ANALYZING THE CORRELATION BETWEEN DATA USAGE
AND STUDENT PERFORMANCE ON THE
MISSOURI ASSESSMENT PROGRAM

A Dissertation
presented to
the Faculty of the Graduate School
at the University of Missouri-Columbia

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
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December 2012
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ANALYZING THE CORRELATION BETWEEN DATA USAGE
AND STUDENT PERFORMANCE ON THE
MISSOURI ASSESSMENT PROGRAM

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Special thanks to

my husband, Kevin,

my children, Katrina, Kathlyn and Keegan,

my father, Sidney G. Porter,

my mother, Wanda J. Porter,

my mother-in-law, Shirley I. Cooper,

my colleagues and friends, Jason, Marise, and Tracy,

and the staff of Woodland R-IV.

Your support encouraged me to finish this degree.
ACKNOWLEDGEMENTS

I would like to thank Dr. Ruth Ann Roberts for her help, guidance, and support throughout my doctoral program and dissertation process. I also appreciate the guidance I received from Dr. Rose Tallent early on in my coursework. I would also like to thank my colleagues in Cohort 5, especially those I have kept in contact with including Lori Scheeter, Sydney Herbst, Rhonda Dunham, and Ruth Ann Orr, who always had an encouraging word and great wisdom.
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ANALYZING THE CORRELATION BETWEEN DATA USAGE AND STUDENT PERFORMANCE ON THE MISSOURI ASSESSMENT PROGRAM

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ABSTRACT

School districts are charged with the task of improving standardized test scores and closing the gaps between specific groups of students. Numerous programs, school improvement strategies, changes in instruction and leadership have been implemented to close the gap. Data are becoming more abundant at the state, district, and school levels. Many districts track student test scores year-to-year to plan interventions for students who are lagging behind in efforts to meet state standards in reading and mathematics. As school districts collect more data to meet the NCLB law, they have become valuable players in efforts to use data to drive instructional decisions.

The purpose of the study is to examine the level of data usage (high and low) of the public elementary schools in Southeast Missouri (16 counties) and to examine the correlation with student MAP performance in Communication Arts and Math. The rationale is that public elementary schools, which have participated in high level data usage in this sample would demonstrate high student performance on the MAP test. The study will observe whether or not this is true in the six high data usage and six low data usage schools selected based on survey results. The data usage rates were correlated to the 2010-2011 MAP Advanced/Proficient Score in Math and Communication Arts.

The findings for the original two research questions demonstrated there was no significant relationship between the data usage of elementary school personnel and the
Communication Arts MAP nor was there a significant relationship between the data usage of elementary school personnel and the Math MAP Advanced/Proficient score. The mean scores between high and low data usage schools only showed a mean difference of less than one. The respondent scores demonstrated the principal scored higher in all four subset categories over all other respondent groups. The difference between principal means and classroom teacher was less than one in all subsets except Implementation.

As the need for increased test scores continues through the NCLB initiatives, school districts will continue to find the best practices necessary to boost teacher effectiveness and student performance. Continued research is needed in Southeast Missouri to identify the forms of data analysis that are informing best practices in high performing schools.
CHAPTER 1
INTRODUCTION TO THE STUDY

Background

The educational landscape of the United States has included the use of mandated large-scale testing to evaluate programs for the last 30 years. The minimum competency era of the 1970s and 1980s ushered in the widespread implementation of high-stakes tests for student evaluation. From 1972 to 1985 state level testing programs increased from 1 to 34 (Horn, 2003). In 1983, A Nation at Risk reinforced the need for student accountability and elevated the level of demonstrated proficiency. The report also indicated the United States could no longer rely on minimal reading and math competency to maintain its competitive edge (National Commission, 1983). Students needed to be held to “rigorous and measurable” standards in order to ensure the country’s success in the information age (National Commission, 1983).

Therefore, standardized testing has become an integral part of educational improvement measures. The national legislation of No Child Left Behind (NCLB) required all states to implement some form of standardized testing. The standardized test implementation also required states to “look underneath overall averages to see how different groups of students are performing” (Education Trust, 2003, p. 3). NCLB requires states to report achievement data by specific groups, such as ethnicity, free and reduced lunch, indicating which student populations need the most help (2003). The reliance on test scores to assess the impact of schools on student achievement has increased sharply during the past decade (Russell, 2001). Implicit in these policies and others is a belief that data are important sources of information to guide improvement at
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all levels of the educational system and to hold individuals and groups accountable (Marsh, Pane, & Hamilton, 2006). “As the gap between low and high achieving students continues to grow and the implementation of high-stakes, performance based accountability systems becomes the norm, the need for data – instead of intuition, tradition and convenience – to guide administrative and educational decisions has become increasingly important” (NCREL, 2004, p. 1).

As a result, school districts are charged with the task of improving standardized test scores and closing the achievement gaps between specific groups. Numerous programs, school improvement strategies, changes in instruction and leadership, such as Reading First, Math First, Acuity, common assessments, and benchmark assessments have been implemented. Consequently, data are becoming more abundant at the state, district, and school levels. The NCLB Act has also inspired school districts across the country to seek technological solutions to meet the law’s ambitious goals for student learning (Hoff, 2006). Many districts track student test scores year-to-year to plan interventions for children who are lagging behind in efforts to meet state standards in reading and mathematics. Those districts that have begun tracking students month to month have implemented common assessments, benchmark assessments, unit tests or programs such as Reading First and Acuity. As school districts collect more data to meet the NCLB law, they have become valuable players in efforts to use data to drive instructional decisions (Hoff, 2006).

Since school districts are under constant scrutiny to improve test scores, educators and administrators look for programs and strategies to implement and improve test scores. A particular focus becoming more prominent is the practice of data-driven
decision-making (Armstrong & Anthes, 2001; Bernhardt, 2000; Hoff, 2006; Horn, 2003). The decisions, made as a result of data analysis, drive the curriculum, assessments, instructional methods and teacher practice.

The Virginia School Turnaround program has rapidly been gaining ground with school districts across the country. In the key finding from 2004-2008, 16 of the 25 schools were able to identify student-learning gains compared to similar schools (UVA-STSP, 2010). The aggregate performance data of participating schools showed more than a 20% boost in reading and math over a two year period, and continues to grow into the third year and beyond (UVA-STSP, 2010).

The Darden/Curry Partnership for Leaders in Education worked within six cohorts, servicing over 121 schools in nine states since 2004 (Darden-Curry- PLE/UVA, 2010). The partnership included school districts in Missouri. Several of these schools are in the St. Louis and Kansas City areas, and in the Bootheel area, including Caruthersville, Kennett, Hayti, Senath-Hornersville, and Charleston. The administrators hope to make a turnaround quickly and to see results on a more short-term basis (KFVS-12, 2011).

Caruthersville principal Doug White, said, "We want to come up with a data wall or a data room where people can come in and the community can come in" (KFVS-12, 2011). Principal White also indicated this room would show the graduation changes, grade point requirement for extracurricular activities and further changes to the school to create understanding among the community. The program calls for schools to track attendance, dropouts, and test scores on a daily basis and make the data available to everyone. Caruthersville and the other schools involved are implementing many structural changes within their schools through the Virginia School Turnaround Specialist Program. Jeri
Claire Crowder, Principal of Hayti School District stated, "The University of Virginia School Turnaround Specialist Program is a bold and innovative initiative that will lead to success in our country's educational programs" (Darden-Curry-PLE/UVA, 2011).

A program such as the UVA-STSP requires new instructional methods, teacher practices, curriculum and assessments involving knowledge creation which requires structural changes within instructional team design (Bruffee, 1999; Carr & Harris, 2001; Nonaka & Takeuchi, 1995). New teaming requires the allotment of time for social discourse to facilitate creation, application, and reflection among the administrators, teachers, and students (Bolman & Deal, 2003; Lencioni, 2002). Additional restructuring enables educators’ time to enact action plans derived from data analysis techniques of standardized test scores and assessments.

**Conceptual Underpinnings for the Study**

Nearly every state reports annually to school districts on how well their schools and students are meeting state standards (Armstrong & Anthes, 2001). Student data reports are provided to school districts measuring how well schools and students are meeting those standards. Many schools are not utilizing the data the state provides; instead it stays in the administrators’ or counselors’ office. Armstrong and Anthes’ (2001) research states a majority of teachers have had little contact with the tests scores except through a few reports or meetings with administrators, although the use is on the rise.

NCLB has spotlighted testing and accountability calling for a dramatic expansion of state-level high stakes testing. Gulek (2003) advises school districts to prepare students for these tests in ways that do not detract from real learning, realizing that “school practitioners must become assessment literate in order to make maximum use of test
results” (p. 1). Districts, schools, and classrooms across the nation still assess student learning the way their predecessors did 60 years ago (Stiggins, 2004). In 2005, Stiggins reminds educators that society itself has decided that students should become competent by meeting aligned standards and cannot simply be sorted and ranked. In order to go beyond just sorting and ranking, school districts have had to expand their data capacity so teachers can use data to change instruction to improve student achievement. Gulek suggests educators become informed about appropriate and inappropriate uses of test results, avoid teaching just to the tests, and keeping up with ongoing research on how to assess student learning as well as how they learn (2003).

Keeping up with the research includes educators learning how to retrieve reliable data, since this data has the potential to inform instructional practice. As educators change instructional practice, potential strategies are developed to enable the closing of achievement gaps between racial, ethnic, and economic groups (Hoff, 2006). Boudett et al (2005) caution educators that in order to use data successfully careful planning and professional development is necessary. Scores from high stakes testing, coupled with data from district assessments, classroom assessments, observations, and socio-educational factors such as attendance, tardiness, and GPA may prove to be a benefit of decision-making for changes in instructional strategies (Gulek, 2003).

Data-driven decision-making (DDDM) has evolved from successful practices in industry and manufacturing and is now being employed in school districts during instructional planning. The intent of DDDM is to systematically collect, analyze, and interpret meaningful data to be used during school improvement processes (Marsh, Pane, & Hamilton, 2006; Rudy & Conrad, 2004). The process requires collaboration, reflection,
and reflective collaboration, which takes time, continual exposure to data, discussion, and a clear vision focused on student learning (NCREL, 2004).

Although analysis of data can reveal the skills students are missing, additional research is needed to discover if the barriers discovered are actually being addressed through appropriate interventions (Bernhardt, 2003; Carr, 2001). This study is designed to further the research base by quantifying whether a correlation exists between elementary schools engaging in data usage (high and low) and increased student performance on the MAP Communication Arts and Math tests in Southeast Missouri elementary schools (16 counties).

**Statement of the Problem**

The Missouri Department of Elementary and Secondary Education (DESE) responded to the need for educational reform by passing the Outstanding Schools Act of 1993 (DESE, 2009). By 1996 Missouri educators were implementing the Show Me Standards, Frameworks and Annotations for Curriculum Development and by 1998 were required to administer the first Missouri Assessment Program (MAP) test in Math. By 2000, the MAP test was also being administered in Communication Arts, Science and Social Studies (DESE, 2009). Missouri had entered the testing realm and was addressing the NCLB requirements. Reports were generated and disseminated to the school district administration, and results were shared with the faculties across the state, while the media also reported school performance to the general public. Through NCLB, school districts were required to show improvements each year in testing performance.

Many studies in other areas of the country such as Texas and Illinois have investigated relationships between elementary school data usage and student performance...
Data usage and student performance

(Good, 2006, Easton & Luppescu, 2004). This is a study of the level of public elementary school personnel engaging in data usage (high and low) and the correlation of student performance in Math and Communication Arts Map scores in Southeast Missouri (16 counties). The problem occurring is schools may or may not be maximizing their utilization of the data they have available to improve student performance, thus creating a discrepancy between their scores and their perception of data usage.

**Purpose of the Study**

The purpose of the study is to examine the level of data usage (high and low) of the public elementary schools in Southeast Missouri (16 counties) and examine the correlation with student MAP performance in Communication Arts and Math. Data usage includes teachers and principals engaging in data analysis of standardized tests, benchmarks, common assessments, professional reflection, professional collaboration, and job-embedded professional development. The levels of data usage will be determined through the survey results and will be further explained in Chapter Three: Methodology. The rationale is that public elementary schools, which have participated in high level data usage in the sample would demonstrate high student performance on the MAP test. The study will observe whether or not this is true in the schools selected based on survey results.

