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EFFECT OF PRINCIPAL LEADERSHIP STRATEGIES ON TEACHERS' USE OF
DATA IN BENCHMARK AND NON-BENCHMARK MIDDLE SCHOOLS

by

JUDITH L. SEELIG RIFFEL

(Under the Direction of Walter S. Polka)

ABSTRACT

This study was designed to measure the extent to which middle school principal leadership strategies impact teacher's use of data. The subjects were practicing teachers from six middle schools in a large urban school district in the state of Georgia. Each participant was either a language arts, mathematics or science teacher in grade six, seven or eight. The study was ex-post facto and descriptive in nature and the researcher used a mixed method design to collect the data. A researcher-developed instrument was administered to each subject. The findings revealed that principal leadership strategies do impact teachers' use of data. Principal leadership strategies were also found to have a greater impact on teachers' use of data in benchmark than non-benchmark schools.

The purpose of the study was to determine the extent to which principal leadership strategies (independent variable) influenced teachers' use of data in benchmark and non-benchmark schools (dependent variable).

An ex-post facto descriptive research design was used to compare the impact of the independent variable, principal leadership strategies, on the dependent variable, teachers' use of data in benchmark and non-benchmark schools. The researcher designed

a *Teachers' Perception of Principal Leadership Survey* and distributed it to 268 language arts, mathematics and science teachers in grades six, seven and eight in six middle schools within a large metropolitan school district in Georgia . One of the six schools was unable to participate in the study due to circumstances beyond the researchers' or the schools control. The teachers' response to questions related to the use of data in the areas of principal leadership, instruction, and assessment were reported using a Likert type scale (strongly disagree, disagree, neutral, agree and strongly agree). In addition, principal structured interviews were conducted to add authenticity to the items assessed on the survey. The results were collected and analyzed using an independent t-test to determine mean scale scores and variances within and between groups. All research questions related to the study were answered.

INDEX WORDS: Principals' use of data, Teachers' use of data, Benchmarking, Interim assessments, Middle school principals, Data and instruction

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ON TEACHERS' USE OF DATA IN BENCHMARK AND NON-BENCHMARK
SCHOOLS

by

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A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in
Fulfillment of the Requirements for the Degree

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DEDICATION

Looking back over this long journey, I am reminded of the people in my life who have faithfully supported me. I am especially thankful to my father and mother, who daily upheld me in prayer and provided encouragement. My father who earned his doctorate and mother who graduated with honors at the age of sixty have been an inspiration to me that age is no deterrent for determination.

I appreciate my dear husband, who for the past three years, has waited patiently for a time when books and paper would no longer clutter up the office and I would be free on nights and weekends to relax and have fun. Finally, we are a pair of “docs.”

I dedicate this to my children and grandchildren. They are the future and must carry on where I have left off. May this dissertation process serve to remind them that you are never too old to begin a journey; and that with God’s help and guidance you will reach the end of the road only to realize there is a new journey ahead.

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CHAPTER I

INTRODUCTION

“Never before in the history of our nation have public schools had so much importance placed on students or on a single measure test score” (Popham, 2006, p.3). The momentum behind holding principals accountable for increasing student achievement has steadily increased since President Clinton’s call for setting world-wide standards require every child, regardless of ability level, be tested every year in order that children would not be left behind (Goals 2000).

The need to raise achievement and close the student achievement gap has not just been a problem in high poverty schools. Gaps in achievement have impacted schools in urban, rural, and suburban settings, and across social and, economic milieus. Principals and teachers alike, have been blamed for the performance deficits, that have, in affected our current educational climate (Marzano, 2000). The perceived ineffectiveness of principals and teachers in regard to the academic performance of students on high stakes tests has come into focus, and no longer is a failure of students to achieve solely attributed to outside environmental or family influences (Stiggins, 1991).

The goal of the No Child Left Behind (2001) mandate was to align curriculum standards to mastery of content as measured by advancement toward adequate yearly progress (AYP) assessment on state curriculum assessments. NCLB established that every child in every classroom should perform on grade level in reading and mathematics by 2014. Traditionally, high-stakes standardized tests, developed for the purpose of rank ordering students and assessing broadly defined areas of the curriculum content, were not intended to provide principals and teachers with specific information needed for

instructional planning (Broadfoot & Black, 2004). The utilization of high-stakes tests as a single measure of student performance was found to be inadequate due to a lack of rigor or ability to provide the types of meaningful data required to make instructional modifications for increasing and improving lower performing student achievement (Black & William, 1998; Stiggins, 2005). Bernhardt (2003) noted that low performing schools relied very little on using data to drive decisions related to monitoring student performance and assessing the effectiveness of instruction to meet the instructional needs of students. Instead, schools operate on instinct about what principal and teacher thought was working (2003).

Because of the demand for increased accountability, middle school principals were faced with the challenge of intentionally changing the culture of how data was collected and used by teachers to address issues related to improving instruction and monitoring achievement. Principals began reexamining the overall effectiveness of instructional practices, including how teachers identified and addressed gaps in students' learning (Stiggins, 2005; Waters & Grubb, 2004). While districts had available to them vast amounts of data, retrieving the data was found to be time consuming, perplexing, and often unrelated to the day-to-day instructional process (Marzano, Pickering & Pollock, 2001). Marzano (2000) reported that assessment data, when used to diagnose students' knowledge and understanding had often been incorrectly analyzed and used inappropriately, especially with low performing students.

Principal Leadership and Support

Principals' effect on achievement was found by Waters, Marzano, and McNulty (2003), in a meta-analysis of thirty-years of empirical research, to be the result of the quality of: principal leadership, levels of expectation, and use of data to monitor and improve instruction. The instructional leaders' ability to create an environment where policies and practices were supported and implemented by teachers was found to be strengthened by principals' ability to model data-driven decision-making in their role as leaders (Snow & Renner, 2001). Black, William, Harrison, Lee and Bethan (2004) found that principals in high performing schools were more knowledgeable about teaching and learning, served as instructional leaders within their buildings, focused on results, and recognized their primary focus as leaders was to improve the effectiveness of the teaching and learning process.

Supporting the findings of Black et al. (2004), were Stiggins, (2005) and Ewan (2001), who all reported that instruction, without effectively collecting and analyzing the data, could result in a series of well-intentioned but arbitrary events. Researchers Bulach, Booth and Pickett (1998) noted that additional factors found to influence principals' effectiveness were their consistency in communicating high levels of expectation and the degree to which they engaged in building a sense of trust and respect between themselves and their staff.

Effective principals did not "mobilize others to solve problems they already knew how to solve, but helped them confront problems that had never yet been successfully addressed" (Fullan, 2001, p.3). Torrence (2002) reported that effective principals not only knew how to collect data and analyze the results, but more importantly understood the

potential limitations of using data in strict isolation. Research conducted by the Georgia's Leadership Institute for School Improvement (GLISI, 2007), reported that the most effective principals implemented a data-driven approach to leadership based on collecting and analyzing multiple sources of data and this approach guided decisions related to allocation of resources for instruction and curriculum found to be the most efficient and appropriate to improve instruction and achievement.

Principals in high performing schools were cognizant of the strengths of using data, and by using assessment results to support decision-making principals were able to ensure that any level of systematic change related to instruction or changes in curriculum were based on facts and not mere assumption (Marzano, 2003; Reeves, 2006). Principals who utilized multiple sources of analyzed data were better able to sustain focus on continuous improvement by providing more professional development opportunities to teachers (Englert, Fries, Goodwin, Martin-Glenn, & Michael, 2004).

Interim Assessment

The results of research conducted by Marzano (2003), Cromeey and Hanson (2000), and Reeves (2006) suggested that the extent to which effective principal leaders were able to impact teachers integration of assessment data into the day-to-day decision making depended on the principals' ability to: (a) Model effective data-driven decision-making; (b) build the capacity of others to use classroom data; (c) make data a priority for decision-making; and (d) create time for teachers to work with data. An inverse relationship of principals' leadership effect on teachers' use of data to improve achievement was found to occur if a lack of attention was given to any one of the elements or combination of the factors.

To meet the need for more meaningful data to monitor and change instruction to improve student achievement, principals' attention turned to hybrid types of formative assessments. The formative assessments were referred to as "benchmarks", "interim assessments", "common assessments", or "informal assessments" (Black, Harrison, Lee & Bethan, 2004). According to Black and Wiliam (1998), formative assessments have been shown to have a greater impact on students' improved achievement than any other instructional practice, because they provided valuable information to teachers regarding the teaching and learning process.

Formative assessment, or assessment for learning, a term used by Stiggins (2002) to define interim types of assessment, provided critical and timely evidence to teachers about students' level of knowledge and skills and these assessments provided information teachers needed to make adjustments in instruction. Continually assessing what students had learned and were able to do provide opportunities for teachers to adjust instructional strategies in a timely manner to meet the learning needs of students, especially low performing students prior to the end-of-the year high-stakes tests (Marzano, 2003).

Use of Data to Monitor the Effectiveness of Instruction and Student Progress

The types of data collected and the manner in which the results were understood and used effectively to ensure instruction varied on a continuum of continuous improvement was dependent on the principals' ability to know which strategies would have the greatest impact on changing the culture of the school. Research conducted by Reeves (2002), Bass and Glaser (2004), and Black and William (1998) concurred with other researchers and suggested that additional positive benefits of using interim assessments were their ability to: (a) provide meaning data for planning curriculum; (b)

individualizing instruction and, (c) engaging teachers in dialogue centered around collaborative sharing of effective teacher strategies.

Stiggins (2005) research emphasized the importance of identifying gaps in student learning early in order to mediate any potential learning deficits. Setting performance standards and matching instructional strategies to interim assessments provided teachers with a more in-depth understanding of the variances in student problem solving strategies and conceptual understanding (Reeves, 2006). The need to systematically increase student performance was punctuated by the fact that many teachers reported spending up to twenty-five percent of their instructional day involved in assessment-type related activities (Stiggins, 2002). Adams and Kirst (1998) and Schmoker (2003) reported that teachers often needed assistance in analyzing tests results in order to avoid making incorrect assumptions about students' levels of ability and subsequently selecting inappropriate student placements and programming.

Statement of the Problem

Principals in the state of Georgia, like many other states in the nation, have experienced the ongoing and increased pressure to meet NCLB (2001) imposed mandate to improve the effectiveness of instruction and student achievement. Districts, principals and teachers have been inundated with information about the overall performance of students. Teachers reported that state accountability tests narrowed the curriculum and restricted the potential breadth and depth they were able to add to untested parts of content area curricula. Teachers from the most affluent and the poorest schools were more positive about using test results than those from moderate or middle income schools (McMillan, 2001b). Veteran and new principals were challenged with determining how

to organize their schools around teaching and learning to ensure that all decisions related to improving instruction would be driven by data and that assessment would accurately communicate to teachers how students were performing in preparation for high stake tests (Marzano, Pickering & Pollock, 2001).

Torrence (2002) noted that principals' ability to build others capacity to use data was predicated on their own level of understanding and confidence in analyzing and using data to make decision related to instructional issues. Understanding principals' effect on teachers' use of interim assessment data to improve and monitor instructional practices was the focus of this researcher because of an increase in the number of school systems using benchmark type assessments to monitor student achievement and improve the quality of instruction. While various researchers reported on practices found to be characteristic of effective leaders and teachers, this researcher did not find any empirical studies or dissertations on principal strategies effect on teachers' use of interim assessment data to influence instruction.

The district selected for this study had a clear and articulated vision for improving student performance predicated on identifying measurable components within various research-based theories of leadership and transferring the theories into practice. The results of the districts' focus on identifying critical areas of leadership and instruction had resulted in many of the schools making adequately yearly progress (AYP) as measured by the states Criterion Reference Competency Test (CRCT). However, the focus of the districts' leadership on ensuring that all students were adequately prepared to continue their education or were prepared for meaningful work beyond their secondary education,

resulted in the district's continued focus on those schools that had not been successful in meeting AYP.

In an effort to provide resources and support to these schools, the Associate Superintendent required four of the eight lowest performing middle schools to employ use of the district's benchmark assessment process as demonstrated by following the district's instructional calendar, administer the interim benchmark assessments, integrating research-based teaching strategies into instruction and meet regularly to collaborate on effective instruction planning based on assessment results. The three non-benchmark middle schools in the study, while not required to administer the district's developed benchmarks, were expected to monitor student progress, follow the district's instructional calendar and engage in meaningful dialogue related to data.

The unknown elements in the study were identifying the extent to which principal leadership strategies influence teachers' use of data, and the extent to which principal strategies employed to get teachers' to use interim assessment data to influence instruction varied between middle schools required to use a formal interim assessment process and those middle schools not required to use a formal interim assessment process. The extent to which there a relatedness between principal leadership and teachers' use of data to influence instruction process would be beneficial to other principals, school systems, and states.

Research Questions

The primary intent of the researcher was to contribute to the body of empirical research on middle school principal leadership effect on teachers' use of data.

The null hypothesis was that principal leadership strategies would have no effect on teachers' use of data in benchmark and non-benchmark schools. The following overarching question was used to guide the mixed methods study in determining the extent to which the independent variable, principal leadership strategies, effected the dependent variable, teachers in benchmark and non-benchmark schools: What effect do principal leadership strategies have on teachers' use of data in benchmark and non-benchmark schools? Specific questions designed to help address the overarching question were:

1. To what extent do strategies employed by principals' effect teachers' use of interim assessment data?
2. To what extent does the influence of the strategies employed by principals to effect teachers' use of interim assessment data differ between benchmark and non-benchmark?

Conceptual Framework

The focus of the study examined the extent to which principal leadership strategies in benchmark and non-benchmark school may be related to teachers' use of interim assessment data. The study also investigated the extent to which teachers' perceptions of leadership strategies employed to effect teachers' use of assessment data differ between benchmark and non-benchmark schools (Figure 1.1).

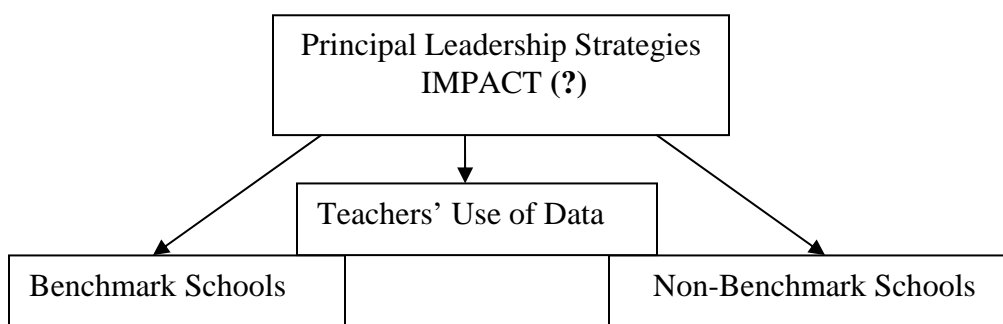


Figure 1.1 *The Independent Variable, Principal Leadership Strategies in Benchmark and Non-Benchmark School , Effect on the Dependent Variable, Teachers' Use of Data* (Riffel, 2007).

Significance of Study

The results of the study were beneficial to the researcher, who was the district's coordinator for the development and implementation of middle school benchmark assessments, in providing technical support to principals and teachers understanding and use of interim assessment data. The data collected from the study would also support the district's need for data to assist in the planning and implementation of effective strategies to increase the effect of leadership, instruction, and student achievement. The results will be of benefit to principals to assist them in understanding how to support teachers' in using data. The study will support the school systems' local professional development efforts to ensure that teachers were trained and prepared to effectively use data to increase and guide student performance on state high stakes assessments.

New and veteran middle school principals seeking a set of core strategies to facilitate teachers' use of interim assessment data to address student learning would

benefit from the findings of this study. The results of the study would contribute to university leadership preparation programs and local and state professional learning development efforts to prepare principals to be effective highly qualified leaders.

While the researcher did not find specific studies or literature related to principals' effect on the teachers' use of data to influence teachers' instructional practices, the researcher did find studies on effective leadership strategies and a limited number of studies on teacher and principal's use of data.

Procedures

Design

The researcher used a causal comparative mixed methods ex-post facto research design to investigate the study. The study's independent variable was middle school principal strategies in benchmark and non-benchmark schools, and the control or dependent variable, was the teachers' use of data. A descriptive research method was selected because most education practitioners were reported to lack training in the fundamentals of statistical analysis, and test results did not provide the detail of information principals and teachers needed to influence instruction. The research method selected ensured that the research questions were answered accurately.

In an effort to provide resources and support the teaching and learning process the Associate Superintendent required the benchmark middle schools to follow the district's instructional calendar, administer the interim benchmark assessments, integrate research-based teaching strategies into instruction and meet regularly to collaborate on effective instruction strategies based on assessment results. The non-benchmark middle schools in the study, while not required to administer the district's benchmark assessment were

expected to monitor students' academic progress, follow the districts instructional calendar and engage in meaningful dialogue related to data.

A thirty-two question survey on teachers' perceptions of principal leadership was developed based on effective leadership strategies supported within the extant literature, and it was administered to teachers in grades six, seven and eight, in three benchmark middle schools and three non-benchmark middle schools. All six schools had similar demographic profiles and student populations. Principals from both sets of schools were asked to participate in an interview and to provide additional information related to strategies they used to impact teachers' use of data to influence instruction. Information from the open-ended set of questions provided insight into principals perceptions of the strategies used in their schools to support teachers' use of data.

Pilot Study

The researcher solicited feedback on the survey instrument from experts in the field of curriculum, assessment, accountability, and leadership prior to administering the survey to a pilot group of teachers. A pilot study was used to determine the face validity of the instrument. The pilot study involved surveying teachers in middle schools in the district that were not a part of the study; obtaining feedback from the pilot group; making any necessary changes to the survey; and if necessary re-administer the survey.

A Cronbach's alpha was used to determine face validity reliability of the survey instrument. After completing the pilot, the survey was administered to middle school language arts, mathematics, and science teachers with two or more years of experience in grades six, seven and eight in the schools invited to participate in the study. The contents of the survey packets given to each teacher included: an informal consent form describing

the focus of the study and conditions for submitting the survey, along with a request for their participations a copy of the survey and a response card. The only demographic data collected from the teachers were the grade and subject they taught during the 2006-2007 school year.

