, planning, attitude, and implementation. School-wide data use is dependent on the leadership for establishing a plan for data use with the support of organizational structures and practices. The recommendation advises principals to establish a data team as a committee of advisors on data use within the school who clarify and guide the school’s vision for the effective use of data. It recognizes the role of the principal in developing a plan for using data tied to school goals and “to provide guidance on using data to support the school’s vision, with the ultimate aim of developing the capacity of all school staff to use data” (p. 29). Distributing leadership through a data team that meets

regularly sets the tone for ongoing school-wide data use in the context of being stewards of a vision of learning. These ideals are referenced in ISLLC 2008 Standard 1 Function E and Standard 3 Function D: "An education leader promotes the success of every student by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by all stakeholders… Function E. Monitor and evaluate progress and revise plans…An education leader promotes the success of every student by ensuring management of the organization, operation, and resources for a safe, efficient, and effective learning environment… Function D. Develop the capacity for distributed leadership" (p. 14).

"Provide supports that foster a data-driven culture within the school (Hamilton et al., 2009, p. 33)" is the fourth recommendation. Principals need a thorough understanding of the role of the data leader in influencing change by promoting data use. Having the knowledge and skills for using data appropriately comes from having adequate resources, professional development, and time for collaboration. The principal in this role should designate a school-based facilitator who meets with teachers to discuss data and regularly provides targeted professional development. Structuring time in the schedule for teacher collaboration with data is a necessary requisite for promoting a data-driven culture. Some examples of targeted professional development include: "Avoiding common data analysis and interpretation mistakes; data transparency and safety; interpreting data in an educational context; using data to answer questions about student achievement; and using data to modify teaching and learning practices" (p. 37). Principals should secure resources to meet staff needs for interpreting and interacting with data thereby promoting data literacy for supporting and maintaining a culture of data use in the school. The

following standards and functions of ISLLC 2008 linked with the fourth recommendation promote collaborating with faculty and acting in an ethical manner to promote the success of every student: "Standard 4 Function A. Collect and analyze data and information pertinent to the educational environment…Standard 5 Function A. Ensure a system of accountability for every student's academic and social success" (CCSSO, 2008, p. 15).

Inherent in the fifth recommendation of the framework, "Develop and maintain a district-wide data system," is the pertinent role of district practice and policies affecting principal capacity for promoting data use (Hamilton et al., 2009, p. 39). School districts are expected to develop and maintain data systems of high-quality for enabling decision makers such as principals to access the data in a timely manner. Selecting the appropriate data system should involve a variety of stakeholders by establishing a data-system advisory council who understand the importance of data use in making instructional decisions. Users of data systems should be able to gain a complete picture of a student over time and between schools by identifying links between students and teachers for specific courses, curricula, and programs.

Principals are reliant on district and state support for overcoming barriers to using data in an efficient and productive manner. Data quality, accessibility, ease of using data warehouse systems adopted by districts, and professional development and training are the kinds of issues influencing principals' effectiveness as data leaders. These issues are further addressed in the next section.

Support for Data-Based Decision Making

Various conditions and policies affect the success of principals in using data for

improving teaching and learning. Surveys and case studies indicate that principals need knowledge, skills, and dispositions conducive to gathering, analyzing, and interpreting relevant data (Means et al., 2010). Further analysis reveals that carrying out a continuous school improvement process through data-driven decision making requires supports specifically identified by Means et al. as: state, district, and school data systems; leadership skills in the use of data; tools for generating and acting on data; structures for working with data; and, professional development and technical support for data interpretation (p. 3). Although principals are considered the key enablers of data use in the school, they depend upon these kinds of supports to establish a data-using culture.

Princpals should have access to all or most data for students in the school, while teachers in turn should have access to data on students in the classroom (Skalski & Romero, 2011). Consequently, a prerequisite for data-based decision making is having a data system in place that includes student enrollment information, basic demographic data, special program designation, grades, transcripts, standardized test scores, attendance, and disciplinary reports, as well as the technical support and training needed to maximize its use (Means et al., 2010). Earlier research indicated that schools receiving raw data with little or no disaggregation were hard-presssed to adequately the analyze data (Lachat & Smith, 2005). The process of facilitating the disaggregation and analysis of data involves planning for appropriate use of technology, in addition to having data systems that allow easy access to data and appropriate options for analyzing, summarizing, organizing, and displaying results (Bernhardt, 2004; Wayman, 2005; Datnow et al., 2008).

The key to successful disaggregation of data is in effectively using data

warehousing applications (Wayman, 2005). Described as the collection and organization of all data into one integrated data base, data warehousing links data that are often stored in separate repositories. By linking student information from the school with district information and state assessment files, the examination of relationships across a variety of domains can be greatly facilitated. Data warehousing does not replace a school's data system, but rather, it is a means of supporting it when the school uploads information from its data system into the data warehouse on a regular basis. Although data warehousing and technology are meant to facilitate and support data-based decision making, there are principals who have instead identified these supports as barriers due to inadequate accessibility and the lack of sufficient professional development and assistance to support the use of these tools (Reeves & Burt, 2006). Not all warehousing systems are user-friendly and making data meaningful through disaggregation relies on warehousing applications that have a user-friendly interface (Wayman, 2005). In the hands of capable leadership, data warehousing has the potential to be an invaluable tool for making data accessible and presentable thereby facilitating the inquiry process of data mining (Marsh et al., 2006; Wayman, 2005).

In a study of sixteen principals from the Midwest, several expressed concerns about their lack of preparation and training for becoming data leaders (Reeves & Burt, 2006). Certain states have addressed this concern by creating principal leadership academies to support principals and provide them with professional development. Georgia's Leadership Institute for School Improvement (GLISI) (2006) is an example of a leadership development program providing access to workshops and training modules that include a focus on preparing data analysis leaders. In the study of principals and

data-based decision making, Reeves and Burt (2006) reported that principals looked to districts to provide professional development prior to the start of each semester to assist with determining what data are important and what different forms of data mean. Obtaining sustained, job-embedded professional development aimed at enhancing principals' understanding in using data for effective decision making is a form of ongoing support that should be a district's priority for its principals (Means et al., 2010).

Principals are overwhelmed by the sheer volume of raw data available resulting from the plethora of testing, including standardized and norm-referenced tests, diagnostic tests, benchmark assessments, and formative/summative assessments (Popham, 2008/2009; Reeves & Burt, 2006). Not all test scores are worthy of serious analyses due to issues related to reliability and validity. Therefore, principals need to be able to differentiate between data that informs educational decisions and data that do not (Knapp et al., 2006). Principals want valid and reliable data to identify strengths and weaknesses in the school, set priorities, and work with teachers to meet the learning needs of individual students; yet data of this kind are often not as timely or useful as they could be (Mitgang, 2008). Getting data back in a timely fashion following testing is a challenge identified by Reeves and Burt (2006) often resulting in school improvement plans being written on the basis of incomplete or year-old data. Having the "means to access, manipulate, and interpret data efficiently and promptly" (p. 70) is a need to which principals defer to districts. In addressing barriers to using data efficiently, district and state levels must work to improve the feedback loops between testing and return of results (Mandinach et al., 2006).

From a national survey of school districts conducted through the U.S. Department

of Education's Study of Education Data Systems and Decision Making, Means et al. (2010) cited a lack of time to conduct data-driven decision making as a barrier to data use in 92% of surveyed districts. The lack of time was identified in different ways including: "lack of time for analysis, to collaborate around data, to receive training" (p. 44). Although collaborative inquiry around data is considered the most promising strategy for strengthening teaching and learning, it is the most difficult to implement because it requires support time for teachers to meet regularly, in addition to necessary time for receiving adequate training support for it to be successful (David, 2009/2010). From case studies of schools active in data-driven decision making, Means et al. (2010) found the presence of certain organizational structures that served to enhance and facilitate data-based decision making, including scheduled, supported time for reviewing and discussing disaggregated data, a protocol for drawing disaggregated data from warehousing systems, and the ability to work across data systems. Findings from case studies of four high performing urban high schools actively using data (Datnow et al., 2008) recommended scheduling time for common subject teacher collaboration to discuss data and use data to inform instruction. Datnow et al. (2008) further emphasized the importance of establishing a culture of trust and collaboration around data use, as well as instilling clear expectations that decisions will be made on the basis of data.

Summary

The accountability measures imposed by No Child Left Behind federal legislation gave needed attention to reporting of student data and provided an important framework for improving all high schools and transforming secondary schools with acute needs. The policies of NCLB required principals to report data and mandated the application of

sanctions for low-performing schools to close achievement gaps and provide an equitable education for all students. Although principals must adhere to requirements for reporting data, they are left to their own devices to decide how to best use the abundance of data available for school improvement. In addressing school improvement, the performance of the school measured in terms of AYP is of particular importance. Principals assume various roles in the application of standards-based leadership practices; however, the role of being a data leader is significant to making school improvements, sustaining student progress, and avoiding sanctions based on the AYP status of the school.

The literature confirms the importance of using data in clarifying and making decisions for school improvement. Frameworks for data-based decision making, including those of Marsh et al. (2006), Mandinach et al. (2006), Schmoker (1999, 2001, 2006), Means et al. (2009), Lachat et al. (2006), O'Neill and Conzemius (2006), and the *Breaking Ranks* model (NASSP, 2009), illustrate several approaches principals may consider in effectively using data. Data in itself does not ensure its adequate use, a principal's successful application of a framework for data-based decision making is dependent upon supporting conditions and reliant on the adequate collection and transformation of data into information that makes sense. This framework provides a basis for principals to manage the process of making decisions in their schools informed by data.

Several recommendations developed from accumulating research are presented to guide secondary principals in building a capacity for using data in decision making to improve teaching and learning. These include: (a) making data a part of an ongoing cycle of instructional improvement; (b) teaching students to examine their own data and set

learning goals; (c) establishing a clear vision for school-wide data use; (d) providing support that foster a data-driven culture in the school; and (e) developing and maintaining a district-wide data system. The alignment of these recommendations to *Educational Leadership Policy Standards: ISLLC 2008* used by states like Georgia in developing Leader Keys^{SM} standards for guiding principals' actions promotes implementation and justifies the importance of these recommendations in principals' practices.

Survey and case study research identifies certain barriers encountered in using data effectively at the school level including: the lack of time; excessive raw data, system and warehousing ease-of-use issues; access to reliable and quality data; and lack of sufficient training and technical support for interpreting and using data (Means et al., 2010). Beyond the presence of data systems and warehousing, the important support that principals receive from the district includes establishing a process that requires principals to use data in plans for continuous school improvement, tracking the usage of data for the purpose of school improvement, providing professional development and training activities, and providing on-site technical support personnel. Collectively, this support serves to remedy the lack of a principal's administrative readiness in becoming a data-based leader (Thornton & Perreault, 2002) who uses data effectively as the "shaper of data-based decision making" (Reeves & Burt, 2006, p. 65).

In Chapter 3, the methodology used to conduct a perceptual study of how principals use data in practices linked to leadership standards is explained. During the past decade, there has been more progress in principals using data to meet accountability mandates. The importance of using data, as noted in the literature for making decisions, prompts the question of how prevalent is the process being used in various principal's

practices linked to leadership standards. According to Thomas (2010, p. 53), “We’ve talked about it. We’ve read about it. We’ve gone to conferences about it. But do we actually do it, at a high level of quality on a regular basis?” Is data use being narrowly or broadly applied in the context of principals’ practices? Is there consensus among principals as to the priority placed on using data for some practices compared to others? Has the AYP status of the school influenced how principals use data? How have mandated accountability and an emphasis on standards-based practices affected the leadership practices of principals? In Chapter 4, the results from principal surveys and interviews are presented as findings addressing the questions raised. Further discussion of the findings and study implications, presented in Chapter 5, will help to inform educational communities about the quality of data use and the extent to which leadership practices using data-based decision making are taking place at the secondary level.

Chapter III

METHODOLOGY

Introduction

This chapter describes the research design, sampling and instrumentation procedures for data collection and analysis, and the limitations of the study. The researcher was interested in how principals use data in meeting the challenges of accountability and high school reform while fulfilling expectations of leadership. Specifically, the aim of this study was to learn how high school principals use data to inform decision making for school improvement in the context of standards-based leadership practices by asking them to respond to questions through surveys and interviews. In the role of data leader, the principal is expected to create a school culture for using data in a manner that promotes student achievement by building a capacity for data-based decision making in the school improvement process. Various issues regarding the use of data range from the accessibility of data to the transformation of data into knowledge. Principals rely on support from the district level for using data efficiently and effectively and the researcher wanted to know what kinds of support principals value most. The distinction of *making* Adequate Yearly Progress (AYP) is a school goal that principals must work toward attaining and therefore, the researcher wanted to know if differences in perceptions about data use exist between principals based on the AYP status of the school.

The following research questions guided this study:

1. How are high school principals using data?
2. What actions do principals take to build capacity for data-based decision making in the high school?
3. How are districts supporting high school principals in using data to make informed decisions in the school improvement process?
4. Are there perceptual differences between principals based on the school's level of performance in terms of Adequate Yearly Progress (AYP)?

Three hypotheses are proposed for research question four regarding differences in perceptions about using data among groups of principals. The principals are grouped on the basis of whether or not the high school: a) met AYP; b) did not meet AYP, but is *not* in Needs Improvement (NI) status; or c) did not meet AYP and *is* in Needs Improvement status.

Hypothesis 1: There is a statistical and practical difference in perceptions regarding the use of data between different groups of principals based on the AYP status of the school.

Hypothesis 2: There is a statistical and practical difference in perceptions regarding actions for building capacity for data-based decision making between different groups of principals based on the AYP status of the school.

Hypothesis 3: These is a statistical and practical difference in perceptions regarding district support for using data in the school improvement process between different groups of principals based on the AYP status of the school.

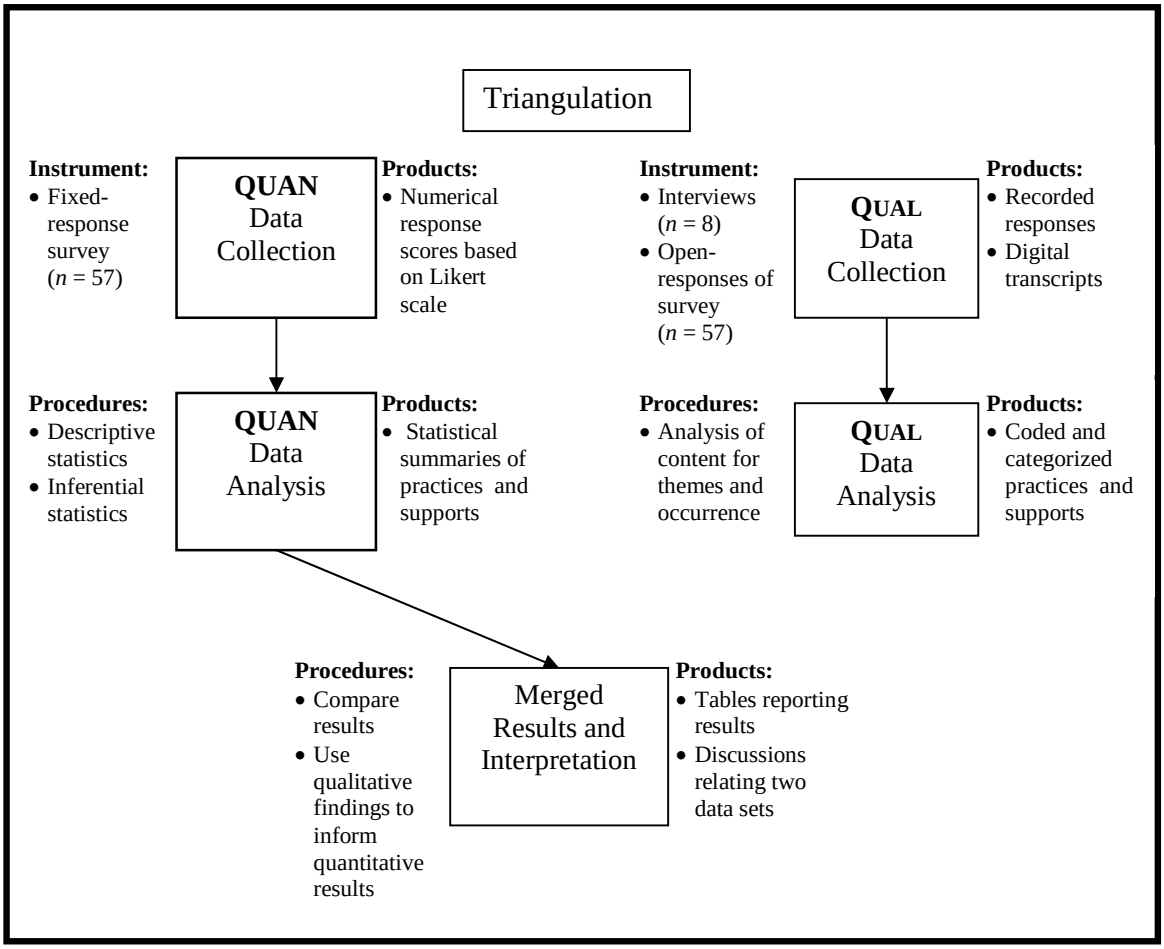
Research Design

The research design used in this descriptive study is referred to as *mixed methods*

research (Creswell & Plano Clark, 2007). The design involves both quantitative and qualitative data that are combined (*mixed)* in a single study. As a method that focuses on collecting, analyzing, and mixing both types of data, "Its central premise is that the use of quantitative (QUAN) and qualitative (QUAL) approaches in combination provides a better understanding of research problems than either approach alone" (p. 5).

In gathering the opinions and beliefs of principals' use of data in the context of standards-based leadership practices, both quantitative and qualitative perceptual data were collected and analyzed by using quantitative and qualitative methods, respectively. According to Creswell & Plano Clark (2007), the triangulation design is the most common approach to mixing methods: Its purpose is to bring together the unique elements of quantitative and qualitative methods. By itself, the quantitative method utilizes a large sample size to infer trends and generalize, whereas the qualitative method on its own provides in-depth details from a smaller sample. Additionally, the quantitative approach allows the researcher to collect data on a greater number of issues pertaining to a study; whereas, a qualitative inquiry involving interviews is limited by the amount of time that can be devoted to a discussion of a wide variety of topics but provides more rich details for a smaller range of topics. The researcher took into account the advantages of both kinds of approaches and triangulated the research design. For this perceptual study, combining these methods through triangulation was useful for comparing quantitative results with qualitative findings and for validating or expanding upon the quantitative results through more in-depth qualitative data. Guided by Creswell and Plano Clark (2007), the research design developed and used for this study is illustrated in Figure 3.