**Research Questions**

The following research questions were developed and adapted from Good’s (2006) study of the Data Collaborative Model (DCM) in the Houston Independent School District (ISD) of Texas. These questions will be used to guide the study.
1. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011?

2. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math in 2010-2011?

In order to determine any relationship between state data and its impact on instruction, elementary school teachers and principals were surveyed regarding their data usage. MAP Communication Arts and Math performance scores in 2010-2011 will be examined to determine if a correlation exists between high and low data usage elementary schools in Southeast Missouri (16 counties) and their corresponding MAP student performance scores.

Research Hypotheses

Hypothesis I: There is no significant correlation between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011.

Hypothesis II: There is no significant correlation between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math in 2010-2011.

Secondary Research Questions

The secondary research questions were used to further guide the study. These research questions were formulated to identify how high and low school districts scored within the subsets of the survey.
1. What was the mean score for each subset by school and type of respondent?

2. Did high and low usage schools score differently on the subsets?

*Secondary Research Hypotheses*

Hypothesis I: There is no significant difference between the mean scores by school and type of respondent.

Hypothesis II: There is no significant difference between high and low usage schools and the different subsets.

*Limitations, Assumptions, and Design Controls*

There were several limitations to the study. The first limitation involved the school administrators, namely principals who received the mailed request to participate in the survey and did not pass the information on to their staff. The second limitation was, although the surveys were distributed by the principals, the staff members did not always take the time to respond. A final limitation was the timeline the researcher was held to depending on the leadership of the district and when approval was granted to send out the survey to the principals and whether the survey would be classified as optional by the district leadership.

Additional information explaining this study includes the assumptions made by the researcher. The first assumption was information reported by the participants through the survey was honest and accurate. Second, the test data received from the MAP Data reports was accurate. The final assumption is that most principals and teachers assume they are affecting positive educational change, even if they are unsure how to go about implementing this change (Fullan, 2001).
Since survey design is widely used in educational research, lending itself to studies of variables as they occur in natural settings, this is the method to be used in the study (Wiersma, 2000). A sampling plan was drafted indicating the definition of the population and subpopulations, the procedures, as well as initial drafts of the survey, which must be tried out to check for “…ambiguity, confusion, and poorly prepared items” (Wiersma, 2000, p. 165).

The researcher will use the first letter of introduction for each participating school to acquaint the superintendents and principals with the study, paper survey, and reporting of results. Following this type of protocol, as well as field-testing the paper survey will help to eliminate possible problems. The researcher will also explain how anonymity will be provided, since many participants are skeptical of the possibility of being recognized through surveys. The researcher will develop privacy guidelines based on the CDC guidelines found at their website www.cdc.gov and will explain those in the letters to participants found in Appendix D. For example, returned surveys will be identified by an assigned school number designated by the researcher, and principals and teachers will be identified by position, not by name.

**Definition of Key Terms**

The following terms are provided to clarify questions the reader may have during the course of reviewing the research. A majority of the terms listed came from the PPP Guide to School Terms for Parents And Volunteers (2006) unless otherwise cited.

*Achievement tests.* Tests used to measure student learning in various subjects according to national norms.
**Aggregated test scores.** A report of combined test scores of students in a particular classroom, grade level, school district or state.

**Assessment literacy.** The collective capacity of teachers and leaders in schools to examine data, make critical sense of it, develop action plans based on the data, take action and monitor progress along the way” (Fullan, 2001, p. 127).

**Adequate Yearly Progress (AYP).** The measurement of an individual school’s yearly progress toward achieving state academic standards.

**Benchmarks.** Benchmarks are the descriptions of a specific level of achievement expected at a particular time.

**Collaborative/reflective.** A collaborative/reflective environment is where teachers meet together in a shared setting to reflect over data such as assessment, student work, and lesson plans (Cowan, 2006).

**Criterion referenced test.** A criterion-referenced test is a standardized test used to measure how well a student has learned a specific set of skills or body of knowledge.

**DESE – (Missouri) Department of Elementary and Secondary Education.** DESE is the state education government agency for Missouri.

**Disaggregated data.** Disaggregated data is test scores or other data that have been divided into categories and compared; for example, schools determine how minority students are doing compared with the majority or how girls’ scores compare with boys’ scores.

**Formal assessment.** Formal assessment occurs when standardized tests are used to measure student progress.
Formative test. A formative test is a test given to see what students have learned so teachers can plan instruction.

Grade Level Expectation (GLE). A Grade Level Expectation is a standard for specific subjects and grade levels outlining what students should know and be able to do.

High-stakes test. High-stakes tests used to determine a reward or sanction; for example, a test that students must pass to graduate or a test that a certain percentage of students in a school must pass for that school to be accredited.

Informal assessment. Informal assessments are methods teachers use to assess student progress, such as student portfolios, demonstrations, checklists, anecdotal records.

Job-embedded Professional Development. Job-embedded Professional Development is the instructional learning that educators acquire while teaching during their daily schedule. Another component includes discussion with other professionals, peers, mentoring, study groups and action research in both formal and informal situations. (U.S. Department of Education Professional Development Team, 1994).

Missouri Assessment Program (MAP) The MAP test is a series of tests given to all Missouri public school students in scheduled years for various subjects; test scores are used for determining annual AYP.

National Assessment of Educational Progress (NAEP). The NAEP is an assessment of what American students know and can do in various subjects; also known as the Nation’s Report Card.

National Center for Educational Statistics (NCES). The NCES is an agency that collects data on many education topics.
No Child Left Behind (NCLB). NCLB is federal legislation that provides guidance and money to assist schools and families in helping all children learn.

Norm-referenced tests. Norm-referenced tests are standardized tests used to compare the performance of a student with their peers nationally.

Professional Learning Community (PLC). A PLC is established when teachers “focus on learning rather than teaching, work collaboratively, and hold [each other] accountable for results” (DuFour, 2004b, p. 6)

Quantitative data. Quantitative data are sources for information that typically involves counting measures or rating that might include surveys, rating scales or checklists.

Reliability. In developing tests, reliability is an estimate of how well test questions fit across time and across student populations.

School Improvement. School Improvement occurs when a school does not make AYP for two consecutive years. In the first year, the school develops a plan for improvement and offers school choice (if available). If the school does not meet AYP for two years in a row it must offer SES – Supplemental Education Services – in addition to school choice.

Standardized test. A standardized test has the same format and is given under the same conditions for everyone who takes it.

Validity. Validity refers to how well a test measures what it is intended to measure.
Summary

Large scale testing has been used to evaluate educational practice for the last 30 year, thus ushering in standardized testing as a way to address how students in different groups are performing. As a result, schools are charged with the task of improving scores and closing gaps among varying student populations. Using the data to inform instruction has become a focal point for many schools, creating the need for educators to expand data capacity and train teachers to use the data effectively to inform instruction. This is a study of public elementary schools engaging in data usage (high and low) to inform instruction and its correlation to MAP student performance in Communication Arts and Math in Southeast Missouri Elementary schools (16 counties).

A review of the literature regarding the historical background of educational reform, standardized testing, and policies that led to educational change in the last 50 years will be presented in Chapter 2. Further discussion includes leading research on data analysis and collection, standardized tests, state mandated testing, data driven decision-making, and the Missouri Assessment Program (MAP).
CHAPTER 2
REVIEW OF RELATED LITERATURE

Introduction

Standardized testing has become an integral part of education improvement and reform measures in the twenty-first century. Since school districts are under constant scrutiny to improve test scores, educators and administrators look for programs and strategies to implement and affect this needed change. The programs and strategies of accountability that many districts and researchers support include becoming assessment literate, the development of professional learning communities, continued professional development, and organizational and leadership change. A historical perspective will set the stage for the current educational climate and the need for school districts to develop accountability programs and strategies for continued improvement.

Historical Perspective

Educational control was given to the states during the formation of our country in order to avoid the power being placed in the hands of a few at the federal level. The Constitution and its amendments decreed that education would be a state responsibility that handed it over to local jurisdictions. For the next 182 years, including the development of the Department of Education in 1867, the local government and local educational agencies reigned supreme in governing schools (Marshall & Gerstl-Pepin, 2005; Sergiovanni et al, 1999).

In the 1950s educational practices came under the influence of James B. Conant’s work on comprehensive high schools including testing to select students for higher
education and to identify students for gifted programs (Linn, 2001). Test scores began to dominate discourse about schools and their accomplishments, especially after the launch of Sputnik in 1957. The journalists and politicians began to question American education since the Soviet Union, launched the first rocket into space (Amrein & Berliner, 2002; Sergiovanni et al., 1999). The United States federal government was prodded by the media and the country to protect the public interest so they began to initiate and fund massive reforms including advocacy for the increased use of tests to assess school learning.

The National Defense Act of 1958 was created to provide additional funding to schools and states in support of science, mathematics, and foreign language instruction (Marshall & Gerstl-Pepin, 2005). Closely following was the use of these test scores in the 1960’s to measure and evaluate the effectiveness of Title I and other federal programs (Linn, 2001) concluding that public education was viewed as the window of opportunity. In 1965, the Elementary and Secondary Education Act (ESEA) became the first major federal law to dispense significant amounts of money to United States school districts for the support of locally designed programs intended to increase children’s learning. The ESEA promised considerable dollars to be spent. Senator Robert Kennedy suggested to Congress that safeguards be built in to ensure that schools were deemed worthy to receive the monies. In other words, school districts were required to evaluate and report on the effectiveness of their federally supported programs (Popham, 2001).

Educators worked quickly to find tests that would meet the requirements to allow them to qualify for the money and the tests available were the *Metropolitan Achievement Tests* and the *Comprehensive Tests of Basic Skills*, each designed and created by
respected measurement companies and regarded as technically first rate (Popham, 2001). The Federal government and the states used the large-scale tests to monitor the status of the educational system and to provide information that might be helpful to teacher and large groups of the students. For example, the National Assessment of Educational Progress (NAEP), the only large-scale federally commissioned achievement test, was designed solely with a monitoring role in mind, since there was little concern about tying high stakes outcomes to testing (Stecher, 2002; Sullivan, 2006).

Even through all these reforms, during the 1970’s a belief arose that achievement in the United States schools was falling behind other countries and public discontent began to surface. The media began attacking the public education system, stating that students had secured high school diplomas, but couldn’t fill out a job application (Popham, 2001). Politicians spurred by this rising discontent began to formulate the minimum competency testing movement to reform schools even more. States began to rely on tests of basic skills to ensure, in theory, that all students would learn at least the minimum needed to be a productive citizen (Amrein & Berliner, 2002; Linn, 2001; Popham, 2001). Popham (2001) stated the minimal competency tests endorsed by “…policymakers supplied parents with a “limited warranty” that a child who passed a competency exam had at least mastered the fairly modest set of basic skills these tests measured” (p. 5). No longer were test results for large groups adequate, instead results were used in new ways, specifically as the basis for decisions about individual performance (Sullivan, 2006). And despite the continued steady state control in areas such as accountability, school finance, categorical programs, school improvement efforts, minimum competency testing and civil rights regulations, the cost of education increased.
“In 1979, for the first time in the history of our nation, state and federal funding of schools exceeded that derived from local sources” (p. 3) and states were convinced to increase their contribution to fund the aforementioned programs, and additional programs (Sergiovanni et al, 1999). Additional programs included even more minimal competency testing, career ladder for teachers, curriculum changes and providing for school achievement auditing (1999). President Jimmy Carter stepped up to the educational platform in 1979 and elevated the Department of Education (DOE) to cabinet status thus creating opposition in Congress since many members saw this move as an attempt to deny state and local education agencies decision-making power over education (Marshall & Gerstl-Pepin, 2005). When Carter sought another term and lost to the Reagan administration, the DOE’s federal role in education was diminished until the creation of the standards movement.

In 1983, about twenty-five years later after the launch of the Sputnik, the National Commission on Excellence in Education published A Nation at Risk (ANAR). This publication sparked the reform of the 80s, challenging the authority of local education agencies to implement some kind of mandatory statewide testing and discarded minimum competency testing (Amrein & Berliner, 2002; Linn, 2001; Popham, 2001; Sergiovanni et al, 1999). Concerns were raised by the report that Japan and South Korea were pulling ahead academically, and that the minimum competency exams promoted low standards, and had become the maximum achievement for many schools while the content in schools was viewed as being “dumbed down” (Popham, 2001). The ANAR called for more rigorous standards and accountability measures to end the educational recession of the United States. Despite the lack of scholarly credibility, Amrein and Berliner (2002)
reported ANAR produced massive efforts mandated by the Commission which required states to institute higher standards, improve curriculum and assessments and hold schools accountable in meeting the standards.