Population

At the time of the study, the district was the largest in the state of Georgia, serving approximately 151,000 students and recognized throughout the state and beyond for its focus on instruction and quality of leadership. Of the total population of students attending middle school, 11,207 attended the six middle schools invited to participate in the study. The number of teachers in the six schools totaled approximately 900. The group of teachers invited to participate in the study was selected because of the legal requirement of students in grades six, seven and eight in the content areas of language arts, mathematics and science to participate in high-stakes testing each year to determine if AYP was achieved.

In order to participate in the study, teachers had to meet the following criteria: two or more years of teaching experience in language arts, mathematics, or science in grades six, seven or eight and be certificated in the area in which they were teaching during the 2006-2007 school year. Of those classroom teachers in the six middle schools, approximately 268 met the criteria for being included in the sample population. Table 1.1 depicts the demographic profile of schools invited to participate in the study.

Table 1.1 Demographic Data for Benchmark and Non-Benchmark Schools

A	B	C	D	E	F	G
Benchmark Schools	Pop	F/R	Teacher Population	% Teachers w/ Masters Degree or Above	No. Teachers Grades: 6,7,8; LA, MA, SC.	% Teachers LA,MA,SC GR 6,7,8 2 yrs. Exp.
B1	<1500	>20%	>250	3%	>75	>3%
B2	>1500	>50%	<250	<3%	>50	<3%
B3	>1500	<40%	>200	>5%	>75	<4%

A	B	C	D	E	F	G
Non Benchmark Schools	Pop	F/R	Teacher Population	% Teachers w/ Masters Degree or Above	No. Teachers Grades: 6,7,8; LA, MA, SC.	% Teachers, LA,MA,SC GR 6,7,8 2 yrs. Exp.
NB1	>1500	>20%	<200	<3%	>50	<3%
NB2	>1500	20%	<250	4%	>50	<3%
NB3	>1500	> 20%	>250	>3%	>50	>3%

Legend of Symbols: Column A- Codes for three benchmark and three non-benchmark schools. Column B- Student population greater or less than 1500 students. Column C- Percent of low socio-economic population in schools. Column D- Schools teacher population greater than or less than 250 teachers in grades six, seven, and eight. Column E- Percent of teacher population with education levels at or above the masters degree. Column F- Percent of teachers with greater or less than two years of experience teaching in the areas of language arts, mathematics, and science.

All language arts, mathematics and science teachers (n =268) in the identified schools that met the criteria were invited, via a letter, to participate in the study (see Appendix B). A response rate of 30% would provide adequate data to conduct this study. Based upon a population size of 268, approximately 80 teachers' participation in completing a form was needed in order for statistical relevance to be determined upon the analysis of data. Columns A and D in Table 1.1 depict the labels used to identify each of

the schools invited to participate in the study. Columns B and E indicate the number of teachers in the schools who met the criteria to be invited to participate in the survey. Columns C and F indicate the number of responses needed to provide a return rate for the study (see Table 1.2).

Table 1.2 Sample Size and Response Rate.

A Benchmark School	B No. Teachers Surveyed	C No. Responses Needed	D Non Benchmark School	E No. Teachers Surveyed	F No. Responses Needed
B1	42	13	NB1	35	11
B2	35	11	NB2	40	12
B3	36	11	NB3	80	24

Data Collection and Analysis

Data Collection

Data for the study were collected by the principle investigator attending school faculty meetings and by sending survey to teachers through the school district's courier service. The survey packets, whether delivered to the teachers or administered by the researcher at a faculty meeting, contained an informal consent form, survey, and a response card. Teachers, in both groups, were directed to seal their survey and response card in the envelope provided before returning it to the principle investigator.

Prior to conducting the study, one of the district's area superintendents met with the selected groups regarding the study and informed them that participating in the study was voluntary. The researcher then contacted the principal and asked for permission to survey a selected group of teachers. If the principal agreed to allow teachers to participate the researcher would send a follow memo reaffirming they had agreed to participate and indicated the time and place selected by the principal to administer the teacher perception survey.

Principals from each of the participating schools study were also invited to participate in a one-on-one structured interview, designed to add richness to the results of the survey. The one-on-one interviews were conducted by the principle investigator and focused on principals' perception of leadership strategies identified in a review of the extant literature to be effective in impacting teachers' use of data. The responses of the principals were tape recorded and transcribed by the principle investigator and coded to determine common re-occurring themes based on a developed rubric. A follow-up email was sent to each principal thanking him or her for agreeing to be a part of the study (Appendix B).

Data Analysis

A five-point Likert type scale was used to assess the teachers' responses on the survey. The mean and standard deviation were used to determine the average performance and variability between scores in both benchmark and non-benchmark groups of schools. An independent t-test determined the significant of the difference between the mean values of each question on the survey and between benchmark and non-benchmark schools. In order to discern the extent to which principals' leadership

strategies effect teachers' use of data differed between benchmark schools, the three factors of leadership, instruction, and assessment were analyzed using the statistic software program, SPSS.

Limitations

The size and diversity of the school district were unique and may not be reflective of other schools, districts, or systems within Georgia. The level of teachers' and administrators' knowledge of how to use assessment data to effect change was a limitation and may have influenced the results of the study. The sample drawn from the six middle schools within the system were not representative of all principals, teachers and students in the school district may not generalize to other districts within the state or outside of Georgia. Any generalizing of the research results could only be applicable to the district being studied and not to other school districts within or outside of state of Georgia.

Delimitations

The researcher determined that the appropriate methodology and survey instruments were valid and reliable and properly answered the research questions. The researcher, for the purposes of this study determined that participants would respond accurately and honestly to the interview and survey questions.

Definition of Terms

Instructional Calendar. Each subject and grade level content is divided into quarterly benchmark cycles, and includes the state and district skills and standards assessed on high stakes assessments (Gwinnett County Public Schools).

Interim Assessment or Benchmarks. Formative type multiple choice tests administered every nine weeks and designed to assess students' level of understanding of key concepts, skills and standards covered during the nine week instructional cycle. By assessing student knowledge of essential standards, teachers were able to determine what students knew before large scale summative tests (Gwinnett County Public Schools, gwinnett.k12.ga.us).

The No Child Left Behind Act of 2001 (Public Law 107-110), commonly known as NCLB is a United States federal law that reauthorized a number of federal Programs aimed at improve the performance of public primary and secondary schools by increasing the standards of accountability for states and school districts. http://en.wikipedia.org/wiki/No_Child_Left_Behind.net.

Adequate Yearly Progress (AYP) is defined as a measure of year-to-year student achievement on statewide assessments. Schools must make adequate yearly progress (AYP), as determined by the state, by raising the achievement levels of subgroups of students such as African Americans, Latinos, low-income students, and special education students to a state-determined level of proficiency. All students must be proficient by 2013-2014 <http://public.doe.k12.ga.us/aypnclb2006.aspx>.

Summary

The role of today's principal has changed as a result of federal and state pressure to increase the effectiveness of instruction and overall student performance on high-stakes tests. Principals have at their disposal numerous resources related to effective leadership practices and the use of data to improve instruction and impact achievement.

Acquiring information in a timely and useable format to provide teachers with meaningful data to monitor the extent of students' understanding prior to high stakes testing has been determined through a review of the literature to be critical in addressing issues related to external accountability.

Principals have been faced with the challenge of moving teachers away from wanting the data disaggregated and analyzed for them to acquiring the knowledge and skills to accurately analyze and evaluate the data on their own. One of the greatest challenges of all principals was to ensure that teachers knew what the data meant, how to use the data to monitor and assess students' conceptual understanding of standards, and how to select appropriate instructional strategies. Principals focus on utilizing interim assessment to provide teachers meaning data in a timely fashion to support instructional practice was identified in a review of the literature to be successful in increasing achievement, especially with low performing students.

Using interim assessments to determine how well students grasped an understanding of essential skills and standards was found to provide teachers important information necessary to determine how to re-teach, improve instruction and provide meaningful feedback to students. The reviewed literature on teacher and principal assessment knowledge revealed that teachers and administrators who lacked a clear understanding of how to interpret data were in danger of making false assumptions about students' abilities and making incorrect changes to instruction that could be detrimental to students.

In a review of the body of literature, the researcher did not find studies specifically related to teachers' perceptions of the strategies used by principals' in

benchmark and non-benchmark schools to impact their use of data. Therefore, determining the extent to which principal leadership strategies impacted teachers' use of interim assessment data was an important research component to understanding the leadership behaviors necessary to create a stronger connection between the effectiveness of leadership, instruction, assessment and curriculum.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this chapter is to review the body of extant literature and empirical research focused on how effective leaders motivate teachers to use interim assessment data to influence instruction. This chapter will be divided into five segments of reviewed empirical literature considered by the principle investigator to be relevant to principal leadership strategies on teachers use of data, the primary focus of this study: (1) Assessment in education; (2) theoretical framework; (3) effective leadership strategies; (4) teachers' use of data; and (5) use of data to monitor and improve instruction.

Understanding teachers' perception of strategies principals' employed to effect teachers' use of interim assessment data requires an understanding of the qualities of data driven, effective leadership in general, along with an understanding of which specific behaviors are perceived by teachers in benchmark and non-benchmark schools to be effective in changing the way teachers use interim assessment data.

Assessment in Education

Standardized Testing

Since the mid-1980s, the public has increasingly demanded that schools increase students' academic performance. Adams and Kirst (1998) noted that following the wake of a reform movement focused on schools of excellence was a focus on educational accountability and the challenge to obtain better student performance results. External pressure created by a general distrust in high-stakes standardized tests capacity to

measure teaching and learning have been complicated by internal pressures to conform to new types of leadership and teaching accountability and the absence of best practices for achieving the desired expectations (Adams & Kirst,1998).

The use of standards based norm- referenced testing to assess the effectiveness of education has a long history of purporting to measure the impact of year-long instruction on student achievement (Linn, 2001). The 2002 reauthorization of the Elementary and Secondary Act, known as No Child Let Behind Act, increased accountability by holding districts and principal leaders directly responsible for moving all students to be on grade level by 2014, as measured by state standardized tests (US Dept. of Education 2002).

Popham (2006), McNunn, McCloskey and O'Connor (2002), suggested that while standardized tests were effective in the shifting and sorting of students, the purpose for which they exist, they were not designed to provide the diagnostic types of information teachers need to adjust or modify instruction to meet the learning needs of students prior to high-stakes testing. Standardized norm based tests are not designed to be sensitive to small changes that may take place in student learning (2002). In attempting to use data, schools often employ the wrong types of data, using indirect measures of learning for which they have no explanatory model to interpret the data (Marzano, 2003).

According to McMunn et al.(2002), standardized tests do not provide the type of data necessary to improve the instructional process in a timely manner. Results from researchers studying authentic assessment conclude that informal authentic assessment provided teachers a more accurate interpretation of students' depth of understanding than what is available through standardized testing (McTighe & Emgerger,2005).

Balanced Assessment

Stiggins (2002) stated, "...if we wish to take full advantage of the power of assessment to maximize student achievement...we must rely on a balanced combination of high quality standardized assessments of learning and high quality classroom assessment for learning" (p.1).He suggested the purpose and design of assessment should be to assess students' ability to apply what they know to a variety of situations, versus simply assessing understanding and recall of facts (2002). According to Stiggins (2005), principals in schools making dramatic strides in improving student achievement consistently made use of multiple sources of data to address problems and create solutions to identified gaps in teaching and learning.

Supovitz and Kleen (2003) suggested that instructionally, interim assessments can assist principals and teachers in: (1) Identifying what students know and monitoring progress toward identified goals, (2) monitoring the effectiveness of instruction, (3) assisting in diagnosing specific difficulties in student learning and (4) providing support for the design of more effective instructional plans. The results of research conducted by Black and Wiliam (1998) revealed that interim assessments have a greater impact on improving student achievement than any other instructional practice because of the capacity of the tests to provide multiple types of collected data to influence the process of teaching and improve the outcome of learning.

Progress toward higher levels of achievement with lower performing students requires assessment tools that are sensitive to small changes in skills over a long period of time. Principals were found to use several assessment approaches, including formative assessment that promote student reflection, critical inquiry, and problem-solving. Reeves

(2002) stated that principals use district-created assessments most often, followed by scores on other standardized tests, miscellaneous assessments such as reading assessments, teacher observations, course grades, and school-created assessments.

According to Marzano (2003), effective principals continuously monitor the impact of school programs on student learning and use this information to inform future practice. Schools successful at motivating students to learn did not rely on standardized tests, which measure only one or two types of intelligence according to Gardner (1999). These instructional leaders did not focus on students' ability to select the correct answer to questions within assessments (1999).

There is growing body of evidence among educators that interim assessments can provide teachers with diagnostic information that, when understood and used effectively, can have immediate impact on classroom practice (Black, William, Harrison, Lee & Bethan, 2004). Rather than being an activity separate from instruction, interim assessments were viewed as an integral part of teaching and learning, and not just the culmination of instruction. Setting performance standards and matching instructional strategies to interim assessments provide principals and teachers with a visual overview of what students knew and were able to do at a particular time. Interim assessments provide diagnostic information to change instructional strategies prior to students taking high stakes tests (Black & Wiliam, 1998; Stiggins, 2002).

Waters, Marzano and McNulty (2003), reported that creating a balance between interim assessments and formal standardized testing results in a greater degree of credibility to the entire assessment process. The need for creating a balance between the types of information gleaned from standardized and informal based assessments has led

principals to not neglect the role that assessment must play in increased systems of accountability. The only critical question that remained is how administrators will be involved in the process (Reeves, 2006).

Theoretical Framework

Transformational Leadership

Leithwood, Louis, Anderson and Wahstrom (2004) proposed that human behavior is the function of both the person and the environment suggesting that one's behavior is related both to one's personal characteristics and their response to situations in their work. An increase in levels of external accountability and holding principals accountable for student performance has focused researchers' attention on study of leadership models that are more consistent with evolving trends in educational reform and a more direct relationship between the principal as leader versus principal as manager (Ingram, Louis Schroeder (2004). Bass (1998) defined transformational leadership theory in terms of how leaders affect their followers. His theory was characterized by the leaders' ability to get people to focus on a common vision and higher levels of moral awareness. New terms, such as shared leadership, teacher leadership, distributed leadership and transformational leadership began to emerge in literature (Elmore, Abelman, & Fuhrman, 1996). Instructional leadership encompasses a number of leadership areas relating to the principal's role in providing direction to the school from articulating a

vision, to setting high expectations, to monitoring performance. The emergence of these models indicated a broader dissatisfaction with the earlier leadership models, which focused on the principal as the center of expertise, power, and authority (Hoy & Hoy, 2006).

Hoy and Hoy, (2006) posited that leaders are neither born nor made; instead, leaders evolve from a structure of motivation, values, and goals. They identified the importance of transformational leadership as a process by which leaders encourage followers to act for certain goals that represent the values, aspiration and expectations of the leader and followers. This process is accomplished, according to Bulach, and Pickett (2001) by followers feeling of trust, admiration, loyalty, and respect toward their leader.

The empirical research by Hoy and Hoy (2006), Sebring and Bryk, (2000), and Marzano, (2003) suggested that there is a core of primary leadership behaviors associated with teacher expectancy: instructional leadership, teacher-principal trust, principal support for change, and shared leadership. The characteristics of effective schools, referred to as "the correlates," while not intended to be used as a prescriptive or checklist have been found to be associated with leadership in high performing schools (Marzano, 2000). Three of the correlates reported to have an indirect, yet positive relationship to student achievement are: effective leadership behaviors, high levels of expectation, and use of data to monitor and improve instruction (Marzano, Pickering & Pollock, 2001). Waters, Marzano and McNulty (2003) study found that administrators, especially from high performing or improving schools, were more likely to use strategies identified as part of effective accountability systems than principals in lower performing schools.

Effective Leadership Strategies

Dufour (2004) suggested that while leaders have little ability to alter employees' temperaments, personalities or internal motivation they can influence the characteristics of the culture and climate of the organization. According to Englert, Fries, Goodwin, Martin-Glenn, and Michael (2004), "schools know how to change... what they do not know how to do is to improve, to engage in sustained and continuous progress toward a performance goal over time (p.1). Blanks (1987) conducted a qualitative analysis of leadership behaviors of principals involved in 32 urban high schools in 16 cities with a population greater than 100,000. The researcher reported that effective principal leadership in high performing schools was focused on a shared vision, increasing the quality and effectiveness of instruction and monitoring student behavior. The type of leadership employed by principals varied according to individual management styles of the principal and affected the involvement the principal had with the teachers.

Effective leaders have been found to possess the knowledge and skills to understand and apply data to drive instruction and implement policies and practice that discourage teacher autonomy in teaching (McMillan, 2003). Further, they have been found to possess the ability to sustain change efforts school-wide and know how to facilitate teachers working together to align curriculum and instruction to assessment (Marzano,2003). According to Marzano (2003), leaders who were effective were more focused on results and decisions about curriculum and alignment that guides effective teaching strategies (Black , Wiliam, Harrison, Lee & Bethan, 2004; Marzano, 2003). Effective principals possessed a working knowledge of curriculum and

instruction, evaluation, and testing and were able interpret and incorporate data into their daily decision making process to ensure any systematic changes in the teaching and learning process are monitored and driven by data (Stiggins, 2005; Popham, 1995).

Communication

According to Reeves (2006), a principal's ability to effectively communicate with their staff is perhaps the most important way for a principal to exert effective leadership...to leave no doubt about school priorities" (p. 16). Principals play an important role in shaping teachers' beliefs, including the belief that students are capable of learning and that teachers using the appropriate teaching strategies can improve student performance (Reeves, 2006; McMunn, McCloskey, & O'Connor, 2002). Fullan (2001) posit that a shared vision motivates a staff to work together and gives a sense of direction for what they want to accomplish in the future. Schmoker's (2003, 2001) research on principals' success in improving students level of performance in low performing schools indicated that effective principals had the ability to clearly articulate their vision to others. Principals in high performing schools understood while they help create the school's vision, it was necessary also to cultivate that environment that allowed teachers to make decisions that result in ownership in the vision (2003, 2001).

Principal Interactions and Relationships

Smith, Guarimo, Strom and Adams (2006) posit that "behaviors and practices of the principal have influence on all aspects of the learning community, which leads to schools success (p. 441). Whitaker (2003) found effective instructional leaders to be people oriented and engage in relationship building behaviors on a daily basis in an effort to keep their relationships with the staff positive and growing. The ability to establish

personal relationships with all members of a school community was found to convey a sense of caring and appreciation and was central to the work of an effective principal (Bulach & Peterson, 2001). Bulach, Boothe, and Pickett's (1998) study of 375 graduate students in an educational leadership program at the University of West Georgia were asked to list mistakes their principals had made that had the greatest impact on them as educators. The mistakes that occurred most frequently tended to be in the areas of human relations and interpersonal communications. Specific behaviors in the human relations area were a lack of trust and an uncaring attitude. The most frequently perceived mistake was failure to listen or a lack of openness (1998).