Figure 3. Research Design of the Study of Principals' Perceptions



To achieve triangulation in the design of the study, two instruments were used concurrently to collect and analyze quantitative and qualitative data. The results from these instruments were merged into the interpretation and discussion of the findings. The quantitative data were obtained from fixed-response items in an on-line survey and qualitative data were obtained from written, open-ended response items in the survey and from digital transcriptions of semi-structured interviews. The fixed-response survey instrument, using a Likert scale, was developed and used primarily to collect the quantitative data; however, survey respondents were given an opportunity to add

comments that were collected as qualitative data. The qualitative data obtained from recorded interviews using a semi-structured interview protocol, and from written comments provided by respondents of the on-line survey were coded and categorized in the analysis and subsequently, the qualitative data was used to inform the results and interpretation of the quantitative data obtained from fixed response questions. Additionally, the qualitative data provided the researcher with "quotes that can be used to validate and embellish the quantitative survey findings" (Creswell & Plano Clark, 2007, p. 65).

Sampling

Survey Sampling

The survey targeted a random sample of high school principals during the fall semester of the 2010-11 academic school year. An e-mail distribution list was created using a database from a state Regional Educational Service Agency (RESA) that included 303 high schools from 175 school districts. The e-mail sent to principals included a letter (see Appendix A) that explained the purpose of the study, gave access to Institutional Review Board (IRB) information (see Appendix B), and provided an electronic link to the on-line survey (see Appendix C). Principals receiving the e-mail were informed that all responses would be anonymous since all tracking of Internet Protocol (IP) addresses of respondents was disabled in the electronic survey to meet IRB approval. To minimize the likelihood of duplicate submissions of the survey, additional attempts to complete the survey from the same computer were prevented. Following the initial e-mail requesting participation, follow-up requests were e-mailed after two and four weeks. Delivery of e-mails was limited due to spam filters and e-mail address issues. Of the 303 e-mails, only

236 were deliverable. Of the 236 e-mails, 62 responses were received and 57 (24%) of these were deemed usable for data analysis.

Interview Sampling

The selection of interview participants was done through purposeful sampling to attain maximum variation more closely matching the larger population of principals in the study (Seidman, 2006). Patton (2002) emphasizes the importance of finding sources of rich information from which one can learn a great deal about issues central to the purpose of the research. Particular criteria used to maximize variation in the selection of principals included the use of school enrollment designations of the Georgia High School Athletic Association (A, AA, AAA, AAAA, and AAAAA) and AYP status obtained from GOSA (2010). Principals were contacted from high schools with different characteristics in terms of enrollment and AYP status criteria until a quota was met. Letters requesting an interview (see Appendix D) and containing language that guaranteed anonymity to participants in the study, according to IRB guidelines, were mailed to 16 principals using the selection procedure described. Follow-up calls and e-mails were made to principals to arrange on-site interviews; ultimately, eight high principals agreed to be interviewed. Table 1 identifies the characteristics of the principals interviewed in the study. To maintain participants' anonymity, a single letter of the alphabet was assigned to each principal and their school for the purpose of data analysis and discussion of findings. The intention of the researcher was to interview principals representing a cross-section of the population comparable to principals participating in the on-line survey to gain a more in-depth perspective of the research goals.

Table 1

Principals Interviewed

9-12 School Principal	GHSA Designation/ Enrollment	Years Principal	Years in Admini-stration	% Eligibility Free/Re-duced Meals	AYP / NI status*
A	A / 355	1	10	77	DNM / NI year 5
B	A / 440	3	3	70	DNM / NI year 2
C	AA / 764	5	20	56	Met AYP
D	AA / 850	2	27	69	DNM / NI year 5
E	AAA / 1,047	3	17	16	Met AYP
F	AAAA / 1, 441	2	9	50	DNM / NI year 4
G	AAAA / 1,570	3	18	51	DNM / NI year 4
H	AAAAA / 2,876	8	20	37	ADEQ (not NI) - DNM

** Note: AYP (Adequate Yearly Progress): ADEQ – Not NI; DNM – Did not meet; NI – Needs Improvement*
SOURCE: Demographic and achievement records compiled for each school are derived from the 2009-2010 Report Card and Adequate Yearly Progress Reports available through The Governor's Office of Student Achievement (GOSA) at http://reportcard2010.gaosa.org and the Georgia Department of Education at http://public.doe.k12.ga.us/ayp2010/

Instrumentation

Two instruments, a survey and an interview protocol, were used for collecting perceptual data from high school principals in this study. The instruments were created by the researcher from state documents of leadership performance standards and a review of literature. Specifically, the leadership standards of the Georgia Department of Education (2010a) Leader Keys^{SM}, aligned with *Educational Leadership Policy Standards: ISLLC 2008* (CCSSO, 2008a, 2008b) and the 8 Roles of School Leaders ^{TM} adopted by Georgia's Leadership Institute for School Improvement (2006), provided a framework for organizing items around 10 broad areas of leadership practices for using

data. Findings from Marsh et al. (2006) and Means et al. (2009, 2010) were used to develop items related to actions for building capacity and providing support for using data. The two instruments were designed to answer the same research questions enabling the researcher to assess corroboration among responses from one instrument to the other and to support the validity of the instruments.

The Survey

Principals were asked demographic questions about their years of experience and the characteristics of their school including its size and AYP status (see Appendix C). A set of 55 items followed the section on demographics. These items were intended to measure fixed responses rating: (a) the extent to which 35 standards-based practices in using data occur in the school; and (b) the level of agreement regarding 20 kinds of capacity building supports for using data.

Table 2 identifies dimensions or expectations for using data in standards-based leadership practices derived from the Georgia Department of Education's Leader Keys^{SM} Leadership Evaluation System. The Leader Keys^{SM} organizes 66 standards into 10 broad strands of leadership performance standards that were used by the researcher to develop a 35-item section of the survey designed to answer the first research question: How are high school principals using data? In creating the survey, the researcher looked for dimensions related to using data in each of the ten strands of Georgia Leadership Performance Standards that essentially represented an expectation of the principal in the role of being the data leader of the school. Each expectation for data use that is listed alongside a strand of leadership in Table 2 is meant to connect with activities that principals as leaders are to have carried out to meet the standard.

Table 2

Expectations for Using Data in Standards-Based Leadership Practices

Leadership Standard	Data are used for:
Curriculum	• Identifying strengths and weaknesses • Monitoring collaborative development of aligned maps, units, and lessons • Monitoring implementation
Assessment	• Determining levels of student achievement • Identifying students at-risk • Benchmarking student progress • Developing common assessments collaboratively
Standards-Based Instruction	• Monitoring quality of instructional maps/units/lessons • Monitoring quality of teaching practices • Selecting instructional programs • Evaluating effectiveness of instructional programs • Adjusting instruction based on assessment results
Data Analysis	• Systematically tracking school-based academic performance • Systematically tracking school-based student behaviors • Systematically tracking student performance on norm-referenced tests • Systematically tracking teacher performance • Setting measurable goals for monitoring comprehensive school improvement • Presenting and displaying comprehensive performance of all sub groups
Organizational Culture	• Analyzing collected data of stakeholder opinions • Tracking accomplishments to celebrate successes • Tracking short-term and long-term goals
Professional Learning	• Developing and evaluating professional learning activities
Relationship Development	• Addressing learner needs and educational equity • Addressing multicultural and ethnic concerns • Evaluating effectiveness of communications
Performance Process	• Developing and revising the guiding vision, mission, and beliefs of the school • Driving continuous school improvement
Managing Operations	• Evaluating principal's overall effectiveness • Identifying areas for school improvement • Tracking adequate and equitable resource distribution • Anticipating future needs • Developing budgets aligned to school goals
Leading Change	• Evaluating need for change • Building buy-in for change • Tracking progress in enacting change

Note: Adapted from the Georgia Department of Education Leadership Performance Standards, Leader Keys[SM] A Leadership Evaluation System, Atlanta, GA, 2010, *http://www.doe.k12.ga.us/tss_teacher.aspx*.

A 5-point Likert-type scale was developed for rating a set of 35 activities each connected to a specific data-use expectation and leadership standard. Thomas (2004) recommends developing items having the same construct; that is, all items are in the same direction, with the same level of importance, talking about the same concept the scale is trying to measure. The response scale, used to indicate the occurrence of certain behaviors related to the dimensions listed in Table 2, ranged from 1 (*never*) to 5 (*always*). The scale was chosen to identify current trends in how frequently principals are using data in professional practices intended to improve the school.

Of particular interest to the researcher was the level of support provided by principals to the school through actions that build a school's culture or capacity for using data and determining the kinds of support districts provided to principals for using data efficiently and effectively. Supportive actions for promoting data use were derived from the researcher's field notes and the literature and were used to create additional survey items. A listing of support from either the principal or the district is provided in Table 3. Using this support, the section of 20 survey items (see Appendix C) was developed to address research question 2, regarding how principals create a culture of using data in the school, and research question 3, regarding how districts provide support for the principal in implementing data-based decision making. The rating scale for indicating the level of agreement regarding the implementation and value of certain kinds of support ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

In addition to demographic and fixed-response items, comments were solicited from participants following each of the standards-based practices items giving participants the opportunity to elaborate on a response. A final open-ended, overarching

question in the survey asked principals to address the impact of dealing with data on leadership practices in general. These open-ended responses on the survey added to the qualitative component of the study.

Table 3

Support for Using Data

Source	Type of Support for Data-Based Decision Making
Principal	• Commitment to using data in the school improvement process • Demonstrates skills in using data effectively • Access to on-line tools for collecting and analyzing perceptual data • Access to student state testing data • Organization of data teams to collect, manage, and interpret data • Organization of school-wide data meetings to review school improvement • Structuring time for teachers and administrators to examine data to guide school improvement • Structuring time for teachers to analyze data collaboratively • Creating a culture of teacher empowerment in using data, rather than fear • Designated go-to person available to teachers to answer questions • Training of teachers and administrators to act on data for continuous school improvement • Structures in place for school leadership teams to use data to set targets and goals for continuous school improvement
District	• Access to state data system • Accessible integrated/longitudinal data system in place • Access to user-friendly school data system • Access to computer-based assessment technology. • State assessment results made available in timely manner and formatted for disaggregation. • Teacher training and tools for using data to inform teaching and learning. • On-going professional development for principals to increase data literacy • Designated go-to person available to principals to answer questions

Note: Adapted from the researcher's field notes, the U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, *Use of Education Data at the Local Level from Accountability to Instructional Improvement,* Washington, D.C., 2010, http://www.ed.gov and Marsh, J., Pane, J., & Hamilton, L. (2006). *Making sense of data-driven decision making in education.* RAND Research, http://www.rand.org/pubs/occasional_papers/OP170/

Prior to distributing the final version of the survey to principals through e-mail, an initial survey of 75 items was reviewed by three university professors of educational leadership, and two educational consultants working in secondary schools. The researcher incorporated suggestions by revising the format of the items and enhancing clarification of certain items through rewording. All the reviewers indicated that the survey was

lengthy and recommended reducing the number of items.

The final version of the 55-item survey was pilot-tested with a small group of four former and existing high school principals to validate the content of the survey. Participants in the pilot-testing indicated the survey required a minimum of 20 minutes to complete. All agreed the survey should remain in its existing form and that the content of all the items was relevant to the purpose of the survey. The subjective opinions of the principals piloting the study established the content validity of the instrument. No additional items were removed from the instrument for the purpose of this study. The survey is essentially a reflective instrument used to measure perceived use of data by high school principals, the degree to which principals believe they provide support to the school by building a capacity that facilitates the use of data, and the level of support they receive from the district that is considered to be influential in promoting the use of data by the school for the school improvement process.

The Interview

As the major qualitative component of the study, the interview was aimed at understanding the experiences of principals in using data to improve their school using a basic interpretive approach described by Merriam (2002). In using this approach, interviews are considered a major source of data for learning how participants make sense of a situation or phenomenon. For this study, the researcher investigated how principals make sense of the process of using data in leadership practices to meet the challenges of accountability. The protocol of the instrument was used as the framework for conducting one-on-one interviews with principals (see Appendix E). It consisted of an introductory script and a set of 16 open-ended questions drawn from segments of the on-

line survey and guided by the research questions.

Patton (2002) and Creswell and Plano Clark (2007) suggest procedures helpful in developing and conducting interviews. Developing an interview protocol listing open-ended questions helps to organize the collection of data and enhances the reliability of the study (Creswell & Plano Clark, 2007). Patton (2002) recommends developing the kinds of open-ended questions that allow participants to elaborate and direct the topic of discussion to their experiences and makes the suggestion of developing a "one-shot question" (p. 378) in the event of an interview going awry.

The interview protocol developed for this study was reviewed by three professors of educational leadership and piloted by a current and a former secondary principal to check for the validity of the content and the timing of an interview designed to take about 30 minutes. The resulting feedback validated the content of the interview questions and the amount of time needed to conduct the interview; a suggestion was made to include an over-arching question that was added to the interview protocol. The question asked principals to describe the impact that using data has had on their leadership practices in general. As a final question, it provided principals with the opportunity to reflect upon their leadership in using data and to add more details from experiences.

Procedures

This descriptive study gathered quantitative and qualitative information from a group of high school principals through e-mailed surveys and interviews during the last eight weeks of the fall semester of the academic 2010-11 school year.

A letter, inviting principals to participate in the study through a survey and containing a link to the web-based survey, was placed in e-mails to principals on three

separate occasions at two-week intervals. Participants used the link to connect to the website hosting the survey on-line. The website did not allow repeated submittals of completed surveys ensuring trustworthiness of the data. After closing the survey, collected survey data were downloaded for analysis from the website into the Statistics Package for the Social Sciences (SPSS; IBM SPSS Statistics 17.0, IBM Corporation, Armmk NY).

Letters requesting interviews from a subset of the participants were mailed to sixteen principals and followed up with phone calls until a sufficient group, consisting of eight principals representing a cross-section of schools, agreed to an interview. All of the interviews took place in the private offices of the high school principals and were digitally recorded and subsequently transcribed verbatim by a transcription service. School demographic and performance data regarding AYP were gathered from report cards issued by The Governor's Office of Student Achievement (2010).

Data Analysis

After completing data collection procedures, a concurrent approach to analyzing the collected quantitative and qualitative data was used in the triangulation of this mixed-methods research study (Creswell & Plano Clark, 2006). In the first step, quantitative and qualitative analyses are kept separate, and in the secondary step, the two data sets are merged to answer the research questions (p. 136-137).

Quantitative

The analysis of the quantitative data applied both descriptive and inferential statistics by entering the survey data into SPSS. Given that descriptive statistics are used to summarize the collected data of a sample of subjects (Mertler & Vannatta, 2005), for

the purpose of this study, the mean, standard deviation, median, and 95% confidence intervals were used to describe 5-point-scaled responses of a sample of high school principals to 55 survey items grouped by categories. The three survey categories created to answer the first three research questions consisted of dimensions of using data in standards-based leadership practices (35 items), actions by the principals that support a capacity to use data (12 items), and district support for using data (8 items). The calculated means of the responses to items in the first category on data use (n = 57) were used to rank order items from high frequency to low frequency. Response means for items in the other two categories (n = 57), capacity to use data, and support for using data, were ranked from greatest agreement to lowest agreement.

Inferential statistics were used in order to draw conclusions from the data about a larger population of 236 principals from a smaller sample size (n = 57) of principals who participated in the study. The important concept under consideration in inferential statistics is "how likely is it" that a true difference occurs in the population (Mertler & Vannatta, 2005, p. 9)? In terms of differences inferred from the data, it depends on whether or not the sample used is representative of the population under study.

Three Analysis of Variance (ANOVA) procedures were conducted to answer research question four: Are there perceptual differences between principals based on the school's level of performance in terms of AYP? The analyses compared means of disaggregated groups of principals based on levels of school performance. The researcher examined whether there was a statistical and practical difference between the groups of principals in their responses to items for the three survey categories: using data in standards-based leadership practices; actions from the principal that support or build

school capacity for using data; and actions from the district that support the principal and school in using data. Principals were disaggregated into groups on the basis of school AYP status. The criteria for each group of principals was based on whether or not the high school: (a) met AYP; (b) did not meet AYP, but is ADEQ, *not* in NI; or (c) did not meet AYP and *is* in NI. Statistical significance was determined at $\alpha = .05$. Practical significance was determined by an estimated effect size (η^2). The researcher used the following criteria for estimating effect sizes of .01 = small, .06 = medium, and .15 = large as indicators of meaningful differences (Huck, 2004, p. 377). These statistical procedures were used to test the following null hypotheses:

H_0 1: There is no difference in perceptions regarding the use of data between different groups of principals based on the AYP status of the school.

H_0 2: There is no difference in perceptions regarding actions for building a capacity for data-based decision making between different groups of principals based on the AYP status of the school.

H_0 3: These is no difference in perceptions regarding district support for using data in the school improvement process between different groups of principals based on the AYP status of the school.

Qualitative

The qualitative data collected from verbatim transcripts of 8 separate interviews were organized using a descriptive analytical approach from Patton (2002) that begins by conducting a cross-interview analysis of the answers to the questions used to guide the interview (p. 439-440). Grouping together the text of transcripts from different principals for common questions helped to initially sort and organize the text by distinguishing

central topics and processes in order to “get a sense of the whole” (p. 440). The researcher then opted to hand-code the text using extra-wide margins: code words assigned to text segments were written on the left margin and descriptions of broad themes were written on the right margin. Although computer programs exist for qualitative data management and analysis, the researcher was influenced by the following advice taken from Patton (p. 446), “The best advice I ever received about coding was to read the data I collected over and over and over. The more I interacted with the data, the more patterns and categories began to jump out at me. For me, actually seeing the data in concrete form was vital in recognizing emerging themes.” Additional qualitative data were collected from open-response items on the survey and were also coded and categorized by themes to further clarify perceptual evidence. An Excel (Microsoft Corporation, Redmond WA) spreadsheet was used after extracting segments of text from transcripts in Word (Microsoft Corporation, Redmond WA) to categorize and sort the qualitative data guided by themes in Tables 2 and 3. This process of coding and grouping the data to reflect broader perspectives that can be related or compared was the core feature of the qualitative analysis presented in the results.

Merging the Data

Creswell and Plano Clark (2007) suggest two techniques for merging the quantitative and qualitative data: transforming the qualitative data into quantitative to make both sets comparable or comparing both sets of data without transformation through a discussion or matrix (p. 237). The researcher chose the latter preferring a discussion of specific information or quotes about a theme from the qualitative data to confirm or disconfirm the quantitative results (p. 141). Patton (2002) refers to the

triangulation of qualitative and quantitative data as a form of comparative analysis where areas of convergence increase confidence in findings, and areas of divergence open windows to better understanding the multifaceted, complex nature of a phenomenon (p. 559). As data were placed in categories by themes, a continuous process of comparative analysis guided the development of patterns inductively. The inductive process allowed patterns to emerge from the data without making prior assumptions.

Validity and Reliability

This section addresses the validity in the instrumentation and procedures process, explains methods used to validate the triangulation design and discusses of the reliability of the study.

A basic visual of a triangulation design is an image of an inverted triangle with two apices at the top and the one apex at the bottom; in picturing this, quantitative (QUAN) and qualitative (QUAL) methods are represented as the top apices and the interpretation, based on both (QUAN + QUAL) results represents the bottom apex (Creswell & Plano Clark, 2007). In this study, two types of data were collected and analyzed separately, and subsequently converged through comparing and contrasting the results in the interpretation. Given this type of convergence, the design is more specifically referred to as a concurrent form of the "Triangulation Design: Convergence Model" (p. 63).