By the mid 1980s thirty-four states had instituted some sort of testing of basic skills as a graduation requirement, and every state except Iowa and Nebraska developed educational standards, as well as implementing assessment policies to check the standards (Amrein & Berliner, 2002; Linn, 2001). The first wave of reform included the mandates and inducements from the Commission and the second wave of reform began to address bringing about changes in teachers, their work conditions and their preparation (Sergiovanni, 1999).

As test scores became available to the press they began ranking schools, so what was originally thought of as a good test score lost its credibility when ranked with other higher performing schools. Researchers began to investigate teacher reaction to external assessment. Criticism of high-stakes testing during the 80s brought about the emphasis on minimal competency levels for students and resulted in schools teaching directly to these minimal competencies rather than the broader curriculum (Popham, 2001; Sloane & Kelly, 2003). Overlapping the minimum competency movement and continuing into the late 1980s and early 1990s was the expansion of the use of standardized test results for accountability purposes (Linn, 2001). The use of standardized test results prompted renewed interest in the effects of testing on the practice of teaching and policymakers embraced a new more potent vision for the role of assessment. The role envisioned combined tests with standards - as a mechanism to influence changes in practice, hoping to use them to exert a strong positive effect on schooling (Stecher, 2002).
As the turn of the 21st century approached, a national focus on standards originally came about through the National Governors Association, which “…advocated for America 2000 and Goals 2000, national-level policies that emphasized the need for national standards” (Marshall & Gerstl-Pepin, 2005, p. 182). Both these policies were supported by Presidents George H. W. Bush and William Clinton, since they both recognized a need for the federal government to lead the nation toward national standards. Both these initiatives failed due to under-funding, therefore school districts did not have the resources needed to accomplish such changes. Clinton’s successor, George W. Bush, continued the focus on national standards with the No Child Left Behind Act of 2001 (NCLBA), which reauthorized the Elementary and Secondary Education Act of 1965 and modified the 1994 reauthorization known as The Improving America’s Schools Act.

The NCLBA is based on four principles: (1) stronger accountability for results, (2) increased flexibility and local control, (3) expanded options for parents, and (4) emphasis on methods that have been proven to work (NCLB, 2001). In addition, annual testing in the “core” areas of reading, mathematics, and science were to be implemented in stages. By 2005-2006, testing was required in reading and math in grades three through eight, and once in high school. By 2007-2008, testing was required in science at least once in each grade span, three through five, six through nine, and ten through twelve. Each state is required to set measurable adequate yearly progress (AYP) objectives for all students taken as a whole and for subgroups of students as well. Subgroups include: economically disadvantaged, racial or ethnic groups, limited English proficiency, and students with disabilities. AYP also stipulates “…the same high standards of academic
achievement to all public elementary school and secondary school students in the state; is statistically valid and reliable; [and] results in continuous and substantial academic improvement for all students” (NCLB, 2001, Sec. 1111(a)(2)(C). The AYP definition also includes continuous and substantial improvement in both mathematics and reading/language arts, not just for the total group of students considered as a whole, but for each of the specific subgroups (Linn, 2003). This policy is aimed at improving quality, as well as encompassing equity, excellence and choice goals. Efficient, cost-effective, aggregate standardized tests scores are the designated measure for determining which schools are failing, and to promote literacy and testing standards for lower income children (Marshall & Gerstl-Pepin, 2005). Lastly, the policy requires, by the year 2014 in all public schools, 100% of students pass state-wide assessments in reading and math (NCLB, 2003).

Every state has now instituted a statewide testing program and curricular standards or frameworks with a few exceptions such as Iowa and Nebraska who develop their own standards and benchmarks. The state tests vary substantially in difficulty, content, item format, and especially the sanctions attached to the test performance. One constant through this historical perspective of testing is that the ANAR, America 2000, Goals 2000, and NCLBA are examples of federal initiatives that use data to argue for a greater federal role in education. Research data can also be used to support many platforms, therefore data can be used by individual schools to inform practice and affect improvement.
Use of Data

The use of data analysis to inform instruction to increase test scores has become a topic of many studies. Stiggins (2005) states “Society has redefined schools. No longer do they simply sort and rank students, now they are where all students become competent, meet specified standards, and are not left behind” (p. 324). As school districts have expanded their data capacity, features are being put in place so teachers can use data to change instruction to improve student achievement. Educators need to prepare students for these tests in ways that do not detract from real learning, and become assessment literate in order to make maximum use of test results (Gulek, 2003). Gulek suggests not teaching to the tests, but becoming informed about appropriate and inappropriate uses of tests results, staying apprised of the latest research on how students learn and how best to assess what they know (2003).

Assessment literacy has become another concern in schools across the United States. Fullan wrote in 2001, "assessment literacy is, "The capacity of teachers and principals to examine student performance data and make critical sense of them” (p. 117). Teachers and principals need to be able to identify good work when it is presented, and to understand achievement scores. Assessment literacy is needed for schools to develop action plans based on disaggregated data which identify subgroups that may be underperforming or disadvantaged. Fullan concludes that by schools focusing on outcomes, assessment literacy is a "...powerful coherence-maker" (2001).

Progress toward having data systems that have the potential to inform educator’s decisions have been dramatic since NCLB (Boudett et al, 2005). State and local officials are starting to see the value in analyzing data to determine how to meet the ambitious
achievement goals of the federal law and state accountability measures (Boudett et al., 2005). One way is to use data from criterion-referenced tests, thus leading to informed educational decisions based on student performance in relation to the state-adopted standards (Gulek, 2003). Educators are embracing performance data as a useful means for directing school improvement by tracking individual student performance, aggregating and disaggregating data, and using data collection systems. Learning Point Associates reviewed Mike Schmoker’s 1999 study *Results: The Key to Continuous Improvement* and concluded from his study that schools needed to move away from “continually adopting innovations” and instead “collectively focus on goals and regularly measure the impact of the methods” (NCREL, 2007, p. 1).

Reliable data collection by teachers is important for the development of potential strategies for closing the achievement gap between racial, ethnic and economic groups (Hoff, 2006). Professional development is needed to help teachers prepare students for state tests and state graduation tests. Boudett et al. (2005) suggest the need for professional development and careful planning before data can be used successfully to inform instructional decisions. School district personnel on the local level will need to do their own data analysis to ensure data can be turned into instructional guideposts, build analysis tools that ensure teachers are capable of understanding the data, and ensuring teachers have skills to use those tools (Boudett et al, 2005). Scores from high stakes tests may prove to be of benefit in decision-making if they are coupled with data from district assessments, classroom assessments, and observations, and socio-educational factors such as attendance, tardiness, and GPA (Gulek, 2003).
Many argue against using large scale assessments to draw conclusions about a child’s intellectual development, since these assessments were designed to measure achievement of large groups of students, not pinpoint subject matter each student needs to learn (Hoff, 2006). Many researchers have indicated that standardized testing focuses student attention on the knowledge and skills tested, narrowing the field of study by excluding educationally important material that is not tested (Horn, 2003, Linn & Herman, 1997, Madaus, 1988, Madaus & Clarke, 2001) Additional researchers reported the increase of high-stakes test scores does not necessarily equate to increased learning, and in some cases was reported as decreasing learning (Amrein & Berliner, 2002; Cannell, 1989; Koretz, Mitchell, & Stretcher, 1996; Klein, Hamilton, McCaffrey, & Stretcher, 2002). National and State standardized tests have some similarities since many are written by the same companies, but a closer look reveals the differences and reasons they are used.

*Standardized Tests*

Many norm-referenced criterion tests adopted by individual states have been written independently or contracted with test writers including CTB McGraw-Hill, Harcourt Educational Measurement, Educational Testing Service (ETS), or states have utilized existing tests such as the Iowa Basic Skills Test, Terra Nova, TIMSS, Stanford 9, and the Metropolitan Achievement test (Burry-Stock & Casebeer, 2003). The tests are usually chosen and implemented to reflect the state and local curriculum, frameworks, and grade level expectations, which vary from state to state (Beckendahl, Plake, Impara, & Irwin, 2000). Norm-referenced standardized tests include in their assessment report Normal Curve Equivalency (NCE) scores of scale scores. NCE scores provide
adjustments to the National Percentile Rank (NPR) scores so that the intervals are arithmetically the same. NPR scores provide valuable information about the performance of individual students in relation to their peers nationwide. Traditionally these scores were used to communicate to parents, media, state, federal, and evaluate the effectiveness of programs (Gulek, 2003).

Alignment studies have shown that norm-referenced tests are limited in covering state adopted standards, so now with the standards movement, nearly all the state are using criterion-referenced tests that are aligned with state standards (Gulek, 2003, Popham, 2001). Criterion-referenced scores report student performance in relation to a set of designated task or skill levels. Results are presented as performance levels. These classifications describe the extent to which a student is deemed to have met grade-level standards and expectations.

Assessment results are reported at different levels for a variety of purposes. NAEP reports data at the state and national level. State testing reports data at the student, school, district, and state level. Districts may have their own assessments, which tend to be reported at the student, school, and/or district level, and teachers use a variety of assessments daily and are reported on the student level. Gulek (2003) believes becoming assessment literate will increase the chances of identifying the correct audience for which assessment results would be most useful.

As state and federal mandated tests are being implemented in the public schools across the country, comparisons between them are difficult since the complexity varies greatly (Ediger, 2002). The complexity arises from varying curriculums between states, as well as school districts within each individual state. Although NAEP has been
addressing the questions regarding the performance of students nationwide since 1969 the results do not indicate individual school district progress or individual student progress (NCES, 2005). Additional research has been conducted regarding standardized test effectiveness, validity and attitudes toward the test (Education Trust, 2003; Boston, 2001; Ediger, 2002; Easton, 2000; Buckendahl et al, 2000; Burry-Stock, 2003; NCES, 2006).

The National Association of Educational Progress (NAEP) provides a national assessment of students in the United States in the areas of mathematics, reading, science, and writing, as well as other core subject areas (NCES, 2005). Since 1990, the NAEP, often called “The Nation’s Report Card” has been reporting state-by-state results for participating states and jurisdictions (NCES, 2005). The results provide parents, educators, and policymakers a picture of how students perform compared to the national average, other states, and to “assess the extent to which the performance in their state is moving forward or falling behind (NCES, 2006, p. 3). State standardized tests, such as the Illinois Standards Achievement Program (ISAT), and the Wisconsin Knowledge and Concepts Examination (WKCE) have both been compared to the NAEP (Education Trust, 2003), thus allowing for additional states to follow suite.

Although some states have been compared to the NAEP, the vast differences among state standardized tests renders comparisons between states virtually impossible (NCES, 2006; Ediger, 2003; Buckendahl et al, 2000, Burry-Stock & Casebeer, 2003; Easton, 2000). Easton conducted research in the Illinois Public Schools regarding district opinions of preferred standardized testing. The preferred tests of Illinois educators were their own standardized tests used, while they were “less enthusiastic about the Illinois Standards Achievement Testing (ISAT) program, believing the ISAT to be of lower
quality than the assessments they had chosen” (Easton, 2000, p. 1). Similarly, the Education Trust sponsored a quantitative study comparing Wisconsin’s reading and mathematics performance on the most recent administrations of the NAEP (2003). Wisconsin’s achievement was compared to other states in their minority achievement (2003) indicating that other states can access Education Trust and utilize data programs to generate comparisons between state standardized testing and NAEP testing if the states elect to participate in the NAEP testing program (Education Trust, 2003).