Researchers Sebring and Bryk (2000) suggest that effective principals encourage teachers to take risks and try new methods of teaching in their classrooms, challenge the status quo, and bring teachers into contact with new ideas. In recent years, research has converged on the importance of three aspects of the principal's job: developing a deep understanding of how to support teachers; managing the curriculum in ways that promote student learning; and developing the ability to transform schools into more effective organizations that foster powerful teaching and learning for all students (Leithwood, Seashore-Louis, Anderson, & Wahlstrom, 2004).

Collaboration

Professional learning communities have been one of the mechanisms used to achieve powerful teaching and learning for all students through encouraging teachers to discuss data and to share strategies in an effective and collaborative manner (DuFour, & Eaker 1998). Creating a collaborative environment has been described as the single most important factor for successful school improvement initiatives and enhancing the

effectiveness of school leadership (1998). Schmoker (2004a) posited that “mere collegiality won't cut it and discussions about curricular issues or popular strategies can feel good but not move beyond talking about issues” (2004a p.12). The most effective strategy, according to Schmoker (2004), was to regularly bring groups of teachers together for the purpose of refining and assessing the impact of instructional strategies on learning; thereby continuously focusing on the importance of focusing on conceptual teaching rather than rote memory.

In a study conducted by Council of Urban Boards of Education (CUBE) of administrators and teachers, 93.8 % of administrators indicated they actively sought opportunities to help teachers learn new instructional methods. Yet only 78.4% of the teachers surveyed indicated their principals provided sufficient opportunities to learn new instructional methods. In addition, 95.3% of the administrators reported teachers would benefit from more professional development, while only 68.1 % of teachers believe they would benefit from more professional development provided by the school district.

High Expectations

Marzano (2003) suggested that effective principals were results oriented, and realized that translating high expectations to academic achievement would benefit their students' future performance. Teachers in high performing schools were expected to follow curriculum maps designed around essential standards and engage in regularly scheduled collaborative team planning (Marzano, 2003; Marzano, Pickering & Pollock, 2001; Haycock, 2006; Ladd, 1997).

Englert, Fries, Goodwin, Martin-Glenn, and Michael (2004) supported by earlier research by Schmoker (2001) on principals' success in improving students level of

performance in low performing schools and reported that effective principals expect teachers to use assessment results to monitor the effectiveness of instructional intervention strategies. Leaders of high performing schools focus on ensuring all students receive equal access to appropriate challenging levels of instruction (Englert, Fries, Goodwin, Martin-Glen & Michael, 2004).

The strength of the principals' leadership is in their ability to use strategies to establish effective accountability systems and engage teachers in monitoring student behavior and increasing achievement (Marzano, 2003; Reeves, 2006). Torrence (2002) national study of administrators use of data, report that administrators rely on data to drive their leadership decisions and support the high expectations they have for teaching and learning in their schools, but that timely feedback, improved technology, and knowledge of testing and assessment were critical to the implementation and use of data results.

Ladd (1997), using a qualitative research design, found that 70% of 74 or 52 principals studied in North Carolina reported that the accountability system used in North Carolina, ABC was an accurate report of student performance and empowered principals by providing direction in dealing with low performing students (Ladd, 1997). The strength of principals' leadership in high performing schools was their ability of use data to drive planning and curriculum, assess student learning, and affect instruction (Marzano, Pickering & Pollock, 2001; Ladd & Zelli, 2002; Reeves, 2006). In a national study on principals' use of data, Torrence (2002) found that principals used data to support decision-making but did not have the time or ability to facilitate teachers in their use of data.

A survey by the Council of Urban Boards of Education (CUBE) examined 4,700 teachers and 267 principals and assistant principals in 10 states. The researchers found that 94.6 % of administrators agree or strongly agree that students in their school are capable of high achievement on standardized exams, in contrast to 77.2 % of teachers who agreed or strongly agreed with this statement. The principals' ability to organize, plan and motivate others is found to be driven and affected by their own level of commitment, resilience, and successful perseverance (Smith, Guarimo, Strom, & Adams, 2006).

Reeves' (2006) research on low socioeconomic/high performance schools referred to as the 90/90/90 schools, meaning 90 % of the school's population was minority, at least 90% free or reduced lunch qualified students, and at least 90% of the students were successful on standardized assessment. Reeves reported the commonalities within the leadership in each of the 90/90/90 schools were (1) a strong emphasis and focus on achievement, (2) clear curricular choices, (3) frequent assessment and multiple chances for students to show improvement, (4) a strong emphasis on writing in all academic areas, and (5) external scoring of student work.

Differences between effective and ineffective leaders

Collins (2001) stated that the difference between effective and ineffective leaders is "effective leaders focus on what is essential and ignore the rest" (p. 91). Reeves (2006) reported that the difference between effective and ineffective principal leadership is attitude. Waters, Marzano, and McNulty (2003) found that effective leaders focus on change and are able to adjust their leadership practices accordingly. Policies and

procedures developed by instructional leaders in high performing schools are grounded in research and directed at changing the culture of ineffective teaching (Hallinger, Beckman & Davis, 1990).

Researchers' McEwan (2003) and earlier research by Beck and Murphy (1996) report that while less effective principals offered excuses, highly effective principals envisioned their school as being successful and were confident in their ability to cultivate an environment where teachers' collaboratively worked together to make decisions about curriculum and instruction. Elmore, Abelman and Fuhrman, (1996) studies on ineffective instructional leaders found that internal factors such as principals' lack of control over the curriculum and student performance and their focus on superficial solutions to external problems rather than systemic changes in pedagogy resulted in principals pushing teachers harder to teach test items rather than teaching higher-level content. They found that principals and teachers worked harder at narrowing curriculum and allocated more time to teaching basic skills but did not address the needed changes in the pedagogy of instruction (1996).

Fullan (2001) reported that of 18 principals surveyed over three years, 13 effective principals processed more information, took more ownership of their schools student achievement, recognized the complexity of problems and were proactive in addressing them, and allocated resources than ineffective principal who minimized the magnitude of problems associated with student performance. Buach and Berry's(2001) study of 1163 teachers, found that schools with ineffective leadership had less than 50% of teachers agreed that their principal was aware of what was going on in their classroom (Buach and Berry, 2001).

Researchers Englert, Fries, Goodwin, Martin-Glenn, and Michael (2004) surveyed twenty school districts' from seven states in the Central Region of the United States on the use of data in order to address systems of accountability. They along with earlier researcher Popham (1995) report that highly effective administrators possess a working knowledge of curriculum and instruction, evaluation and testing and were able to interpret the data and incorporate the results in their day to day decision making. Similarly, a study of leadership in nine schools in Michigan found that effective school leaders focused on instruction aligned to curriculum standards and state standards and allocated specific time for teachers to collaborate and analyze data to monitor student progress (Cromey & Hanson, 2000).

Assessment Literacy

According to Ladd and Zelli (2002) and Stiggins, (2005) assessment literacy is the capacity of teachers to examine student performance data and be able to understand achievement scores, disaggregate data, and identify gaps in learning that lead to students' being considered disadvantaged or under-performing. Stiggins (2005) reported that unacceptably low levels of assessment literacy among practicing teachers and administrators can result in students failing to reach their full potential because of inaccurate analysis assessment analysis and reporting of data results.

While Popham (2006) found principals do not need to be experts at developing tests, they should know enough about test development to help teachers with the tasks of development and scoring of the assessments along with analysis of the results and use the data in meaningful ways. The degree to which classroom data becomes part of daily decision-making depended on the principals' ability to: model effective data-driven

decision-making; build the capacity of others to use classroom data; make data a priority for decision-making; and create time within existing structures and practices (Marzano, 2003; Pardini, 2000). Stiggins (2005), suggested that teachers who lack the knowledge of how to assess and analyze data are often forced to gather what information they can while on the own.

Englert, Fries, Goodwin, Martin-Glenn, and Michael (2004) surveyed seven states within central United States. Their quantitative study of 308 principals in districts from seven states in the Central Region of the United States reported that principals in high performing schools used data to identify the effectiveness of programs and curriculum. Factors they reported limiting teachers' use of data were: results from state tests were not available to schools for teachers to use in a timely manner; teachers' lacked the knowledge and schools had limited access to technology to support the analysis of data. Principals reported teachers preferred the results from classroom assessment because the information was more beneficial for instruction (2004).

While improving the quality of benchmarks was found to increase scores, the process was complicated by teachers' lack of skill and deficits in their knowledge of assessment and statistics (Brookhart, 2001). DuFour and Eaker, (1998) note that effective principals recognize the need to provide meaningful professional learning opportunities to teachers to assist them in developing the ability to transfer data from a collection of facts and numbers to meaningful information, few states explicitly require competence in assessment as a condition to becoming licensed as a teacher or administrator (Elmore,

Fries, Goodwin, Martin-Glenn & Michael, 2004). Consequently, assessment training is almost non-existent in either teacher or administrator preparation programs (Levine, 2005).

Daniel and King (1998) conducted a study to determine the level of knowledge teachers had of educational test and measurement. A survey was administered to a small sample of teachers demographically representative of national teaching population to survey their level of test and measurement knowledge and use of assessment techniques. A five-point Likert scale and descriptive analysis were used to analyze all data. Results of the study indicated that teachers in general did not have an extensive knowledge base in testing and measurement related to norm referenced testing. While teachers were found to have an understanding of standardized tests, their knowledge about statistical measures used to disaggregate and analyze test data was not as developed (Impara, Plake & Fager, 1993). The inability of teachers to interpret assessment results has been identified as one factor that may increase the possibility of educators making false assumptions about test results (1993).

Mason (2003) analyzed teachers' use of data in six Milwaukee schools and found among the skills teachers felt they needed were skills associated with assessment literacy and technology. The same researcher reported possessing the capacity to use technology alone was not the answer. An understanding of technology and assessment must be coupled with teachers' willingness and capacity to use data. Teachers needed to learn how to obtain and accurately, use data results and not only appropriately but in an ethical manner. In attempting to use data schools have employed the wrong types of data and have used indirect measures of learning for which they have no explanatory model to

interpret the data (Noonan, Renihan, 2006; Parsley, Dean, Miller, 2006). Unfortunately, teachers often use data meant for compliance when what they need was timely, diagnostic data on the students they teach (Olson, 2002).

Stiggins and Chappuis (1992) noted that teachers' lack appropriate training in how to write effective assessment items, lack support from administration or other colleagues, and are generally uncomfortable in designing and administering benchmark tests (1992). Snow and Renner (2001) study of 806 elementary school teacher perspective on key aspects of standards-based education used a two-way stratified sampling design. Schools were grouped as being either in the category of high or low performing schools. The emphasis principals placed on instruction varied by school condition.

In studies of teachers' use of test results, teachers from high and low social economic schools were reported to use assessment results to modify their instruction and provide additional support for non-proficient students more than teachers from average performing schools (Meyer, 2002). Teachers in the most affluent schools were less positive about using test data to improve student achievement, especially in the area of mathematics. Moderate poverty level schools were found to provide less additional learning time to non-proficient students than either high or low-performing schools ($p=.091$). The study noted that teachers in average performing schools were not as motivated as the highest and lowest performing schools to use data to drive instruction and that the use of data by teachers was not generalized throughout the school.

Instruction and Teacher's Use of Data

Marzano (2003) identified the two most important elements to school success as being: how teachers teach, and the effectiveness of a relevant and rigorous curriculum. Being an instruction leader was the most consistent leadership process found in academically high performing schools. According to Wang, Haretel &Walberg (1990) meta review of 179 different studies on variables related to learning outcomes found there were 30 important sociological and political variables that could affect learning but their influence on learning was indirect. Wang, et al. (1990) reported that classroom management, quantity and quality of instruction, and class interaction peer-grouping to be among the most important and have a greater affect on the learning environment than principal policies. Ultimately, the impact of teacher effectiveness on improving student achievement can be stronger than socioeconomic status, class size, and previous level of achievement (Haycock, 2006)

Early attempts to improve the impact teachers had on student learning involved prescribing how and what teachers would teach (Black & Wiliam, 1998). Controlling and prescribing instructional activities failed because teachers believed teaching was an art that required a variety of instructional strategies to meet the needs of students (1998). Effective teachers were aware of the purpose of instruction and their classroom activities were aligned to standards, and instruction was paced to create a cohesive program focused on improving student achievement (Haycock, 2006; Marzano, Pickering, & Pollock, 2001).

The advantage to low achieving students of having highly effective teachers at least as described in the extant literature was achievement of almost 50 percentile points higher over a three-year period, as compared to students with ineffective teachers. The researchers note that when two groups of students had similar characteristics the high expectations of teachers could motivate students to raise their own expectations (Marzano et al, 2001). Likewise, low expectations of teachers result in students' performance matching the teachers' lower expectations.

Sanders and Rivers (1996) studying teachers in grades three through five in 54 districts in Tennessee found the amount of gain studied in student learning over the course of one year could be attributed to teacher effectiveness. The study found achievement scores were higher in classrooms where teachers linked instruction to achievement and where there were high expectations for achievement. Teachers in high performing classrooms were able to diagnose and analyze activities in order to appropriately challenge students and enhance curriculum so that instruction aligned and focused on the necessary skills and standards.

As a broad scale example, the "90/90/90 Schools", in a large urban school district in Milwaukee serving more than 100,000 racial diverse and economically disadvantaged students, noted a marked difference in assessment and instruction between the high performing and low performing schools (cited in Schmoker, 2001). Data-driven seminars were at the core of the district's focus on improvement. There was a clear and articulated emphasis on improving academic performance. Schools conducted weekly assessments that were not either mandate by the district or State. The common assessment results provided positive support for constructive feedback and motivation to students who

needed to succeed (cited in Schmoker, 2001). The assessments results were analyzed by a cohort of teachers and used to form a baseline for evaluating all student work (cited in Schmoker, 2001).

Adlai Stevenson High School District, a large district of 4,000 students in Illinois, was recognized as a successful learning community and a model for aligning teaching and learning practices. By developing effective leaders and focusing on the efficiency and organization of personnel, time and resources the district was able to address attitudes of complacency common among affluent high achieving schools and districts. Data-driven decision-making altered the way the district approached curriculum planning, utilized instructional strategies, and developed end-of-course assessments. Shared decision-making was instituted and training in statistics ensured that any decision made about improvement would not be made by accident.

Working as a team, teachers regularly shared ideas on how to improve teaching strategies and end-of-course assessments. The common end-of-course assessments added structure and a sense of consistency to teaching the required standards. Teachers were able to disaggregate the data to determine patterns or gaps in students' mastery of content, ultimately improving the results on high-stakes accountability testing. Frequent assessments, in addition to the end-of-course assessments, provided immediate feedback as to how students were progressing or struggling in mastery the standards (cited in Schmoker, 2001).

Oak Park District, located in the Detroit, Michigan area, had a high population of African American students and a large percent of the school's population was eligible for free and reduced lunch. Choosing to center their attention on math and reading, they

focused on creating within teachers a desire and passion for data collection. District specialists were employed at the central office to coordinate and manage data, review goals and align standards. The result of collecting and analyzing data was their ability to identify strengths and weaknesses that prohibited their schools and students from improving (cited in Schmoker, 2001).

Similarly, a school within the Glendale Union High School District, was recognized as a school model for its results-oriented and performance based assessment system” (cited in Schmoker, 2001). Teachers worked together to create end-of-course assessments. In the summer teachers scored tests, aligned them to state and national standards and shared valuable resources aimed at meeting the common standards. The level of high expectation was communicated to students by principals and teachers resulting in increased achievement (cited in Schmoker, 2001).

Another of the more publicized studies, because of their ability to eliminate the disparity between low and high achieving subgroups, was Brazosport Independent School District, located south of Houston, Texas. The key to the district’s success was the development of an eight-step accountability process that focused on planning, implementation, assessing, and monitoring of curriculum based on targeted knowledge and skills. The system was organized and divided into manageable units of study. Integrated into the process were frequent formative assessments targeting specific standards. The data provided teachers with immediate accurate records of student and instructional success. The “Plan, Do, Check” model became widely recognized as an organized and effective way of aligning the taught and tested curriculum to standards and district level expectations for accountability (Davenport & Anderson, 2002).

By assisting teachers in collaboratively reviewing curriculum, instruction and assessment for alignment purposes, the taught curriculum became clearer and facilitated decision-making about gaps or omissions within the content. Marzano, Pickering, and Pollock (2001) formula for utilizing effective instructional practices provides guidance in how to increase achievement and transfer knowledge based on proven research and best practices and has been used by many school districts across the country.

Data and Assessment

In a study by Reeves (2002) it was noted that the most effective use of benchmark assessment by schools is when the assessments are not treated as isolated events but integral parts of the ongoing teaching, leadership, and learning cycle. According to Marzano, Pickering, and Pollock (2001), effective principals continuously monitor the impact of school programs on student learning and use the information to inform future practices. Black and Wiliam (1998) reviewed 250 studies from seven countries and found that the use of benchmark formative assessments without providing adequate feedback to students was not sufficient to produce the greatest impact on student progress.

Anderson and Soder (1985) conducted a qualitative two-year study of 87 elementary and secondary school staff and found that principals who created learning environments where students were supported and their achievement was monitored, were more motivated and performed higher in math and reading on achievement tests than students who did not receive the extra time and support. Brown and Walberg (1993) used experimental research design to study the impact of standardized testing on student

motivation on 406 students in grades 3,4,6,7 from Chicago school district. The researchers reported a 12 percent increase on standardized test could be attributed to student motivation.

A two-year comparative case study examining strategies in three district to promote instructional improvement through data-driven decision making was conducted by Kerr, March, Ikemoto, Darilek, and Barney (2006) The purpose of the study was to identify what constrained or enabled a district's efforts to promote data use for instructional decision-making. A total of 72 school visits were made and interviews with 73 principals, 30 assistant principals, and 50 instructional specialists were conducted. Two-thirds of the principals surveyed indicated the district's frequent assessments were a good measure of student progress. Eighty-one percent found data moderately to very useful for making instructionally related decisions. Responses from teachers were mixed. Sixty percent of teachers reported teacher collected data proved to be more useful information for planning than the district's assessments, because either teacher created assessments were more thorough and provided more timely information or because the district's standardized tests simply duplicated what they already knew from their own assessments and review of student work.