The convergent triangular design brings together the different strengths of the QUAN and QUAL methods and compensates for their individual weaknesses (Patton, 2002). The strength of the QUAN in this study was that it made it possible to measure the perspectives of many principals to a precise set of questions that could possibly be

generalized to a larger population, depending on the participation rate. The strength of QUAL is that an increased depth of information was brought to bear on the perceptions participants provided to a related set of interview questions by sharing the rich details of their experiences. A careful construction of the QUAN instrument, and using a consistent, bias-free manner in conducting QUAL interviews with related questions, promoted validity in facilitating the process of making valid comparisons during an integrated interpretation of the results. The deductive nature of QUAN can be perceived as a weakness in terms of narrowing and reducing the meaning of the findings; as an inductive process, QUAL offsets this weakness of QUAN by providing a more comprehensive and expansive view of the findings resulting in a more "richly descriptive" product (Merriam, 2002, p. 5).

Cronbach's coefficient alpha was used to evaluate the reliability of the survey instrument in terms of its internal consistency in measuring what it was intended to measure (Cronbach & Shavelson, 2004). Responses from the Principal Survey produced scales that were grouped into three categories: (a) data use, (b) building capacity, and (c) district support. SPSS was used to calculate the coefficient alpha for each subscale of the survey from a single administration. Additionally, the standard error (*SE*) and a 95% confidence interval around the mean for each item were computed.

The reliability of the qualitative aspects of the study has much to do with how the study was conducted and the data were analyzed. Merriam (2002) states, "there is no point in considering reliability without validity" (p. 27). The implication being that validity should be well established in terms of field testing to check that the qualitative instrument asks what it was intended to ask. To establish reliability, the accuracy of a

qualitative study must be credible, trustworthy and authentic and requires the investigator to be trained and rigorous (Patton, 2002). In utilizing an interview protocol of scripted open-ended questions, the researcher worked to make the process of data collection consistent after considerable review and study. The use of digital recordings and an outside service to transcribe the recordings verbatim provided an authentic source of data for analysis. Using multiple methods to collect the qualitative data is another strategy discussed by Merriam (2002) and Patton (2002) and the researcher included the open-responses collected through the website and field notes taken at each interview site. During the process of analysis, researcher notes describe how categories were derived and how themes developed from hand-coded entries.

Limitations of the Study

The survey sample size limits the study's external validity, that is, the extent to which findings can be generalized to a larger population of secondary principals. After eliminating emails blocked by system spam filters, the response rate for the group of 236 principals of grades 9-12 high schools who received emails requesting participation was 24%. Although using the Internet as a vehicle for disseminating a survey can be an expedient and efficient process, the growth of this medium as a tool for communication has created a highly increased volume of e-mails on any given day for principals to prioritize and distill. The amount of time a principal may devote to reading and responding to email requests is limited, given the complex, unpredictable, and demanding nature of a high school principal's day. As a perceptual study focusing only on principals, the extent to which respondents provided a true portrayal of how principals have been impacted by data-driven practices effects the validity and reliability of the study;

however, the researcher emphasized the confidential nature of the study to reduce the threat. The selection of principals for the interviews was non-random and posed a threat to external validity, however for the purposes of conducting a triangulation design of a mixed-method study, the substantial interview data supported, refuted, or expanded the findings from the survey. The researcher was concerned about her subjectivity in conducting interviews, having had experience in data-based decision making as an assistant principal. However, being keenly aware of and careful to prevent biases from influencing the interviewing process, the researcher made a concerted effort to mitigate bias, knowing that the ultimate purpose of the study was to inform and learn about new ways in which principals deal with data, rather than to validate any personal biases held by the researcher.

Summary

This was a descriptive study using mixed methods to gather quantitative and qualitative perceptual data from principals through a survey developed by the researcher and from individual interviews with principals. Conducting a study of this kind requires careful consideration of the methodology so that answers to the research questions are credible and provide an understanding of the problem. The methodology used in the study is a triangulation design incorporating a concurrent collection and analyses of quantitative and qualitative data that were merged into the interpretation and discussion of the results.

Quantitative data collection relied on the dissemination of a web-based survey to a group of secondary principals in a southern state; while the qualitative data was collected from both the survey participants and individual interviews of principals

selected from the group. The analysis of data included descriptive and inferential statistics utilizing SPSS to obtain summaries of principal's data use practices, support provided by principals that build capacity for using data, and support received by principals from districts. Analysis of qualitative data entailed a systematic process of coding and categorizing by themes the segments of texts including words, phrases, and paragraphs from the two instruments used in the study.

The merging of the results and interpretation of the findings presented in the succeeding chapters will involve comparing and contrasting the findings in a discussion relating the two data sets. In the triangulation of this study, the qualitative findings will be used to inform the quantitative results and will contribute to the validity and reliability of the research. A summary of the results that are illustrated through tables and explained in the interpretation of the findings will be presented and merged in Chapter 4. In Chapter 5, conclusions are drawn and recommendations are made through a discussion of the findings in the study.

Chapter IV

RESULTS AND INTERPRETATION OF FINDINGS

Introduction

The following research questions guiding the study were used to organize the findings in this chapter:

1. How are high school principals using data?
2. What actions do principals take to build capacity for data-based decision making in the high school?
3. How are districts supporting high school principals in using data to make informed decisions in the school improvement process?
4. Are there perceptual differences between principals based on the school's level of performance in terms of Adequate Yearly Progress (AYP)?

The quantitative findings in the study were derived from analyzing data collected from three parts of the survey instrument to learn how principals are using data, how they build capacity for data use in the school, and how they are supported by their districts in acting on data. Narrative data in the form of words, phases, or paragraphs were coded and categorized from the transcripts of interviews and open ended survey questions; these were the basis for the analysis and development of the qualitative findings of the study. The interpretations made from analyses of both sets of data were merged to clarify the results, reveal inconsistencies, substantiate findings, provide examples, or explain similarities and differences.

A thematic approach is used to present the results and interpretation of the findings. Beginning with leadership practices of principals in using data, the quantitative results of 35 survey items are presented and analyzed for commonly related standards and merged with qualitative data from interviews and open-ended questions of the survey. Secondly, actions by principals in building a culture for using data in the school are analyzed from the results of 12 survey items and examples shared by principals in the interviews are merged in the interpretation. In the third theme, 8 items from the survey are analyzed to determine how principals perceive the level of district support received for managing and using data effectively; interview data provides a rich description of the kinds of support valued by principals from the district, thus providing greater clarity to the findings. Finally, statistical comparisons of principal perceptions with regard to practices, capacity building, and support are made to determine if significant and practical differences exist between principals of schools with a different AYP status.

Principals' Leadership Practices in Using Data

Research Question 1: How are high school principals using data?

Principals rated the extent to which they used data for a set of 35 items in the high school principal's survey on "Using Data" (see Appendix C). Each item described a practice aligned with a specific standard of the Georgia Leader Keys^{SM} which organizes standards into the following strands: C*urriculum, Assessment, Standards-Based Instruction, Data Analysis, Organizational Culture, Professional Learning, Relationship Development, Performance Management and Process Improvement* (referred to in this document as *Performance Process*), *Managing Operations and Leading Change* (GADOE, 2010a, p. 1). Cronbach's alpha was calculated to measure the internal

consistency of the survey subscale for a single administration and the resulting alpha reliability coefficient was 0.95, suggesting that the internal consistency of the survey subscale was high.

Curriculum, Assessment, and Standards-Based Instruction

For the purpose of school improvement, the performance standards of the Leader Keys[SM] are closely interrelated for *Curriculum, Assessment, and Standards-Based Instruction(C/A/SBI).* The following expectations for principals connect to *C/A/SBI*: (a) to monitor the implementation and quality of a standards-based curriculum driven by collaborative planning and consensus for ensuring instructional alignment; (b) to review and analyze student performance at *all* levels, including those at risk, so that instruction for maximizing student learning and achievement can be adjusted; and (c) to refine curriculum implementation and instruction based on identifying strengths and weaknesses from analyses of assessments and evaluations of instructional programs and teaching practices. (GADOE, 2010a). Items describing how principals use data in connection to *C/A/SBI* are ranked in Table 4 by the means indicating the extent to which principals (n = 57) believe they engage in practices.

Identifying the strengths and weaknesses in the school's curriculum from state assessment results was rated the highest practice overall (M = 4.57, SD = 0.77, 95% *CI* 4.35–4.80) next to analyzing levels of student achievement for each student, student subgroup, and the overall school (M = 4.55, SD = 0.80, 95% *CI* 4.32–4.70). The use of state assessment data, from Criterion-Referenced Competency Tests (CRCT), End of Course Tests (EOCT) and Graduation Tests (GHSGT and GHSWT), to identify students

Table 4

Using Data: Curriculum/Assessment/Standards-Based Instruction

Using Data in Standards-Based Leadership Practices Survey Item	***M***	95% ***Confidence Interval*** Lower Bound	Upper Bound	***SD***	***Mdn***
1. State assessment data from EOCT, GHSWT, and GHSGT are used to identify areas of strength and weakness in my school's curriculum. (*Curriculum*)	4.57	4.35	4.80	0.77	5
2. State assessment data from CRCT, EOCT, GHSWT, and GHGST are used to analyze levels of achievement for each student, subgroup of students, and the overall school. (*Curriculum*)	4.55	4.32	4.79	0.80	5
3. State assessment data from CRCT, EOCT, GHSWT, and GHSGT are disaggregated to identify individual students at risk of not completing requirements for graduation. (*Assessment*)	4.43	4.18	4.67	0.83	5
4. Data are collected to monitor the implementation of a standards-based curriculum in classrooms. (*Curriculum*)	4.32	4.12	4.52	0.70	4
5. Data are used to evaluate the effectiveness of newly implemented instructional programs designed to raise student achievement. (*Standards Instruction*)	4.17	3.94	4.40	0.79	4
6. Data are collected and used to monitor teacher collaboration in agreeing on what students need to know, understand, and do. (*Curriculum*).	4.11	3.86	4.35	0.84	4
7. Data are used to make recommendations regarding the purchase of instructional programs designed to increase student achievement. (*Standards Instruction*)	3.98	3.71	4.25	0.92	4
8. Teachers at my school collect and analyze formative and summative assessment data (ex. results from quizzes, unit tests, project evaluations using rubrics) to adjust instruction. (*Standards Instruction*)	3.83	3.58	4.08	0.87	4
9. Data are collected and used to monitor teacher collaboration in developing common assessments aligned to standards and designed to identify specific gaps in student learning that need to be addressed. (*Assessment*)	3.79	3.53	4.05	0.88	4
10. Data from common benchmark assessments are used to adjust instructional strategies for students. (*Assessment*)	3.74	3.46	4.03	0.97	4
11. Data are used to monitor the implementation of research-based best teaching practices in the classroom. (differentiation, higher order thinking skills, criterion-based feedback, summarizing, flexible grouping, etc.). (*Standards Instruction*)	3.68	3.43	3.93	0.86	4
12. Data are collected to monitor the quality of curriculum maps and unit/lesson plans. (*Standards Instruction*)	3.60	3.35	3.84	0.83	4

Note: Using Data in Standards-Based Leadership Practices items were rated with a 5-point Likert scale (1 = *never* to 5 = *always*). Cronbach's alpha for Using Data in Standards-Based Leadership Practices was 0.95.

at risk of not completing requirements for graduation (*M* = 4.43, *SD* = 0.83, 95% *CI* 4.18–4.67) was found to be the third highest practice in terms of frequency.

Principals surveyed in the study are saying they are meeting the expectation of always using state assessment data that measures student performance in Reading, English, Math, Science, Social Studies, and Writing in these three practices. A principal of a 5A school that met AYP made the following comment:

> We are constantly and consistently analyzing state assessment data so we know and understand how to support our students that are struggling [sic]. (Survey comment of a high school principal)

The data from interviews with eight principals (described in Table 1) who were asked about the kinds of assessments they relied upon to analyze student performance, inform curriculum, and improve instruction, confirms the prominent role they give to state standardized assessments. Two principals corroborating quantitative results expressed the following:

> We scrutinize all of our standardized test data, everything, from graduation test, CRCT, for our rising ninth graders, to EOCT, PSAT, and AP. (Principal H)

> If you look at standardized test data, by the domains, then that translates back into the classroom – what we've done, what we changed, what we need to change. (Principal C)

To a lesser extent, high school principals are turning to benchmark assessments (*M* = 3.74, *SD* = 0.97, 95% *CI* 3.46–4.03) and other forms of summative assessments (*M* = 3.83, *SD* = 0.87, 95% *CI* 3.58–4.08) to inform and adjust instruction. Although from interviews, they sporadically talked about using benchmark tests, seven of the eight principals indicated they have begun to rely more on results from diagnostic or predictor

tests to identify students who are struggling.

> We give predictor tests in the 9th and 10th grade and have those scored and bring that data back and use it not only in the classroom for instruction, but we also use it for scheduling. For example, we give a predictor writing test. Those who were deemed most at risk were placed in a writing class as an elective for 9 weeks. In addition to that, we have what we call [*mascot*] period which is 25 minutes during the day for enrichment and remediation and we do several things with that time, so from the writing data we placed students in remediation for writing for four weeks prior to the state test. Each English Lit teacher was given the individual score sheet of the students in their class so they knew exactly the strengths and weaknesses of the students in their class when it came to writing. (Principal E)

> We do a diagnostics test with our rising 9th graders on the last week of school. Again, that helps us with placement into the Math 1 course who needs to be accelerated, who needs Math 1 or who needs Math 1 with support. So that's one way we've used the data off that diagnostic test. (Principal G)

> Common benchmark assessments are given each nine-weeks and we use them to make sure that we're teaching the standards that need to be taught. (Principal F)

> We pre-tested the kids in the fall of their 10th grade year and then early in the 11th grade year and tried to identify students who were going to struggle on the graduation test so we can provide interventions prior to that. And we've gradually built benchmark tests. And of course, the nine-week benchmark will be a reflection of what standards their content map says should be covered at the nine-week point [sic]. (Principal B)

In particular, principals expressed the success they experienced in using predictor test data to identify students at risk and implementing intervention strategies based on that data to raise student achievement. After using data from a writing predictor test and applying specific strategies to provide academic assistance to students identified at-risk,

Principal E had only two students to fail the GHSWT. She said, “We had two students who did not pass and their scores were very, very close. We have a very high at-risk population in our junior class so we have done a lot to focus on those students.” Principal D explained how his school dramatically improved scores on the GHSWT after using data from a predictor test.

> Last spring we gave our sophomores a writing predictor test on the day after our juniors finished the graduation test. We did it in the same setting, all in one area, no interruptions. And that information went from our hands to the 10th grade teachers hands for the remainder of that school year, and then to our 11th grade English language arts teachers as they started this year. And when they took the writing test in the fall we improved by 15 percentage points. (Principal D)

Data Analysis

The leadership performance standards of The Leader Keys^{SM} for *data analysis* involve the “process of collecting, organizing and analyzing data with the intent of extracting useful information, facilitating conclusions, and planning for comprehensive school improvement.” (GADOE, 2010b, p. 31). In Table 5, data analysis practices are ranked according to how consistently principals say they are conducted. Using data for setting goals for student achievement ranked highest (M = 4.43, SD = 0.62, 95% CI 4.24–4.61). The data reveals how important the tracking of attendance data, suspensions, and dropout rates are to principals who ranked this aspect of data analysis as second highest (M = 4.34, SD = 0.82, 95% CI 4.10–4.58.). Reducing the dropout rate is connected to school improvement and directly affects whether or not a school is able to meet AYP.

Table 5

Using Data: Data Analysis

Using Data in Standards-Based Leadership Practices Survey Item	***M***	***95% Confidence Interval*** Lower Bound	Upper Bound	***SD***	***Mdn***
1. Data are used to set clear, specific, and measurable goals for raising student achievement at my school.	4.43	4.24	4.61	0.62	4
2. Data are collected at my school to track attendance, discipline referrals, suspensions, and dropout rates for specific student groups.	4.34	4.10	4.58	0.82	5
3. At my school, data are collected from learning walks to gather information about teaching and learning.	4.13	3.89	4.36	0.80	4
4. At my school, data are collected and used to track the academic performance of specific student groups, i.e., students enrolled in certain programs, courses, internships, or grade levels.	4.02	3.81	4.23	0.71	4
5. Disaggregated achievement data for my school are presented and displayed for all stakeholders.	3.96	3.71	4.21	0.86	4
6. Data obtained from AP, PSAT, SAT, ACT, and Work Keys assessments are used to analyze student performance for specific student groups at my school.	3.62	3.31	3.92	1.03	4

Note: Using Data in Standards-Based Leadership Practices items were rated with a 5-point Likert scale (1 = *never* to 5 = *always*). Cronbach's alpha for Using Data in Standards-Based Leadership Practices was 0.95.

Through interviews, principals voiced their perceptions about setting goals in the school improvement process in key ways that involve using data.

> We use a *balanced scorecard* to make goals every year. We work on what we call "*Smart Goals*" and it is everything. We use these *to-plan-do-check* everything that we do. I asked each department to come up with a percentage of passing for their graduation test and the EOCTs and I make them tell me what they want to achieve. Then we put the data on there and let them look at it and see the results. We also have them look at the data on their nine, 18, and 27-weeks tests to determine what standards we are missing and if there are some areas that we need to remediate [sic]. (Principal F)

> Each goal in our school improvement plan is measurable and has an activity or an outline to accomplish that goal and strategies in place with a periodic checklist. So usually, every nine weeks, we pull that school improvement plan out and, have we met those

> goals [sic]? Where are we with this one? One would be improving the graduation test scores by test preps and study skills, math supports and reading; those are interventions we have in place. (Principal G)
>
> Each department sets at least one goal, for example the English department, their focus is on writing so we use the predictor test, we use our writing class, we use PSAT data to set goals. (Principal E)

Although analyzing student performance on national norm-referenced and criterion-referenced assessments ranked lowest (*M* = 3.62, *SD* = 1.03, 95% *CI* 3.31–3.92) in Table 5, the standard deviation indicates that, for some principals, it is an area that merits attention. Some of the interviewed principals indicated an emphasis on examining AP, PSAT, and SAT data and were using the data to target students and raise classroom rigor.

> We give the PSAT to all of our 9th and 10th graders. We use PSAT data for a lot of things. It's a great predictor for writing. It's also a great predictor for AP potential and, you know, saying to kids, inviting them and saying, 'You really need to take this AP class' and why. It helps us decide who needs to go in an AP class [sic]. (Principal E)
>
> We collect data from so many places, and you can see here, on the flow chart, how many places we get data from, from the individualized departments, of course from the standardized tests, from outside agencies like ACT and SAT and it can almost be overwhelming at times, so we kind of devised a plan of attack where one person collects the data at a certain level and it works its way up to one person that's ultimately responsible for it and then we use it to make decisions on our interventions, it helps us to make decisions on our scheduling and of course it helps us to make decisions about where we're doing well and where we're not doing well so ultimately, it's going to make decisions about instruction [sic].(Principal D)

> We have spent a lot of time in the last 5 or 6 years with our AP program and have tripled the number of students enrolled in the AP program and the number of students that made 3 or higher [on the exams]. We kind of abolished the admission standard to increase enrollment and we increased a number of courses we offer from 10 to 15.So all of that data we were gathering made a difference as we were working towards what we needed to be improved and we still operate in a constant state of evaluation. We really focused on student achievement for all kids. We saw AP enrollment tripled. We went from like a 169 and now it's like 488 [sic]. (Principal H)

From the survey data shown in Table 5, principals said they collect data from learning walks to gather information about teaching and learning (M = 4.13, SD = 0.80, 95% *CI* 3.89–4.36); however, the *C/A/SBI* survey data in Table 4 for items 11 and 12 indicated a lower frequency in monitoring best teaching practices and the quality of teacher curriculum documents.