State mandated testing

As state departments of education adopt their methods of standardized testing, many educators have raised questions regarding the validity of the test in relation to the curriculum of the state, district and grade levels. Ediger (2002) stated ten purposes regarding implementation of state mandated tests with number one being the need to “notice and report student pupil achievement” (p.3). Although the purposes of state testing vary in importance in each state, the NCLB Act of 2002 has required school districts to prioritize the reporting of pupil achievement as number one. Boston’s (2001) report on the complexity of comparing student data nationally with President Bush’s “plan to require states to test third through eighth grade students in Title I schools annually in reading and mathematics, with state results verified against NAEP or a commercial test such as the Iowa Test of Basic Skills raises questions about a National test that all students would take to “demonstrate mastery of some agreed-upon body of knowledge and skills” (p. 2). Opinions have wavered among policy makers, from moving toward a national test to be used as an accountability tool to moving away from a national test since the result would be a national curriculum and loss of local and state control.
Another question regarding the federal role in testing is the possibility that it is not good for kids, and tests cannot come from a cookie cutter mold especially to low income and minority populations as well as gifted students (Boston, 2001).

Boston (2001) reported that the NAEP now includes performance-based items, as well as multiple choice items, and achievement is reported in three levels: Basic - partial mastery; Proficient - solid academic performance; and Advanced - superior work, as well as a fourth level, Below Basic - less-than acceptable performance. Similarly, state standardized tests have adjusted testing reporting levels to more closely match NAEP and other commercial standardized tests (Boston, 2001). Still a concern for many educators is the alignment of standardized achievement tests to the state content standards. Although test publishers assure school districts the standardized tests are “developed professionally, and therefore, possess sound psychometric properties not found in state-specific efforts” (Buckendahl et al., 2000, p.4), questions still arise regarding alignment to the NAEP and the local curriculum.

Teachers have changed their practice significantly since the addition of statewide testing according to several studies. Hammerness (2004) reviewed studies revealing the tendency of teachers to give more attention to the content of the tests in their daily lessons (McMillan, Myran, & Workman, 1999) and teachers were also de-emphasizing content not on the test (Jones et al., 1999, Koretz, Baron, Mitchell, & Stetcher, 1996). The complexity of a teacher’s experience in negotiating apparent conflict between standardized testing and school vision or personal vision is illustrated in the survey of Abrams, Padilla, and Madaus (2003). They surveyed over four thousand teachers from what they termed “high-stakes” and “low-stakes” states and found that a substantial
number of teachers in both testing programs reported that their statewide testing program
had led them to teach in ways that run counter to their own beliefs about good
educational practices.

Hammerness (2004) suggests ways for school districts and teachers to address
gaps and conflicts between teaching and testing. First teacher educators can compare
state curriculum standards and tests to their ideals, as well as curriculum plans. As
conflicts, unexamined discrepancies, or mismatches are discovered teacher educators can
strategize on how to deal with them. A necessity for all teacher educators is to have a
developed, focused, and clear vision within their school district that compliments the
ideals of the community. A school district that shares a similar vision provides a buffer
from the pressure and demands of testing (Hammerness, 2004). Many schools following
Hammerness’ approach to teaching and testing have turned to Data-driven decision-
making (DDDM).

*Data-driven decision-making*

Data-driven decision-making (DDDM) has become an important focus for
schools, districts, and education organizations during instructional planning. DDDM is
modeled on successful practices from industry and manufacturing including Total Quality
Management (TQM), Organizational learning, and Continuous Improvement (Marsh et
al., 2006). The intent of DDDM is to systematically collect, analyze, and interpret
meaningful school improvement data to make a positive impact on curriculum,
instruction and student learning (Marsh, Pane, & Hamilton, 2006; Rudy & Conrad,
2004). Rudy and Conrad (2004) contend for data to be useful in planning curriculum and
instruction it must be tied to student performance goals at the classroom, school, and
Data usage and student performance

district level. Their study on district data use focused on how districts collect and organize data, how data was used to answer key questions, and how they took action and presented results based on data. The results of the survey revealed four key elements to foster data-driven decision-making. They are (1) leadership in curriculum and instruction, (2) performance indicators, (3) technology, and (4) staff development and continuous improvement (Rudy & Conrad, 2004).

Similarly, NCREL (2004) and Marsh et al (2006) suggest the data collected include input, process, outcome, and satisfaction data or raw data, to guide a range of decisions to help improve the success of students and schools. Both NCREL and Marsh et al. share the goal of helping educators understand the importance of using a variety of data sources in the school improvement process. The collection of all the above types of data leads to information. Information becomes actionable knowledge, which leads to decisions.

The DDDM process requires collaboration, reflection, and reflective collaboration, all which requires time, continual exposure to data, discussion on improving student learning, a clear vision focused on student learning, a well-defined mission statement aimed at high quality learning environments, and an optimum student achievement aim (NCREL, 2004). Also suggested by NCREL (2004) are eight areas of guidance, (1) Develop a Leadership Team, (2) Collect various types of data, (3) Analyze data patterns, (4) Generate hypotheses, (5) Develop goal-setting guidelines, (6) Design specific strategies, (7) Define evaluation criteria, and (8) Make the commitment (p. 6).

Schools have begun using numerous programs to utilize student data and researchers have begun to study the results of many of these DDDM programs. Marsh et
al. (2006) used surveys, interviews and focus groups, observations and reviews of documents to determine the answers to four fundamental questions of data type, use, support, and decision-making. The conclusions indicated achievement scores clearly receive the most systematic attention, and that results become available too late to be useful in making adjustments for the current school year. As a result schools have adopted formal local assessments and administrators find these to be more useful than state tests and are used to guide decisions about instruction (Marsh et al, 2006). Further study found teachers also indicated the local assessments were more helpful than state tests and local data was used to set improvement goals and targets, monitor schools, teachers, and students, identify who needs assistance or to identify “Bubble kids” (those right at the cutoff line). The local data is also used to focus professional development and to identify areas where teachers needed to strengthen content knowledge or teaching skills (Marsh et al, 2006).

The support available included workshops or training on how to examine test data, principals helping adapt teaching according to analyses, and technology and partnerships with external organizations (Marsh et al, 2006). And finally the factors influencing the use of data for decision-making within school districts included accessibility of data, quality of data, motivation to use data, and timeliness of data, staff capacity and support, curriculum pacing pressures, lack of time, organizational culture and leadership and the history of state accountability (NCREL, 2006).

Exemplary schools and districts use data to identify strengths and weaknesses in student, teacher, and school performance. They track and share results of various interventions in order to pinpoint successful strategies for achieving goals. The indicators
of a school using DDDM include school leaders enabling the staff to collect information pertaining to school, district, and state goals and standards. The principals and faculty analyze and interpret the data to inform the decision-making, and educators at every level are trained to use and analyze data (NCREL, 2007).

Analyzing data can be done by grade level, classroom, individual student, and even for specific items on a test. Item analysis can reveal exactly what skills students are missing, having occurred at the particular grade level or years before. As data is collected through item analysis, barriers can be revealed such as course sequence and student assessment skills. It may also suggest educators look at other sources of data besides test scores, such as benchmark exams, common assessments, unit tests, daily work, attendance, and other quantifiable measures. Educators must be ready for their belief systems to be challenged, often times resulting in a culture change within the district (Carr, 2001).

Armstrong and Anthes (2001) suggest the most difficult aspect of using data is linking an appropriate intervention with results. They suggest that by analyzing the school’s demographic, achievement and instructional data and matching them to the goals, the plan's effectiveness can be evaluated. Inevitably this process becomes the school improvement planning process thus engaging the entire team of staff in data analysis, providing time and resources to plan, and discovering areas in which improvement is needed.

Although DDDM initially focused on teaching and learning, now school leaders are using this approach to transform other aspects of their operation, from human resources and facilities management to school safety and community relations (Carr,
Bernhardt (2003) stipulates “Schools can get better pictures of how to improve learning for all students by gathering, intersecting, and organizing different categories of data more effectively” (p. 26). Data includes demographics, student learning, perceptions, school processes, and standardized test results. Bernhardt (2003) warns against “analysis paralysis” – gathering data and doing nothing to analyze it.

**Missouri Assessment Program**

Missouri educational leaders and policymakers responded to the need for educational reform by passing the Outstanding Schools Act of 1993 (DESE, 2009). The reform initiative was a $310 million measure to reform Missouri schools and their funding, which demonstrated Missouri’s commitment to a public school system that prepares students for the 21st century. Quickly following in 1996, the Missouri State Board of Education approved the Show Me Standards, Frameworks and Annotations for Curriculum Development and in 1998 required the first Missouri Assessment Program (MAP) test in Math to be administered to students. By the year 2000 the MAP test was also being administered in Communication Arts, Science, and Social Studies (DESE, 2009).

The Outstanding Schools Act also provided for the development of standards, curriculum, assessments, professional development, and professional standards for educators. The Show-Me Standards are a set of 73 rigorous standards used to define what Missouri students should know and be able to use by the time they graduate from high school. The frameworks are used in curriculum development in communication arts, fine arts, health and physical education, mathematics, science, and social studies in order to align the curriculum with the Show-Me-Standards. The new statewide assessment
system, the MAP test, includes performance events, multiple choice and short answer questions intended to demonstrate a student’s mastery of the Show- Me-Standards and how they compare to other students in their school, state, and nation. Another component stipulates that one percent of the local district’s state aid and one percent of the state educational budget be used to support professional development of educators to improve student performance (DESE, 2008). It has become even more paramount that Missouri teachers engage in data analysis, since as of 2010 the rising cost of education and testing has led DESE to no longer fund professional development and performance events were eliminated from the MAP test (DESE, 2010). Additional changes included the movement away from the Show- Me-Standards, and Missouri currently uses the Grade Level Expectations (GLE’s), and yet still another change is on the horizon. DESE is looking towards the Common Core Curriculum and Twenty-First Century Skills. Missouri also included a final component to define what graduating future teachers should know in order to strengthen the link between teacher preparation and the expectations of school communities (DESE, 2008).

With the passage of NCLB in 2001, Missouri already had in place many of the needed components of this legislation as evidenced in the 1995 policy statement by Missouri’s State Board of Education which “…designated the purpose of the assessment program MAP as: (1) improving student’s acquisition of important knowledge, skills, and competencies, (2) monitoring the performance of Missouri’s educational system; (3) empowering students and their families to improve their educational prospects; and (4) supporting the teaching and learning process” (Bartman, 1998, p. 2). In 2004, DESE began publishing Grade Level Expectations (GLE’s) for educators, since the grade-span
MAP tests included items derived directly from these GLE’s. As standardized testing began changing with the NCLB guidelines, 2005 was the last year that Missouri administered a grade-span test, and began developing grade level tests that were shorter but just as rigorous as the MAP grade-span tests. DESE partnered with CTB McGraw Hill and developed assessments, which report on individual students with a MAP scale score, a MAP achievement level, and a Terra Nova national percentile (DESE, 2009). DESE contended that “Educators may use these quantitative and qualitative results to make inferences about student’s proficiency relative to the content and process Standards assessed at that grade and subject” as well as using “…these scores to conduct their own internal evaluations, to monitor progress over time, and to inform planning for the future” (Appendix D, DESE, 2009, p. 1). Once again in 2010, with rising costs for testing, DESE has decreased the length of the MAP test in elementary grades. Now more than ever Missouri schools will need to collect and analyze state and local student test data (DESE, 2010).

Another component of NCLB requires all schools, districts and states to show adequate yearly progress (AYP). Missouri’s AYP targets were established by DESE based on a formula from the NCLB Act and an analysis of MAP data, attendance rate data and graduation rate data from prior years. When all the targets are met, the requirements of AYP are met. The difficulty school districts are facing is the progressive nature of AYP that would result in all students scoring at the proficient level on the state’s assessment by 2014.
Summary
Assessment is paramount in education today. Through the educational reform movements standardized testing has undergone many changes. Testing progressed from minimal competency to norm-referenced tests and finally to criterion-referenced tests. The standards movement ushered in NCLB requiring all states to implement a statewide testing program and to show student performance growth every year until 2014 when 100 percent of all students should be performing at or beyond grade level. States are required to report performance of individuals, groups of individuals, and schools. As a result, data analysis of individual, group, school to school, and many other comparisons have become a focus for school improvement efforts. Schools have turned to many programs to provide for DDDM to facilitate student performance gains.

Chapter 3 contains a description of the methodology used to study the effects of data usage in 12 elementary schools in Southeast Missouri and their corresponding MAP Communication Arts and Math test scores in 2010-2011. Sample selection procedures, instrument development, data gathering, and data analysis procedures are discussed. The objective of this quantitative study is to study the impact of data usage on student achievement.
Chapter three provides a description of the quantitative design used in this study. The first section of Chapter three will outline an overview of the problem being investigated, the research questions used to guide the researcher in fulfilling the purposes of the study, and a statement of the hypothesis. The next two sections will describe the population, the sample and data collection and instrumentation. The last section provides the method of data analysis and summary.