Bernhardt, (2003) noted that many schools rely very little on using benchmark data to analyze the effectiveness of programs to meet instructional needs of student. Instead, schools operate on instinct about what is thought to be working. In a study examining teacher attitudes toward the potential success of previously low-performing students, McMillan (2001a) noted that teachers generally find it difficult to link data to appropriate interventions.

However, even when teachers were provided training and tried using benchmark results data to inform their practices, they were often reluctant to do so in a culture where they felt threatened or feared they would be attacked for something they were doing or not doing in the classroom (McMillan, 2001b). Teachers from high performing schools perceived their principal to focus resources on improving instruction and to have high expectation for the use of varied instructional strategies more than those in lower performing schools (McMillan, 2001b).

The most effective teachers use of a variety of formal and informal assessment methods to continually measure students learning against state academic standards (Wiliam, Lee, Harrison, &Black, 2004). Assessing student performance was determined to be one of the most critical responsibilities of classroom teachers(2004).Teachers can spend more than twenty- five percent of their professional time involved in assessment-related activities (Stiggins, 2002). Marzano (2000) reported that highly qualified teachers achieve better student performance results, especially in lower performing school districts and Black and Wiliam (1998) indicated schools with the greatest gains in achievement reported administering formative type benchmark assessments on a frequent ongoing basis (Black & Wiliam, 1998).

Wiliam, Lee, Harrison, and Black (2004) conducted a six month study of 24 teachers in six schools development of assessment for learning. Using a quantitative study with a control group comparison, the researchers found that the use of formative assessment to measure student progress produced a one-half grade per student increase in achievement as a result of teacher training.

Black and Wiliam (1998) review of 250 studies from seven countries and found that the use of benchmark formative assessments without providing adequate feedback to students was not sufficient to produce the greatest impact on student progress. Supovitz and Kleen (2003) reported teachers' use of formative type assessments resulted in greater differentiation of instruction, greater collaboration among school faculty and improved identification of students' learning needs because of analyzing and using the results of the assessment data.

Research examining the relationship between benchmark assessments and student performance revealed that improving the quality of the benchmarks can increase average scores on large-scale assessments as much as three-fourths of a standard deviation, which can be as much as four grade equivalents or 15-20 percentile points (Stiggins, 2005). Stiggins, (2002) suggested that if educators use high-stakes tests without supportive classroom assessment environments, the possibility that struggling students will be negatively impacted increases. Mason (2002) noted that the types of data collected determine the types of decisions that were made. For this reason, information garnered from classroom informal assessments must be meaningful and accurate; i.e., the information must be valid and reliable (Bernhardt, 2005). Popham (1995) identified teachers' ability "to construct and evaluate their own classroom tests" as critical to teachers ability to effectively use formative assessment to support the instructional process (p. 17).

Supovitz and Klein (2003) studying how innovative school systems use student performance data to guide improvement interviewed and surveyed 68 principals from America Choice schools. Using a qualitative quantitative research design, they discovered that principals in these schools reported that their schools analyzed assessment data and used teacher developed formative assessments. Some reported implementing the assessment process throughout the entire system. Of those surveyed, 25% found state and district test results useful in improving learning while 75% reported internal assessment and portfolios to be more effective. However, thirty-nine percent of the principals surveyed indicated principals lacked adequate training to effectively analyze external assessment data and 59% indicated that principals lacked the necessary training to effectively analyze internal data. Principals also reported the process of analyzing data required principals to be focused and committed to the process because it was time consuming.

Inhibitors to Using Data

Concerns expressed by principals in high performing schools related to the use of data to improve instruction and student performance were: insufficient time for working with data; inadequate tools and strategies; absence of staff expertise; lack of time for collaborative planning; professional development focused on how to use assessments results effectively; and instructional support staff to assist teachers in using data (McTighe, & O'Connor, 2005; Torrence, 2002). Among other obstacles cited by researchers were: skepticism toward new ideas; complacency; fear and misconception of

process of change (Ingram, Louis, Schroeder, & 2004). Stiggins (1995) also suggested that teachers who lack the knowledge of how to assess and analyze data are forced to gather what information they can while on the job. .

Hallinger, Beckman and Davis (1990) note another problem was created by the principal purposefully distancing themselves from the classroom environment because they possessed less expertise in instructional pedagogy than the teachers. Blank (1985) found that principals in urban high schools were not as engaged with students and their learning and attributed this to a difference in philosophy between principal leadership in rural and urban school systems. Some principals viewed their role as leader to be transformational which others viewed themselves as more transformational.

Summary

The focus on interim assessments has become the gauge for measuring the effectiveness of principal leadership in improving the quality of instructional practices and for monitoring student achievement gains in their schools. The review of the literature revealed the importance of principals not only using data themselves, but ensuring their teachers know how to analyze data and implement instructional strategies to address important gaps in teaching and learning. The responsibility for shifting teachers' use of data from being consumers to producers becomes the responsibility of the principal. While principals report using data in their work, researchers also report principals' lack the time and skills to facilitate teachers understanding of how to use data. While principals will have a framework or infrastructure in place, the threat to the success of their efforts is compounded by teachers' lack of self-efficacy and belief in their own ability or desire to use data effectively to affect instruction.

Barriers created by the absence of shared vision, lack of trust, and belief in the principals ability to change the culture and climate of school all contribute to some principals' inability to effectively influence teachers to risk, embrace new ideas or try new approaches. If schools are ever going to see significant increases in student achievement, the principal must be able to organize the learning environment and impact instruction by improving teachers understanding and use of data. Teachers must be able to use data to provide targeted, systematic, and purposeful instruction to meet the learning needs of all students, The affect of principal leadership on student achievement is not only dependent on knowing what to do, but on principals' knowing why, how and when to put into place policies and procedures that will have the greatest impact on instruction. Finally, the effectiveness of the principals' leadership is dependent on teachers' perception of the principals' level commitment to a vision, high expectations, and teachers' trust in the principals' ability to provide resources and facilitate teachers' need for support.

CHAPTER III

METHODOLOGY

The focus of this study was to examine the extent to which middle school principal leadership strategies in benchmark and non-benchmark schools impacted teachers' use of interim assessment data. The purpose of chapter three was to provide the framework for the study by discussing the procedures used to conduct the study. The components discussed in the chapter were: research questions, research design, population, participants, sample, instrumentation, pilot study, and procedures for data collection and analysis. Chapter three concluded with a summary of the methodology used in the study.

Research Questions

The focus of the study was to the extent to which principals' leadership strategies in benchmark and non-benchmark middle schools impacted teachers' use of assessment data. The null hypothesis was that principal leadership strategies would have no effect on teachers' use of assessment data in benchmark and non-benchmark schools. The overarching question used to guide the study was: What effect does principal leadership strategies have on teachers' use of assessment data in benchmark and non-benchmark schools? Specific questions designed to help address the overarching question were:

1. To what extent do strategies employed by principals' effect teachers' use of assessment data?
2. To what extent does the influence of the strategies employed by principals' to effect teachers' use of assessment data differ between benchmark and non-benchmark

Research Design

A causal comparative research design, referred to as “ex-post-facto” (Latin-“after the fact”), was selected since both the effect and the alleged cause had already taken place and the study by this researcher was in retrospect. The causal-comparative format attempted to determine reasons, or causes, for the current status of the phenomena of strategies urban middle school principals’ in benchmark and non-benchmark schools used to effect teachers’ use of assessment data (Gay, 1981).

Population and Participants

The descriptive research involved six middle school principals and language arts, mathematic and science teachers in grades six, seven and eight in a selected urban setting where the researcher had identified one independent variable to be examined among the identified groups. The researcher pointed out that the independent variables in this study had not been influenced by any type of researcher manipulation. The researcher offered this warning when reviewing any causal-comparative research: Extreme caution must be applied in interpreting results, since an apparent cause-effect relationship may not be as it appears (Gay, 1981).

The areas of language arts, mathematics and science were selected since the three core curriculum areas maintained in recent years the most stability in linking standards to benchmark assessments at the middle school level in the urban school environment and were used in determining AYP. The two groups were referred to as comparison groups in the study; refer to Figure 3.1 (Gay, 1981, p. 201) and the basic causal-comparative design.

Two groups
 Benchmark Schools
 Non Benchmark Schools

	Group	Independent Variable	Dependent Variable
	(E)	(X)	0
Case A	(C)		0
	Group	Independent Variable	Dependent Variable
Case B	(E)	(X ₁)	0
	(C)	(X ₂)	0

(E) = indicates no manipulation

(C) = Control Group

(X) = independent variable

0 =dependent variable

Figure 3.1 Causal Comparative Research Design

The groups differed in that one group possessed a characteristic, i.e. district benchmark assessments, in that the other group did not (Case A). The principals in both groups received access to district level training in the utilization of assessment data and effective school research as part of their on-going staff development.

The principle investigator administered a *Teachers' Perception of Leadership Survey* to both groups of teachers that was related to the independent variable, principal leadership strategies, and conducted a one-on-one interview with principals from both groups to determine principals' leadership strategies and principal's perception of extent to which teachers used data to effect instruction and monitor achievement. The definition and selection of the various comparison groups in the research were operationally defined as group (E) those teachers who were in benchmark schools and were required to use the district's benchmark assessment process and receive principal support in utilization of assessment data and group (C) the control group where no formal benchmark assessment were required to be used and principal strategies used to support teachers use of assessment data were not formalized. It is important to emphasize the way that the groups were defined could have affected the ability to generalize the results of the study.

Population

The population selected for this study came from six of the districts' middle school principals and teachers in grade six, seven and eight language arts, mathematics and science in a large urban school district in the state of Georgia. The six middle schools invited to participate in the study were representative of the district's diverse and multi-cultural population. Three of the six schools invited to participate were targeted as benchmark schools and had participated for three years in the interim assessment continuous improvement process. The three non-benchmark schools were identified based on a comparability of location, diversity, social and economic status, and leadership experience to the three benchmark schools. The teachers selected to participate in the study had at least two years of experience in teaching and held certification in the

area in which they were teaching. Principals' had at least one year of administrative leadership experience at the middle school level. The population selected was identified as possessing homogeneity in the selected middle school population and can be viewed in Table 1.1.

The researcher elected to not do a separate analysis, but constructed the research study so the dependent variable was built into the design and would be analyzed using a factorial analysis of variance(Appendix M). This statistical technique allowed the researcher to make a determination as to the effect of the independent variables, i.e., principal leadership in benchmark and non-benchmark schools on the dependent variable, i.e., teachers' use of assessment data both separately and in combination. This technique allowed the researcher to explain the level of variance associated with the dependent variable. The statistic was used in conjunction with a two-way independent *t*-test. The major feature of a factorial design was that it allowed the researcher to investigate the relationship between one dependent variable and two independent variables.

Matching

Matching was used as a control technique in the study, where the researcher had identified a variable; the influence of principal's leadership on teacher use of assessment data directed toward teachers in language arts, mathematics and science in benchmark and non-benchmark middle schools in a large urban population. It was designed such that for each subject in group "E" there was a comparable student and teaching population in group "C", or the control group. Thus, the resulting matched groups were similar with respect to demographic composition.

Instrumentation

The researcher designed and field tested the instruments used for the study based on a review of empirical literature related to the study. One instrument, designed for principals, was qualitative and conducted as a one-on-one interview. The researcher developed a *Teachers' Perception of Leadership Survey* comprised of 32 questions related to a review of empirical literature on leadership, instruction and assessment and effect of teachers' use of assessment data. Participants responded to the survey using a five point Likert scale with responses ranging from "strongly disagree" to "strongly agree". The instrument was administered to two groups of teachers: one group composed of teachers at benchmark schools and one group composed of teachers' non-benchmark schools. The researcher calculated the Cronbach's alpha to establish reliability of the survey instrument.

Pilot Study

The researcher solicited feedback on the survey instrument from experts in the fields of curriculum, assessment, accountability, and leadership prior to administering the survey to a pilot group of teachers. The instrument was administered to a pilot group to determine the face and content validity of the instrument. Upon receiving feedback and establishing the Cronbach's alpha to be 0.962, which is considered valid for determining the internal consistency of a survey, a second pilot was determined unnecessary by the panel of experts.

Data Collection

The following steps for surveying subjects came from a review of Dillman's (2006) "Total Design Method" survey approach considered in the social sciences to result in higher response rates. As such the following procedures were followed:

1. Six principals were contacted by the district's central office administration and invited to participate in the study.
2. The principals were personally contacted by the researcher to formally request their participation in the study.
3. Upon agreeing to participate, each principal was sent a follow-up email affirming an agreed upon time and date to administer the survey to teachers and conduct the principal interview.

The following procedures were applied in administering and collecting the teacher perception survey data.

1. During a faculty meeting, subjects in the sample received a packet including an informal consent form, copy of the survey and response card, and directions for completing the survey and returning the results.
2. All collected data were gathered upon conclusion of the faculty meeting and entered into a statistical analysis software program. After the data were entered results from the survey were matched for the purpose of conducting an analysis of the data.

Data Analysis and Interpretation

A t-test is used to determine if there is a statistical difference between two groups in both causal-comparative and non-experimental research designs. When the subjects in

the two groups are independent of one another, that is when no matching of subjects or other control procedures are used, the independent t-test can be used to test the significance of a difference between the mean values of the independent and dependent groups in a study. Analysis of data in this ex-post facto study involved the calculation and presentation of a variety of descriptive and inferential statistics. The most common descriptive statistic of importance in this study was the mean for the two groups. This mean score provided an average for the performance of the groups for a given variable. In addition, the standard deviation was calculated and provided evidence related to the spread that existed in the data. The researcher examined the standard error which allowed the researcher to ascertain how groups might differ if other samples were selected from this same population. An alpha level of .05 was used in all analyses of the data yielding a 95% confidence rate.

It was anticipated that if the scores in any given distribution tended to be similar, then it was expected that the deviation scores would be close to zero. However, in contrast, if the scores tended to be quite different, the deviation score would be larger. The variance was also calculated, which provided an index that was helpful in comparing variability between the two sets of scores. Using this information yielded an average squared deviation score which was always zero or a positive integer.

The researcher selected the most commonly used inferential statistics to analyze the data known as the t-test. This t-test allowed the researcher to examine if there was any significant difference between the mean of group (E) and group (C). The p-value was used to determine if there was a statistically significant difference between the two means which could not be attributed to chance. The groups in this study were not randomly formed and were considered to be non-independent groups due to matching. Using a t-test for correlated or non-independent means was used to ascertain if a significant difference between the means of group (E) and group (C) existed.

Further, a Cohen's d (Cohen, 1988) test was calculated to test the strength of the effect size. The difference between the mean values of two groups divided by the standard deviation σ of either group was used to test the significance of the effect size or strength of the relationships between the two groups. Cohen's d was used by this researcher to establish the degree to which mean scores overlapped within the two groups on questions that were determined by the defined effect size as small ($d = .2$), medium ($d = .5$), and large ($d = .8$).

Data Management

All of the data collected by the researcher was stored in a secure location. The only individuals who had access to the information were the researcher, the dissertation committee chair, and any employed consultant. The audio tapes, the transcribed notes and the hard copies of the surveys were kept in one secure location by the primary researcher. The data was entered and stored on a separate hard drive and a back up copy of the information was stored on a CD which was also stored in a secure location.

Summary

While research is just now beginning on principals' influence on teachers' use of assessment data, it is important to this researcher to contribute to the emerging body of research. It is the intent of the researcher to provide information that will help other urban middle school principals in understanding how principals and teachers perceive the effectiveness of principal leadership strategies in effecting use of data. The methods for collecting and analyzing the data led to answering the overarching questions and the guiding questions such that the extent to which principal leadership strategies effected teachers' use of data to influence instruction could be described.

CHAPTER IV

REPORT OF DATA AND DATA ANALYSIS

The focus of this study was to examine the extent to which one variable, middle school principal leadership strategies, explained another variable, teachers' use of assessment data. The findings and analysis of the data as a result of this study were presented in this chapter. The components of Chapter IV included: Research questions; research design; pilot testing; demographic profile; findings; principal interviews and summary. A summary of the findings were provided in Chapter V.

Research Questions

The hypothesis was that principal leadership strategies would have no effect on teachers' use of assessment data in benchmark and non- benchmark schools. The researcher sought to examine the following overarching question: What effect do principal leadership strategies have on teachers' use of assessment data in benchmark and non-benchmark schools?

Specific questions designed to help address the overarching question were:

1. To what extent do principal leadership strategies effect teachers' use of assessment data?
2. To what extent does the influence of the strategies employed by principals to effect teachers' use of assessment data differ between benchmark and non-benchmark schools?

Research Design

The causal comparative research design attempted to identify the extent to which an independent variable, principal leadership strategies in benchmark and non-benchmark schools, was related to the dependent variable, teachers' use of assessment data. The research study was approved by Georgia Southern University and by the district's research approval council identified as the focus of the study (Appendix I, Appendix, J)

In this causal-comparative non-experimental design, groups were not randomly assigned and a control group was not present. For the purpose of this study, since groups were not randomly formed and the dependent variable, teachers' use of assessment data, was not manipulated, a non-experimental design was selected to conduct this study.

Teachers from six middle schools in a large urban school district in Georgia who taught language arts, mathematics and science in grades six, seven and eight and had two or more years of teaching experience during the 2006-2007 school years were invited to participate in the study. However, it is important to note that due to circumstances beyond the control of the school or the researcher, one of the non-benchmark schools was unable to participate in the study by the final date for collecting data, and as a result any data collected was not included as part of this research

Pilot Testing

Based upon the factors identified in an extensive review of the literature, the researcher designed and developed a survey instrument (see Appendix C) to determine teachers' perception of the effect of principal leadership strategies on the teachers' use of assessment data. The items included in the survey were based upon dependent variables associated with principal strategies in each of three identified areas: leadership,

instruction, and assessment. Existing surveys that had been validated in the related literature were reviewed and served as models for the format to guide the development of the survey.

After the survey was developed, the researcher solicited feedback regarding content and construct/face validity from a panel of experts. The panel of experts consisted of a group who had either research development expertise or subject area expertise. Specifically, the panel consisted of personnel from the curriculum and instruction department of the school district, school leadership, classroom teachers and personnel from the assessment and accountability department of a local school district. Following feedback and modifications based upon the expert panel's recommendations, the researcher administered the survey to a pilot group to determine internal reliability, as well as to gain general feedback regarding the overall survey. The reliability of the survey was analyzed using a Cronbach's alpha, which is considered valid for determining the internal consistency of a survey containing the same number of items constructed from a hypothetical universe of items that measure the characteristics of interest. The researcher obtained an alpha of .940 ($n=32$) which is considered reliable for empirical research.