A similar incongruence was made evident in interviews; principals said they did, or did not do, enough walkthroughs and they were inconsistent in explaining how the data from these were used.

> We do walkthroughs, not as frequently as we want to, but we do walkthroughs, we have not done a good job of collecting the data from the walkthroughs, we sit down and talk about what's happening, we leave teachers a little sheet or put it in their mail box and point out things that we saw that we thought they were doing well, things that we didn't see. And of course, it has all the things on it you know, the essential questions posted, do they relate to the list of standards [sic]. (Principal C)

> We do walkthroughs. I try to get all of our administrators to do two formal evaluations a week. We're not doing this like we should, I would love to get five, six, to ten a week, five-minute walkthroughs. This week, I think we've only done one. That's

> what we're trying to get to – at least five or ten little walkthroughs every week [sic]. (Principal F)
>
> In regard to walkthroughs, we're operating on the *instructional framework* and we have a checklist that we work off of and for this one, it's the openings, so we'll conduct awareness walks, simply looking at openings and to be honest with you, we've moved on passed that and we're now in the process, this next couple [of] days, of working on the work session. So you'll see our administrative team out and about, visiting classrooms, looking for specific things and then we'll of course tally up those totals and look at the numbers. Then later-on, we'll move to the closing [sic]. (Principal D)

Organizational Culture, Professional Learning, and Relationship Development

The leadership performance standards of The Leader Keys^{SM} for *organizational culture, professional learning, and relationship development* connect to the collection of stakeholder information about the school organization as a whole and using the information to promote the cohesiveness of the organization's sense of purpose and direction in improving the school. The central premise for conducting these leadership practices, ranked in Table 6, is to use stakeholder data for making decisions promoting an academic climate conducive to learning.

Table 6

Using Data: Organizational Culture/Professional Learning/Relationship Development

Using Data in Standards-Based Leadership Practices Survey Item	***M***	***95% Confidence Interval*** Lower Bound	Upper Bound	***SD***	***Mdn***
1. Data are used to track my school's progress in meeting the short-term (quarterly) and long-term (year-long and multi-year) goals of our school improvement plan (*Organizational Culture*)	4.26	4.01	4.50	0.82	4
2. At my school, data are collected to recognize, track, and celebrate accomplishments of students, faculty and staff. (*Organizational Culture*)	4.13	3.89	4.37	0.82	4
3. Data are collected from staff surveys to plan and develop professional learning activities. (*Professional Learning*)	4.04	3.81	4.28	0.81	4
4. At my school, data are collected from stakeholders about beliefs, processes, and structures in the school. (*Organizational Culture*)	3.72	3.42	4.03	1.04	4
5. Data are gathered to evaluate the effectiveness of my school's communication efforts with students, parents, and the community. (*Relationship Development*)	3.64	3.35	3.93	0.99	4
6. Data are collected to develop a school vision of learning that meets learner needs and ensures educational equity for all learners. (*Relationship Development*)	3.60	3.29	3.90	1.04	4
7. Data are gathered from needs assessments specifically created to address multicultural and ethnic concerns in the school and community. (*Relationship Development*)	3.38	3.05	3.72	1.13	3

Note: Using Data in Standards-Based Leadership Practices items were rated with a 5-point Likert scale (1 = *never* to 5 = *always*). Cronbach's alpha for Using Data in Standards-Based Leadership Practices was 0.95.

In interviews principals referred to how they periodically re-examine goals through school improvement plans; corroborating the higher priority principals gave in the survey to tracking the short and long term goals of the school improvement plan (M = 4.26, SD = 0.82, 95% CI 4.01–4.50). Two principals explained it in the following way:

> In so many schools, I've been a part of the team where we'd spend all that time working on a school improvement plan, you present it to your faculty and you put it on the shelf and not worry about it or don't go back to it for another year. Not anymore, we come back to it, we get back new data, we check

> our progress, are we hitting our goals [sic]? (Principal G)
>
> We make goals every year, we put them in our school improvement plan every year. Typically, the school improvement plans in the past were written for a long-time. We're in our fourth year of NI, so we've got to look at it every time we get an opportunity [sic]. (Principal F)

Beyond the collection of academic data, the survey showed there are different priorities for the other kinds of data that can be collected and are related to school culture. The lowest priority was given to gathering data for addressing multicultural and ethnic concerns (M = 3.38, SD = 1.13, 95% CI 3.05–3.72). Interviews provided additional insight about data collection and issues related to school culture and relationship development.

> Unfortunately we don't collect any data on community relations, we do parent contacts and we collect data on that, and we do surveys with parents every year, and we look at that information and try to inform what we need to do or change, all of that, but instruction, assessment, is just really it [sic]. (Principal C)
>
> I have not had a lot of luck getting good data from the community. But as a principal, I look at school culture. I actually started the student surveys last year. I pulled random samples of kids in and I had them do surveys on their teachers and it gives you a good picture of what they think and I share that with my teachers. And it's not an evaluation tool. We just simply let them know what their kids think about them because you got to reach a 16-year-old kid to teach a 16-year-old kid [sic]. (Principal B)
>
> We're looking at the data as it relates to the background of which the child has come and whether this child will be an at-risk for a dropout, basing it on whether they have been retained before in a grade, or whether they come from homes where the parent was retained or a dropout or a sibling was retained in school or a dropout [sic]. (Principal A)

> Last year our focus in our professional learning was on *School Keys* and so we did some data collection with our students and with our teachers as far as that was concerned which has a culture component to it. In the end, last year we did parent surveys and student surveys and teacher surveys in English, Math, Science and Social Studies. That was done by RESA [Regional Educational Support Agency] so, it had a little culture in it but not, not a whole lot. I spend most of the time looking at academics and curriculum. Instructional data. I probably spend the least amount of time looking at student attendance [sic]. (Principal E)

Performance Process, Managing Operations, and Leading Change

The Leader Keys^{SM} for *performance process, managing operations, and leading change* encompass expectations for using data to effectively manage continuous school improvement and sustain progress within the focused parameters of a guiding mission. From the survey (Table 7), principals indicated they spend more time collecting data from multiple sources to identify school needs (M = 4.34, SD = 0.70, 95% CI 4.13–4.55) and are least reliant on collecting stakeholder perceptions to promote change initiatives (M = 3.72, SD = 0.85, 95% CI 3.47–3.97).

Table 7

Using Data: Performance Process/Managing Operations/Leading Change

Using Data in Standards-Based Leadership Practices Survey Item	***M***	***95% Confidence Interval*** Lower Bound	Upper Bound	***SD***	***Mdn***
1. Data are collected from multiple sources to identify specific areas of need at my school. (*Managing Operations*)	4.34	4.13	4.55	0.70	4
2. Data are used to build buy-in from faculty and staff for enacting changes at my school. (*Leading Change*)	4.11	3.84	4.37	0.89	4
3. Data are collected to analyze my performance in effectively managing school operations. (*Managing Operations*)	3.98	3.68	4.28	1.01	4
4. Data are used to develop a budget that fully aligns resources with instructional priorities and school goals. (*Managing Operations*)	3.96	3.68	4.24	0.96	4
5. Needs assessments are developed and used to gather data from all stakeholders for the purpose of informing continuous school improvement efforts. (*Performance Process*)	3.94	3.67	4.20	0.90	4
6. Data are used to anticipate future needs and maximize the coordinated use of all funding sources. (*Managing Operations*)	3.89	3.63	4.16	0.91	4
7. Data are used to inform fiscal decisions regarding the equitable and adequate distribution of available resources to support the success of all students. (Managing Operations)	3.85	3.56	4.14	0.98	4
8. Data are used to track and provide feedback on the progress or lack of progress being made in regards to a specific change process. (*Leading Change*)	3.81	3.53	4.09	0.95	4
9. Data are collected and used to track and provide feedback on the development or revision of the school vision, mission, and beliefs. (*Performance Process*)	3.72	3.42	4.03	1.04	4
10. Stakeholder perception data are collected and used to articulate the need for change initiatives. (*Leading Change*)	3.72	3.47	3.97	0.85	4

Note: Using Data in Standards-Based Leadership Practices items were rated with a 5-point Likert scale (1 = *never* to 5 = *always*). Cronbach's alpha for Using Data in Standards-Based Leadership Practices was 0.95.

For identifying school improvement needs, principals indicated they use an in-house tool known as a Balanced Scorecard to collect and analyze data, year-to-year. They use the Balanced Scorecard for determining what needs to be done to achieve the overall mission of the school. Additionally, principals said they relied on data collected and analyzed through the GAPSS (Georgia Assessment of Performance on School Standards)

analysis and SACS (Southern Association of Colleges and Schools) accreditation process in which teams of outside evaluators visit the school and provide comprehensive feedback on school operations and make recommendations for improvement.

> We're NI and we've begun to use a Balanced Scorecard to make goals every year and this is going to be based on our needs and made real clear now that we make those (sic). So we're going to re-run our school improvement plan every year with the Balanced Scorecard. (Principal F)

> The data is definitely a big role, we just went through system wide SACS [accreditation process] last year, so we spent quite a lot of time with that. I know a lot more about what's going on by looking at that data. (Principal C)

> We were recently engaged in a GAPSS analysis and we were able to get that data and look at our strengths and weaknesses and we parallel those items with our school improvement plan [sic]. The GAPSS revealed some of the things we need to work on, and so, we were able to look at those data to determine the areas, here again, that we need to work on, and pretty much drive and guide our vision. (Principal A)

> As far as the school improvement plan, we try to utilize it in conjunction with data from our SACS accreditation report and anything else we do. We're not just interested in creating a document, but with everything we do we are moving us towards that vision, that common goal out there providing a first class quality education for every student. (Principal H)

> Data helps our school improvement process. It tell us where we need to go and helps us with our strengths and weaknesses. Also, our perceptual data tells us what our stakeholders think from year to year. GAPSS has really helped our school in many of the areas that you have addressed in your survey. (Survey comment of a high school principal).

Principals collect data to get feedback on how operations are managed

(*M* = 3.98, *SD* = 1.04, 95% *CI* 3.68–4.28). Principals said they conduct surveys and rely on the leadership teams to gather data and analyze operations of the school:

> Teachers do an anonymous survey about me and my assistant principal twice a year and it's based on standards. It helps me and tells me what my teachers think about me. One semester, they said I wasn't in the rooms as much as they'd like to see me. I found the CTAE teachers felt slighted because I wasn't in their rooms as much as I was on some of the others. Very valid. It's something I didn't even think about. (Principal B)

> We have a leadership team, we call it our instructional leadership team; and we meet monthly and in that, of course, we talk about issues and topics that are important and pertinent to our school, and we look at the data and talk about what we need to be doing amongst that group. (Principal C)

> We have a building leadership team and from our surveys, we send out to the parents, constantly as a team we're deciding what direction we need to go in to improve. Even the SACS accreditations that we went through last year; they've got certain recommendations and we've made that are part of our school improvement plan. (Principal G)

However, principals did not talk about using data for fiscal decisions in the interviews and in survey comments principals deferred to districts by commenting that, "Budgets are aligned at the district level with little input from the schools." Additionally, in the survey, a principal said that, "These decisions are all done at the system level."

Building a Capacity for Using Data

Research Question 2: What actions do principals take to build capacity for data-based decision making in the high school?

Principals are considered a source of support for data-based decision making in the school. Using a set of 12 scaled items, Building a Capacity for Data-Based Decision

Making, principals were asked to rate the extent to which they agreed or disagreed that such supports were taking place under their leadership. The alpha reliability coefficient was 0.86 for the survey's sub-scale, indicating internal consistency among the 12 items. The ways that principals act to build a capacity or culture for using data in the school were ranked in Table 8 by the means.

Among practices important to creating the conditions that build a capacity for data use, results in Table 8 show that principals (n = 57) indicated the highest agreement in being committed to using data in the school improvement process (M = 4.54, SD = *0.50*, 95% *CI* 4.40–4.69).

The commitment to using data was a common theme reiterated in survey comments and in interviews:

> Data analysis keeps me informed of the strengths and weaknesses of my staff, students, and the curriculum being taught. It is the driving force for school improvement. (Survey comment of a high school principal)

> Data is a valuable tool. It allows me to focus on individual students and groups of students. I use it to make corrective actions and implement steps to improve the learning process. A data driven school will be a successful school. (Survey comment of a high school principal)

> What I do is stress to them the importance of data and how it shouldn't be just collected and just set on the shelf, just to collect dust. And I let them know and I explain to them how you can use the data to guide your instruction and how data can be collected in a formative fashion; and pretty much on a continuous ongoing basis - don't wait until the end of the nine weeks to try and collect data, take action with data earlier. (Principal A)

> My role is definitely influenced by using data, but how as a leader, do you get teachers to buy and really use the data, use it to inform instruction daily in addition to using the standardized data to inform the overall units in your planning, and so forth? I think one of the big pieces is making sure that the teachers take ownership and use the data themselves, versus waiting on someone to come along and say this needs to happen. They need to have the confidence and take the time to look at the data and make decisions on their own and along with other people weighing in. (Principal C)

Notably, training teachers and administrators to act on data for continuous school improvement (M = 3.56, SD = 1.07, 95% CI 3.25–3.87) ranked near the bottom of the list of actions enabling a capacity for data use. The interviews helped to clarify this phenomenon further:

> There has not been any formalized training for teachers that's occurred. There's a financial issue, cost; and we're spread very, very thin, and a lot of the roles have been combined into one person with multiple roles. (Principal C)

> With our cuts, everybody's been stretched so thin. But we do a lot of in-house training and we'll use our own people or we'll bring some people in from the outside to help with looking at the data, looking at the things we're doing [sic]. (Principal B)

> We don't have a data coach; the data coach is going to be me. We provide professional learning once a month during the school day and a part of that training over the last two and a half years has been how to look at data and how to use that data to adjust your instruction. (Principal E)

Although principals indicated agreement with regard to their having skills needed to use data effectively, principals expressed the least agreement for using on-line tools to collect and analyze perceptual data (M = 3.04, SD = 1.22, 95% CI 2.69–3.40).

Table 8

Building a Capacity for Data-Based Decision Making

Support from the Principal Survey Item	***M***	***95% Confidence Interval*** Lower Bound	Upper Bound	***SD***	***Mdn***
1. As principal, I promote and support a commitment to using data to inform decision making for continuous school improvement.	4.54	4.40	4.69	0.50	5
2. School Leadership team meetings are scheduled regularly during the school year to make data-informed decisions about actions needed to make targets and meet goals for continuous school improvement.	4.40	4.22	4.57	0.61	4
3. Teachers at my school have access to school system data for their current students, including state testing data (CRCT, EOCT, GHSGT, and GHSWT) for the purpose of planning more strategically for instruction.	4.29	4.04	4.55	0.87	4
4. As principal, I have skills needed to use data effectively that include gathering, disaggregating, analyzing, and interpreting data.	4.13	3.90	4.35	0.78	4
5. As principal, I organize data teams at my school to collect, manage, and interpret multiple sources of data to determine root causes of performance problems.	4.10	3.89	4.31	0.72	4
6. Teacher fears, concerning how data about their practice and the performance of their students may be used, are addressed so that teachers feel supported and empowered by data rather than threatened.	4.10	3.88	4.33	0.77	4
7. Teachers at my school have a designated person (data coach, instructional coach, or assistant principal) to go to who is trained to assist teachers with understanding and analyzing student performance data, and to answer their questions.	4.02	3.71	4.33	1.08	4
8. Time is set aside and planned for teachers to review and discuss data in small collaborative groups (ex. teachers meet to analyze results from common assessments).	4.00	3.72	4.28	0.96	4
9. Teachers and administrators at my school are given adequate time to examine data and use those data to guide improvements in their programs and practices.	3.88	3.57	4.18	1.04	4
10. As principal, I regularly schedule school-wide data meetings to review student performance data and to update the school's progress in meeting targets and goals for continuous school improvement.	3.73	3.47	3.99	0.89	4
11. Teachers and administrators at my school are trained to act on data by using a cyclical nature of inquiry that includes formulating research questions, making sense of the data, and taking action for continuous school improvement.	3.56	3.25	3.87	1.07	4
12. As principal, I use on-line tools such as Zoomerang® or Survey Monkey® for collecting and analyzing perceptual data from stakeholders.	3.04	2.69	3.40	1.22	3

Note: Building a Capacity for Data-Based Decision Making items were rated with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Cronbach's alpha for Building a Capacity for Data-Based Decision Making was 0.86.

Organizing data teams, empowering teachers to work with data, having a designated person to assist teachers in working with data, and setting aside time for teachers to discuss and analyze data collaboratively (items 5–8) were capacity building actions for which principals demonstrated an aligned agreement. However, there was less agreement regarding the principal's ability to provide an adequate amount of time for administrators and teachers to examine and use data (M = 3.88, SD = 1.04, 95% CI 3.57–4.18).

In Table 9, key findings are summarized from the interviews representing structures or strategies the principals said they had put into place to facilitate the use of data in the school. Notably, principals expressed how the implementation of certain software tools such as *ThinkGate, AIMSweb,* and *Achieve3000,* supported the process of creating assessments, variously termed diagnostic, predictor, benchmark, or pre- and post- tests, and analyzing them for student levels of achievement in an efficient manner. Principals used the data from diagnostic or predictor assessments, created with or without software tools, for purposes that included creating schedules, assigning students to appropriate support classes, and planning targeted academic assistance or acceleration programs.

Other technology tools described in Table 9 that aid in the warehousing of data provide a more complete picture of student achievement longitudinally, K-12. Three principals provided teachers with access to individual student data so they may be used in instructional planning. One principal had begun to incorporate the state's longitudinal data system with the school's data base and made spreadsheets with updated achievement data accessible for teachers on the school's network.