Several differences between qualitative and quantitative research are worth discussing in order to rationalize the use of a quantitative design. Both types of research have different underlying epistemologies, thus creating different purposes. Qualitative research is inductive and is used to understand social phenomena while quantitative research is deductive and is used to discover relationships, effects, and causes (Heppner & Heppner, 2004, Gravetter & Wallnau, 1996, Wiersma, 2000). Since the study between school data usage and improved student performance is intended to discover the correlational relationship between the two variables, a quantitative survey design will be employed.

For purposes of this research study, data usage includes teachers and principals engaging in data analysis of standardized tests, benchmarks, common assessments, professional reflection, professional collaboration, and job-embedded professional development. Easton and Luppescu (2004) stated “... when educators have detailed
information about students’ achievement patterns, they can use this information to plan specific, individualized instructional interventions” (p. 1). It is beneficial for educators to utilize the analyses of assessments to inform whether intervention strategies have been successful, thus enabling the educators to create a feedback loop between testing, data assessment, and intervention strategies (Nonaka & Takeuchi, 1995).

The most often-utilized test data includes state and federal standardized testing required by NCLB. The researcher will use the survey results to determine if the elementary schools have high or low data usage, which inform instructional strategies, teaching practice, and increased student performance on the MAP. Since standardized testing has become an integral part of educational improvement measures, the national legislation of No Child Left Behind (NCLB) has required all states to implement some form of standardized testing. The NCLB standardized testing implementation has also required states to “look underneath overall averages to see how different groups of students are performing” (Education Trust, 2003, p. 3). As a result, NCLB requires states to report achievement data by specific groups, such as ethnicity, free and reduced lunch, indicating which student populations need the most help (2003).

The reporting of achievement data illustrates how school districts are under constant scrutiny to improve test scores and have become focused in the use of data-driven decision making models. Creating an educational feedback loop has become a crucial part of education in order to meet the demands of increasing student performance in accordance with NCLB. The decisions derived from the feedback loop drives the curriculum, assessments, instructional methods and teacher practice, although it is
unclear how much of the decision-making and analysis is determined directly by the feedback loop of school administrators, teachers, or a combination of the two.

Many states across the nation have implemented entire data driven decision-making program models. Two such models are the Data Collaborative Model (DCM) used within Texas Public schools and data analysis initiatives in Illinois Public schools. Both models have shown a correlation between improvement in some areas of achievement and the district use of data driven decision-making programs (Good, 2006, Easton & Luppescu, 2004). The survey questions (see Appendix A) were developed and adapted from the DCM survey questionnaire. The survey results were used to determine which schools are high or low in data usage. The researcher selected the high and low usage schools through mean results based on usage rates for survey items, three, five, six, and seven. The six highest scoring schools and the six lowest scoring schools were included in the study. This research study is a correlational study focusing on the relationship between the level of school data usage and the achievement on the MAP in Southeast Missouri elementary schools in 2010-2011. Gravetter and Wallnau caution researchers to remember correlations simply describe relationships between two variables, and cannot be “... interpreted as proof of a cause-and-effect relationship between two variables” (p. 510).

The researcher is interested in the correlation between the data usage of Southeast Missouri elementary school personnel and student achievement on Communication Arts and Math MAP scores in 2010-2011. In this study school data usage was correlated to corresponding standardized tests scores.
Problem and Purposes Overview

The Missouri Department of Elementary and Secondary Education (DESE) responded to the need for educational reform by passing the Outstanding Schools Act of 1993 (DESE, 2009). During the 90s, DESE began implementing curriculum standards and by 1998 schools were required to administer the first MAP test in Math. By 2000, the MAP test was also being administered in Communication Arts, Science, and Social Studies (DESE, 2009). Missouri schools began addressing the NCLB requirements by implementing a standardized testing program. Data was now at the fingertips of school administrators and teachers, as well as the outline of student improvement for every year until 2014.

The purpose of the study is to determine the level of data usage of the elementary schools in Southeast Missouri (16 counties) and the correlation on the MAP scores in Communication Arts and Math in 2010-2011. The focus is whether data usage informs teacher practice enough to increase student test scores. This study examined whether there is a significant correlation between data usage by elementary school personnel and the achievement of their students. Data usage includes teachers and principals engaging in data analysis of standardized tests, benchmarks, common assessments, professional reflection, professional collaboration, and job-embedded professional development. The rationale is that public elementary schools which have participated in data usage to inform instruction would demonstrate high student performance on the MAP test in 2010-2011. The study observed whether or not a correlation exists within the schools selected based on survey results.
Research Questions

The following research questions were developed and adapted from Good’s (2006) study of the Data Collaborative Model (DCM) in the Houston Independent School District (ISD) of Texas. These questions were used to guide the study.

1. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011?

2. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math in 2010-2011?

In order to determine any relationship between state data and its impact on instruction, elementary school teachers and principals will be surveyed regarding their data usage. MAP Communication Arts and Math performance scores from 2010-2011 were examined to determine if a correlation exists between high and low usage elementary schools.

Research Hypotheses

Hypothesis I: There is no significant correlation between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011.

Hypothesis II: There is no significant correlation between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math 2010-2011.
Secondary Research Questions

The secondary research questions were used to further guide the study. These research questions were formulated to identify how high and low school districts scored within the subsets of the survey.

1. What was the mean score for each subset by school and type of respondent?
2. Did high and low usage schools score differently on the subsets?

Secondary Research Hypotheses

Hypothesis I: There is no significant difference between the mean scores by school and type of respondent

Hypothesis II: There is no significant difference between high and low usage schools and the different subsets

Population and Sample

Selecting participants carefully is essential for the research problem to be properly addressed. Simply selecting participants that are available does not always provide the best possible data sample (Fink, 2006; Heppner & Heppner, 2004; Wiersma, 2000). Wiersma (2000) stated, “a sample is a subset of the population to which the researcher intends to generalize the results” (p. 284) and often is not random; instead a purposeful sample is used, which can still be representative of the larger populations. The sample utilized in this study is elementary public school teachers and principals within Southeast Missouri (16 counties).

Approximately 65 school districts, including 104 elementary schools, within the sixteen Southeast Missouri counties were asked to participate in the survey, providing a
possibility of over 1000 participants including principals and teachers. Although the selection of counties is purposeful, all schools within the scope will be included in the initial sampling pool. The researcher determined the sample size through comparison with the Texas ISD study, and the Chicago public school study (Good, 2006; Heppner & Heppner, 2004; Easton & Luppescu, 2006). A copy of the consent for participation in the survey was sent to all superintendents through the United Postal Service (USPS) with a requested response date. Once Superintendents gave permission for schools to participate, all principals were sent a copy of consent through USPS with a requested response date. Elementary schools, which consented to participate, were sent enough surveys for all teachers and principals through USPS. After the schools returned the surveys through USPS the researcher selected the high and low usage schools through mean results based on usage rates for survey items, three, five, six, and seven on the survey. The six highest scoring schools and the six lowest scoring schools were included in the study. This allowed the researcher to use a sample of school districts (calculate % of schools that participated in the survey) to represent the entire Southeast Missouri region. A further explanation is provided in the data collection section of this chapter.

*Data Collection and Instrumentation*

High and low elementary school data usage of tools and data implementation were measured using a 20 question survey (see Appendix A) with an estimated 10-15 minute completion time. Permission was granted by Rebecca Good to modify and use her survey instrument from her DCM study of the Houston ISD in Houston, Texas (2006). The survey questionnaires from Easton and Luppescu’s study in the Chicago Public Schools (2004), and the Learning Point Associates North Central Regional Educational
Laboratory’s Evidence of Success Survey Questions (2004) were reviewed to ensure appropriate word structure for the survey. The survey used a few categorical questions to determine demographics of the district and position of respondent. Additional questions used a Likert type summative scale represented on a 6-point continuum (1 = strongly disagree, 6 = strongly agree) with higher scores indicating greater data usage of tools and implementation.

The selection of the sixteen counties was determined through use of information from the Missouri Department of Elementary and Secondary Education (DESE), which determines the educational regions of the state (DESE, 2006). Additional demographic data was also collected from the DESE website, as well as the Missouri Assessment Program (MAP) scores for the 2010-2011 school year.

A pilot test was conducted within one consenting school district included in the thirteen counties, thus duplicating the environment. The researcher obtained permission for some administrators and teachers to pilot the survey and not be a part of the actual survey, “…even though they are eligible for full participation.” (Fink, 2006). Conducting the pilot test helped to improve the response rate by flagging possible areas of difficulty, poor wording, insufficient space for answers, and difficulty understanding (Fink, 2006). Minor revisions were made as necessary and reported in the final copy.

A list of 65 school districts, the addresses, superintendents, principals, and demographic data was compiled to serve as the potential participants. The list was compiled using the DESE website. Each superintendent and principal of potential elementary schools were mailed a letter of consent to participate (Appendix B and C). This letter of consent (a) described the study and its benefits to elementary education (b)
outlined the anonymity of responses (c) described what the participation would involve, (d) requested the recipients’ participation in the study, and (e) requested to have responses mailed to the researcher in postage paid envelopes after participation. (Fink, 2006, Heppner & Heppner, 2004). A copy of this letter can be found in Appendix B.

Superintendents and principals were asked to respond to the researcher through e-mail or telephone within one week of receiving the letter of consent indicating whether or not they were willing to participate in the study. Those unwilling to participate were taken off the mailing list. Elementary schools participating were mailed packets with enough materials for all teachers and principals to complete the surveys. The packets contained a letter of consent, (Appendix D), the study guidelines and survey (Appendix A), and a postage-paid return envelope with a request to return within two weeks. The letter of consent stated that consent is implied when completing the survey, signing the consent form, and that all records will be used only by the researcher and on a non-networked computer. Additional letters and e-mails were sent to the school districts after the first seven days to remind them of the survey and asked for their support in this research endeavor. Once the window had closed the researcher sent a third e-mail reminder with a deadline extension of two more days and regular letters were posted to schools that had not responded. At the end of the survey period the number of responses were tallied and assessment of the data began.

Through the assessment of the survey data, districts were categorized into high data utilization, low data utilization or eliminated from the survey pool as explained in the next paragraph. Purposeful selection techniques were used to categorize the elementary schools based on the following criteria: (a) percentage of teachers and
principals (respondents) participating in the survey and the (b) mean number of choices
for survey items 3, 5, 6, and 7. All schools participating in the survey were ranked
according to this mean number and percentage, thus indicating that a high combined
mean score would equate to high-level utilization.

To begin the selection of elementary schools, the researcher sorted the database
by the percent of teachers and principals who took the survey and then by the number of
teachers and principals that took the survey. For example, an elementary school with 36%
participation and 32 staff members will be determined to be more suitable for inclusion in
the study than a district with 44% participation and 17 staff members, since the
researcher was interested in having as many participants as possible for the study (Fink,
2006; Good, 2006). Out of these schools, 22 returned the surveys, with a total 396
respondents. Through analysis 12 schools were chosen with a total of 283 respondents.

The data usage levels were assessed through survey items 3, 5, 6, and 7 as
reported by each individual school. The items measured the (a) participants’
understanding of data usage (b) the frequency of data usage, and (c) whether they felt
data usage had an impact on their students’ achievement. Certain assigned survey items
addressed participants understanding, while others addressed frequency of use, and still
others addressed the impact on student achievement. For each school the number of
choices selected for each question was aggregated and a mean number of choices was
computed.

Demographic data was reported in Table 3 of the schools selected to be included
in the study of high and low teacher generated data analysis. The data included total
Data usage and student performance

enrollment and percentages of students receiving free or reduced lunches, and ethnicity, all collected through the DESE website to maintain school confidentiality.