Demographic Profile of Participants

All sixth, seventh, and eighth grade teachers ($n = 188$) in five of the district's twenty middle schools in a large metropolitan district were identified as the population and invited to participate in the study. Each of the schools had a diverse population of students. Within each school, at least three percent of all teachers had a masters' degree or above. Principals in each school had at least two years of experience as a principal.

Four of the five middle schools low socioeconomics percentages were above 40%. The percent of teachers with two years or more teaching experience resulted in less than three percent of the total teacher population in each school (Table 1.1).

After following the steps of the Total Design Method established by Dillman (2006), the researcher received a total of 136 useable responses yielded a 72% response rate (n = 94 benchmark n= 42 non-benchmark). The results are reflected in Table 4.1.

Table 4.1. *Number of Surveys and Returned Responses by Benchmark and Non-Benchmark Schools*

A Benchmark School Code	B No. of Teachers' Surveyed	C No. of Returned Response	D Non Benchmark School Code	E No. of Teachers' Surveyed	F No. of Returned Response
B1	42	32	NB1	35	15
B2	35	30	NB2	40	26
B3	36	33			

Legend of Symbols: Column A- Code for Benchmark schools, Column B- Total number of teachers' surveyed, Column C – Number of Responses Returned from Benchmark Schools, Column D- Code for Non-Benchmark Schools, Column E- Number of Teachers Surveyed, Column F- Number of Returned Responses from Non-Benchmark Schools.

Findings

In order to test the null hypothesis that principal leadership strategies would have no effect on teachers' use of assessment data, a statistical software program, SPSS, was used to analyze data collected from a *Teachers' Perception of Principal Leadership Survey*. A two-way independent t-test was applied to the data to determine if mean values on each of the 32 questions on the survey were statistically significant at the .05 level of

confidence. An analysis of the data indicated statistical significance at the .05 level (Table 4.2) on 13 of the 32 questions.

Effect of Principal Leadership Strategies on Teachers' Use of Data

In answer to the research questions to what extent do principal leadership strategies impact teachers' use of assessment data and to what extent principal leadership strategies differed between benchmark and non-benchmark schools, the researcher found after analyzing the data that the mean values for benchmark schools were higher than non-benchmark schools on all survey items but one. Principals from both groups reported focusing on the importance of communicating their vision, supporting their staff and ensuring that teachers used data to influence instruction. Teachers were expected to use the districts' instructional calendar aligned to standards, incorporate effective teaching strategies and monitor student progress. The variance and degree to which principals reported stressing teachers' use of data was reported to be dependent on the principals' perception of teachers' levels of understanding of how to analyze assessment data, and teachers' willingness to use assessment results to monitor instructional practices.

Difference in Perception of Principal Leadership

The degree to which teachers from benchmark versus non-benchmark schools responded to items indicated that teachers from benchmark schools perceived their principal to be more focused on data and consistently communicate their vision and direction for using assessment data. Teachers from benchmark schools perceived their principals to be more knowledgeable about how to use assessment data than non-benchmark schools. Principals in benchmark schools were observed more often using technology to support the use of assessment data in their position as principal than in

non-benchmark schools. Teachers' perceptions of the degree to which principals required teachers to use the district's instructional calendars were stronger in benchmark than in non-benchmark schools.

Principals in benchmark schools were reported by teachers to be more focused on building others' capacity to use assessment data by ensuring that teachers' knew how to use assessment data to improve instruction more than in non-benchmark schools.

Teachers' perceptions of principals using the results of assessment data to make decisions related to allocating resources, staff development and support to teachers on how to use assessment data was stronger in benchmark than non-benchmark schools. Teachers' perceptions of the influence of the principals' leadership style on their belief in their ability to increase student achievement were stronger in benchmark than non-benchmark schools.

Teachers in benchmark schools and non-benchmark schools differed in the degree to which principals were perceived by teachers to be involved in meetings where interim assessment data was discussed. Benchmark school teachers perceived their principals to be more involved in working directly with teachers than non-benchmark schools. More teachers in benchmark schools felt strongly that they knew how to link the results of interim assessment to effective instruction than teachers in non-benchmark schools. For a summary of the questions asked on the survey and how they addressed the three areas of focus, Table 4.2. exemplified the alignment of the survey questions to the areas of leadership, instruction and assessment.

Having treated the questions as a whole group, the researcher further examined the extent to which the teachers' perceptions and responses differed between benchmark

and non-benchmark schools on groups of questions related to three dependent factors: leadership, instruction and assessment. Using a statistical application software program, SPSS, an independent t-test was calculated to determine the mean values for 16 questions grouped together from the original 32-item survey. Teachers' perception of leadership, as groups from the benchmark schools versus non-benchmark schools, was significant at the .05 level. The mean score for teachers from benchmark schools was higher on 15 of 16 questions related to leadership. The one item with a higher mean score for teachers in non-benchmark school addressed administrators other than the principal as holding some responsibility for ensuring teachers know how to use assessment data (Question #27, Table 4.2). Teachers in non-benchmark schools strongly agreed that administrators other than the principal were responsible for facilitating teachers working with assessment data, whereas teachers in benchmark schools disagreed that other administrators were responsible for working with teachers on benchmark data analysis.

Next the researcher analyzed teachers' perception of a group of eight questions related to instruction from the original 32-item survey. Based upon the results of the t-test, the researcher concluded that the mean scores for the eight questions related to instruction, while higher in for teachers in benchmark schools than teachers in non-benchmark schools, were not significant at the .05 level. Finally the researcher conducted a t-test to analyze data collected from a group six questions from the original 32-item survey related to assessment and the use of data. Findings from the analysis of the collected data indicated that the difference between responses of teachers from benchmark schools and teachers from non-benchmark schools was significant at .05

Table 4.2 Questions Grouped by Three Factors of Leadership, Instruction and Assessment Reported to be Statistically Significant at .05.

Leadership	Instruction	Assessment
1. The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement are clear and consistently communicated.	2. The principal provided time for teachers to meet regularly to plan and share instructional strategies based on results from assessment data.	3. I observed the principal using data to analyze the effectiveness of programs and instruction for future planning.
4. The principal clearly communicated his/her level of expectation for all students to be enrolled in a rigorous and challenging curriculum.	13. I applied a variety of instructional strategies to support the learning needs of students based on the results of interim assessments.	8. The principal fully understood how to use interim assessment data to improve instruction and student achievement.
5. Relationships were more important to my principal than ensuring that every detail was accounted for.	15. I knew how to disaggregate and analyze assessment data to identify gaps in student's learning.	18. Interim assessment data results helped teachers monitor the effectiveness of instructional strategies.
6. The principal's primary focus was on building others capacity to use data.	16. I knew how to link the results from interim assessments to appropriate intervention strategies to improve instruction.	19. Interim assessment data results were effective in identifying gaps in student's learning.
7. The principal built ownership by making sure teachers understood how to use interim assessment data to improve	17. I followed the district's instructional calendar.	20. I believe my classroom assessments were more effective in identifying what students knew and did not know than mandated high-

instruction.

9. When teachers met formally to discuss results from interim assessments, the principal was present and actively engaged.

10. The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful ways.

11. The principal appeared to spend more time on issues related to instructional than management tasks.

12. The principal listened to teachers and involved them in making decisions related to improving instruction.

14. The principal required teachers to align instruction to the district's instructional calendar.

21. The principal's leadership style influenced my belief in my ability to improve student achievement.

22. I met on my own with other teachers to plan and collaborate on how to improve instruction based on the results from interim assessments.

23. I communicated to students the importance of performing well on the interim assessments.

25. I provided students sufficient feedback regarding their progress on the interim assessments in order to help them to improve.

stakes tests.

26. Interim assessments, aligned to the instructional calendar, were administered to all students every nine weeks.

27. Administrators, other than the principal, were primarily responsible for ensuring teachers knew how to use interim assessment data to influence instruction.

29. The principal aligned resources, support, and assistance for improvement to teachers based on the results from interim assessments.

30. Staff development focused on how to analyze interim assessment data to improve instruction was available to teachers.

31. I viewed my principal's primary leadership style as focused on getting things done correctly and on time.

32. The principal discouraged teachers working in isolation.

Finally, to determine the number of standard deviations separating mean averages on each of the questions for benchmark schools versus non-benchmark schools determined to be statistically significant at .05 p level the researcher used a Cohen's d (1988) (formula $\frac{X_1 - X_2}{SD}$), or measure of effect size. According to Cohen's d , the effect size is considered small at 0.2, medium at 0.5, and large at 0.8.(Table 4.3).

Table 4.3: *Cohens' d (1988) Test for Significance of Relationship between Surveys'*
Fourteen Items Significant between Groups at .05.

* = Small Effect Size ** = Medium Effect Size *** =Large Effect Size

Items	Benchmark Mean	Non-Benchmark Mean	Standard Deviation	Results of Cohen's d formula
1. The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement are clear and consistently communicated.	4.28	3.78	1.096	*.46
3. I observed the principal using data to analyze the effectiveness of programs and instruction for future planning.	4.15	3.71	1.223	*.36
7. The principal built ownership by making sure teachers understood how to use interim assessment data to improve instruction.	3.91	3.24	1.136	** .59
9. When teachers met formally to discuss results form interim assessments, the principal was present and actively engaged.	3.31	2.46	1.462	** .58
10. The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful ways.	3.92	3.41	1.155	*.44
14. The principal required teachers to align instruction to the district's instructional calendar.	4.56	4.02	1.075	** .50
17. I followed the district's instructional calendar.	4.55	4.02	1.055	** .50
21. The principal's leadership style influenced my belief in my ability to improve student achievement.	3.45	2.98	1.385	*.34
26. Interim assessments, aligned to the instructional calendar, were administered to all students every nine weeks.	4.49	4.02	1.152	*.41
27. Administrators, other than the principal, were primarily responsible for ensuring teachers knew how to use interim assessment data to influence instruction.	3.84	4.29	1.119	*-.40
28. The principal kept current about the most effective instructional practices and was resourceful in	3.66	3.24	1.229	*.34

seeking creative ways to support teachers.				
29. The principal aligned resources, support, and assistance for improvement to teachers based on the results from interim assessments.	3.87	3.20	1.040	** .64
30. Staff development focused on how to analyze interim assessment data to improve instruction was available to teachers.	3.93	3.24	1.093	** .63
31. I viewed my principal's primary leadership style as focused on getting things done correctly and on time.	4.06	3.46	1.236	* .49.
Leadership	3.7559	3.3735	.79294	* .48
Assessment	4.140	3.8699	.70464	* .38

Six of the thirteen items were determined to have a medium effect size. Specifically, the probability of creating a Type I error was less $<.05$, or $\frac{1}{2}$ standard deviation. In addition, three of the other items had a strong small to medium effect size.

Principal Interviews

To add authenticity to the study, the researcher conducted face-to-face interviews with each of the five principals from the benchmark and non-benchmark schools. The principal interview instrument was comprised of questions related to the areas of leadership, instruction and assessment and based upon a review of the extant literature. The interviews with each of the principals lasted thirty to forty minutes. All interviews but one was conducted at the principals' school. The one off site interview was conducted at the district's central office. The interviews were structured and principals responded to questions aligned to the teacher perception survey questions and a review of the literature (Appendix D). The results of the interviews produced qualitative data that, when analyzed by the researcher, indicated commonalities and differences in principal responses. The data gathered from the interviews indicated that while both groups of

principals focused on research-based leadership strategies to increase the effectiveness of instruction and assessment, benchmark principals reported being more personally involved in working with teachers in use of assessment data to improve instruction. A summary of the commonalities and differences in principals' perceptions of their leadership and teachers' use of assessment data that emerged from the interviews are related in Table 4.4

Table 4.4 *Benchmark and Non-Benchmark Principal Response to Interview Questions.*

Benchmark Principals	Non-Benchmark Schools
I. Leadership: Principals are focused and driven by data and reported to be more focused on tasks than relationship.	I. Leadership Principals, while focused on the importance of data, also focused on building positive and supportive relationships with their staff.
Principals have high expectations and leave no doubt as to their levels of expectation for using data to influence instruction and monitor student progress.	Principals believe teachers are aware of their vision and also realize the process of teachers' embracing their vision requires time.
The focus of staff development is on issues related to how to analyze and interpret assessment data	Staff development is related to curriculum and instruction and improved achievement.
II. Instruction Principals set aside time to ensure their administrative teams are well trained in how to work with teachers, but are also actively engaged in working directly with teachers.	II. Instruction Other administrators; data administrators and assistant principals work more with teachers than the principal. Principals believe teachers would prefer they be more involved but they don't have time.
Time provided for teachers to work together is never enough and some teachers resist having to collaborate.	Time provided for teachers to work together is never enough. Focusing teachers' attention on knowing how to use data is a challenge.
Engaging teachers in using data to inform instruction is an ongoing process, yet data has been an integrated part of the process of teaching and learning for several years.	Engaging teachers in using data to inform and monitor instruction is still the focus of the school administrators but the principals are in the various stages of holding teachers accountable

	for using data results to improve instruction.
Teachers are held accountable for how they will use data to meet the learning needs of students.	All teachers are expected to align instruction to the calendar and use interim assessments, but principals did not indicate the degree to which teachers were held accountable for the results.
<p style="text-align: center;">III. Assessment</p> Principals required teachers to use the district's interim assessments and required that the results of the tests be used to plan curriculum and intervention strategies	<p style="text-align: center;">III. Assessment</p> Principals did use the district's interim assessments, but created their own common assessments and used the results to plan curriculum and instructional strategies.
The principal is focused on results and believe analyzing data is what works. According to one principal, "Data doesn't lie" and the data is the measurement by which they base any and all decisions related to instruction.	The principle is focused on results of improving instruction and using data as one of the tools to support instruction.

Summary

Analysis of the data indicated that principal leadership strategies do have an effect on teachers' use of assessment data. Based on an analysis of all the collected data, the researcher rejected the null hypothesis which stated principal leadership strategies would have no effect on teachers' use of assessment data, and the researcher accepts the alternate hypothesis that principal leadership strategies do have an effect on teachers' use of assessment data.

The results of the study indicate that teachers' perception of principal leadership strategies and their effect on teachers' use of assessment data varied between benchmark schools and non-benchmark schools. Evidence of principal leadership strategies and

assessment practices were reported by teachers to be more evident in benchmark schools than in non-benchmark schools. The results of the study revealed that strategies related to teachers' use of assessment data and instruction was not significantly different between benchmark schools and non-benchmark schools. This would indicate that instructional strategies associated using instructional calendars and aligning instruction to the standards was similar for teachers in both benchmark schools and non-benchmark schools. It was determined that while mean values of strategies related to instruction were determined to be different, the differences were not enough to determine statistical significance at the .05 level. Further analysis of data collected from principal interviews supported the survey results from the teacher survey. Principals in benchmark schools reported holding teachers accountable for using data to improve instruction and monitor achievement and were more directly involved in the process of building others' capacity to know how to use data and using the results to influence instruction. The major findings of this study will be discussed further in chapter V.

CHAPTER V

SUMMARY, DISCUSSION, AND IMPLICATIONS

The purpose of this study was to examine the effect of principal leadership strategies on teachers' use of assessment data, as perceived by teachers in benchmark schools and non-benchmark schools, with the intent of making recommendations regarding maximizing teachers' use of assessment data in order influence the quality and effectiveness of instruction. This chapter presents a summary of the analyzed data, as well as discussion and implication of the findings from the study.

Introduction

Research has been conducted to study the effect of principal leadership strategies on teachers' use of assessment data. Findings within the extant literature indicated that teachers' use of assessment data is dependent on effective strategies utilized by principals to ensure that teachers know how to use assessment data and are able to link the results to effective instruction and monitoring of student progress (Stiggins & Chappuis, 2001). The principal is the instructional leader of the school. Therefore, the extent to which teachers' use assessment data depends on the degree to which principals are effective in identifying strategies that will increase teachers' knowledge and understanding of how to use assessment data in appropriate and meaningful ways.

An ex-post facto, mixed methods research design was used to examine the extent to which principal leadership strategies impacted teachers' use of assessment data and the extent to which leadership strategies and teachers' use of assessment data differed between benchmark schools and non-benchmark schools. This research was conducted in order to answer the following questions: What effect do principal leadership strategies

have on teachers' use of assessment data in benchmark schools and non-benchmark schools? To what extent do strategies employed by principals' effect teachers' use of assessment data? To what extent does the influence of the strategies employed by principals to effect teachers' use of assessment data differ between benchmark schools and non-benchmark schools?

Teachers' overall perceptions of principal leadership strategies effect on teachers' use of assessment data was obtained by analyzing data from a *Teachers' Perception of Principal Leadership Survey* distributed to 188 teachers in five middle schools in a large metropolitan urban school district in Georgia. In addition, principal interviews were conducted to add authenticity to the results of the survey and study as it was designed.

Discussion of Research Findings

Within every system the virus that invades the systemic flow of a system and causes change to occur within the system is a high degree of variation. No Child Left Behind is the crisis that has been created to move people to action by holding educators' accountable for increasing student achievement using high stakes tests, which while not being the best measurement, is commonly understood by the general population of educators.

Challenges associated with transient and low socioeconomics populations of students may require a different approach to leadership and instruction that can only be impacted by frequent monitoring and differentiating of instruction. Principals of schools at risk for not making AYP must use more diagnostic approaches to teaching by identifying why students are not being successful and to establish which instructional strategies will be most effective in working with nontraditional learners. Therefore, the

type of leadership required in order to change how assessment results are infused into the existing culture of the school may rely on the principals' response to the culture of the school and vary according to the degree to which schools are at risk for meeting AYP. It is the ability of the leadership to adapt their leadership style to meet the culture of school.

The data seems to indicate that if principals infuse a high degree of accountability into the culture of the school by requiring teachers to use assessment results to align instruction to standards and skills, follow instructional calendars, incorporate effective teaching strategies, utilize intervention strategies, engage in collaborative planning then instruction becomes more objective rather than subjective. This is born out in the research as reviewed in chapter two.