Table 9

Structures in Place for Using Data

9-12 Principal	AYP / NI status*	Structures in Place
A	DNM / NI year 5	• Collaborative planning on a weekly basis • Diagnostic tools-*Achieve 3000, AIMSweb* • Instructional Coaches for 3 content areas assist with data
B	DNM / NI year 2	• Collaborative planning monthly at a minimum • Diagnostic tools-*ThinkGate* • Comparison process - EOCT results /course grades
C	Met AYP	• Departmental collaboration • Monthly data analysis meetings with Leadership Team • Data warehousing -State longitudinal data system/ *Powerschool* • Student achievement data accessible to teachers through spreadsheets on network drive • Common predictor/benchmark assessments utilized
D	DNM / NI year 5	• Collaborative planning throughout the year • Data team collects and analyzes data on regular basis • Data retreats • Diagnostic tools-*ThinkGate* • Instructional Math coach assists with data
E	Met AYP	• Collaborative planning as part of the master schedule • Data committee of 12 teachers regularly collects and analyzes data and provide support to other teachers • Data retreats • Teacher access to student achievement data through spreadsheets with pivot charts and posts on *Moodle* • Common predictor tests for writing, math, science and social studies utilized • Common Benchmark assessments utilized • Utilize PSAT data as writing predictor given to all 9th graders • EOCT results correlated with course grades
F	DNM / NI year 4	• Administrative data digs – use spreadsheets • Data/Assessment training day for department representatives • Data retreats • Common assessments utilized • Identification of "bubble kids" in data room
G	DNM / NI year 4	• Collaborative data teams meet twice a month • Leadership team regularly collects and analyzes data • Monthly professional development day • Common assessments utilized • Math diagnostic test utilized
H	ADEQ (not NI) - DNM	• Grassroots collaborative planning • *DataDirector* data warehousing tool is utilized • Common predictor/benchmark assessments utilized • Leadership team regularly collects and analyzes data • Data retreats • VIP student program to closely monitor student progress

Note: AYP (Adequate Yearly Progress): ADEQ – Not NI; DNM – Did not meet; NI – Needs Improvement

Another principal relied on *DataDirector*, a commercial data warehousing program, for compiling and analyzing all student data available to teachers. A third principal utilized *Moodle* to provide teachers with access to student academic information for informing practice. The high schools of these principals were not in NI status and two of the schools had met AYP. These schools had teams organized collect, examine, and analyze data for school improvement regularly.

District Support for Principals in Using Data

Research Question 3: How are districts supporting high school principals in using data to make informed decisions in the school improvement process?

Principals were asked to indicate their level of agreement regarding types of support they received from the district in using data for school improvement. The survey's subscale, District Support for Using Data, included 8 items for principals to indicate how districts provided them with support. The alpha reliability coefficient for District Support was 0.77, suggesting adequate internal consistency in responses to the eight items.

The results presented in Table 10 show the ranked means for district support practices. The responses of principals (n = 57) to all eight items indicated a general agreement that district support was forthcoming. However; the level of agreement was highest for the type of support indicating that districts provided principals with sufficient access to basic student information including scores on state assessments (M = 4.49, SD = 0.75, 95% CI 4.27–4.71). On-going professional development for principals, intended to increase their data literacy for informing instructional and management decisions, had the least level of agreement (M = 3.47, SD = 1.14, 95% CI 3.13–3.80).

Table 10

District Support for Using Data

Support from the District Survey Item	***M***	***95% Confidence Interval*** Lower Bound	Upper Bound	***SD***	***Mdn***
1. As the principal, my district provides me with adequate access to our state data system for information about my student enrollment, demographics, program designation, and scores on state assessments.	4.49	4.27	4.71	0.75	5
2. Teachers at my school have access to computer-based assessment technology programs (ex. *Pearson, Renaissance Learning, OAS* etc.) providing on-line tools for diagnostic and formative assessments and periodic progress monitoring to support differentiation of instruction and response to intervention.	4.06	3.75	4.38	1.07	4
3. State assessments results are made available to my school in a timely manner as a computer file formatted to allow further disaggregation to examine the effectiveness of instruction and the implementation of the curriculum.	3.87	3.57	4.17	1.01	4
4. In my district, there is support for teachers at my school to have access to training and tools needed for interpreting, disaggregating and analyzing data to inform teaching and learning.	3.85	3.55	4.16	1.04	4
5. As principal, there is someone designated from my district for me to go to for support when I have questions regarding data.	3.81	3.44	4.17	1.25	4
6. Teachers in my school have access to a user-friendly school data system providing specific student data (such as grade transcripts, test results, attendance, etc.) to inform teaching and instruction.	3.74	3.42	4.07	1.11	4
7. In my district there is an integrated/longitudinal data system with the capability of allowing users to frame data queries and receive reports based on queries (for example, if a data query is submitted to identify those students entering the 9th grade who will need additional support based on their attendance, grades, and standardized test scores, a report is created for the school to use as it develops a plan of action).	3.60	3.30	3.89	0.99	4
8. In my district, there is on-going professional development for principals to increase data literacy for informing instructional and management decisions.	3.47	3.13	3.80	1.14	4

Note: District Support for Using Data items were rated with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Cronbach's alpha for District Support for Using Data was 0.77.

The capabilities of the state's longitudinal data system have not been fully realized nor filtered down to the school level by districts in a consistent manner (M = 3.6, SD = 0.99, 95% CI 3.30–3.89). In the interviews, only Principal C made a reference to the state longitudinal system saying, "We are using the longitudinal data system some,

we've just now been able to train teachers this year on that. It is limited at the high school level, because at this point we only have graduation test data, we don't have EOCT data in there available for us."

The interviews with principals corroborated survey data in revealing consistency in district support regarding the timely acquisition of assessment data from district personnel. Additional forms of support, outside of receiving test results, were expressed and summarized in Table 11. It shows that district support factors influencing how teachers use data were varied. A principal of a school that made AYP described one way that district support, provided through a technology coordinator, made a difference in how teachers use data at the school for formative assessments.

> One of the things that we have from the district, and it's really more of a technical support but it lends itself to the ability to get at the data, is this. We have a school technology coordinator who works between the two high schools and so she's here to assist teachers on 'How can I use this formative technology and integrate it into my classroom and use the data and adjust my instruction on the fly, so it's real time?' And it's not, 'We got the data last week and now we're going to do something about it this week'; its real time, right now, immediate, timely intervention or acceleration or whatever adjustment of instruction [sic]. So I think that the biggest support that the teachers have is the 'How to and once I have it, now what do I do with it?' And so, we have really made a concerted effort to tie our professional learning and the learning that they get with technology and the class keys and tie all that stuff together to help them with their daily instruction in the classroom. (Principal E)

Table 11

District Support for Principals

9-12 Principal	AYP / NI status*	What Principals Receive	What Principals Desire
A	DNM / NI year 5	• Timely acquisition of state assessment data • Provisions for instructional coaches to assist with data • Diagnostic Software	• Acquisition of data analysis technologies • More involvement from district in disaggregating data • More time
B	DNM / NI year 2	• Timely acquisition of state assessment data • Diagnostic Software	• Teacher training • Principal workshops
C	Met AYP	• Longitudinal data system training for administrators • Data analysis training for administrators • School improvement specialist	• Additional financial support to implement enhanced data systems • Teacher training
D	DNM / NI year 5	• Timely acquisition of state assessment data • Provisions for instructional coaches to assist with data • Teacher training • Diagnostic Software	• More time
E	Met AYP	• System testing coordinator provides tools /pivot charts for disaggregating data • Formative assessment technology tools for teachers • Technology support for tools • Teacher training (embedded)	• Greater focus on making comparisons of progress with state, national and world • More time
F	DNM / NI year 4	• Timely acquisition of state assessment • Assist with analyzing data and presenting data • Assist with SMART goals • Professional development days	• More administrative training on how to access and use data
G	DNM / NI year 4	• Timely acquisition of state assessment • Assist with collecting, analyzing, and presenting data	• More teacher training, beyond a professional learning day
H	ADEQ (not NI) - DNM	• *DataDirector* –data warehousing tool and training	• Teacher training

Note: AYP (Adequate Yearly Progress): ADEQ – Not NI; DNM – Did not meet; NI – Needs Improvement

Additionally, principals shared some ways in which districts could increase the support they provide and these are summarized in Table 11. Overall, the training of

principals and teachers in using data was unevenly received from districts. Six of the eight principals desired more training in data literacy. Among principals not requesting training, one principal, of a school in its 5th year of NI, believed the school had completed a sufficient amount of intensive training in using data during the previous 2-3 years. Another principal, whose school made AYP, already had a program in place of embedded professional learning for teachers. Some principals expressed the need for more time to work with data because personnel were "spread thin" due to cutbacks and increased responsibilities due to federal and state accountability mandates.

> I truly want to become a 'data-driven' school. We are facing an uphill battle with no professional learning days and little previous use of data. Reviewing your questions, there is much room for improvement. (Survey comment of a high school principal)

> I'm trying to think of anything that we've done district wide that really is on data analysis and I don't think, I don't recall anything district wide. A lot of what's happening is through our school improvement specialist for our school, she sits down with small groups and they look at data, and talk about it and analyze in small group settings and really, here departmentally, that's what happens. In addition to in our instructional leadership team, we'll sit down and do that, there's not been a lot of formalized training of any to speak of. Now I've been in data analysis workshops before as an administrator, through RESA and different things, every time there are some leadership workshops, they'll have a data analysis component; so, I've been involved in that. But there really has not been any formalized training for teachers that's occurred that I can recall. (Principal C)

> We have what we call *[Mascot]Talk* which is professional learning during the school day. We provide that professional learning once a month and part of that training over the last 2½ years has been how to look at data and how to use that data to

adjust your instruction. (Principal E)

Some principals received more support than others in using and managing data.

> We have a testing coordinator in our county [district] who will compile pretty much any major test, graduation test, EOCT, SAT, AP, that kind of thing, and to pivot charts, so that we can dissect it and disaggregate it in several different ways; like we can look at our free and reduced lunch students, our minority students, our students who are between certain scores, that kind of thing. And if I ask for something specific, for example, I wanted to compare EOCT results and student grades for that teacher, he provided that for me or he gives me the a mechanism where I can do it myself easily. (Principal E)

> I wish I could get more knowledge of how to use the data. I think that's a slap on our district, but there's so much data out there. You just sit for hours and look at it. One thing that I'd like to get is, if we could get more training on the district level on the access [of data]. I think that is a huge deal and we don't have that. (Principal F)

Three of the principals interviewed expressed how districts have supported them in the creation of systems for warehousing data either on their own or by purchasing a program called *DataDirector.* None of the schools for these three principals were in NI status (two made AYP). In the district of one of those principals, steps have been taken towards the utilization of the state longitudinal data system to help with managing all the data in a time saving and efficient manner. From the surveys, a principal of a 5A school that made AYP expressed how the school utilized *Student Achievement Management System (SAMS)* for disaggregating individual student data.

Perceptual Differences of Principals

Research Question 4: Are there perceptual differences between principals based on the school's level of performance in terms of Adequate Yearly Progress?

The null hypothesis was tested for each set of dependent variables: standards-based leadership practices for using data; building capacity for data-based decision making; and district support in using data for school improvement. For each dependent variable data set of survey items, the sum of means was used to conduct an ANOVA for three groups of principals based on the AYP status of the school. The level of significance of group differences was set at $\alpha = .05$. Bonferroni's post hoc test was used to identify significantly different pairs of groups of principals. The principals were disaggregated on the basis of whether or not the high school: (a) met AYP; (b) did not meet AYP, but is ADEQ, *not* in NI status; or (c) in NI status, did not meet AYP. These three groups of principals represented the independent variables. Results are presented for each test of the null hypothesis (H_0).

H_0 1: There is no difference in perceptions regarding the use of data between different groups of principals based on the AYP status of the school.

H_a 1: There is a statistical and practical difference in perceptions regarding the use of data between different groups of principals based on the AYP status of the school.

The null hypothesis, H_0 1, was rejected, ($F(2, 44) = 4.79$, $p = .013$, partial $\eta^2 = .179$), for differences in the mean scores between groups of principals on how they perceive data are used in standards-based leadership practices (see Table 12). The data show that perceptual difference exist between principals of schools with different AYP status regarding the use of data in leadership practices. Principals of schools considered NI had the lowest mean ($M = 130.05$, $SD = 19.94$) compared the other two groups of principals.

Table 12

Mean Scores and Analysis of Variance – Leadership Practices $H_0$1

Principal Group	Mean and Standard Deviation			ANOVA		
	M	*SD*	*n*	*F*	*p*	η^2
School is NI	130.05	19.94	20			
School is ADEQ, DNM	145.56	11.81	9			
School Met AYP	146.56	17.43	18			
Between Groups				4.79	*.013	.179

*Note: NI = Needs Improvement; ADEQ = not NI and DNM (Did Not Meet AYP); AYP = Adequate Yearly Progress. *p < .05*

Post hoc comparisons in Table 13 show that group differences exist ($p < .05$) between principals of schools that met AYP and principals of schools with NI status.

Table 13

Perceptual Differences based on AYP Status – Leadership Practices

$H_0$1 - Post Hoc Test of Group Comparisons

Pair of principal groups		Difference in Means	*p* value
School Met AYP	School is NI	*****16.506	.019
School Met AYP	School is ADEQ, DNM	1.000	1.000
School is ADEQ, DNM	School is NI	15.506	.104

Note: NI = Needs Improvement; ADEQ = not NI and DNM (Did Not Meet AYP); AYP = Adequate Yearly Progress.

***** *The mean difference is significant at* $\alpha = .05$

Although there were no significant differences between the other pairs of principal groups, the mean differences were greater between principals of NI schools and the other two groups of principals compared to principals of schools that met AYP and principals of schools that were ADEQ. The difference in means between group pairs shown in Table 13 reveals a similarity of perceptions about using data in leadership practices

between AYP and ADEQ (not NI) principals. The principals of NI schools had the lowest mean, and a greater difference in means between the two other groups suggesting some leadership practices in the context of data use occur less frequently for these principals.

H_0 2: There is no difference in perceptions regarding actions for building a capacity for data-based decision making between different groups of principals based on the AYP status of the school.

H_a 2: There is a statistical and practical difference in perceptions regarding actions for building capacity for data-based decision making between different groups of principals based on the AYP status of the school.

Table 14 shows the null hypothesis, H_0 2, was rejected, ($F(2, 44) = 4.20$, $p = .021$, partial $\eta^2 = .157$), for differences in the mean scores between groups of principals regarding how they build the school's capacity for making data-based decisions. Post hoc comparisons in Table 15 show that group differences exist ($p < .05$) between principals of schools that were not NI (ADEQ) and did not meet AYP and the principals of schools that were NI, suggesting that ADEQ principals think they do more to build school capacity for using data than do the principals of NI schools. Although there were no significant differences between the other pairs of principal groups, and the mean differences from Tables 14 and 15 also indicates perceptions were similar for principals of schools that were not NI (Met AYP or were ADEQ).

Table 14

Mean Scores and Analysis of Variance – Building School Capacity $H_0$2

Principal Group	Mean and Standard Deviation			ANOVA		
	M	*SD*	*n*	*F*	*p*	η^2
School is NI	44.95	6.83	20			
School is ADEQ, DNM	52.29	4.42	7			
School Met AYP	49.00	6.26	21			
Between Groups				4.20	*.021	.157

*Note: NI = Needs Improvement; ADEQ = not NI and DNM (Did Not Meet AYP); AYP = Adequate Yearly Progress. *p < .05*

Table 15

Perceptual Differences Based on AYP Status – Building School Capacity

$H_0$2 - Post Hoc Test of Group Comparisons

Pair of principal groups		Difference in Means	*p* value
School Met AYP	School is NI	4.050	.137
School Met AYP	School is ADEQ, DNM	3.286	.716
School is ADEQ, DNM	School is NI	*7.336	.033

Note: NI = Needs Improvement; ADEQ = not NI and DNM (Did Not Meet AYP); AYP = Adequate Yearly Progress. ***** *The mean difference is significant at* α = .05

H_0 3: These is no difference in perceptions regarding district support for using data in the school improvement process between different groups of principals based on the AYP status of the school.

H_a 3: These is a statistical and practical difference in perceptions regarding district support for using data in the school improvement process between different groups of principals based on the AYP status of the school.

Table 16 shows the null hypothesis, H_0 3, was not rejected, ($F(2, 44) = 2.42$,

p = .10, partial η^2 = .099), for differences in the mean scores between groups of principals regarding district support for using data in the school improvement process. However, differences between different groups of principals do merit attention at the level of α = .10. The data suggest that principals feel similarly supported by their districts in using data. However, the lower mean from principals of NI schools may suggest a tendency to perceive that support from districts may be considered as less for NI schools compared to the two other groups of principals.

Table 16

Mean Scores and Analysis of Variance – District Support $H_0$3

Principal Group	Mean and Standard Deviation			ANOVA		
	M	*SD*	*n*	*F*	*p*	η^2
School is NI	29.10	5.78	21			
School is ADEQ, DNM	31.86	4.71	7			
School Met AYP	32.53	4.31	19			
Between Groups				2.42	.100	.099

*Note: NI = Needs Improvement; ADEQ = not NI and DNM (Did Not Meet AYP); AYP = Adequate Yearly Progress. *p < .05*

Post hoc comparisons in Table 17 showed that differences were not significant between pairs of principal groups, however, there was less difference in the means of two groups of principals from schools that are not NI. The lower difference in the means suggests there were similarities in perceptions between principals of schools that met AYP and principals of schools that were not NI (ADEQ) and did not meet AYP compared to principals of NI schools.

Table 17

Perceptual Differences Based on AYP Status – District Support

$H_0$3 - Post Hoc Test of Group Comparisons			
Pair of principal groups		Difference in Means	*p* value
School Met AYP	School is NI	3.431	.116
School Met AYP	School is ADEQ, DNM	.669	1.000
School is ADEQ, DNM	School is NI	2.762	.658

Note: NI = Needs Improvement; ADEQ = not NI and DNM (Did Not Meet AYP); AYP = Adequate Yearly Progress.

Examining the means of principal perceptions for the three dependent variables that include using data in leadership practices, building capacity for using data, and district support reveals that means for principals of schools that are NI were the lowest. Whereas, smaller differences in means between ADEQ principals and AYP principals suggest a greater alignment in principals' practices, support provided from the principals and support received from districts for these two groups. The implications of these results will be described in Chapter 5.

Summary

Principals have assigned a prominent role to using standardized state assessment data for determining the strengths and weaknesses in the curriculum, analyzing levels of student performance, and determining students at risk of not graduating. Principals have also turned to other kinds of assessments, particularly diagnostic predictor tests, to make data-based decisions regarding scheduling and targeted interventions that include academic assistance and instructional adjustments. Less time is invested in monitoring standards-based instruction related to using best practices and the quality of curriculum documents.

Setting clear, specific, and measurable goals for raising student achievement is the

most prominent practice of data analysis. A greater reliance on analyzing data from national standardized tests, including the PSAT and AP results, is impacting decisions affecting school improvement as principals set goals for raising student achievement through increased enrollment in more rigorous courses. Incongruence was noted in the collection and analysis of data collected from learning walks, citing a lack of consistency in how the data was collected and used.

Not only was it important to set goals, but principals placed a high priority on tracking progress in meeting both short-term and long-term goals. Less time is spent gathering data in the area of relationship development to address multicultural and ethnic concerns in the school and community. Principals collect data from multiple sources to identify specific areas of need and have expressed their reliance on using data accumulated from the GAPSS analysis, SACS accreditation process, and the Balanced Scorecard. However, the collection and analysis of stakeholder feedback on revising the school vision, mission, and beliefs or on the need for change occurred less frequently.