Table 1
Demographic Data for the 12 Selected Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Total Enrollment</th>
<th>Free Lunch %</th>
<th>White %</th>
<th>Black %</th>
<th>Hispanic %</th>
<th>Asian %</th>
<th>Indian %</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>341</td>
<td>68.1</td>
<td>98.8</td>
<td>0.30</td>
<td>0.00</td>
<td>0.30</td>
<td>0.60</td>
</tr>
<tr>
<td>High 2</td>
<td>320</td>
<td>59.8</td>
<td>96.3</td>
<td>0.00</td>
<td>2.20</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>High 3</td>
<td>429</td>
<td>53.8</td>
<td>88.6</td>
<td>9.30</td>
<td>0.50</td>
<td>1.20</td>
<td>0.50</td>
</tr>
<tr>
<td>High 4</td>
<td>480</td>
<td>49.1</td>
<td>89.6</td>
<td>8.10</td>
<td>1.70</td>
<td>0.40</td>
<td>0.20</td>
</tr>
<tr>
<td>High 5</td>
<td>297</td>
<td>72.9</td>
<td>99.0</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>High 6</td>
<td>726</td>
<td>76.5</td>
<td>97.1</td>
<td>0.70</td>
<td>1.40</td>
<td>0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>Low 1</td>
<td>381</td>
<td>61.5</td>
<td>58.3</td>
<td>27.60</td>
<td>7.10</td>
<td>1.30</td>
<td>0.30</td>
</tr>
<tr>
<td>Low 2</td>
<td>311</td>
<td>86.7</td>
<td>71.4</td>
<td>27.00</td>
<td>1.30</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Low 3</td>
<td>307</td>
<td>38.6</td>
<td>90.9</td>
<td>8.50</td>
<td>0.70</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Low 4</td>
<td>265</td>
<td>51.3</td>
<td>97.7</td>
<td>1.10</td>
<td>0.00</td>
<td>0.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Low 5</td>
<td>340</td>
<td>57.6</td>
<td>98.8</td>
<td>0.00</td>
<td>1.20</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Low 6</td>
<td>492</td>
<td>46.9</td>
<td>97.2</td>
<td>0.80</td>
<td>1.20</td>
<td>0.80</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Data Analysis

Data analysis was conducted through the grouping of the survey questions. The questions were grouped in three ways. The first grouping determined high and low data usage in elementary schools. Survey questions 3, 5, 6, and 7 were used to determine the high and low data usage by computing three different areas including the number of participants, the percentage of participating staff members and the means scores of those items. The high and low participation schools data were sorted, and the high and low
schools were selected based on the means of the total choices chosen by participants (Good, 2006).

The second grouping placed the survey questions into subsets. These included (a) understanding the data analysis and tools, (b) implementing data analysis and tools, (c) collaborative/reflective practice, and (d) professional development (Good, 2006). These subsets allowed for two secondary questions to be investigated from the survey responses. They are as follows:

1. What was the mean score for each subset by school and type of respondent?
2. Did high and low usage schools score differently on the subsets?

Table 2

*Survey Questions that Aligned with Each Subset*

<table>
<thead>
<tr>
<th>Understanding of the Data Analysis &amp; Tools</th>
<th>Implementation of the Process &amp; Tools</th>
<th>Collaborative/Reflective Practice</th>
<th>Professional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey Questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4, 6, 10, 11</td>
<td>3, 5, 7, 9, 17, 18</td>
<td>12, 13, 14</td>
<td>8, 15, 16, 19</td>
</tr>
</tbody>
</table>

The researcher completed a Cronbach alpha to assess internal consistency reliability on the subsets. The data showed that some items were not placed appropriately. The Alphas were examined and several subsets were altered based on the reliability statistics and the corrected item-total correlation. Subsets were revised until a Cronbach's alpha was adequate at 0.7 or above. Table 3 shows the new arrangement of items for each subset.
Table 3

*Survey Questions that Aligned with Each Subset*

<table>
<thead>
<tr>
<th>Understanding of the Data Analysis &amp; Tools</th>
<th>Implementation of the Process &amp; Tools</th>
<th>Collaborative/Reflective Practice</th>
<th>Professional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey Questions</td>
<td>10, 11</td>
<td>3, 7</td>
<td>12, 13, 14</td>
</tr>
</tbody>
</table>

The third way to analyze the data was through the use of the primary two research questions, which were answered by specific survey questions. The following section will describe how each research question was analyzed.

Research Question 1: What correlation exists between the level of data usage by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011? A Bivariate Correlation was used to determine if there was a significant correlation between the High and Low Data usage schools and their corresponding 2010-2011 MAP Advanced/Proficient student performance scores in Communication Arts.

Research Question 2: What correlation exists between the level of data usage by elementary school personnel regarding MAP student performance in Math in 2010-2011? A Bivariate Correlation was used to determine if there was a significant correlation between the High and Low Data usage schools and their corresponding 2010-2011 MAP Advanced/Proficient student performance scores in Math.
Summary

As state departments of education adopt their methods of standardized testing, many educators have raised questions regarding the validity of the test in relation to the curriculum of the state, district and grade levels. Ediger stated ten purposes regarding implementation of state mandated tests with number one being the need to “notice and report student pupil achievement” (2002, p.3). Although the purposes of state testing vary in importance in each state, the NCLB has required school districts to prioritize the reporting of pupil achievement as number one. The reporting of student achievement and the NCLB mandates has required schools to take an active role in assessing student performance. As a result of schools implementing assessments on student performance numerous programs such as Reading First, and Math First have been adopted, as well as many Communication Arts and Math initiatives, data driven decision-making and data analysis models. This study is prompted by the need to discover the relationship between schools that have high or low data usage and student performance.

Chapter 3 explained the research design and methods of this quantitative study. The purpose of the study was stated. Data collection and data analysis techniques were discussed. The survey instrument was outlined along with how it was sent out to participants as well as how it was analyzed when responses were returned.

The data was grouped for analysis in three ways. The first way was the selection of high and low usage schools. The second way was through the subsets created from the survey questions. The third way by the two research questions, which were answered by specific survey questions and MAP scores.
Chapter 4 contains the results of the data analyses through the research questions and the way survey questions were grouped. Numerous tables display statistical results of how the schools were selected, statistical results from the four subsets, and the results of the research questions.
Chapter 4

ANALYSIS OF DATA

Introduction

The purpose of the study was to examine the level of data usage (high and low) of the public elementary schools in Southeast Missouri (16 counties) and the correlation with student MAP performance in Communication Arts and Math. Data usage includes teachers and principals engaging in data analysis of standardized tests, benchmarks, common assessments, professional reflection, professional collaboration, and job-embedded professional development. The levels of data usage were determined through the survey results. The rationale is that public elementary schools, which have participated in high level data usage in the sample would have a result of increased student performance on the MAP test.

Organization of Data Analysis

Data analysis was conducted through the grouping of the survey questions. The questions were grouped in three ways. The first grouping determined high and low data usage in elementary schools. Survey questions 3, 5, 6, and 7 were used to determine the high and low data usage by computing three different areas including the number of participants, the percentage of participating staff members and the means scores of those items. The high and low participation schools data were sorted, and the high and low schools were selected based on the means of the total choices chosen by participants (Good, 2006).
The second grouping placed the survey questions into subsets. These included (a) understanding the data analysis and tools, (b) implementing data analysis and tools, (c) collaborative/reflective practice, and (d) professional development (Good, 2006). These subsets allowed for two secondary questions to be investigated from the survey responses. They are as follows:

1. What was the mean score for each subset by school and type of respondent?
2. Did high and low usage schools score differently on the subsets?

The third way to analyze the data is through the use of the primary research questions, which were answered by specific survey questions. The researcher correlated the data after the high and low data usage schools were determined.

**Presentation of Descriptive Characteristics of Respondents**

Approximately 65 school districts, including 104 elementary schools, within the sixteen Southeast Missouri counties were asked to participate in the survey, providing a possibility of over 1000 participants including principals and teachers. Although the selection of counties was purposeful, all schools within the scope were included in the initial sampling pool.

High and low elementary school data usage of tools and data implementation were measured using a 20 question survey (Appendix A). Through the assessment of the data, districts were categorized into high utilization, low utilization groups or eliminated from the survey pool. Purposeful selection techniques were used to categorize the elementary schools based on the following criteria: (a) percentage of teachers and principals (respondents) participating in the survey and the (b) mean number of choices
for survey items 3, 5, 6, and 7. More consideration was given to those schools with a higher number of participating staff rather than a high percentage of participating staff. The percentages of the staff participation rates can be found in Table 4. Out of these schools, 22 returned the surveys, with a total 396 respondents. Through analysis 12 schools were chosen with a total of 283 respondents. The schools are labeled High 1 to High 6 and Low 1 to Low 6.

The data usage levels were assessed through survey items 3, 5, 6, and 7 as reported by each individual school. The items measured the (a) participants’ understanding of data usage (b) the frequency of data usage, and (c) whether they felt data usage had an impact on their students’ achievement. The means for each school were computed for each question (see Table 5). The six high implementation schools and the six low implementation schools were selected by finding the most participant groups that answered the survey and then by reviewing the means for each of the four questions. The overall average for the high implementation groups for data usage was 3.71 and the low implementation group overall average for data usage was 2.86.
Table 4

*Staff Participation Rates*

<table>
<thead>
<tr>
<th>Teachers by Campus</th>
<th>Participating Staff #</th>
<th>Participating Staff %</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>High 2</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>High 3</td>
<td>38</td>
<td>23</td>
</tr>
<tr>
<td>High 4</td>
<td>38</td>
<td>24</td>
</tr>
<tr>
<td>High 5</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>High 6</td>
<td>58</td>
<td>26</td>
</tr>
<tr>
<td>Low 1</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td>Low 2</td>
<td>38</td>
<td>16</td>
</tr>
<tr>
<td>Low 3</td>
<td>32</td>
<td>26</td>
</tr>
<tr>
<td>Low 4</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>Low 5</td>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>Low 6</td>
<td>33</td>
<td>27</td>
</tr>
</tbody>
</table>
Table 5

Mean of Options Chosen on Survey Items 3, 5, 6, and 7 by School

<table>
<thead>
<tr>
<th></th>
<th>Item 3 Mean</th>
<th>Item 5 Mean</th>
<th>Item 6 Mean</th>
<th>Item 7 Mean</th>
<th>Avg. Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>7.96</td>
<td>1.76</td>
<td>3.54</td>
<td>3.04</td>
<td>4.08</td>
</tr>
<tr>
<td>High 2</td>
<td>8.22</td>
<td>1.87</td>
<td>3.04</td>
<td>2.55</td>
<td>3.92</td>
</tr>
<tr>
<td>High 3</td>
<td>7.09</td>
<td>1.91</td>
<td>3.09</td>
<td>2.77</td>
<td>3.72</td>
</tr>
<tr>
<td>High 4</td>
<td>7.13</td>
<td>1.88</td>
<td>3.00</td>
<td>2.75</td>
<td>3.69</td>
</tr>
<tr>
<td>High 5</td>
<td>6.88</td>
<td>2.38</td>
<td>2.86</td>
<td>2.55</td>
<td>3.67</td>
</tr>
<tr>
<td>High 6</td>
<td>5.88</td>
<td>1.69</td>
<td>2.73</td>
<td>2.50</td>
<td>3.20</td>
</tr>
<tr>
<td>Average - High</td>
<td>7.13</td>
<td>1.92</td>
<td>3.04</td>
<td>2.69</td>
<td>3.71</td>
</tr>
<tr>
<td>Low 1</td>
<td>5.74</td>
<td>1.78</td>
<td>2.59</td>
<td>2.23</td>
<td>3.09</td>
</tr>
<tr>
<td>Low 2</td>
<td>5.38</td>
<td>1.44</td>
<td>2.56</td>
<td>2.36</td>
<td>2.94</td>
</tr>
<tr>
<td>Low 3</td>
<td>5.00</td>
<td>1.38</td>
<td>2.69</td>
<td>2.38</td>
<td>2.86</td>
</tr>
<tr>
<td>Low 4</td>
<td>5.17</td>
<td>1.00</td>
<td>2.61</td>
<td>2.35</td>
<td>2.783</td>
</tr>
<tr>
<td>Low 5</td>
<td>5.50</td>
<td>1.54</td>
<td>2.15</td>
<td>1.92</td>
<td>2.777</td>
</tr>
<tr>
<td>Low 6</td>
<td>4.48</td>
<td>1.11</td>
<td>2.85</td>
<td>2.31</td>
<td>2.69</td>
</tr>
<tr>
<td>Average - Low</td>
<td>5.21</td>
<td>1.38</td>
<td>2.58</td>
<td>2.26</td>
<td>2.86</td>
</tr>
</tbody>
</table>
Research Questions and Associated Hypotheses

The following research questions were developed and adapted from Good’s (2006) study of the Data Collaborative Model (DCM) in the Houston Independent School District (ISD) of Texas. These questions were used to guide the study.

1. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011?

2. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math in 2010-2011?

In order to determine any relationship between state data and its impact on instruction, elementary school teachers and principals were surveyed regarding their data usage. MAP Communication Arts and Math performance scores from 2010-2011 were examined to determine if a correlation exists between high and low usage elementary schools.

Hypothesis I: There is no significant correlation between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011.

Hypothesis II: There is no significant correlation between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math 2010-2011.

The secondary research questions were used to further guide the study. In the next section these questions will be discussed first.
1. What was the mean score for each subset by school and type of respondent?

2. Did high and low usage schools score differently on the subsets?

**Analysis of Data**

The survey items were grouped into four subsets of Understanding of Data Usage, Implementation, Collaborative/Reflective, and Professional Development (Good, 2006). A Cronbach alpha was used to determine the reliability of the items included in each subset. Not all items proved reliable, and the items were revised, new alphas computed. The revised alphas are found in Table 3 in Chapter 3.

**Subsets**

The Understanding subset answered how the respondents understood data analysis, if results came in a manner that could be used, and had the necessary tools for data analysis. The Understanding subset had a Cronbach alpha of 0.686, approaching the desired range of 0.80 (Field, 2005), and both Corrected Item-Total Correlation measured 0.522, indicating that both were good components.

The Implementation subset answered how the respondents implemented the results from using data analysis strategies and tools. The Implementation subset had a Cronbach alpha of 0.675, indicating adequate reliability, and all the Corrected item- Total Correlations items measured 0.510.

The Collaborative/Reflective subset measured whether respondents felt like they were taking part in Collaborative and Reflective practice within their school. The Cronbach alpha measured 0.798, just below the desired range, and the Corrected Item Total Correlation items were between 0.620 and 0.681.
The Professional Development subset asked the respondents whether they participated in Professional Development by looking at data at district level, grade level, vertical levels, and whether they felt adequately trained to utilize strategies developed. The Cronbach alpha measured 0.804, just above the desired range, and the Corrected Item Total Correlation items were between 0.563 and 0.726.

After the data were grouped in these four subsets, the two secondary research questions were answered. The results are as follows.

Secondary Research Question 1: What was the mean score for each subset by school and type of respondent? The mean score for each subset by school can be viewed in Table 6, while the mean score for each subset by respondent can be viewed in Table 7. The Principal scored higher in all four subset categories over all other respondent groups. The difference between Principal means and Classroom Teacher was less than one in all subsets except Implementation (6.14 - 4.46 = 1.68).
Table 6

*Subset Mean Score by School*

<table>
<thead>
<tr>
<th>School</th>
<th>Understand Mean</th>
<th>Implement Mean</th>
<th>Collaborative/Reflective Mean</th>
<th>Professional Development Mean</th>
<th>Campus Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>4.92</td>
<td>5.32</td>
<td>5.15</td>
<td>4.65</td>
<td>5.01</td>
</tr>
<tr>
<td>High 2</td>
<td>4.93</td>
<td>5.39</td>
<td>5.51</td>
<td>4.81</td>
<td>5.16</td>
</tr>
<tr>
<td>High 3</td>
<td>4.87</td>
<td>4.93</td>
<td>5.54</td>
<td>4.99</td>
<td>5.08</td>
</tr>
<tr>
<td>High 4</td>
<td>4.94</td>
<td>4.82</td>
<td>5.24</td>
<td>4.79</td>
<td>4.95</td>
</tr>
<tr>
<td>High 5</td>
<td>4.50</td>
<td>4.72</td>
<td>5.02</td>
<td>4.32</td>
<td>4.64</td>
</tr>
<tr>
<td>High 6</td>
<td>4.46</td>
<td>4.19</td>
<td>4.78</td>
<td>4.33</td>
<td>4.44</td>
</tr>
<tr>
<td>Mean-High</td>
<td>4.77</td>
<td>4.90</td>
<td>5.21</td>
<td>4.65</td>
<td>4.88</td>
</tr>
<tr>
<td>Low 1</td>
<td>4.24</td>
<td>3.96</td>
<td>4.55</td>
<td>3.90</td>
<td>4.16</td>
</tr>
<tr>
<td>Low 2</td>
<td>4.50</td>
<td>3.87</td>
<td>5.26</td>
<td>4.54</td>
<td>4.54</td>
</tr>
<tr>
<td>Low 3</td>
<td>4.26</td>
<td>3.69</td>
<td>4.20</td>
<td>3.72</td>
<td>3.98</td>
</tr>
<tr>
<td>Low 4</td>
<td>4.56</td>
<td>3.80</td>
<td>4.75</td>
<td>4.21</td>
<td>4.33</td>
</tr>
<tr>
<td>Low 5</td>
<td>4.50</td>
<td>3.71</td>
<td>4.43</td>
<td>4.17</td>
<td>4.21</td>
</tr>
<tr>
<td>Low 6</td>
<td>4.43</td>
<td>3.39</td>
<td>4.22</td>
<td>4.10</td>
<td>4.04</td>
</tr>
<tr>
<td>Mean- Low</td>
<td>4.42</td>
<td>3.74</td>
<td>4.57</td>
<td>4.11</td>
<td>4.21</td>
</tr>
</tbody>
</table>
### Table 7

**Subset Mean Score by Type of Respondent**

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Understand Mean</th>
<th>Implement Mean</th>
<th>Collaborative Reflective Mean</th>
<th>Professional Development Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>5.43</td>
<td>6.14</td>
<td>5.33</td>
<td>4.86</td>
</tr>
<tr>
<td>ESL, Sp. Ed Speech Teacher</td>
<td>4.59</td>
<td>4.02</td>
<td>4.89</td>
<td>4.35</td>
</tr>
<tr>
<td>Counselor</td>
<td>3.86</td>
<td>4.00</td>
<td>4.10</td>
<td>3.66</td>
</tr>
<tr>
<td>Instructional Specialist</td>
<td>5.14</td>
<td>4.37</td>
<td>4.92</td>
<td>4.66</td>
</tr>
<tr>
<td>Classroom Teacher</td>
<td>4.64</td>
<td>4.46</td>
<td>4.94</td>
<td>4.44</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>3.81</td>
<td>2.68</td>
<td>4.15</td>
<td>3.24</td>
</tr>
<tr>
<td>Other</td>
<td>3.96</td>
<td>3.69</td>
<td>4.28</td>
<td>3.87</td>
</tr>
</tbody>
</table>

Note: Subset Mean Score by School available in Table 4.
Secondary Research Question 2: Did high and low usage schools score differently on the subsets? A univariate analysis of variance demonstrated a significant difference between high and low data usage schools (see Table 8). The High usage groups mean scores were higher in most categories over the Low usage groups (see Table 9). The campus means for the High usage groups in all categories were higher than the Low usage groups, and the overall average of the four subset groups also demonstrated that the High usage group was 4.88, while the Low usage group was 4.21.

Table 8

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>ρ</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement</td>
<td>277</td>
<td>258</td>
<td>.336</td>
<td>3.65</td>
<td>.005</td>
<td>.714</td>
</tr>
<tr>
<td>Understanding</td>
<td>277</td>
<td>258</td>
<td>.165</td>
<td>1.79</td>
<td>.141</td>
<td>.430</td>
</tr>
<tr>
<td>Collaborative</td>
<td>277</td>
<td>258</td>
<td>.288</td>
<td>3.12</td>
<td>.013</td>
<td>.664</td>
</tr>
<tr>
<td>Professional Development</td>
<td>277</td>
<td>258</td>
<td>.216</td>
<td>2.34</td>
<td>.050</td>
<td>.575</td>
</tr>
</tbody>
</table>
Table 9

*Data Usage Means and MAP Math and Communication Arts Advanced/Proficient Scores*

<table>
<thead>
<tr>
<th></th>
<th>Data Usage</th>
<th>MAP Math</th>
<th>MAP Comm. Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>4.08</td>
<td>36.96</td>
<td>47.10</td>
</tr>
<tr>
<td>High 2</td>
<td>3.92</td>
<td>56.25</td>
<td>63.13</td>
</tr>
<tr>
<td>High 3</td>
<td>3.72</td>
<td>59.42</td>
<td>55.29</td>
</tr>
<tr>
<td>High 4</td>
<td>3.69</td>
<td>58.10</td>
<td>52.17</td>
</tr>
<tr>
<td>High 5</td>
<td>3.67</td>
<td>55.36</td>
<td>54.16</td>
</tr>
<tr>
<td>High 6</td>
<td>3.20</td>
<td>32.94</td>
<td>36.17</td>
</tr>
<tr>
<td>Low 1</td>
<td>3.09</td>
<td>55.71</td>
<td>53.90</td>
</tr>
<tr>
<td>Low 2</td>
<td>2.94</td>
<td>40.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Low 3</td>
<td>2.86</td>
<td>50.47</td>
<td>52.56</td>
</tr>
<tr>
<td>Low 4</td>
<td>2.78</td>
<td>51.25</td>
<td>53.13</td>
</tr>
<tr>
<td>Low 5</td>
<td>2.78</td>
<td>52.72</td>
<td>55.76</td>
</tr>
<tr>
<td>Low 6</td>
<td>2.69</td>
<td>47.83</td>
<td>49.18</td>
</tr>
</tbody>
</table>

The secondary research questions were answered first to provide the mean differences between high and low data usage schools and the subsets as well as between respondents and the subsets. The analysis of the primary research questions and accompanying diagrams are presented in the following section.

Research Question 1: What correlation exists between the level of data usage by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011? High and Low Data Usage schools were correlated with their
corresponding Advanced and Proficient combined test score percentage. There was no significant relationship between the data usage of elementary school personnel and the Communication Arts MAP Advanced/Proficient score, $r = .26, \rho$ (one-tailed) > .01 (Fig. 1).

![High and Low Data Usage and MAP Communication Arts Scores](image)

**Figure 1. High and Low Data Usage and MAP Communication Arts Scores**

The researcher separated the High and Low Data Usage schools and conducted correlations. There was no significant relationship between the High Data Usage and the Communication Arts MAP Advanced/Proficient score, $r = .63, \rho > .01$ (Fig. 2). There was no significant relationship between Low Data Usage and the Communication Arts MAP Advanced/Proficient score, $r = .36, \rho > .01$ (Fig. 3).
Figure 2: High Data Usage and MAP Communication Arts Scores

Figure 3: Low Data Usage and MAP Comm. Arts Scores

Research Question 2: What correlation exists between the level of data usage by elementary school personnel regarding MAP student performance in Math in 2010-2011? There was no significant relationship between the data usage of elementary school personnel and the Math MAP Advanced/Proficient score, $r = .12$, $p$ (one-tailed) $> .01$ (Fig.4).
The researcher separated the High and Low Data Usage schools and ran correlations. There was no significant relationship between the High Data Usage and the Math MAP Advanced/Proficient score, $r = .28, p > .01$ (Fig. 5). There was no significant relationship between Low Data Usage and the Math MAP Advanced/Proficient score, $r = .39, p > .01$ (Fig. 6).

Figure 4: High and Low Data Usage and MAP Math Scores

Figure 5: High Data Usage and MAP Math Scores
Data usage and student performance

Figure 6: Low Data Usage and MAP Math Scores

Table 10

Correlations between Data Usage and MAP Scores in Communication Arts and Math

<table>
<thead>
<tr>
<th></th>
<th>Pearson Correlation</th>
<th>Sig.</th>
<th>Covariance</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>ρ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Usage and Math MAP Scores</td>
<td>.12</td>
<td>.35</td>
<td>.25</td>
<td>12</td>
</tr>
<tr>
<td>Data Usage and Comm. Art Scores</td>
<td>.26</td>
<td>.20</td>
<td>.25</td>
<td>12</td>
</tr>
</tbody>
</table>

Summary

Chapter 4 presented the results obtained from the Data Usage survey responses that were returned by the participants. In order to complete the analysis of the data, survey questions were groups for analysis in three ways. The first way was the selection
of high and low data usage schools. The second way was by subsets created from the survey questions and the secondary research questions. The third way analysis was completed was through the two primary research questions that were answered by the data usage mean and MAP Communication Arts and Math scores for 2010-2011. Various tables displayed the statistical results of how the schools were selected, the results of the four subsets, including the secondary research questions, and the answers to the two primary research questions.