According to Reeves (2006), "a principal's ability to effectively communicate with their staff is perhaps the most important way for a principal to exert effective leadership...to leave no doubt about school priorities" (p. 16). The results of this study survey related to the dependent variable of leadership support the early research by Marzano (2003). The degree to which classroom data becomes part of daily decision-making depends on the principal's ability to: model effective data-driven decision-making; build the capacity of others to use classroom data; make data a priority for decision-making; and create time within existing structures and practices (Marzano, 2003; Pardini, 2000).

The results of this study found that teachers in benchmark schools perceived their principals to be more effective in communicating their vision and expectations for using assessment data to improve instruction and achievement than in non-benchmark schools (Table 5.1 Question # 1). The instructional leaders' ability to create an environment

where policies and practices were supported and implemented by teachers was found to be strengthened by principals' ability to model data-driven decision-making in their roles as leaders (Snow & Renner, 2001). Torrence (2002), in a national study of administrators' use of data, reported that administrators rely on data to drive their leadership decisions and support the high expectations they have for teaching and learning in their schools; but they reported further that timely feedback, improved technology, and knowledge of testing and assessment were critical to the implementation and use of data results. The study revealed that teachers in benchmark schools observed their principals using assessment data to analyze the effectiveness of program and planning more often than principals in non-benchmark schools (Table 5.1, Question #3).

Principals' play an important role in shaping teachers' beliefs, including the belief that students are capable of learning and that teachers using the appropriate teaching strategies can improve student performance (Reeves, 2006; McMunn, McCloskey, & O'Connor, 2002). The results of this study supported the research of Reeves (2006) and others by reporting that teachers in benchmark schools perceived the leadership of their principals to have a greater impact on teachers' belief in their ability to improve student achievement than teachers in non-benchmark schools (Table 5.1, Question #21).

Whitaker(2003) found effective instructional leaders to be people-oriented and engaged in relationship building behaviors on a daily basis in an effort to keep their relationships with the staff positive and growing. Ewan (2003) suggested that effective principals are results-oriented and realize that translating high expectations to academic achievement will benefit their students' future performance.

The researcher of the current study reported that teachers from benchmark schools perceived their principal's primary focus was on getting things done correctly and on time (Table 5.1, Question 31). Interviews with principals from benchmark schools and indicated that while relationships were important they were more focused on ensuring accountability and data-driven results. Mason (2002) noted that the types of data collected determine the types of decisions that are made. For this reason, information garnered from classroom informal assessments must be meaningful and accurate; i.e., the information must be valid and reliable (Brookhart, 2004).

In this vein, a principal from one of the benchmark schools stated, "...the data doesn't lie." Waters, Marzano and McNulty (2003) found that administrators, especially from high performing or improving schools, were more likely to use strategies identified as part of effective accountability systems than principals from lower performing schools. The researcher of this study found that all three principals of benchmark schools reported they implemented interventions and accountability measures to ensure instruction and achievement improved, but that they were not initially embraced by teachers, therefore making the process of accountability-focused leadership difficult. Yet each of the principals believed in the importance of persevering through the process and relied on a small group of peers for their support.

However, once the teachers began to see how effective the strategies were in improving instruction and student performance, they, as reported by the principal, were more supportive. Principals in non-benchmark schools reported their schools were in the early stages of teacher awareness regarding how to use the district's benchmarking

process to impact instruction. While they focused on accountability and holding teachers accountable for results, their first preference for making decisions and leading their school was via focus on relationships.

Principals' impact on instruction was reported by Marzano (2001) to be related to the qualities of: principal leadership, levels of expectation, and use of assessment data to monitor and improve instruction. Highly effective principals possessed a working knowledge of curriculum and instruction, evaluation, and testing and were able interpret and incorporate data into their daily decision making process to ensure any systematic changes in the teaching and learning process were monitored and driven by data (Stiggins, 2005; Popham, 2006). Teachers' perceptions of principals' use of data and knowledge of how to use assessment data to improve instruction and increase student achievement were found in this study to be higher in benchmark schools than in non-benchmark schools (Table 5.1, Questions #3, #8).

Teachers in high performing schools were expected to follow curriculum maps designed around essential standards and engage in regularly scheduled collaborative team planning (Marzano, 2003; Marzano, Pickering & Pollock, 2001; Haycock, 2005). Englert, Fries, Goodwin, Martin-Glenn, and Michael (2004) and Schmoker (2001) reported that effective principals expected teachers to use assessment results to monitor the effectiveness of instructional intervention strategies. Supporting the findings of Black and Wiliam (2004), were Stiggins (2005) and Ewan (2003), who all reported that instruction, without effectively collecting and analyzing data, could result in a series of well-intentioned but arbitrary events.

The results of this study found that principals in benchmark schools required teachers to align instruction to the district's instruction calendars and engage in data-focus-groups to discuss the results of frequently administered assessments (Table 5.1, Questions #14, #26). One benchmark principal reported turning over administrative duties to assistant principal during the time when teachers were meeting to discuss data because of the importance in ensuring teachers had the knowledge and skills necessary to effectively use the data to evaluate instructional practices (Table 5.1, Question #9). The strength of the principals' leadership is in their ability to use strategies to establish effective accountability systems and engage teachers in monitoring student behavior and increasing achievement (Blank, 1985).

Black, William, Harrison, Lee and Bethan (2004) found that principals in high performing schools were more knowledgeable about teaching and learning, served as instructional leaders within their buildings, focused on results, and recognized their primary focus as leaders was to improve the effectiveness of the teaching and learning process (Whitaker, 2003). Data gathered by this researcher from principal interviews indicated that benchmark principals reported spending more time on their own reading, studying and researching effective practices found to impact instruction (Table 5.1, Question #28).

The inability of teachers to interpret data has been discussed in relation to the increased possibility of educators making false assumptions about test results (Impara, Plake & Fager 1993). Teachers can spend more than twenty- five percent of their professional time involved in assessment-related activities (Stiggins, 2002). For this reason, information garnered from classroom interim assessments must be meaningful

and accurate; i.e., the information must be valid and reliable (Brookhart, 2005). Stiggins and Chappuis (2005) identified teachers' ability "to construct and evaluate their own classroom tests" as critical to teachers' ability to effectively use formative assessments to support the instructional process (p. 17). The researcher of this study found that staff development offered to teachers in benchmark schools focused on how to analyze interim assessment data to improve instruction (Table 5.1, Question #30), therefore supporting earlier research noted by Parsley, Dean Miller (2006), Noonan, Renihan (2006), Schmoker, (2002), and Stiggins (2002).

Table 5.1. Mean Values and Standard Deviation Scores for Survey Questions 1-32

Grouped by Benchmark and Non-Benchmark Schools

	Benchmark vs Non- benchmark	N	Mean	Std. Deviation	Std. Error Mean
1.The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement are clear and consistently communicated.	Benchmark	95	4.28	1.018	.104
	Non- benchmark	41	3.73	1.184	.185
2.The principal provided time for teachers to meet regularly to plan and share instructional strategies based on results from assessment data.	Benchmark	95	4.04	1.175	.121
	Non- benchmark	41	4.32	1.059	.165
3.I observed the principal using data to analyze the effectiveness of	Benchmark	95	4.15	1.120	.115
	Non- benchmark	41	3.71	1.401	.219

programs and instruction for future planning.						
4.The principal clearly communicated his/her level of expectation for all students to be enrolled in a rigorous and challenging curriculum	Benchmark	95	4.33	1.015	.104	
	Non-benchmark	41	3.95	1.303	.203	
5.Relationships were more important to my principal than ensuring that every detail was accounted for.	Benchmark	95	2.75	1.313	.135	
	Non-benchmark	41	2.76	1.280	.200	
6.The principal's primary focus was on building others capacity to use data.	Benchmark	95	3.78	1.064	.109	
	Non-benchmark	41	3.41	1.140	.178	
7.The principal built ownership by making sure teachers understood how to use interim assessment data to improve instruction.	Benchmark	95	3.91	1.022	.105	
	Non-benchmark	41	3.24	1.261	.197	
8.The principal fully understood how to use interim assessment data to improve instruction and student achievement.	Benchmark	95	3.89	1.115	.114	
	Non-benchmark	41	3.56	1.026	.160	
9.When teachers met formally to discuss results form interim assessments, the principal was present and actively engaged.	Benchmark	95	3.31	1.445	.148	
	Non-benchmark	41	2.46	1.343	.210	
10.The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful	Benchmark	95	3.92	1.028	.105	
	Non-benchmark	41	3.41	1.224	.191	

ways.					
11.The principal appeared to spend more time on issues related to instructional than management tasks.	Benchmark	95	3.07	1.205	.124
	Non-benchmark	41	2.95	.973	.152
12.The principal listened to teachers and involved the in making decisions related to improving instruction.	Benchmark	95	3.42	1.373	.141
	Non-benchmark	41	3.27	1.467	.229
13.I applied a variety of instructional strategies to support the learning needs of students based on the results of interim assessments.	Benchmark	95	4.39	.719	.074
	Non-benchmark	41	4.15	.989	.154
14.The principal required teachers to align instruction to the district's instructional calendar.	Benchmark	95	4.56	.782	.080
	Non-benchmark	41	4.02	1.351	.211
15.I knew how to disaggregate and analyze assessment data to identify gaps in student's learning.	Benchmark	95	4.27	.736	.075
	Non-benchmark	41	4.17	1.160	.181
16.I knew how to link the results from interim assessments to appropriate intervention strategies to improve instruction.	Benchmark	95	4.22	.702	.072
	Non-benchmark	41	3.95	1.161	.181
17.I followed the district's instructional calendar.	Benchmark	95	4.55	.872	.090
	Non-benchmark	41	4.02	1.332	.208
18.Interim assessment data results helped teachers monitor the effectiveness of instructional strategies.	Benchmark	95	4.05	.880	.090
	Non-benchmark	41	3.73	1.073	.168
	Benchmark	95	3.96	.898	.092

19. Interim assessment data results were effective in identifying gaps in student's learning	Benchmark	95	3.96	.898	.092
	Non-benchmark	41	3.85	.989	.154
20. I believe my classroom assessments were more effective in identifying what students knew and did not know than mandated high-stakes tests.	Benchmark	95	4.29	.861	.088
	Non-benchmark	41	4.34	1.132	.177
21. The principal's leadership style influenced my belief in my ability to improve student achievement.	Benchmark	95	3.45	1.397	.143
	Non-benchmark	41	2.98	1.313	.205
22. I met on my own with other teachers to plan and collaborate on how to improve instruction based on the results from interim assessments.	Benchmark	95	4.07	1.064	.109
	Non-benchmark	41	4.05	1.224	.191
23. I communicated to students the importance of performing well on the interim assessments.	Benchmark	95	4.64	.757	.078
	Non-benchmark	41	4.59	.999	.156
24. My knowledge of testing and assessment was acquired after I became a teacher.	Benchmark	95	3.76	1.319	.135
	Non-benchmark	41	3.83	1.412	.221
25. I provided students sufficient feedback regarding their progress on the interim assessments in order to help them to improve.	Benchmark	95	4.05	.982	.101
	Non-benchmark	41	4.05	.999	.156
26. Interim assessments, aligned	Benchmark	95	4.49	.977	.100
	Non-	41	4.02	1.440	.225

to the instructional calendar, were administered to all students every nine weeks.	benchmark				
27. Administrators other than the principal, were primarily responsible for ensuring teachers knew how to use interim assessment data to influence instruction.	Benchmark	95	3.84	1.161	.119
	Non-benchmark	41	4.29	.955	.149
28. The principal kept current about the most effective instructional practices and was resourceful in seeking creative ways to support teachers.	Benchmark	95	3.66	1.277	.131
	Non-benchmark	41	3.24	1.067	.167
29. The principal aligned resources, support, and assistance for improvement to teachers based on the results from interim assessments.	Benchmark	95	3.87	.992	.102
	Non-benchmark	41	3.20	1.005	.157
30. Staff development focused on how to analyze interim assessment data to improve instruction was available to teachers.	Benchmark	95	3.93	.948	.097
	Non-benchmark	41	3.24	1.261	.197
31. I viewed my principal's primary leadership style as focused on getting things done correctly and on time.	Benchmark	95	4.06	1.183	.121
	Non-benchmark	41	3.46	1.267	.198
32. The principal discouraged teachers working in isolation.	Benchmark	95	3.88	1.157	.119
	Non-benchmark	41	3.59	1.284	.201

Note. Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Implications

The researcher's primary intent was to contribute to the literature regarding the extent to which principal leadership strategies were reported by teachers to have an effect their use of assessment data. The results of this study were determined by the researcher to be of benefit to middle school principals by providing insight regarding how to support teachers' use assessment data. The researcher determined that the findings of the study could be useful in developing the components of university teacher and principal leadership preparation programs focused on data-driven accountability. In addition, the findings of the study could be of benefit to the school district where the study was conducted in their efforts to determine where to focus staff development and leadership training.

In seeking to answer the research questions guiding this study, the following findings became evident upon analysis of the data:

1. There are a variety of connections between principal strategies and teachers' use of assessment data in benchmark school.
2. Principals' effect on teachers' use of assessment data in benchmark schools is statistically significant and greater than in non-benchmark schools.
3. Teachers' perceptions of principal leadership impact on their use of data' was higher in benchmark schools than non-benchmark schools, implying that strategies related to supporting teachers in understanding how to use assessment data, requiring them to use the assessment data to influence instruction, actively engaging in the analysis and interpretation of the

assessment data, and creating an environment where data drives all decisions related to instruction make a difference in teachers' use of assessment data.

4. In examining the factors of leadership, instruction and assessment that most effected teachers' use of assessment data, the areas of leadership and assessment were found to be highly related to teachers' use of assessment data. The difference between teachers' use of benchmark and non-benchmark instructional strategies was not found to be significant at the .05 level. implying that while instructional strategies do not vary enough between groups to be significant, principal leadership strategies and strategies related to using data to influence assessment were statistically significant. Essentially, principal leadership strategies do have an effect on teacher's use of assessment data and are more highly related to teachers' use of assessment data in benchmark schools than in non-benchmark schools, as perceived by teachers.

To summarize, the current study aligned with the extent literature in that it was found that principal leadership strategies play a critical role in the extent to which teachers use assessment data and how data is used to effect instruction. Therefore, the researcher rejected the null hypothesis. To be clear, while principal leadership strategies were found to have an effect on teachers' use of assessment data, how the two are related has yet to be determined by this or other studies.

Recommendations

In order to maximize the effect that principal leadership strategies have on teachers' use of assessment data, additional research regarding how principals' leadership strategies affect teachers' use of assessment data would contribute to the body of empirical research. Further study regarding to what extent teachers' levels of education and experience relate to their use of assessment data could provide insight in working with teachers at various career stages. It is recommended that additional research be conducted to determine if there is any difference between rural and urban principal leadership strategies in relation to the effect on teachers' use of assessment data. Similarly, a study could be conducted on all grade levels within a large urban school district to determine if the effect of principal leadership strategies on teachers' use of assessment data varies by elementary, middle and high school. Further study is recommended to determine the cost to benefit analysis of the amount of staff development provided to principals in the area of leadership and assessment and how that professional learning impacts teachers' use of assessment data in the classroom. Research on the impact of graduate level courses on teacher and principal preparation to incorporate the use of assessment data into instruction and leadership practices is recommended as well. Finally, the researcher would recommend research be conducted to identify a core of instructional strategies used by effective teachers to analyze assessment data and adjust instruction to improve student performance.

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APPENDICES

APPENDIX A
PRINCIPAL REQUEST TO PARTICIPATE



Dear

According to Dale Robbins, after meeting with you at the end of your principals meeting last week, you are willing to participate in a study on *Effect Principal Leadership Strategies on Teachers' Use of Data in Benchmark and Non-Benchmark Middle School*. Thank you for your support, and while the survey is a part of the research for my dissertation the context of the study is of interest to [REDACTED] continued focus on strengthening the relationship between leadership, instruction and assessment.

A part of the research project includes collecting data from language arts, mathematics and science teachers, in grades 6, 7 and 8, with two years or more of experience. The time for teachers to complete the 33 question survey should not exceed fifteen minutes.

A second part of the study requires your willingness to participate in a thirty minute interview. In respect of your time and schedule, if you are willing to participate in the interview, I will email you a list of the guiding questions.

The data for the study needs to be collected during the **month of October**. Would it be possible to come to your school during the next three weeks to survey the teachers and meet with you? As soon as you respond, I will send you the guiding questions for the interview. Thank you again for your support in this process.

Judith L. Riffel

APPENDIX B

THANK YOU LETTER TO PRINCIPALS



Dear Principal:

Thank you for agreeing to participate in study on *Effect of Principal Leadership Strategies on Teachers' Use of Data in Benchmark and Non-Benchmark Middle School*.

Please note the scheduled time and place for the administration of the teacher perception survey and the time for the principal interview. Should you have any questions or need to make adjustments in the schedule, please contact the principle investigator, Judith L Riffel in the office of Student Accountability. Should you need additional clarification or have questions about the process you may contact Dr. Walter Polka, Georgia Southern University, at wpolka@georgiasouthern.edu.

Please note the scheduled time and place for the principal focus group discussion.

Interview date: _____

Interview location: _____

Sincerely:

Judith L. Riffel

Principle Investigator

Georgia Southern University

APPENDIX C
PASSIVE INFORMED CONSENT



College of Education
 Department of Leadership,
 Technology, & Human Development

PASSIVE INFORMED CONSENT

Dear Educator:

My name is Judith Riffel and I am the principle investigator conducting research at the College of Education at Georgia Southern in Statesboro, Georgia. The title of the research project is "*Effect of Principal Leadership Strategies on Teachers' Use of Data in Benchmark and NonBenchmark Middle Schools.*" [REDACTED] has approved the research project to be conducted with all language arts, mathematics and science teachers, with two or more years teaching experience in the middle school. As such, you have been selected to participate in this study.

The primary intent of this research is to contribute to the professional literature regarding the extent to which principals' leadership strategies have an effect on teachers' use assessment data. The degree to which reported factors are related will be analyzed and described in detail.

While your participation is not required, it is greatly valued, and I hope you will take time from your busy schedule to share your perspective. It will take approximately 30 minutes to complete the survey. Only minor risk of personal discomfort may be present while answering survey questions. You may withdraw from the study at anytime without consequence or penalty by contacting the principle investigator or by not returning the survey. All responses will remain confidential, and individual respondents will not be personally identified. Therefore, no data could be used for punitive or other purposes as a result of your participation.