High school principals are committed to using data to inform decisions in the school improvement process. They build capacity for data use by providing structures that facilitate data-based decision making and modeling. Higher priority is placed on creating teams that meet regularly, although team names vary, they have a common purpose of acting on data. Time to act on data is a concern expressed by principals and different strategies are used ranging from retreats to building time for data use in the master schedule for teachers. Training teachers to adequately act on data is a challenge confronting principals. The utilization of software tools and technology to enhance data use and make data more accessible was revealed in interviews as promising practices.

Most principals highly agreed on the importance of districts' providing adequate access to data and in a timely manner formatted for further disaggregation. There was less agreement on receiving training support for teachers and administrators and access to someone who could answer questions about data. Progress in warehousing data and implementing the state longitudinal data system is emerging and more prevalent in schools that have made AYP or are not in NI.

Perceptional differences, in terms of the means, between groups of principals were significantly different for principals of NI schools compared to principals of AYP schools for how frequently principals use data in standards-based leadership practices. The differences were not significant for principals of AYP schools and schools that did not make AYP but were also not NI status.

The level of agreement in what actions take place to build a capacity for using data in the school was significantly different between principals of NI schools compared to principals of schools that have not met AYP and are not NI. Differences were again not significant for principals of AYP schools and schools that did not make AYP but were also not NI. Suggesting there are more similarities between these two groups of principals in using data in leadership practices and for building a data using culture in the school.

No significant differences were found regarding the level of agreement on support provided to principals from districts with most principals strongly agreeing that districts provide adequate access to the state system for student information and fewer principals agreeing that ongoing professional development to increase data literacy is made available to them by their districts.

Inferences based on the results merit discussion in Chapter 5. The implications of this research and a set of recommendations for consideration are presented for practitioners in educational leadership.

Chapter V

DISCUSSION

Introduction

Leadership Performance Standards guide the practices of high school principals. Georgia organized its set of standards into ten broad strands of the Leader Keys^{SM} that carry expectations for principals to use data to improve student learning. In the context of these expectations, this chapter presents a discussion of the results, conclusions and implications of the study findings.

Recommendations pertinent to principals' practices in using data and supporting a culture of data use in the school are given to provide ideas for practitioners to consider at the principal and district levels of leadership. Even if the torch is passed from *No Child Left Behind* to another form of educational legislation in the near future, making decisions based on data will remain as a potent force in the guiding framework of how to get things done at the secondary level. Practitioners should want to know more about data-based practices that work from the perspectives of current high school principals.

Suggestions are made for conducting further research intended to expand upon what we learned about effective implementation of data-based decision making at the high school level. We have learned that the process of school improvement should no longer be what Principal G referred to as something, "you put on a shelf and don't worry about until later." There are emerging perspectives about using data in the school improvement process that should be studied to provide a more complete picture of the

progress being made.

Findings, Conclusions and Implications

Research Question 1: How are high school principals using data?

The research results from this study showed that high school principals spend most of their time identifying areas of strength and weakness in the school's curriculum based on standardized test data from graduation tests and end-of-course tests. Principals used the same assessment data to identify levels of achievement for disaggregated groups of students and for determining which students are at risk of not graduating. In conjunction with these two practices, principals made data-based decisions in collaboration with teams to serve students more strategically by setting clear, specific, and measurable goals to raise achievement.

In contrast, principals devoted the least amount of time to collecting and analyzing data addressing multicultural and ethnic concerns in the school and community standards of relationship development. Data were collected less on developing a school vision of learning that meets the needs of the learner and for monitoring the quality of lessons and other curriculum documents. Although these are standards-based expectations, principals showed their preference for examining and looking at the kinds of data directly affecting how school progress is measured in terms of AYP.

The pressure on principals to raise student achievement has intensified. Faced with expectations for using data to make informed decisions related to a large set of standards to which they are held accountable, principals clearly set priorities and make choices about what actually "gets done." Various factors may influence the frequency with which principals engage more in certain leadership practices compared with others.

The sense of urgency to demonstrate progress, accessibility to resources in the form of personnel and/or technology, time, and preference can be reasons accounting for why principals rate doing one practice more or less frequently than another. In both interviews and in survey comments, principals cited a lack of sufficient time as a constraint in using data. The implication here is that time is a major limiting factor in determining the extent to which data are used across different leadership standards of practice.

After the passage of *No Child Left Behind Act* the need to raise student achievement steadily increased from being a concern to a matter of urgency for schools labeled NI. As the bar for performance was incrementally raised in succeeding years, principals paid more and more attention to student assessments. This study demonstrated, from principal's perceptions, the high level of importance principals placed on collecting and analyzing achievement data for setting goals and monitoring progress towards goals. It further demonstrated principals' selectivity in using data-based practices for different purposes.

> I am always having to think about ways to address data. Because much data exists doesn't mean it is always useful. I must set priorities about the kinds of data that are to be collected and examined in terms of school effectiveness. Data certainly impacts my position and what I do because it takes time to examine the data and to decide how it impacts the course of action that should be taken. Just about everything I do, there's a data relationship to be considered, but I have to involve everyone in the process and there lies the challenge. (Survey comment of a high school principal)

> The analysis of student achievement is an integral part of the planning for our school. This analysis informs decisions made regarding curriculum, instructional processes, and professional development. (Survey comment of a high school principal)

In previous years principals needed to be convinced about why data skills matter in school improvement (Heritage & Chen, 2005). It can be inferred from the results of this study that the more frequent use of data in a broad spectrum of practices means principals are convinced of its value in making decisions affecting teaching and learning. Additionally, the collaborative involvement of principals with school teams impacts decisions about what kind of data are collected and analyzed

> Simply put if you can measure it, you can improve it. If it can't be measured, it can't be systematically improved. Data drives our school improvement plan and defines what we measure on our balanced scorecard. (Survey comment of a high school principal)

> The impact of data on my leadership practices has been huge. I have experienced the changes after over 20 years in administration and a greater amount of time and energy is expended in working with data. However, I understand the need to use data and we should have been doing more of this before. (Survey comment of a high school principal)

> As a school leader, I meet with my instructional leadership team regularly to address instructional needs of the school. These meetings include analysis of data pertinent to our topics. (Survey comment of a high school principal)

The finding that principals have successfully used data from predictor tests to raise student achievement indicates a trend to move away from relying mainly on graduation test data, a practice considered by Principal E to be a “delayed indicator.” The implication here is that post-test data from graduation tests and end of course tests are useful for informing the curriculum, but diagnostic predictor tests are better at identifying the instructional needs of the students prior to taking high-stakes tests. Using this strategy with appropriate interventions holds the promise of dramatically improving levels of

achievement measured by state standardized exams.

Using data less frequently in some practices does not necessarily imply they are of less importance or value. For example, gathering data to evaluate the effectiveness of school communication efforts with students, parents and the community may be more expedient to do prior to or after a school goes through a GAPSS analysis or a SACS accreditation process. These same evaluative processes provide principals with areas recommended for improvement and thus place a priority on collecting and using data for areas previously ignored. A school will more often collect data when problems or concerns are voiced and requests are made to determine the root causes of problems. When it comes to collecting and analyzing data, principals have expressed how the leadership is "spread thin" in the school and district.

> I have to set priorities when it comes to working with data. It needs to be less of a labor intensive process. (Survey comment of a high school principal)

> Data is one little part of my job, I'm the chief financial officer, [responsible for] the discipline and the athletics, you have all those pieces that you work with, and so this is just one small piece and yet it has such a tremendous impact, or can have tremendous impact. We are still trudging along in looking at the data, trying to do analysis, and letting it affect what we're doing; this is a growth, it's a process for us. (Principals C)

Flowers and Carpenter (2009) expressed the need for data to be meaningful and noted that principals should not be focused only on standardized achievement data. Instead, principals should be linking disaggregated achievement data in context to other kinds of data, such as student surveys of school climate, master schedule, attendance, and school safety. An understanding of the circumstances affecting standardized achievement

data helps principals identify the areas that need to be improved. From this study, the unbalanced use of data across standards demonstrates that principals are not always making that connection. Evaluations of principals in meeting standards of leadership with regard to data is for the most part an assessment of the principal's ability to demonstrate leadership in building a school culture that values and embraces using data.

Research Question 2: What actions do principals take to build capacity for data-based decision making in the high school?

Teachers look to the principals to establish the conditions that support and encourage a culture of data use in the school (McLeod, 2005; Wayman, 2005). The process of establishing a culture of using data begins by dispelling the belief that data are overwhelming and too complicated to analyze (Flowers & Carpenter, 2009). From the survey data, principals made it clear that the way they believed they built a capacity for data-based decision making was by the commitment they personally demonstrated for using data to inform continuous school improvement decisions during regularly scheduled school leadership team meetings. The work of school leadership teams in using data is supported by Flowers and Carpenter; they contend that the examination of data should not be in isolation, it should be the primary task of the school leadership team to use data to review the school improvement plan. Principal B described the way his leadership team worked in this way:

> We collect the data. We disaggregate it and we talk about it. We look at it. We analyze it and we say, 'Okay, what's our next step?' Then we follow through with our next step and if it worked, then we keep doing it. If it didn't, we go back to the drawing board. (Principal B)

Principals in the study highly agreed on the importance of providing teachers with data system access to student testing information for informing instructional practices. This view coincides with McLeod (2005, p. 3) who emphasizes the need for principals to "ensure that the data teachers receive is accurate, timely, and in a format that can inform classroom instruction." Building capacity must take into consideration the view of time acting as a constraint to effective use of data and that much time can be saved by the facility with which teachers use data. Wayman (2005) and McLeod (2005) report that principals should be advocates of providing teachers with system access that is not a burden to them, but rather a user-friendly tool; these are features that affect how much time a teacher would devote to using data.

A key difference between elementary and secondary schools noted by Datnow, Park and Kennedy (2008) is the departmental culture of the high school; a high school teacher is responsible for a larger set of students taking classes from different departments in the school, whereas an elementary school teaches several different subjects to a much smaller group of students all day. They make a key point that culture influences how departments embrace data, and the engagement of discussions about data requires structured, common-course time for collaboration. Wayman (2005) describes collaboration and data use as "reciprocal" (p. 304). Taking ownership of data and structuring time for teachers in the same department or subject to meet collaboratively to discuss data was a theme emphasized by seven of the principals interviewed. Principals have clearly recognized the need to facilitate this process when creating the master schedule.

> We have collaborative planning. Teachers who teach

> common courses plan together during the day as part of our master schedule and so, for example, the US History teachers' diagnostic test is used by all the teachers, and then they sit down with the results and plan together as a team of teachers. (Principal E)

From the survey, principals agreed on the importance of addressing teacher fears about how student performance data from their classes may be used. McLeod (2005) considers this a critical data safety issue for teachers. If teachers think that student data will be used against them, they will feel threatened and hesitant to embrace using data. The main point is to use data as a form of feedback, recognizing that administrators, teachers, and students alike have areas in which there is room for improvement. Knowing this, teachers will be more receptive to receiving professional development

Teacher and administrative training in using data was ranked by principals near the bottom, meaning the training was not provided adequately. However, Wayman (2005) suggests that large scale professional development is not always as effective as having a "go to" (p. 302) person available to answer questions or structuring regular group meetings where teachers can help each other to learn from data. From interviews, principals expressed that professional development was lacking and some have turned to in-house training through embedded professional learning in small groups as suggested by Wayman. Principals described a variety of people who are assigned the role of being the designated *go to* person for help: instructional coaches, assistant principals, and individual teachers from various departments (most often Math). In fact, one principal (Principal E) described herself as the school data coach and from the perspective of the researcher, such a label was considered an exemplary way to model using data.

A key finding from interviews in the study pointed to efforts made by principals

to provide teacher access to technology for helping with data. Principals build capacity by working to provide teachers with technology tools useful in creating formative and summative assessments from which results can be collected and analyzed and then the data can be used in making decisions about student assignment to courses and to various programs designed to provide support. Facilitating the incorporation of warehousing technology is a way to influence the use of data by teachers and administrators in the school, but progress with this has been slow.

The pressure to use data in advising students about courses and helping students prepare for graduation and end of course tests so they graduate and do not drop out of school is uniquely faced by secondary principals. Principals are the major influence in building a culture of using data at the secondary level but their level of success is dependent on the kinds of supports they receive. Principals usually rely upon the district for support to help them in using data.

Research Question 3: How are districts supporting high school principals in using data to make informed decisions in the school improvement process?

Districts are making sure that principals receive results from state assessments as soon as they are released from the state. From both the interview and survey data, principals said the districts were diligent in responding to requests for student information and in general for setting up school data systems, such as *Powerschool*. However, principals did not all agree on the user-friendliness of the systems as indicated in survey results. User-friendliness issues may have more to do with access to sufficient training in using systems. Training was an area that principals would like to enhance for teachers and administrators.

Districts have not promoted the use of the state integrated longitudinal data system in a consistent manner. Few principals mentioned it in interviews and they may not have been sufficiently informed about the capability of a system that tracks student information at all levels from kindergarten through college. Principals want more on-going professional development in data literacy to help them make better instructional and school management decisions. Perhaps in the future, as new principals enter the field after attending university programs that include stronger programs of data literacy in the curriculum, principals will be less dependent on their districts to provide data literacy training and districts will expect prospective principals to be more adept in using data for school improvement.

Although districts are providing support through technology, the kinds of technologies districts support, financially and /or technically, depend on the needs of the principals. The analysis of the interview data on the kinds of support principals would like to have from the district indicates a desire for very basic support including time, training, technology, and technical help. Despite giving high praise to districts for support provided, principals presented some ideas about areas where more support would be beneficial in working with data. It can be inferred from the data that if districts are ready to offer support to principals as principals say they are, then districts either are unable to provide additional support or are not fully aware of the kind of support principals desire.

Research Question 4: Are there perceptual differences between principals based on the school's level of performance in terms of Adequate Yearly Progress?

Making AYP is a district priority that should be on the minds of high school principals. No matter how good a principal thinks the school is, in the larger scheme of

public perception it all comes down to this measurement of school performance. At the secondary level, the main indicators principals are concerned about in making AYP are the graduation rate and academic performance in English and Mathematics. Determining if principals of schools that make AYP have different perceptions about using data compared to principals of schools who do not and principals of schools designated as NI is important because incorrect assumptions can be made about how much effort principals expend in using data based on a school's AYP status. Once a school has made AYP, can the assumption be made that the principal has less of a need to be concerned about the data as a principal of a school in NI status? The research showed that data mattered for all groups of principals however; the degree to which using data mattered was greater for one group of principals compared to another with regard to two sets of variables: using data in leadership practices and building school capacity in using data for school improvement.

The principals of schools that made AYP are using data more in leadership practices in comparison to principals of NI schools. From interviews, principals of AYP schools were well informed in using data and took advantage of the process to ensure that the needs of all students and school programs were met. Using data in all areas was a priority for principal E whose school made AYP.

> Our total school improvement plan is data driven. Sustaining programs is an issue and so we use all kinds of data, a lot of EOCT, AP, PSAT, everything. We use anything and everything that we can think of to use. We even have data for our athletics. (Principal E)

Principals of NI schools spend more time focused on the graduation test results and the students who narrowly miss passing the tests often referred to as the *bubble*

students. Principal F of a school in NI status year 4 and Principal A of a school in NI status year 5 explained it this way:

> The data that we're using per unit-wise [earned credits] is helping us to get by with our graduation rate [sic]. But we also use our data from our EOCTs and our graduation tests to determine what remediation our kids need. I think we spent a lot of time trying to remediate our, what we call, "bubble" kids, but we need also to look at our data to see what we'd do to get our exceeds rate higher on those types of tests. (Principal F)

> At the beginning of each year, we look at our summative data, i.e., the graduation test scores, the end of course test scores; and we determine the students who would be considered as "bubble" students are the students who would need special interventions to help them to be successful on the standards. (Principal A)

A major criticism of *NCLB* has been that principals use data to focus more on bubble students so that the school can make AYP rather than on students at the lower and upper ends of the spectrum.

The principals of schools that are not NI but, also have not made AYP, are doing more to build capacity in the school for using data than principals of schools that are NI according to the survey data. These schools are closer to making AYP and a sense of urgency to make AYP may account for the difference in perceptions. From interviews, it appears that the capacity building practices of principals of these schools are more structured and closely aligned to those of principals who met AYP in the ways they have worked to warehouse data, set up data retreats and committees to examine data, and provided teachers with access to data for instructional planning.

> Our leadership team does data retreats in June to dig into the data. We have a retreat and then our committees, and we have several committees, meet on professional learning days to

> discuss data. When we get data, I send it to them. I work on it, they work on it, and we post it onto *Moodle* that is our intranet [private, secure network] so that all teachers can access it. (Principal E)

Regardless of their school performance status, principals are getting support from districts in receiving adequate and timely access to student information and state test results. Districts have also provided access to an assortment of assessment technology tools that principals have requested. Across all groups of principals, enhanced technical support and training in using data at the teacher and administrative level occurs less frequently. The accessibility of user-friendly data that informs teaching and instruction is an issue; and principals look to the district for getting a resolution. On the state level, progress is being made in the implementation of an integrated longitudinal data system; however, it is not being adequately implemented at the district and school level. One principal expressed the need in this way:

> Moving from one school system to another this school year, I am surprised at the variance between the districts. Schools and districts with needs improvement status are forced into tracking student data more closely. It would behoove all districts to have a more systemic approach in data tracking. School districts would benefit from a state-driven student data system. This would enable a seamless transition in data tracking when a student moves from one district to another. (Survey comment of a high school principal)

NCLB has greatly influenced the use of data in decision making at all levels. High school principals were compelled by *NCLB* to act on data and move from a period of complacency to an era of doing "whatever it takes" to raise student achievement and graduate more students. Principals have been crunching numbers more, now that they

have a better understanding of the power of using data, but they are still asking for assistance. From this study, we have seen that the power of using data has mainly been used in leadership practices focused on specific areas of the curriculum, assessment and standards-based instruction that most directly affect how school performance is measured. The potential benefits of using data in other areas influencing teaching and student learning are largely untapped due to the constraints of time and other factors meriting further exploration. The leadership standards hold expectations for using data to make decisions in areas that go beyond the big three of curriculum, assessment, and standards-based instruction.

Recommendations for Practice

The researcher acknowledges the important role of using data to improve student learning in high schools. Based on the findings of this study several recommendations for using data in the school improvement process are presented for high school principals, district leadership, and educational certification programs.

1. Expand the use of diagnostic or predictor testing to include writing, reading, math, science, and social studies. Data from predictor tests provide valuable information about meeting the learning needs of students. Principals can use the data from predictor testing to establish programs and courses that meet the needs of all students. Instructional programs promoting writing and reading, and basic literacy skills, can be established because of predictor test data and potentially serve to raise achievement in all other areas once the need to improve adolescent literacy is met through data-based interventions. When principals place greater emphasis on “bubble” students, they are not planning well for the future in meeting the needs of all students, instead they are spending considerable

resources on fixing problems that should have been addressed before the so called "bubble" students took the tests they failed by only a few points.

2. Examine other sources of data to determine the root cause of low achievement scores. Principals are not examining enough of the kinds of data that will help them gain a better perspective on why test scores are low. The opinions of teachers, students, and parents are valuable sources of information that can enlighten principals and provide solutions to the problems of low achievement. Things rarely considered could be corrected if enough attention is brought to the problem. Such things as the testing calendar, school climate, teacher-student relationships, school safety, multiculturalism, bell schedule, master schedule, student activities, and physical conditions of testing are examples of areas in which problems could potentially impact measurements of student achievement. These problems are related to the culture of the school and unless they are revealed by perceptual and other forms of data, they remain hidden, unaddressed, and perpetuated. The process of collecting and analyzing perceptual data from stakeholders need not be labor-intensive if principals would take more advantage of the on-line tools that are readily available.

3. Allow teachers to take ownership of data. Identify the teachers who enjoy working with data and use their assistance to promote a data culture in the school. Set up data teams to include teachers as well as administrators, instructional coaches, and department heads willing to work on data and disseminate findings to school improvement teams bent on taking action on data to improve student outcomes. Establish scheduled time for common subject teachers to collaborate on developing common pre- and post-assessments and to analyze the data derived from them. Seek ways to save teachers time

by efficiently providing teachers with access to data and warehousing of data to help teachers plan for instruction. Be transparent with data by displaying it and using it to provide feedback not punishment.

4. Facilitate the incorporation and implementation of access to the state longitudinal data system (LDS) that allows better tracking of student data over time. District and school access to the LDS guides the decision making that supports student-learning outcomes in a more efficient manner. LDS saves time in using data because all of the information is in one place; it features better tracking of student growth and better identification of students at-risk. LDS will respond to queries and produce reports based on queries.

5. Improve communication between principals and districts. Compared with elementary school principals, the turnover rate of principals is greater at the high school level. In the midst of being held accountable to a higher set of leadership standards that include modeling and facilitating data-based decision making, considerable pressure is placed on high school principals to raise the graduation rate. Provisions for *Race to the Top* funding in Georgia include improving the quality of leadership through a revised LeaderKeys ™ evaluation system. Just as students are being held to mastering standards of performance and teachers are held to conducting standards-based instruction, principals are also held accountable by standards-based leadership practices. Principals need to be able to communicate the unique needs they face in simultaneously working to prevent dropout rates and increase student levels of achievement while meeting the expectations of leadership standards. Communicating with districts on an on-going basis about support needed in using data is essential in addressing constraints due to lack of time and training.

6. Include data literacy in the curriculum of educational programs for both teachers and

administrators in college undergraduate and graduate programs. In programs leading to certification in teaching and leadership, prospective teachers and administrators should be taught skills that will prepare them for data-based decision making. They need to be taught not only how to effectively collect and put data in a useful format for analysis, but also how to sift through data and figure out what it is saying. Yet in the bigger scheme of teaching and learning, we cannot lose sight of the fact that "data is just another tool, we still have to let our heads and hearts work together when making decisions that affect kids." (Principal H)

Recommendations for Further Research

Are we losing ground in raising student achievement for subgroups that include the economically disadvantaged, black males, and students with disabilities because we have not collected enough data about their needs? The research conducted in this study revealed that less attention was paid by high school principals to gathering data about multicultural and ethnic concerns to ensure educational equity. Principals were not gathering enough data from high school students who make up subgroups with lower levels of achievement to find out what motivates these students to learn. Have we not been taught that meeting the needs of the learner is a precursor to student learning? Not all students have the same needs to be successful; therefore, we should learn how to meet the needs of different sets of students. We need to have a better handle on what it takes to motivate student learning for different subgroups if we expect to raise student performance on tests of achievement. How can we best meet the needs of the most challenging subgroups if we do not collect and analyze data from them? This is a recommendation to collect data on the different aspects of leadership standards related to

relationship development for different subgroups as it relates to improving teaching and learning at the secondary level.

REFERENCES

Bernhardt, V. (2004). *Data analysis for continuous school improvement (2nd ed.).* Larchmont, NY: Eye on Education.

Bernhardt, V. (2009) *Data, data everywhere,* Larchmont, NY: Eye on Education.

Catano, N., & Stronge, J.H. (2007). What do we expect of school principals? Congruence between principal evaluation and performance standards. *International Journal of Leadership in Education, 10*(4), 379-399.

Cooper, J., Ponder, G., Merritt, S., & Matthews, C. (2005). High-performing high schools: Patterns of success. *NASSP Bulletin, 89* (2), 2-23.

Copland, M. (2009). *The cycle of inquiry: A process for leading improvement in teaching and learning.*Olympia, WA: Washington State Leadership Academy. Retrieved January 10, 2010, from http://waleadershipacademy.org.

Copland, M., & Boatwright, E. (2006). *High school transformation: Leadership for transforming high schools.* University of Washington. Seattle, WA: Center for the Study of Teaching and Policy.

Council of Chief State School Officers (2008a) Educational Leadership Policy Standards: ISLLC 2008 *as adopted by the NationalPolicy Board for Educational Administration.* Washington, D.C.: Author. Retrieved December 15, 2009, from http://www.ccsso.org/resources/publications/.

Council of Chief State School Officers. (2008b) *Performance expectations and indicators for education leaders: An ISLLC-based guide to implementing leader standards and a companion guide to educational leadership policy standards: ISLLC 2008.* Washington, D.C.: Author. Retrieved December 15, 2009, from

http://www.ccsso.org/resources/publications/.

Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and Conducting Mixed Methods Research.* Thousand Oaks, CA: Sage Publications.

Chronbach, L.J., & Shavelson, R. J. (2004) My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement, 64* (3), 391-418. DOI: 10.1177/0001364404266386.

Datnow, A., Park, V., & Kennedy, B. (2008). *Acting on data: How urban high schools use data to improve instruction.* Los Angeles Center on Educational Governance, University of Southern Califronia.

David, J. (2009/2010). Collaborative inquiry. *Educational Leadership , 66* (4), 85-86.

Deike, M. (2009). *The principal as an instructional leader within the context of effective data use.* Retrieved January 2, 2010, from http://edadmin.edb.utexas.edu/datause/evaluation.

Earl, L., & Fullan, M. (2003). Using data in leadership for learning. *Cambridge Journal of Education, 33* (3), 383-394.

Flowers, N., & Carpenter, D. M. (2009). You don't have to be a statistician to use data: A process for data-based decision making in schools. *Phi Delta Kappan, 91* (2), 64-67.

Fuller, E., & Young, M. D. (2009). *Tenure and retention of newly hired principals in Texas.* Austin, TX: University Council for Educational Administration, Retrieved January 7, 2010, from http://www.ucea.org/storage/principal/IB%201_Principal%20Tenure%20and%20Retention%20in%20Texas%20of%20Newly%20Hired%20Principals_10_8_09.p

df.

Georgia Department of Education. (2006). *Georgia's Single Statewide Accountability System.* Retrieved December 16, 2009, from GADOE: http://www.gadoe.org/sia_account.aspx?PageReq=SIASSAS.

Georgia Department of Education. (2009). *Georgia Department of Education Strategic Plan.* Retrieved January 30, 2010, from GADOE: http://gadoe.org/Strategicplan.aspx.

Georgia Department of Education. (2010a). *Leader Keys: A leadership evaluation system.* Atlanta, GA: Author. Retrieved August 24, 2010, from GADOE: http://doe.K12.ga.us/tss_school_leader.aspx.

Georgia Department of Education. (2010b). *Race to the Top Fund Grant Application CFDA No. 84.395A.* Retrieved March 5, 2010, from U.S. Department of Education : http://www2.ed.gov/programs/racetothetop/phase1-applications/index.html.

Georgia's Leadership Institute for School Improvement. (2006). *8 Roles of School Leaders.* Retrieved December 5, 2009, from Georgia's Leadership Institute for School Improvement: http://www.glisi.org/site/executivedevelopment/training_resources.htm.

Georgia Partnership for Excellence in Education. (2008). *2008-2009 Education Policy Primer.* Retrieved December 15, 2009, from GPEE : http://www.gpee.org/2008-09-Education-Policy-Primer.126.0.html.

Goertz, M. (2001). Redefining government roles in an era of standards-based reform. *Phi Delta Kappan, 82* (1), 62-66.

Goldring, E. C. (2008). *The Evaluation of Principals: What and How Do States and Districts Assess Leadership.* New York: American Education Research Association. Retrieved March 10, 2010, from: . http://peabody.vanderbilt.edu/Documents/pdf/LSI/AERA_EvaluationPrincipals.pdf.

Goldring, E., Porter, A., Murphy, J., Elliott, S., & Cravens, X. (2007). *Assessing learning-centered leadership: Connections to reasearch, professional standards, and current practices.* Retrieved December 18, 2009, from http://www.wallacefoundation.org.

Goodnow, E., & Wayman, J. (2009). *The intersection between transformational leadership and data use in schools*. Paper presented at the 2009 convention of the University Council for Educational Administration, Anaheim,CA.Retrieved March 1, 2010, from Department of Educational Administration, The University of Texas at Austin: http://edadmin.edb.utexas.edu/datause.

Governor's Office of Student Achievement. (2009a). *Accountability.* Retrieved December 16, 2009, from GOSA: http://gaosa.org/report.aspx.

Governor's Office of Student Achievement. (2009b). *Report Card Overview.* Retrieved December 16, 2009, from GOSA: http://gaosa.org/reportinfo.aspx.

Governor’s Office of Student Achievement. (2010). *2009-2010 Report Card of Adequate Yearly Progress*. Retrieved October 20, 2010, from GOSA: http://www.reportcard2010.gaosa.org/k12/reports.aspx.

Hallinger, P., Heck, R. (1996). Reassessing the principal's role in school effectiveness: A review of empirical research, 1980-1985. *Educational Administration Quarterly,*

32, 5-44.

Hamilton, L., Halverson, R., Jackson, S., Mandinach, E., Dupovitz, J., & Wayman, J. (2009). *Using student achievement data to support instructional decision making (NCEE 2009-4067).* Institute of Education Sciences, U.S. Department of Education. Washington, D.C. : National Center for Education Evaluation and Regional Assistance.

Heritage, M., Chen, E. (2005). Why data skills matter in school improvement. *Phi Delta Kappan, 78*(9)707-710.

Hess, F. (2008/2009). The new stupid. *Educational Leadership, 66* (4)12-17.

Holcomb, E. (2004). *Getting excited about data (2nd ed.).* Thousand Oaks, CA: Corwin Press.

Huck, S. W. (2004). *Reading Statistics and Research (4th ed.).* Boston, MA. Pearson, Inc.

Hughes, L. W. (1994). *The principal as leader.* New York: Macmillan College Publishing Company.

Institute for Educational Leadership. (2000, October). *Leadership for student learning: Reinventing the principalship.* Retrieved January 16, 2010, from http://www.iel.org/programs/21st/reports/principal.pdf

Irvin, L. E., & White, D. (2004). Keys to effective leadership. *Principal Leadership, 4* (6), 20-24.

Kerr, K., Marsh, J., Ikemoto, G., Darilek, H., & Barney, H. (2006). Strategies to promote data use for instructional improvement: Actions, Outcomes, and lessons from three urban districts. *American Journal of Education, 112* (4),496-520.

King, D. (2002). The changing shape of leadership. *Educational Leadership, 59* (8),61-

63.

Knapp, M., Swinnerton, J.A., Copland, M., & Monpas-Huber, J. (2006). *Data-Informed Leadership in Education.* Seattle, WA: University of Washington, Center for the Study of Teaching and Policy. Retrieved September 5, 2009, from http://depts.washington.edu/ctpmail/PDFs/DataInformed-Nov1.pdf.

Lachat, M. A. (2001). *Data-Driven High School Reform: The Breaking Ranks Model.* Brown University. Providence, RI: Regional Educational Laboratory at Brown University.

Lachat, M. A., & Smith, S. (2004). *Data use in urban high schools.* Brown University. Providence: The Education Alliance at Brown University.

Lachat, M.A., & Smith, S. (2005). Practices that support data use in urban high schools. *Journal of Education for Students Placed at Risk, 10* (3), 333-349.

Lachat, M.A., Williams, M., & Smith, S. C. (2006). Making sense of all your data. *Principal Leadership, 7* (2) 17-21.

Laird, E. (2008). The power of longitudinal data. *Principal Leadership, 8* (6), 34-37.

Leithwood, K., Louis, K., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning.* The Wallace Foundation. Retrieved December 10, 2009, from http://www.wallacefoundation.org/SiteCollectionDocuments/WF/Knowledge%20Center/Attachments/PDF/ReviewofResearch-LearningFromLeadership.pdf

Love, N. (2004). Taking data to new depths. *Journal of Staff Development, 25* (4), 22-26.

Luo, M., & Childress, M. (2009). *Data-driven decision making; The development and validation of an instrument to measure principals' practices*. Academic

Leadership .Retrieved December 10, 2009 from http://www.academicleadership.org/emprical_research/566_printer.shtml.

Mandinach, E. B., Honey, M., & Light, D. (2006). *Theoretical framework for data-driven decision making.* Paper presented at the meeting of the American Educational Research Association . San Francisco.Retrieved December 10, 2009, from http://www.cct.edc.org/admin/publications/speeches/DataFrame_AERA06.pdf.

Marsh, J., Pane, J., & Hamilton, L. (2006). *Making sense of data-driven decision making in education.* RAND Research. Retrieved December 10, 2009, from http://www.rand.org/pubs/occasional_papers/OP170/.

McLeod, S. (2005). *Data-driven teachers.* Retrieved November 5, 2009, from www.microsoft.com/education/thoughtleaders.aspx: http://www.microsoft.com/education/ThoughtLeadersDDDM.mspx.

Means, B., Padilla, C., Gallagher, L., & SRI.(2010). *Use of education data at the local level: From accountability to instructional improvement.*Washington, D.C.: U.S. Department of Education. Retrieved February 10, 2010, from U.S. Department of Education: http:www.ed.gov.

Means, B., Padilla, C., DeBarger, A., & Bakie, M. (2009). *Implementing data-informed decision making in schools: Teacher access, supports, and use.* Washington, D.C.: U.S. Department of Education.Retrieved January 2, 2010, from U.S. Department of Education: http:www.ed.gov.

Merriam, S. B. (2002). *Qualitative research in practice: examples for discussion and analysis.* San Francisco, CA: Jossey-Bass.

Mertler, C. A., & Vannatta, R. A. (2005). *Advanced and multivariate statistical methods*

(3rd. ed.). Glendale, CA: Pyrczak Publishing.

Mills, L. (2006). Transforming data in knowledge. *Principal Leadership, 7* (2) 45-48.

Mitgang, L. D. (2008). *Becoming a leader: Preparing school principals for today's schools.* New York: The Wallace Foundation.Retrieved December 11,2009 from http://www.wallacefoundation.org/sitecollectiondocuments/wf/knowledge%20center/attachments/pdf/becoming-a-leader.pdf.

National Association of Secondary School Principals. (1996). *Breaking ranks: Changing an American institution.* Reston, VA: Author.

National Association of Secondary School Principals. (2004). *Breaking ranks II: Strategies for leading high school reform.* Reston, VA: Author.

National Association of Secondary School Principals. (2009). *Breaking ranks: A field guide for leading change*. Reston, VA: Author.

National Association of Secondary School Principals. (2010a). President proposes dedicated funding for principals in budget. *NASSP NewsLeader, 57*(7),1-12(p5).

National Association of Secondary School Principals. (2010b). Senator seeks $1 billion to grow principal and teacher leadership skills. *NASSP NewsLeader, 57*(7), 1-12(p3).

National Policy Board for Educational Administration. (2009). *National Leadership Standards*. Retrieved December 15, 2009, from National Policy Board for Educational Administration: http://www.npbea.org/projects.php.

Nori, J. (2009). What are you most proud of? *Principal Leadership, 10* (3) 52-54.

O'Neill, J., & Conzemius, A. (2006). *The Power of SMART Goals.* Bloomington, IN: Solution Tree.

Patton, M. Q. (2002). *Qualitative research and evaluation methods (3rd Ed).* Thousand Oaks, CA: SAGE Publications.

Popham, W. J. (2008/2009). Anchoring down the data. *Educational Leadership, 66* (4), 85-86.

Quint, J. (2006). *Meeting five critical challenges of high school reform: Lessons from research on three reform models.* MDRC. Retrieved December 12, 2009, from https://www.mdrc.org/publications/428/execsum.pdf.

Rampey, B., Dion, G. S., & Donahue, P. L. (2009). *The Nation's Report Card: Long-Term Trend 2008 (NCES 2009-479.* Institute of Education Sciences, U.S. Department of Education. Washington, D.C.: National Center for Education Statistics.

Reddekopp, T. (2008). Building leaders. *Principal Leadership, 9* (4), 48-50.

Reeves, D. B. (2006). *The learning leader: How to focus school improvement for better results.* Alexadria, VA: Association for Supervision and Curriculum Development.

Reeves, D.B.(2008/2009). Looking deeper into data. *Educational Leadership,66*(4), 88-89.

Reeves, P. L., & Burt, W. l. (2006). Challenges in data-based decision making: Voices from principals. *Educational Horizons , 85* (1), 65-71.

Ronka, D., Lachat, M. A., Slaughter, R., & and Meltzer, J. (2008/2009). Answering the questions that count. *Educational Leadership, 66* (4), pp. 18-24.

Rudy, D. W., & Conrad, W. H. (2004). Breaking down the data. *American School Board Journal*, 7-9.Retrieved December 11, 2009, from

http://www.lakehouse.org/images/DataDrivenDecisionMaking.pdf.

Schmoker, M. (1999). *Results: The key to continuous school improvement (2nd Ed.).* Alexandria, VA: Association for Supervision and Curriculum Development.

Schmoker, M. (2001). *The results fieldbook: Practical Strategies from Dramatically Improved Schools.* Alexandria, VA: Association for Supervision and Curriculum Development.

Schmoker, M. (2006). *Results now: How we can achieve unprecedented improvements in teaching and learning.* Alexandria, VA: Association for Supervision and Curriculum Development.

Seidman, I., (2006). *Interviewing as Qualitative Research*. New York, NY: Teachers College Press.

Shen, J., & Cooley, V. (2008). Crticial issues in using data for decision making. *International Journal of Leadership in Education, 11* (3), 319-329.

Skalski, A. K., & Romero, M. (2011). Data-based decision making. *Principal Leadership, 11* (5), 12-16.

Thomas, R. S. (2006). How to survive data overload. *Principal Leadership, 7* (2), 37-42.

Thomas, R. S. (2010). Data processing. *Principal Leadership, 11* (3), 52-57.

Thomas, S. J. (2004). *Using web and paper questionnaires for data-based decision making: From design to interprestation of results.* Thousand Oaks, CA: Corwin Press.

Thornton, B., & Perreault, G. (2002). Becoming a data-based leader: An introducton. *NASSP. Bulletin, 86* (630), 86-96.

U.S. Department of Education. (2002). *No Child Left Behind.* Retrieved October 15,

2009, from http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf.

U.S. Department of Education High School Leadership Summitt. (2003). No child left behind: Transforming America's high schools., (pp. 1-4). Washington, D.C.

U.S. Department of Education. (2010). *U.S. Department of Education.* Retrieved March 4, 2010, from Race to the Top: http://www2.ed.gov/programs/racetothetop/faq.pdf.