It is anticipated that the results of this study will benefit new and veteran middle school principals' efforts to ensure teachers' are trained and prepared to effectively use interim assessment data results to influence instruction. The results may also provide additional statistical data to strengthen the critical connection between leadership, instruction, and assessment in this district. I will be happy to provide you with a brief report summarizing the findings upon your request.

By reading this consent form and returning the survey, you are agreeing for me to use your responses for the purpose of this study. Thank you in advance for your participation in this research, and I look forward to hearing from you soon.

Participants have the right to ask questions and have those questions answered. If you have questions about this study, please contact the principle investigator whose name is listed at the end of this letter, or Dr. Walter Polka at wpolka@georgiasouthern.edu. For questions concerning your rights as a research participant, contact Georgia Southern University Office of Research Services and Sponsored Programs at 912-681-0843.

Judith Riffel
 Principal Investigator

APPENDIX D

TEACHERS' PERCEPTION OF PRINCIPALS' LEADERSHIP SURVEY



College of Education
Department of Leadership,
Technology, & Human Development
Statesboro, Georgia 30460

Teachers' Perception of Principals' Leadership Survey

DIRECTIONS FOR COMPLETING THE SURVEY

Please do not write on the survey. Please complete the two questions below asking for the subject and grade you taught during the 2006-2007 school year.

- On the **NCS card**, under **Special Codes**, and under **column H**, mark the grade you taught last year.
0 for Grade 6 1 for Grade 7 2 for Grade 8
- Under **column I**, mark the subject you taught last year.
0 for Language Arts 1 for Mathematics 2 for Science

Using the NCS response card, rank your response to each of the 32 questions based on a 5-point Likert scale. When you are finished, place the survey and NCS card back in the envelope and seal the envelope. Return the envelope to the front office, where it will be returned to the primary researcher via the courier. Thank you for your willingness to participate in this study.

ALL RESPONSES SHOULD BE APPROPRIATE TO THE 2006-2007 SCHOOL YEAR.

* The term *principal* refers only to the school principal and not the assistant principals.

Strategy	Strongly disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
1. The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement are clear and consistently communicated.	1	2	3	4	5
2. The principal provided time for teachers to meet regularly to plan and share instructional strategies based on results from assessment data.	1	2	3	4	5
3. I observed the principal using data to analyze the effectiveness of programs and instruction for future planning.	1	2	3	4	5
4. The principal clearly communicated his/her level of expectation for all students to be enrolled in a rigorous and challenging curriculum.	1	2	3	4	5

5.	Relationships were more important to my principal than ensuring that every detail was accounted for.	1	2	3	4	5
6.	The principal's primary focus was on building others capacity to use data.	1	2	3	4	5
7.	The principal built ownership by making sure teachers understood how to use interim assessment data to improve instruction.	1	2	3	4	5
8.	The principal fully understood how to use interim assessment data to improve instruction and student achievement.	1	2	3	4	5
9.	When teachers met formally to discuss results form interim assessments, the principal was present and actively engaged.	1	2	3	4	5
10.	The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful ways.	1	2	3	4	5
11.	The principal appeared to spend more time on issues related to instructional than management tasks.	1	2	3	4	5
12.	The principal listened to teachers and involved the in making decisions related to improving instruction.	1	2	3	4	5
13.	I applied a variety of instructional strategies to support the learning needs of students based on the results of interim assessments.	1	2	3	4	5
14.	The principal required teachers to align instruction to the district's instructional calendar.	1	2	3	4	5
15.	I knew how to disaggregate and analyze assessment data to identify gaps in student's learning.	1	2	3	4	5
16.	I knew how to link the results from interim assessments to appropriate intervention strategies to improve instruction.	1	2	3	4	5
17.	I followed the district's instructional calendar.	1	2	3	4	5
18.	Interim assessment data results helped teachers monitor the effectiveness of instructional strategies.	1	2	3	4	5
19.	Interim assessment data results were effective in identifying gaps in student's learning	1	2	3	4	5
20.	I believe my classroom assessments were more effective in identifying what students knew and did not know than mandated high-stakes tests.	1	2	3	4	5

21.	The principal's leadership style influenced my belief in my ability to improve student achievement.	1	2	3	4	5
22.	I met on my own with other teachers to plan and collaborate on how to improve instruction based on the results from interim assessments.	1	2	3	4	5
23.	I communicated to students the importance of performing well on the interim assessments.	1	2	3	4	5
24.	My knowledge of testing and assessment was acquired after I became a teacher.	1	2	3	4	5
25.	I provided students sufficient feedback regarding their progress on the interim assessments in order to help them to improve.	1	2	3	4	5
26.	Interim assessments, aligned to the instructional calendar, were administered to <i>all</i> students every nine weeks.	1	2	3	4	5
27.	Administrators, other than the principal, were primarily responsible for ensuring teachers knew how to use interim assessment data to influence instruction.	1	2	3	4	5
28.	The principal kept current about the most effective instructional practices and was resourceful in seeking creative ways to support teachers.	1	2	3	4	5
29.	The principal aligned resources, support, and assistance for improvement to teachers based on the results from interim assessments.	1	2	3	4	5
30.	Staff development focused on how to analyze interim assessment data to improve instruction was available to teachers.	1	2	3	4	5
31.	I viewed my principal's primary leadership style as focused on getting things done correctly and on time.	1	2	3	4	5
32.	The principal discouraged teachers working in isolation.	1	2	3	4	5

APPENDIX E
PRINCIPAL INTERVIEW SURVEY



Principal Interview Instrument

I. Demographic Information

Sex: ___ M ___ F

Total number of years as a Middle School Principal _____ Years in Leadership _____

Highest degree obtained-√ ___ Masters, ___ Specialist, ___ Doctorate.

Benchmark school Yes ___ No ___

1. As a principal, how have you acquired most of your training and knowledge related to facilitating teachers' use of data to improve instruction?

II. Principal Leadership

2. On a continuum from 1-5 with 1 being "not important" and 5 being "very important", rate each of the following areas as to their importance in your ability to effect teachers' use of assessment data to influence instruction?

- 2.1 ___ model data-driven decision-making
- 2.2 ___ communicating high levels of expectation
- 2.3 ___ improving the effectiveness of each teacher
- 2.4 ___ knowledge and understanding how to support teachers
- 2.5 ___ ensuring instruction is aligned to standards
- 2.6 ___ providing resources and support to teachers
- 2.7 ___ building teacher's capacity to analyze and integrate assessment data results into instruction
- 2.8 ___ providing teachers time to work with data
- 2.9 ___ monitoring the effectiveness of instruction
- 2.10 ___ knowledge of how to collect and analyze data
- 2.11 ___ building levels of trust and respect among staff by listening and showing an interest in them.

3. How would you rate your level of ability to facilitate teachers' understanding of how to analyzing and interpret classroom assessment data.

- 3.1 ___ Limited
- 3.2 ___ Somewhat limited
- 3.3 ___ Neutral
- 3.4 ___ Somewhat able
- 3.5 ___ Very comfortable

4. How would you evaluate teachers' current level of ability to effectively analyzing, and interpret assessment data for improving instructional practice?

- 4.1 ___ Very limited
- 4.2 ___ Somewhat limited
- 4.3 ___ Neutral
- 4.4 ___ Able to analyze and interpret
- 4.5 ___ Very qualified

II. Instructional Practices

5. What instructional strategies are most effective in focusing teachers' attention on using data?

III. Use of Data to Monitor and Improve Instruction

6. I am going to read several statements to you related to using interim assessment results can be used to monitor and improve instruction. On a continuum of 1-5, with 1 being "being less than 20%" and 5 being "more than 85 %", please rate your perception of the percent of teachers in your school who consistently use each of the strategies to improve instruction.

- 6.1 ___ Results from interim assessment tests are used to plan curriculum, evaluate programs and classroom instruction.
- 6.2 ___ Teachers use interim assessment data to identify differences in how students learn.
- 6.3 ___ Results from interim assessment tests are using to assess the effectiveness of instruction.
- 6.4 ___ Data from interim assessments are used to engage teachers in meaningful dialog focused on sharing effective teaching strategies.
- 6.5 ___ Interim assessment data are used as a tool to monitor student achievement over time.

APPENDIX F

SUMMARY OF RESEARCH RELATED TO THREE FACTORS OF LEADERSHIP,
INSTRUCTION AND ASSESSMENT REPORTED IN THE STUDY

Summary of Research Related To Three Factors of Leadership, Instruction and Assessment Reported in the Study

1. Effective Leadership Behaviors

- A. Manage the curriculum in ways that promote student learning
- B. Knowledge of curriculum instructional strategies
- C. Knowledge and understanding of how to support teachers
- D. Ability to transform schools into effective organizations focused on teaching and learning
- E. High Expectations-student and teachers
- F. Model data-driven decision making
- G. Build the capacity for others to use data
- H. Make data a priority for decision-making
- I. Create time within existing structure to work with data
- J. Effectively communicates level of expectation
- K. Focused on improving teacher effectiveness
- L. Relationship building, trust, listening
- M. Focused on results,
- N. Knowledge of how to collect and analyze data

2. Instructional Practices

- A. Use of effective teaching strategies
- B. Instruction aligned to standards
- C. Instruction aligned to instructional calendars
- D. Assessment used to monitor students
- E. Teachers communicate level of expectation to students
- F. Teachers' possess knowledge of how to analyze data
- G. Knowledge of how to align assessment results to instruction
- H. Teachers' use data to plan instructional strategies
- I. Reflection: Teachers' collaboratively planning based on results of assessment data
- J. Feedback provided to students

3. Use of Data to Monitor and Improve Instruction

- A. Frequently administered interim assessments
- B. Student feedback
- C. Interim assessment identify gaps in student learning
- D. Interim assessment identify instructional gaps
- E. Data used to evaluate effectiveness of curriculum

APPENDIX G
SURVEY QUESTIONS ALIGNED TO THREE FACTORS AND PRINCIPAL
INTERVIEW QUESTIONS

Survey Questions aligned to three factors and principal interview questions

Item	Three Factors	Principal Interview Question
1.The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement were clear and consistently communicated.	1-E	8
2.The principal provided enough time for teachers to meet regularly to plan and share instructional strategies based on results from assessment data.	1-I	12
3.I observed the principal using data to analyze the effectiveness of programs and instruction for future planning.	1-F	7
4.The principal clearly communicated his/her level of expectation for all students to be enrolled in a rigorous and challenging curriculum.	1-E	8
5.Relationships were more important to my principal than ensuring that every detail was accounted for.	1-L	14
6.The principal's primary focus was on building others capacity to use data.	1-G	11
7.The principal built ownership by making sure teachers understood how to use interim assessment data to improve instruction.	1-G	3
8.The principal fully understood how to use interim assessment data to improve instruction and student achievement.	1-F	13
9.When teachers met formally to discuss analyzing data to improve instruction, the principal was present and actively engaged.	1-I	4,13
10.The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful ways.	1-F	4,21
11.The principal spent most of his/her time improving the quality and effectiveness of instruction.	1-K	5
12.The principal listened to teachers and involved them in making decisions related to improving instruction.	1-C.	14
13.I applied a variety of instructional strategies to address the learning needs of students based on the results of interim assessments.	2-A	
14.The principal required teachers to align instruction to the district's instructional calendar.	1-A.2-C	4,22
15.I knew how to disaggregate and analyze assessment data to identify gaps in students' learning.	2-F	
16.I knew how to link the results from interim assessments to appropriate intervention strategies to improve achievement and instruction.	2-G,2-H.2-F	
17.I followed the district's instructional calendar.	2-C	22
18.Interim assessment data results helped teachers monitor the effectiveness of instruction strategies.	2-G.2-H	16,18

19. Interim assessment data results were effective in identifying gaps in students' learning.	3-C, 2-D	17
20. I believed my classroom assessments were more effective in identifying what students knew and did not know than mandated high stakes tests.	2-G, 2-H	
21. The principal's leadership style influenced my belief in my ability to improve student achievement.	1-D, 1-L	
22. I met on my own with other teachers to plan, and collaborate on how to improve instruction based on the results from assessments.	2-I, 1-I,	19
23. I communicated to students the importance of performing well on the interim assessments.		
24. My knowledge of testing and assessment were acquired after I became a teacher.	2-F	
25. I provided students feedback regarding their progress on the interim assessment in order to help them to improve	3-B, 2-J	
26. Interim assessments, aligned to the instructional calendar were administered to all students every nine weeks.	3-A	
27. Administrators other than the principal were primarily responsible for teachers understanding and use of interim assessment data to influence instruction.	1-H, 3-E	
28. The principal kept current about the most effective instructional practices and was resourceful in seeking ways to provide support for teachers.	1H, 3-E	1
29. The principal aligned resources, support, and assistance for improvement based on the results from interim assessments.	1-C	9
30. Staff development opportunities that focused on how to analyze interim assessment data to improve instruction were provided to teachers,	1-D, 3-D, 3-C	
31. I viewed my principal's primary leadership approach as focused on getting things done correctly and on time.	1-M	18
32. The principal discouraged teachers working in isolation.	1-K, 2-I	12

APPENDIX H
ALIGNMENT OF DEPENDENT VARIABLES TO SURVEY QUESTIONS,
RESEARCH, PRINCIPAL INTERVIEW

Alignment of Dependent Variables to Survey Questions, Research, Principal Interview

Dependent Variables	Survey Question #	Research	Principal Interview Question
Leadership	1	Marzano(2001);Schmoker's (2003), Reeves(2006)	8
1	4	McEwan(2003); Marzano, (2003); and Hanson(2000); Reeves(2006) Schmoker(2001);Englert, Fries,Goodwin, Martin-Glenn, and Michael (2004)	8
1	5	Whitaker(2003); Bulach, Boothe and Pickett (1998); McEwan (2003)	14
1	6	Hargreaves, Earl and Schmidt (2002)	11
1	7	Marzano, (2003); Cromey and Hanson, (2000); Reeves, (2006)	3
1	9	Reeves (2002); Bass and Glaser (2004);Black and William (1998); Marzano, (2000); Schmoker (2004)	13
1	10	Reeves (2006); Waters, Marzano and McNulty (2003)	4,21
1	11	Blasé and Blasé,(2000)	5
1	12	Fullan (2000, p.3)	4,14
1	14	Schmoker (2001); Englert,Fries, Goodwin, Martin-Glenn, Michael (2004)	4,22
1	21	Northouse, 2004, p3) Reeves, 2006; McNumm, McCloskey, & O'Connor, 2002) ,	
1	27	Hallinger, 1990	13
1	28	Black, William, Harrison, Lee and Bethan (2004) Popham (1995); Stiggins (2005)	1
1	29	Marzano(2003); Reeves, (2006)	9
1	30	McMillan, (2001b)	
1	31	Marzano (2003)	15
1	32	Olson (2005); DuFour (2004b)	12
Instruction	2	Cromey and Hanson, (2000)	12
2	13	Waters, Marzano and McNulty (2003)	
2	15	Sanders and Rivers (1996)	
2	16	Schmoker, 2001	
2	17	Marzano, 2003; Marzano, Pickering and Pollock (2001); Haycock, (2005)	22
2	23	Sanders and Rivers (1996)	
2	25	Black and Wiliam (1998)	
2	22	Black and Wiliam (1998)	
2	23	Black and Wiliam (1998)	
2	25	Black and Wiliam (1998)	
Assessment	3	Snow & Renner (2001); Marzano (2003);	7

		Cromeey and Hanson (2000); Reeves(2006); Stiggins (2005); Popham (1995)	
3	8	Torrence (2002)	13
3	18	Schmoker (2001)Marzano (2003)	16,18
3	19	Marzano (2003); Supovitz (2003); Reeves,(2002)	19
3	20	Schmoker (2001)	
3	26	Englert, K., Fries, D., Goodwin, B., Martin- Glenn, M., & Michael (2004) Schmoker (2001	20
3	24	Stiggins(1999)	

APPENDIX I
EMPIRICAL STUDIES

Studies Related to Leadership

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Englert, Fries, Goodwin, Martin-Glenn & Michael (2004)	Principals use of data	308 principals in seven states in central U.S.	Qualitative Survey	<ul style="list-style-type: none"> • Effective principal use assessment and accountability systems • Identified principal needs • timely feedback • Improved technology • Testing and assessment knowledge
Ladd (1997)	Principals response to North Carolina ABC accountability system	74 principals	Qualitative e-mail survey	<ul style="list-style-type: none"> • ABC empowered principals • Principals wanted more power to remove weak teachers • More funds to reduce class size
Anderson & Soder (1984)	Relationship between principal leadership and student achievement	67 elementary, 30 secondary teachers	Qualitative	<ul style="list-style-type: none"> • More data use by teachers • Student achievement increased with support from teachers and principals

Studies Related to Leadership

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
	<p>2 year study of variation in leadership among urban high schools</p> <p>Principal self-efficacy relationship to effective teaching and learning environments</p>	<p>32 urban high schools in 16 cities with population over 100,000</p> <p>284 principals from 12 states in Midwest, West, Northeast and Alaska</p>	<p>Qualitative Survey</p> <p>Qualitative</p>	<ul style="list-style-type: none"> • Leadership focus on academic learning, • Developing consensus • Monitoring student behavior • Clear delineated roles between management and instruction • Self-efficacy higher in schools with low SES • Females had higher self-efficacy on time devoted to instruction $p=.002$ • 56% reported effectiveness hindered by external variables. • Self-efficacy impacted by schools success

Studies Related to High Expectations

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Stecher & Barron (1998)	Impact of professional development training on increased reading scores	579 teachers Grade 4-7 Kentucky	Quantitative	<ul style="list-style-type: none"> • Professional development improved teaching strategies • 38% increase in 4th grade reading • 42% increase in 5th grade grading • Teacher spend time teaching what is tested
Wang, Haretel & Walberg (1990)	Meta review of research on variables related to learning outcomes	Reviewed 179 sources	Qualitative	<ul style="list-style-type: none"> • Summary of 30 most important variables to learning.