Wallace Foundation. (2009). *Assessing the effectiveness of school leaders: New directions and new processes.* Retrieved February 28, 2010, from Wallace Foundation: www.wallacefoundation.org.

Wayman, J. C. (2005). Involving teachers in data-driven decision making: Using computer data systems to support teacher inquiry and reflection. *Journal of Education for Students Placed as Risk, 10* (3), pp. 295-308.

Williamson, R., & Blackburn, B. R. (2009). More than numbers. *Principal Leadership, 10* (4), 64-66.

Wise, B. (2008). High schools at the tipping point. *Educational Leadership, 65* (8), 8-13.

APPENDIX A:

Survey Letter Sent Electronically to Principals

October____, 2010

Dear High School Principal,

I am a graduate student and an assistant high school principal conducting a study on how data are used by high school principals in their leadership practices and what kinds of support are valued for using data. Greater accountability in meeting higher standards of leadership requiring data-informed decision making and a limited body of research on using data at the secondary level gives merit to conducting this study.

I am inviting you to participate in the study by completing an on-line survey that will take about 20 minutes. I appreciate your consideration of this request knowing how busy you are. Please click on the link at the end of this email to complete the high school principal survey on using data.

The survey is anonymous. No one, including the researcher, will be able to associate your responses with your identity. There are no rewards or penalties for completing the survey. Your participation is voluntary. You may choose not to take the survey, to stop responding at any time, or to skip any questions you choose not to answer. Your completion of this survey will be accepted as your voluntary consent to participate and certification that you are older than 18.

Questions regarding the purpose or procedures of the researcher should be directed to Helene Dutcher at 229-387-2475 or hmdutcher@valdosta.edu. This study has been reviewed by Valdosta State University's Institutional Review Board (IRB) in accordance with Federal regulations. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-259-5045 or irb@valdosta.edu . Surveys are confidential and will be used for research purposes only. The following link will take you to the survey:
https://www.surveymonkey.com/s/JQBCG36

Thank you for your consideration,
Helene Dutcher

APPENDIX B:

IRB Protocol Exemption Report

Institutional Review Board (IRB)
for the Protection of Human Research Participants

PROTOCOL EXEMPTION REPORT

PROTOCOL NUMBER: IRB-02611-2010 **INVESTIGATOR:** Helene Dutcher

PROJECT TITLE: Leadership Practices of Secondary School Principals in Using Data

DETERMINATION:

☑ This research protocol is exempt from Institutional Review Board oversight under Exemption Category(ies) 2. You may begin your study immediately. If the nature of the research project changes such that exemption criteria may no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before continuing your research.

☐ Exemption of this research protocol from Institutional Review Board oversight is pending. You may **not** begin your research until you have addressed the following concerns/questions and the IRB has formally notified you of exemption. You may send your responses to irb@valdosta.edu.

ADDITIONAL COMMENTS/SUGGESTIONS:

Although not a requirement for exemption, the following suggestions are offered by the IRB Administrator to enhance the protection of participants and/or strengthen the research proposal. If you make any of these suggested changes to your protocol, please submit revisions so that IRB has a complete protocol on file.

Comments

On the email and letter invitations for the survey and the interviews, please change all references to the IRB to say the following:

"This study has been **exempted from review** by the Valdosta State University's Institutional Review Board (IRB) in accordance with Federal regulations. **The IRB, a university committee established by Federal law, is responsible for protecting the rights and welfare of research participants.** If you have concerns or questions…"

This more accurately describes the action taken by the IRB and explains the purpose of the IRB to individuals who may not be familiar with the term.

Barbara H. Gray Date: 9/1/10
Barbara H. Gray, IRB Administrator

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-259-5045.

cc: Dr. Don Leech (Dept. Head)
Dr. Nicole Gibson (Advisor)

Form Revised: 09.02.2009

APPENDIX C:

High School Principal On-line Survey

Dear Principal:
Thank you for participating in this High School Principal's survey on "Using Data" which is part of a research project conducted by Helene Dutcher, a graduate student at Valdosta State University.

Please be assured your participation will be anonymous. Any tracking of IP addresses has been disabled for your protection. No one, including the researcher, will be able to associate your responses with your identity. Your participation is voluntary. No rewards or penalties exist for its completion. You may choose not to take this survey, to stop responding at any time, or to skip any questions that you do not want to answer. Your completion of the survey serves as your voluntary agreement to participate in this research project and your certification that you are older than 18.

Questions regarding the purpose, procedures, and results of the research should be directed to Helene Dutcher at 229-387-2475 or hmdutcher@valdosta.edu. This study has been reviewed by Valdosta State University's Institutional Review Board (IRB) in accordance with Federal regulations. The IRB, a university committee established by Federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-259-5045 or irb@valdosta.edu.

This survey is divided into the following four sections and will take approximately 20 minutes to complete.

Demographic Data: 6 items

Using Data in Standards-Based Leadership Practices: 35 items

Support for Using Data: 20 items

Comments: Space is provided for you to elaborate and add comments.

Part I: Demographic Data

1	How long have you been a principal at your current school?	***1-3***	***4-6***	***7-9***	***10-12***	***Over 12***
2	How many years of experience do you have in secondary administration?	***1-3***	***4-6***	***7-9***	***10-12***	***Over 12***
3	What percentage of students at your school receives free/reduced meals?	***0-19%***	***20-39%***	***40-59%***	***60-79%***	***80-100%***
4	What is your school's GHSAA designation?	***A***	***AA***	***AAA***	***AAAA***	***AAAAA***
5	Did your school make AYP in 2010?	***Yes***	***No***			
6	Is your school in Needs Improvement status?	***Yes***	***No***			

Part II: Using Data in Standards-Based Leadership Practices

Directions: Please rate the extent to which each practice occurs at your school.

1) Never 2) Seldom 3) Sometimes 4) Usually 5) Always

1	State assessment data from EOCT, GHSWT, and GHSGT are used to identify areas of strength and weakness in my school's curriculum.	***1***	***2***	***3***	***4***	***5***
2	Data are collected and used to monitor teacher collaboration in agreeing on what students need to know, understand, and do (KUD) relative to state curriculum standards (ex. schedules of collaborative meetings, minutes of meetings, KUD documents).	***1***	***2***	***3***	***4***	***5***
3	Data are collected to monitor the implementation of a standards-based curriculum in classrooms (ex. targeted walk-throughs/awareness walks, curriculum documents).	***1***	***2***	***3***	***4***	***5***
4	State assessment data from CRCT, EOCT, GHSWT, and GHGST are used to analyze levels of achievement for each student, subgroup of students, and the overall school.	***1***	***2***	***3***	***4***	***5***
5	State assessment data from CRCT, EOCT, GHSWT, and GHSGT are disaggregated to identify individual students at risk of not completing requirements for graduation.	***1***	***2***	***3***	***4***	***5***
6	Data from common benchmark assessments are used to adjust instructional strategies for students.	***1***	***2***	***3***	***4***	***5***
7	Data are collected and used to monitor teacher collaboration in developing common assessments aligned to standards and designed to identify specific gaps in student learning that need to be addressed (ex. schedules of collaborative meetings, minutes of meetings, assessment documents).	***1***	***2***	***3***	***4***	***5***
8	Data are collected to monitor the quality of curriculum maps and unit/lesson plans.	***1***	***2***	***3***	***4***	***5***
9	Data are used to monitor the implementation of research-based best teaching practices in the classroom (differentiation, higher order thinking skills, criterion-based feedback, summarizing, flexible grouping, etc.).	***1***	***2***	***3***	***4***	***5***
10	Data are used to make recommendations regarding the purchase of instructional programs designed to increase student achievement.	***1***	***2***	***3***	***4***	***5***
11	Data are used to evaluate the effectiveness of newly implemented instructional programs designed to raise student achievement.	***1***	***2***	***3***	***4***	***5***
12	Teachers at my school collect and analyze formative and summative assessment data (ex. results from quizzes, unit tests, project evaluations using rubrics) to adjust instruction.	***1***	***2***	***3***	***4***	***5***
13	At my school, data are collected and used to track the academic performance of specific student groups, i.e., students enrolled in certain programs, courses, internships, or grade levels.	***1***	***2***	***3***	***4***	***5***
14	Data are collected at my school to track attendance, discipline referrals, suspensions, and dropout rates for specific student groups.	***1***	***2***	***3***	***4***	***5***
15	Data obtained from AP, PSAT, SAT, ACT, and Work Keys assessments are used to analyze student performance for specific student groups at my school.	***1***	***2***	***3***	***4***	***5***
16	At my school, data are collected from learning walks or walk throughs to gather information about teaching and learning.	***1***	***2***	***3***	***4***	***5***
17	Data are used to set clear, specific, and measurable goals for raising student achievement at my school.	***1***	***2***	***3***	***4***	***5***
18	At my school, data are collected from stakeholders about beliefs, processes, and structures in the school.	***1***	***2***	***3***	***4***	***5***
19	At my school, data are collected to recognize, track, and celebrate accomplishments of students, faculty and staff.	***1***	***2***	***3***	***4***	***5***
20	Data are used to track my school's progress in meeting the short-term (quarterly) and long-term (year-long and multi-year) goals of our school improvement plan.	***1***	***2***	***3***	***4***	***5***
21	Data are collected from staff surveys to plan and develop professional learning activities.	***1***	***2***	***3***	***4***	***5***
22	Data are collected and used to track and provide feedback on the development or revision of the school vision, mission, and beliefs.	***1***	***2***	***3***	***4***	***5***

23	Disaggregated achievement data for my school are presented and displayed for all stakeholders.	***1***	***2***	***3***	***4***	***5***
24	Data are collected to analyze my performance in effectively managing school operations.	***1***	***2***	***3***	***4***	***5***
25	Data are collected from multiple sources to identify specific areas of need at my school.	***1***	***2***	***3***	***4***	***5***
26	Data are used to inform fiscal decisions regarding the equitable and adequate distribution of available resources to support the success of all students.	***1***	***2***	***3***	***4***	***5***
27	Data are used to anticipate future needs and maximize the coordinated use of all funding sources.	***1***	***2***	***3***	***4***	***5***
28	Data are used to develop a budget that fully aligns resources with instructional priorities and school goals.	***1***	***2***	***3***	***4***	***5***
29	Data are used to build buy-in from faculty and staff for enacting changes at my school.	***1***	***2***	***3***	***4***	***5***
30	Stakeholder perception data are collected and used to articulate the need for change initiatives.	***1***	***2***	***3***	***4***	***5***
31	Data are used to track and provide feedback on the progress or lack of progress being made in regards to a specific change process.	***1***	***2***	***3***	***4***	***5***
32	Data are collected to develop a school vision of learning that meets learner needs and ensures educational equity for all learners.	***1***	***2***	***3***	***4***	***5***
33	Needs assessments are developed and used to gather data from all stakeholders for the purpose of informing continuous school improvement efforts.	***1***	***2***	***3***	***4***	***5***
34	Data are gathered from needs assessments specifically created to address multicultural and ethnic concerns in the school and community.	***1***	***2***	***3***	***4***	***5***
35	Data are gathered to evaluate the effectiveness of my school's communication efforts with students, parents, and the community.	***1***	***2***	***3***	***4***	***5***

Part III: Support for using data.

Directions: Please indicate the extent to which you agree or disagree with each statement.

1) Strongly disagree 2) Disagree 3) Neither 4) Agree 5) Strongly agree

1	As the principal, my district provides me with adequate access to our state data system for information about my student enrollment, demographics, program designation, and scores on state assessments.	***1***	***2***	***3***	***4***	***5***
2	In my district there is an integrated/longitudinal data system with the capability of allowing users to frame data queries and receive reports based on queries (for example, if a data query is submitted to identify those students entering the 9th grade who will need additional support based on their attendance, grades, and standardized test scores, a report is created for the school to use as it develops a plan of action).	***1***	***2***	***3***	***4***	***5***
3	Teachers in my school have access to a user-friendly school data system providing specific student data (such as grade transcripts, test results, attendance, etc.) to inform teaching and instruction.	***1***	***2***	***3***	***4***	***5***
4	As principal, I promote and support a commitment to using data to inform decision making for continuous school improvement.	***1***	***2***	***3***	***4***	***5***
5	As principal, I organize data teams at my school to collect, manage, and interpret multiple sources of data to determine root causes of performance problems.	***1***	***2***	***3***	***4***	***5***
6	As principal, I regularly schedule school-wide data meetings to review student performance data and to update the school's progress in meeting targets and goals for continuous school improvement.	***1***	***2***	***3***	***4***	***5***
7	State assessments results are made available to my school in a timely manner as a computer file formatted to allow further disaggregation to examine the effectiveness of instruction and the implementation of the curriculum.	***1***	***2***	***3***	***4***	***5***

8	Teachers at my school have access to school system data for their current students, including state testing data (CRCT, EOCT, GHSGT, and GHSWT) for the purpose of planning more strategically for instruction.	***1***	***2***	***3***	***4***	***5***
9	Teachers at my school have access to computer-based assessment technology programs (ex. *Pearson, Renaissance Learning, OAS* etc.) providing on-line tools for diagnostic and formative assessments and periodic progress monitoring to support differentiation of instruction and response to intervention.	***1***	***2***	***3***	***4***	***5***
10	As principal, I use on-line tools such as Zoomerang® or Survey Monkey® for collecting and analyzing perceptual data from stakeholders.	***1***	***2***	***3***	***4***	***5***
11	Teachers and administrators at my school are given adequate time to examine data and use those data to guide improvements in their programs and practices.	***1***	***2***	***3***	***4***	***5***
12	Time is set aside and planned for teachers to review and discuss data in small collaborative groups (ex. common subject teachers meet to analyze results from common assessments).	***1***	***2***	***3***	***4***	***5***
13	Teacher fears, concerning how data about their practice and the performance of their students may be used, are addressed so that teachers feel supported and empowered by data rather than threatened.	***1***	***2***	***3***	***4***	***5***
14	As principal, I have skills needed to use data effectively that include gathering, disaggregating, analyzing, and interpreting data.	***1***	***2***	***3***	***4***	***5***
15	In my district, there is ongoing professional development for principals to increase data literacy for informing instructional and management decisions.	***1***	***2***	***3***	***4***	***5***
16	As principal, there is someone designated from my district for me to go to for support when I have questions regarding data.	***1***	***2***	***3***	***4***	***5***
17	In my district, there is support for teachers at my school to have access to training and tools needed for interpreting, disaggregating and analyzing data to inform teaching and learning.	***1***	***2***	***3***	***4***	***5***
18	Teachers at my school have a designated person (data coach, instructional coach, or assistant principal) to go to who is trained to assist teachers with understanding and analyzing student performance data, and to answer their questions about data.	***1***	***2***	***3***	***4***	***5***
19	Teachers and administrators at my school are trained to act on data by using a cyclical nature of inquiry that includes formulating research questions, making sense of the data, and taking action for continuous school improvement.	***1***	***2***	***3***	***4***	***5***
20	School Leadership team meetings are scheduled regularly during the school year to make data-informed decisions about actions needed to make targets and meet goals for continuous school improvement.	***1***	***2***	***3***	***4***	***5***

Part IV: Comments.

Directions: Please address how dealing with data impacts your leadership practices as a high school principal.

APPENDIX D:

Interview Letter Mailed to Principals

Helene Dutcher
Tift County High School
1 Blue Devil Way
Tifton, Ga 31794
229-387-2475
hdutcher@tiftschools.com

October ___, 2010

Dear Georgia High School Principal,

I am a graduate student at Valdosta State University and an assistant high school principal. Please consider this letter a request to conduct an interview with you for a research study I am conducting on how data are used by high school principals in their leadership practices. I am interested in how principals build capacity for using data and the support they value for using data. Greater accountability in meeting higher standards of leadership requiring data-informed decision-making and a limited body of research on how high school principals are using data in Georgia gives merit to conducting the study. The reported results will contribute to the body of knowledge about data-based decision making at the secondary school level.

I understand your time is valuable and I appreciate your consideration of this request knowing how busy you are. The interview should take about 30 minutes and may take place at your convenience at your school. With your permission, I will tape the interview. Taping will help to move us through the process more quickly because I cannot possibly write notes fast enough to accurately record your comments.

All responses you provide during the interview will be kept confidential. Any information from the interview that is included in the results of the study will not identify you or your school. You will not have to answer every question and you will be able to end the interview at any time. Verbal consent will be sufficient and your signature will not be required to avoid linking your identity to recorded data and compromising your confidentiality. If you have any questions regarding the purpose or procedures of the study, I may be contacted at 229-387-2475 or hmdutcher@valdosta.edu. This study has been reviewed by Valdosta State University's Institutional Review Board (IRB) in accordance with Federal regulations. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-259-5045 or irb@valdosta.edu .

I will be contacting you within a week of mailing this letter to request an interview for the research study. I will phone you at your school and follow up by email. Thank you for your consideration.

Sincerely,
Helene Dutcher

APPENDIX E:

Principal Interview Protocol

Interview Protocol

Introduction

Thank you for taking time to meet with me today. The purpose of this study is to find out how high school principals are using data in their leadership practices and the reported results from this study will contribute to the body of knowledge about data-based decision making in high schools.

This interview should take about 30 minutes. With your permission, I would like to tape this interview. Taping will help to move us through the interview more quickly because I cannot possibly write notes fast enough to accurately record your comments.

All responses you provide during the interview will be kept confidential. Any information from the interview that is included in the results of the study will not identify you or your school. You will not have to answer every question and you will be able to end the interview at any time. There is no compensation for this interview. Verbal consent will be sufficient due to the minimal risk associated with the study and your signature will not be required to avoid linking your identity to recorded data and compromising your confidentiality. This study has been reviewed by Valdosta State University's Institutional Review Board (IRB) in accordance with Federal regulations. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-259-5045 or irb@valdosta.edu .
Do you have any questions about me or the study? With your consent, I will begin.

Interview Protocol

Questions

Please tell me about your years of experience:

1. How long have you been the principal at this school?
2. How many years of experience do you have in secondary administration?

I am interested in how you deal with data at your school.

3. Can you share some examples of how data has played a role in making decisions at your school?
4. What structures do you have in place for gathering, organizing and analyzing data at your school?
5. Please describe how you lead and support teachers in using data.

I am interested in how you use data in standards-based leadership practices:

6. What kinds of assessment data do you primarily rely on to analyze student performance?
7. How are data used at your school to inform curriculum?
8. How are data used at your school to improve instruction?
9. How does data guide your school's vision and planning for school improvement?
10. Please describe how data are used in any other areas.
11. In what area would you say you spend most of your time working with data? And, the least of your time working with data?

I am interested in supports you value for data use:

12. How does your system provide support for you as principal in using data?

13. Can you think of some ways in which your district could increase their support for you as principal?

14. How does your system support the teachers at your school in using data?

15. Can you think of some ways your district can increase their support for teachers in using data at your school?

In general,

16. How has dealing with data impacted your leadership practices

Closing

Is there anything else you would like to add?

I will be analyzing the information you and others have given me and submitting a draft report. I will be happy to send you a copy to review, if you are interested.

Thank you for your time.