Studies related to use of data to improve instruction and monitor achievement

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
William, Lee, Harrison & Black (2004)	Results of professional development impact on teachers' use of formative assessments and effect on student achievement.	24 teachers in six schools in two districts	Qualitative and quantitative	<ul style="list-style-type: none"> • Mean effect size in favor of using formative assessments was 0.32. • Significant • Professional development found important .
Supovitz & Kleen (2003)	Study of innovative schools systems use of student data to guide improvement	68 principals from America's Choice schools	Qualitative-interview	<ul style="list-style-type: none"> • principals analyze data • teachers use formative assessments • not all formative assessments are school-wide

Studies related to use of data to improve instruction and monitor achievement

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Supovitz & Kleen (2003)	Study of innovative schools systems use of student data to guide improvement	68 principals from America's Choice schools	Qualitative-interview	<ul style="list-style-type: none"> • 39% felt principals lacked training to analyze external data • 75% thought internal assessment more useful than external assessment. • Issues: • time consuming • required commitment
Snow-Renner (2001)	Teachers perspective of standards-based education	806 school teachers in Midwest states	Qualitative-survey	<ul style="list-style-type: none"> • Used data to align curriculum standards to state standards • Analyzed data to monitor student progress • Validated local assessment systems • Teacher collaboration time

Studies related to use of data to improve instruction and monitor achievement

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Meyer (2002)	Use of value added approach to estimate mathematic achievement	Milwaukee middle schools	Quantitative	<ul style="list-style-type: none"> • Principals emphasis on instruction varied $p=.006$ by school condition • Formative assessment more beneficial than external testing • Knowledge base of use of data not school-wide • Teacher in most affluent schools less positive about using data • Extra learning time provided to non-proficient students in high and low but not average schools

Studies Related to Leadership, High Expectations, and Use of Data to Monitor
Achievement

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Waters, Marzano & McMulty (2003)	Effect of leadership on student achievement: 30 years of research	70 out of 5,000 studies met criteria	Quantitative	<ul style="list-style-type: none"> • Effect size between leadership and student achievement is .25 • Leaders focus on change • Leaders understand what is required to lead and adjust to change
Marzano (2003)	Meta analysis and interpretation of research on effective schools	General literature review, research on school, teacher, student level effect	Quantitative	<ul style="list-style-type: none"> • Increases knowledge base for staff development • evaluation • data-driven school improvement

APPENDIX J

IRB GEORGIA SOUTHERN UNIVERSITY PERMISSION TO CONDUCT

RESEARCH

Georgia Southern University Office of Research Services & Sponsored Programs		
Institutional Review Board (IRB)		
Phone: 912-681-5465		Administrative Annex P.O. Box 8005
Fax: 912-681-0719	Ovrsight@GeorgiaSouthern.edu	Statesboro, GA 30460

To: Judith Seelig Riffel
3063 Groveview Ct.
Dacula, GA-30019

CC: Dr. Walter Polka
P.O. Box-8131

From: Office of Research Services and Sponsored Programs
Administrative Support Office for Research Oversight Committees
(IACUC/IBC/IRB)

Date: August 29, 2007

Subject: Status of Application for Approval to Utilize Human Subjects in Research

After a review of your proposed research project numbered: **H08013**, and titled "**Urban Middle School Principal Impact on Teachers Use of Assessment Data to Influence Instruction**", it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research.

This IRB approval is in effect for one year from the date of this letter. If at the end of that time, there have been no changes to the research protocol; you may request an extension of the approval period for an additional year. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,



N. Scott Pierce
Director of Research Services and Sponsored Programs

APPENDIX K

DISTRICT PERMISSION TO CONDUCT RESEARCH

May 29, 2007

File ID# 2007-66

Ms. Judith Riffel

[REDACTED]

Dear Ms. Riffel:

This is to advise you that your research proposal, "Effect of Principal Leadership Strategies on Teachers' Use of Data in Benchmark and Non-Benchmark Middle Schools" File ID Number 2007-66, has been approved with the following limitations:

- . • The implementation of study procedures and data collection must be carried out under the direction of Linda Mitchell, Executive Director for Student Assessment, Advisement and Accountability.
- . • Principal and teacher permission letters must be edited for mechanics and usage.
- . • Survey items must be edited for mechanics and usage.

When contacting schools regarding this research, it is your responsibility to provide a copy of this approval letter to the principal. In addition, it is your responsibility to provide your sponsors and project officers or managers with a copy of this approval letter. Be sure to use the file ID number issued above when contacting schools or district level personnel regarding this research study.

Please note that schools and teachers may elect not to participate in your research study, even though the district has granted permission.

Please forward a copy of your results to me when they are completed. Also, we would appreciate you providing us with feedback on the research approval process by completing the enclosed survey and returning it in the enclosed postage-paid envelope.

Best wishes for a successful research project. Please call me at [REDACTED] if I may be of further assistance.

Sincerely,

[REDACTED]

Research and Evaluation

APPENDIX L

2-TAILED INDEPENDENT TEST FOR VARIANCE IN MEAN VALUES ON EACH

OF 32 ITEMS

2-Tailed Independent Test for Variance in Mean Values on each of 32 items.

* = significance at .05

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1. The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement are clear and consistently communicated.		.735	.393	2.766	134	.006	.549	.199
				2.626	70.162	.011	.549	.209
2. The principal provided time for teachers to meet regularly to plan and share instructional		.000	.988	-1.095	134	.275	-.233	.212

strategies based on results from assessment data.								
	Equal variances not assumed			-1.138	86.499	.258	-.233	.204
3. I observed the principal using data to analyze the effectiveness of programs and instruction for future planning.	Equal variances assumed	11.792	.001	2.251	134	.026	.504	.224
	Equal variances not assumed			2.052	64.444	.044	.504	.245
4. The principal clearly communicated his/her level of expectation for all students to be enrolled in a rigorous and challenging curriculum.	Equal variances assumed	3.138	.079	1.834	134	.069	.377	.206
	Equal variances not assumed			1.679	64.993	.098	.377	.225

5. Relationships were more important to my principal than ensuring that every detail was accounted for.	Equal variances assumed	.880	.350	.071	134	.943	.017	.242
	Equal variances not assumed			.072	81.585	.943	.017	.238
6. The principal's primary focus was on building others capacity to use data.	Equal variances assumed	.890	.347	1.503	134	.135	.316	.210
	Equal variances not assumed			1.506	79.266	.136	.316	.210
7. The principal built ownership by making sure teachers understood how to use interim assessment data to improve instruction.	Equal variances assumed	5.366	.022	3.327	134	.001	.677	.203
	Equal variances not assumed			3.087	66.759	.003	.677	.219
8. The principal fully understood how to use interim assessment data to	Equal variances assumed	1.493	.224	1.540	134	.126	.325	.211

improve instruction and student achievement.	Equal variances not assumed			1.633	91.018	.106	.325	.199
9. When teachers met formally to discuss results form interim assessments, the principal was present and actively engaged.	Equal variances assumed	.657	.419	3.452	134	.001	.901	.261
	Equal variances not assumed			3.536	83.548	.001	.901	.255
10. The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful ways.	Equal variances assumed	3.147	.078	2.318	134	.022	.489	.211
	Equal variances not assumed			2.235	72.576	.028	.489	.219
11. The principal appeared to spend more time on issues related to	Equal variances assumed	1.474	.227	.904	134	.368	.191	.211

instructional than management tasks.								
	Equal variances not assumed			.964	92.388	.338	.191	.198
12. The principal listened to teachers and involved the in making decisions related to improving instruction.	Equal variances assumed	.604	.439	.626	134	.533	.166	.266
	Equal variances not assumed			.618	76.674	.538	.166	.269
13. I applied a variety of instructional strategies to support the learning needs of students based on the results of interim assessments.	Equal variances assumed	.378	.540	1.671	134	.097	.251	.150
	Equal variances not assumed			1.491	61.804	.141	.251	.168
14. The principal required teachers to align instruction to the	Equal variances assumed	9.009	.003	2.602	134	.010	.508	.195

district's instructional calendar.	Equal variances not assumed			2.250	58.323	.028	.508	.226
15. I knew how to disaggregate and analyze assessment data to identify gaps in student's learning.	Equal variances assumed	3.683	.057	.670	134	.504	.110	.164
	Equal variances not assumed			.571	56.796	.570	.110	.193
16. I knew how to link the results from interim assessments to appropriate intervention strategies to improve instruction.	Equal variances assumed	6.323	.013	1.909	134	.058	.305	.160
	Equal variances not assumed			1.589	54.663	.118	.305	.192
17. I followed the district's instructional calendar.	Equal variances assumed	9.917	.002	2.769	134	.006	.529	.191
	Equal variances not assumed			2.383	57.817	.020	.529	.222
18. Interim assessment data	Equal variances assumed	4.242	.041	1.803	134	.074	.315	.175

results helped teachers monitor the effectiveness of instructional strategies.	Equal variances not assumed			1.682	67.556	.097	.315	.187
19. Interim assessment data results were effective in identifying gaps in student's learning.	Equal variances assumed	.038	.846	.375	134	.709	.068	.183
	Equal variances not assumed			.376	79.564	.708	.068	.182
20. I believe my classroom assessments were more effective in identifying what students knew and did not know than mandated high-stakes tests.	Equal variances assumed	.630	.429	-.542	134	.589	-.102	.188
	Equal variances not assumed			-.510	68.994	.611	-.102	.200
21. The principal's leadership style influenced my	Equal variances assumed	1.058	.305	2.029	134	.044	.516	.254

belief in my ability to improve student achievement.	Equal variances not assumed			2.082	83.957	.040	.516	.248
22. I met on my own with other teachers to plan and collaborate on how to improve instruction based on the results from interim assessments.	Equal variances assumed	1.496	.223	.463	134	.644	.096	.207
	Equal variances not assumed			.433	67.872	.666	.096	.221
23. I communicated to students the importance of performing well on the interim assessments.	Equal variances assumed	.641	.425	.277	134	.782	.043	.155
	Equal variances not assumed			.251	63.524	.803	.043	.172
24. My knowledge of testing and assessment was acquired after I	Equal variances assumed	1.588	.210	.101	134	.919	.025	.250

became a teacher.								
	Equal variances not assumed			.097	70.905	.923	.025	.262
25. I provided students sufficient feedback regarding their progress on the interim assessments in order to help them to improve.	Equal variances assumed	.080	.778	.407	134	.685	.074	.183
	Equal variances not assumed			.396	74.002	.694	.074	.188
26. Interim assessments, aligned to the instructional calendar, were administered to all students every nine weeks.	Equal variances assumed	17.969	.000	2.778	134	.006	.580	.209
	Equal variances not assumed			2.323	55.064	.024	.580	.249
27. Administrators, other than the principal, were primarily responsible for ensuring teachers	Equal variances assumed	1.602	.208	-2.349	134	.020	-.480	.204

knew how to use interim assessment data to influence instruction.								
	Equal variances not assumed			-2.535	95.278	.013	-.480	.189
28. The principal kept current about the most effective instructional practices and was resourceful in seeking creative ways to support teachers.	Equal variances assumed	3.112	.080	2.071	134	.040	.467	.225
	Equal variances not assumed			2.211	92.675	.030	.467	.211
29. The principal aligned resources, support, and assistance for improvement to teachers based on the results from interim assessments.	Equal variances assumed	.059	.809	3.965	134	.000	.727	.183
	Equal variances not assumed			3.916	76.607	.000	.727	.186
30. Staff development	Equal variances assumed	9.778	.002	3.588	134	.000	.698	.195

focused on how to analyze interim assessment data to improve instruction was available to teachers.	Equal variances not assumed			3.237	63.113	.002	.698	.216
31. I viewed my principal's primary leadership style as focused on getting things done correctly and on time.	Equal variances assumed	.836	.362	2.695	134	.008	.625	.232
	Equal variances not assumed			2.668	77.047	.009	.625	.234
32. The principal discouraged teachers working in isolation.	Equal variances assumed	.555	.457	1.381	134	.170	.327	.237
	Equal variances not assumed			1.319	70.995	.191	.327	.248
Instruction	Equal variances assumed	3.997	.048	1.080	134	.282	.13351	.12366
	Equal variances not assumed			.924	57.276	.359	.13351	.14448
Leadership	Equal variances assumed	.158	.692	2.885	134	.005	.41597	.14420

	Equal variances not assumed			2.819	74.764	.006	.41597	.14757
Assessment	Equal variances assumed	.707	.402	2.154	134	.033	.28158	.13072
	Equal variances not assumed			1.997	66.648	.050	.28158	.14103

APPENDIX M

ANOVA

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1. The principal's vision, direction, and expectation for using assessment data to improve instruction and achievement are clear and consistently communicated.	Between Groups	8.754	1	8.754	7.649	.006
	Within Groups	153.364	134	1.145		
	Total	162.118	135			
2. The principal provided time for teachers to meet regularly to plan and share instructional strategies based on results from assessment data.	Between Groups	1.570	1	1.570	1.200	.275
	Within Groups	175.305	134	1.308		
	Total	176.875	135			
3. I observed the principal using data to analyze the effectiveness of programs and instruction for future planning.	Between Groups	7.361	1	7.361	5.068	.026
	Within Groups	194.610	134	1.452		
	Total	201.971	135			
4. The principal clearly communicated his/her level of expectation for all students to be enrolled in a rigorous and challenging curriculum.	Between Groups	4.135	1	4.135	3.364	.069
	Within Groups	164.681	134	1.229		
	Total	168.816	135			
5. Relationships were more important to my principal than ensuring that every detail was accounted for.	Between Groups	.009	1	.009	.005	.943
	Within Groups	227.491	134	1.698		
	Total	227.500	135			
6. The principal's primary focus was on building others capacity to use data.	Between Groups	3.516	1	3.516	2.971	.087

	Within Groups	158.594	134	1.184		
	Total	162.110	135			
7. The principal built ownership by making sure teachers understood how to use interim assessment data to improve instruction.	Between Groups	13.297	1	13.297	11.071	.001
	Within Groups	160.938	134	1.201		
	Total	174.235	135			
8. The principal fully understood how to use interim assessment data to improve instruction and student achievement.	Between Groups	3.061	1	3.061	2.373	.126
	Within Groups	172.873	134	1.290		
	Total	175.934	135			
9. When teachers met formally to discuss results from interim assessments, the principal was present and actively engaged.	Between Groups	23.577	1	23.577	11.919	.001
	Within Groups	265.062	134	1.978		
	Total	288.640	135			
10. The principal's understanding of technology enabled him/her to share data with teachers and the public in meaningful ways.	Between Groups	7.873	1	7.873	6.652	.011
	Within Groups	158.598	134	1.184		
	Total	166.471	135			
11. The principal appeared to spend more time on issues related to instructional than management tasks.	Between Groups	1.059	1	1.059	.817	.368
	Within Groups	173.757	134	1.297		
	Total	174.816	135			
12. The principal listened to teachers and involved the in making decisions related to improving instruction.	Between Groups	1.139	1	1.139	.581	.447
	Within Groups	262.736	134	1.961		
	Total	263.875	135			
13. I applied a variety of instructional strategies to support the learning needs of students based on the results of interim assessments.	Between Groups	1.825	1	1.825	2.793	.097
	Within Groups	87.579	134	.654		
	Total	89.404	135			
14. The principal required teachers to align instruction to the district's instructional calendar.	Between Groups	8.466	1	8.466	8.720	.004
	Within Groups	130.093	134	.971		

	Total	138.559	135			
15. I knew how to disaggregate and analyze assessment data to identify gaps in student's learning.	Between Groups	.351	1	.351	.449	.504
	Within Groups	104.642	134	.781		
	Total	104.993	135			
16. I knew how to link the results from interim assessments to appropriate intervention strategies to improve instruction.	Between Groups	2.709	1	2.709	3.643	.058
	Within Groups	99.637	134	.744		
	Total	102.346	135			
17. I followed the district's instructional calendar.	Between Groups	8.135	1	8.135	7.666	.006
	Within Groups	142.210	134	1.061		
	Total	150.346	135			
18. Interim assessment data results helped teachers monitor the effectiveness of instructional strategies.	Between Groups	2.882	1	2.882	3.250	.074
	Within Groups	118.853	134	.887		
	Total	121.735	135			
19. Interim assessment data results were effective in identifying gaps in student's learning.	Between Groups	.357	1	.357	.420	.518
	Within Groups	114.047	134	.851		
	Total	114.404	135			
20. I believe my classroom assessments were more effective in identifying what students knew and did not know than mandated high-stakes tests.	Between Groups	.102	1	.102	.115	.736
	Within Groups	119.302	134	.890		
	Total	119.404	135			
21. The principal's leadership style influenced my belief in my ability to improve student achievement.	Between Groups	7.720	1	7.720	4.117	.044
	Within Groups	251.309	134	1.875		
	Total	259.029	135			
22. I met on my own with other teachers to plan and collaborate on how to improve instruction based on the results from interim assessments.	Between Groups	.266	1	.266	.215	.644
	Within Groups	166.138	134	1.240		
	Total	166.404	135			
23. I communicated to students the importance of performing well on the	Between Groups	.054	1	.054	.077	.782

interim assessments.	Within Groups	93.821	134	.700		
	Total	93.875	135			
24. My knowledge of testing and assessment was acquired after I became a teacher.	Between Groups	.019	1	.019	.010	.919
	Within Groups	243.364	134	1.816		
	Total	243.382	135			
25. I provided students sufficient feedback regarding their progress on the interim assessments in order to help them to improve.	Between Groups	.161	1	.161	.165	.685
	Within Groups	130.479	134	.974		
	Total	130.640	135			
26. Interim assessments, aligned to the instructional calendar, were administered to all students every nine weeks.	Between Groups	9.750	1	9.750	7.717	.006
	Within Groups	169.309	134	1.264		
	Total	179.059	135			
27. Administrators, other than the principal, were primarily responsible for ensuring teachers knew how to use interim assessment data to influence instruction.	Between Groups	6.681	1	6.681	5.518	.020
	Within Groups	162.253	134	1.211		
	Total	168.934	135			
28. The principal kept current about the most effective instructional practices and was resourceful in seeking creative ways to support teachers.	Between Groups	6.319	1	6.319	4.288	.040
	Within Groups	197.497	134	1.474		
	Total	203.816	135			
29. The principal aligned resources, support, and assistance for improvement to teachers based on the results from interim assessments.	Between Groups	15.341	1	15.341	15.720	.000
	Within Groups	130.770	134	.976		
	Total	146.110	135			
30. Staff development focused on how to analyze interim assessment data to improve instruction was available to teachers.	Between Groups	14.146	1	14.146	12.875	.000
	Within Groups	147.236	134	1.099		
	Total	161.382	135			

31. I viewed my principal's primary leadership style as focused on getting things done correctly and on time.	Between Groups	12.513	1	12.513	8.660	.004
	Within Groups	193.605	134	1.445		
	Total	206.118	135			
32. The principal discouraged teachers working in isolation.	Between Groups	2.403	1	2.403	1.679	.197
	Within Groups	191.832	134	1.432		
	Total	194.235	135			