Chapter 5 will present a discussion regarding the limitations of the study, the implications of the findings, and the inferences that may be drawn. The implications will be related to the literature, and include suggestions for further studies. The chapter will conclude with a summary of the study.
Chapter 5

FINDINGS, CONCLUSIONS, AND IMPLICATIONS

Introduction

Chapter 5 will include a summary of the study, the limitations, the findings which include interpretation of the data and the conclusions. Also included are the implications from the study as they relate to the literature and suggestions for future research. The chapter will conclude with a summary and findings of the study.

Summary of the Study

The purpose of the study was to examine the level of data usage (high and low) of the public elementary schools in Southeast Missouri (16 counties) and the correlation with student MAP performance in Communication Arts and Math. Data usage included teachers and principals engaging in data analysis of standardized tests, benchmarks, common assessments, professional reflection, professional collaboration, and job-embedded professional development. The levels of data usage were determined through the survey results. The rationale is that public elementary schools, which have participated in high level data usage in the sample would demonstrate high student performance on the MAP test. The study observed whether or not this is true in the schools selected based on survey results.
The following research questions were developed and adapted from Good’s (2006) study of the Data Collaborative Model (DCM) in the Houston Independent School District (ISD) of Texas. These questions will be used to guide the study.

1. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011?

2. What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math in 2010-2011?

In order to determine any relationship between state data and its impact on instruction, elementary school teachers and principals were surveyed regarding their data usage. MAP Communication Arts and Math performance scores in 2010-2011 were examined to determine if a correlation exists between high and low data usage elementary schools in Southeast Missouri (16 counties) and their corresponding MAP student performance scores. The problem occurring is schools may not be maximizing their utilization of the data they have available to improve student performance.

Many states across the nation have implemented entire data driven decision-making program models. Two such models are the Data Collaborative Model (DCM) used within Texas Public schools and data analysis initiatives in Illinois Public schools. Both models have shown a correlation between improvement in some areas of achievement and the district use of data driven decision-making programs (Good, 2006, Easton & Luppescu, 2004). The survey questions (see Appendix A) were developed and adapted from the DCM survey questionnaire. The survey results were used to determine
which schools are high or low in data usage. The researcher will select the high and low usage schools through mean results based on usage rates for survey items, three, five, six, and seven. The six highest scoring schools and the six lowest scoring schools will be included in the study.

This research study was a correlational study focusing on the relationship between the level of school data usage and the achievement on the MAP in Southeast Missouri elementary schools in 2010-2011. Approximately 65 school districts, including 104 elementary schools, within the sixteen Southeast Missouri counties were asked to participate in the survey, providing a possibility of over 1000 participants including principals and teachers. Out of these schools, 22 returned the surveys, with a total 396 respondents. Through analysis 12 schools were chosen with a total of 283 respondents.

**Findings**

High and low elementary school data usage of tools and data implementation were measured using a 20 question survey. Through the assessment of the data, districts were categorized into high utilization, low utilization groups or eliminated from the survey pool. Purposeful selection techniques were used to categorize the elementary schools based on the following criteria: (a) percentage of teachers and principals (respondents) participating in the survey and the (b) mean number of choices for survey items 3, 5, 6, and 7. More consideration was given to those schools with a higher number of participating staff rather than a high percentage of participating staff. The percentages of the staff participation rates can be found in Table 4. Out of these schools, 22 returned
the surveys, with a total 396 respondents. Through analysis 12 schools were chosen with a total of 283 respondents. The schools are labeled High 1 to High 6 and Low 1 to Low 6. The data usage levels were assessed through survey items 3, 5, 6, and 7 as reported by each individual school. The items measured the (a) participants’ understanding of data usage (b) the frequency of data usage, and (c) whether they felt data usage had an impact on their students’ achievement. The means for each school were computed for each question (see Table 5). The six high implementation schools and the six low implementation schools were selected by finding the most participant groups that answered the survey and then by reviewing the means for each of the four questions. The overall average for the high implementation groups for data usage was 3.71 and the low implementation group overall average for data usage was 2.86.

The survey items were grouped into four subsets of Understanding of Data Usage, Implementation, Collaborative/Reflective, and Professional Development (Good, 2006). A Cronbach alpha was used to determine the reliability of the items included in each subset. Not all items proved reliable, the items were revised, and new alphas computed. The revised alphas are found in Table 3 in Chapter 3.

The Understanding subset answered how the respondents understood data analysis, if results came in a manner that could be used, and had the necessary tools for data analysis. The Understanding subset had a Cronbach alpha of 0.686, approaching the desired range of 0.80 (Field, 2005), and both Corrected Item-Total Correlation measured 0.522, indicating that both were good components. All twelve schools exhibited a mean score between 4.24 and 4.94.
The Implementation subset answered how the respondents implemented the results from using data analysis strategies and tools. The Implementation subset had a Cronbach alpha of 0.675, indicating adequate reliability, and all the Corrected item-Total Correlations items measured 0.510. The Implementation mean scores were between 3.39 and 5.32. The low data usage schools all had a mean score under 4, while the high data usage schools had a mean score above 4.

The Collaborative/Reflective subset measured whether respondents felt like they were taking part in Collaborative and Reflective practice within their school. The Cronbach alpha measured 0.798, just below the desired range, and the Corrected Item Total Correlation items were between 0.620 and 0.681. The high and low data usage schools mean scores of Implementation approached or were above a 5.

The Professional Development subset asked the respondents whether they participated in Professional Development by looking at data at district level, grade level, vertical levels, and whether they felt adequately trained to utilize strategies developed. The Cronbach alpha measured 0.804, just above the desired range, and the Corrected Item Total Correlation items were between 0.563 and 0.726. The high and low data usage schools mean scores of Professional Development were between 4.99 and 3.90.

After the data were grouped in these four subsets, the two secondary research questions were answered. The results are as follows.

Secondary Research Question 1: What was the mean score for each subset by school and type of respondent? The mean score for each subset by school can be viewed in Table 6, Chapter 4. The mean scores between high and low data usage schools only showed a mean difference of .67. The mean score for each subset by respondent can
be viewed in Table 7. The Principal scored higher in all four subset categories over all other respondent groups. The difference between Principal means and Classroom Teacher was less than one in all subsets except Implementation (6.14 - 4.46 = 1.68).

Secondary Research Question 2: Did high and low usage schools score differently on the subsets? A univariate analysis of variance demonstrated a significant difference between high and low data usage schools (see Table 9). The High usage groups mean scores were higher in most categories over the Low usage groups (see Table 6). The campus means for the High usage groups in all categories were higher than the Low usage groups, and the overall average of the four subset groups also demonstrated that the High usage group was 4.88, while the Low usage group was 4.21.

Primary Research Question 1: What correlation exists between the level of data usage by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011? There was no significant relationship between the data usage of elementary school personnel and the Communication Arts MAP Advanced/Proficient score, r = .26, ρ (one-tailed) > .01.

Primary Research Question 2: What correlation exists between the level of data usage by elementary school personnel regarding MAP student performance in Math in 2010-2011? There was no significant relationship between the data usage of elementary school personnel and the Math MAP Advanced/Proficient score, r = .12, ρ (one-tailed) > .01.

Additionally, the researcher reported no significant correlation between high data usage and the corresponding test scores in Math or Comm. Arts, nor was there a significant correlation between low data usage and the corresponding test scores.
Conclusions

This section is divided into three areas. The first area discussed the conclusions of data usage by schools in Southeast Missouri that participated in the study. The second area evaluates the four subsets and the secondary research questions, and the third area presents the conclusions of the two primary research questions.

The schools represented in the study are from differing demographic areas within the 16 counties of Southeast Missouri. The twelve schools chosen to participate had the highest return rate or the greatest number of returns of the surveys. The researcher concluded the schools that returned the surveys were interested in the results due to the number of requests, over 25, for receiving copies of the completed study.

The data usage among the schools was determined through the overall mean of survey items three, five, six, and seven. The schools were ranked according to this mean, and the top six were designated as high in data usage, and the bottom six were designated as low. The high data usage group had a mean average of 3.71, and the low group had a mean average of 2.86 on a 1-6 Likert Scale. The researcher concluded that none of the school districts chosen were exceptionally high in their data usage as reported through the survey. Therefore the researcher concluded that four subsets of data usage benefited the study to check for data usage understanding.

The survey data was grouped into four subsets. The four subsets included Understanding of Data Usage, Implementation, Collaborative/Reflective, and Professional Development. The researcher used a Cronbach alpha to determine reliability of the items. Not all items proved reliable and were revised. The researcher concluded a possibility of disparity among the schools regarding the definition of data analysis and
data usage due to the missing values within the survey. A universal language regarding data analysis is still in its infancy. Although Stiggins (2005) and Gulek (2003) advocate teachers using data to change instruction to improve student achievement, to prepare students for tests in ways that do not detract from real learning, and become assessment literate, the understanding of true data analysis varies widely among educators. Through the survey the researcher concluded the Southeast Missouri Schools included in the study also have differing understanding of data analysis.

After reliability statistics were run, a comparison of the High Data usage schools and Low Data Usage schools showed an overall mean difference of .67. In all the subsets the High Data Usage means were consistently higher than the Low Usage Schools (see Table 6, Chapter 4). Therefore a Univariate Analysis of Variance was calculated, which demonstrated a significant difference (Table 8, Chapter 5) between the High and Low Data Usage schools. The researcher concluded that data usage between schools suggests very similar attitudes, interpretations, and implementation, with the High Usage Group overall mean at 4.88 and the Low Data Usage groups at 4.21. On the Likert scale this was 4 = Agree Somewhat, which suggests schools are not completely sure they utilize data as much as current research advocates. Although the variance was significant to show a difference between High and Low Data Usage groups, the researcher concluded that the Southeast Missouri Schools surveyed scored midrange in their data usage to inform instruction to increase student performance.

Although the High Data usage groups scored highest in Implementation and Collaborative/Reflective Practices, while the Low Data usage groups scored highest in Understanding and Collaborative/Reflective Practice, the researcher concluded High
Data Usage schools are presently participating in the Implementation of Data Analysis strategies, where Low Data Usage schools have just begun to Implement Data Analysis Strategies. Exemplary schools and districts use data to identify strengths and weaknesses in student, teacher, and school performance. They track and share results of various interventions in order to pinpoint successful strategies for achieving goals. The indicators of a school using DDDM include school leaders enabling the staff to collect information pertaining to school, district, and state goals and standards. The principals and faculty analyze and interpret the data to inform the decision-making, and educators at every level are trained to use and analyze data (NCREL, 2007). The researcher concluded none of the High Data Usage schools scored high enough on the survey results whether overall or in the subsets to indicate they are actually a practicing DDDM school. Several Turn-Around schools (UVA-STSP) are beginning to surface in Southeast Missouri through the Darden/Curry Partnership for Leaders in Education. These schools were included in the initial contact, although none of them responded to this study.

The program UVA-STSP requires new instructional methods, teacher practices, curriculum and assessments involving knowledge creation which requires structural changes within instructional team design (Bruffee, 1999; Carr & Harris, 2001; Nonaka & Takeuchi, 1995). New teaming requires the allotment of time for social discourse to facilitate creation, application, and reflection among the administrators, teachers, and students (Bolman & Deal, 2003; Lencioni, 2002). Although this additional restructuring enables educators’ time to enact action plans derived from data analysis techniques of standardized test scores and assessments, the researcher concluded from the survey data, the school districts in this study are not fully vested in such programs. The researcher
observed several other conclusions from analysis regarding differences in respondents within the High and Low surveyed schools according to the four subsets.

The Implement subset had the lowest means in four out of the seven respondent types. Only the Principal, Counselors, and Classroom teachers had higher means. The researcher concluded some school personnel are implementing data analysis processes and tools with a lack of understanding. The Type of respondent ratings showed the Principal had a higher mean average in all four subsets over classroom teachers with the lowest difference in Implementation (Table 9, Chapter 4). Additionally the Fine Arts Respondents scored the lowest in all subsets, except for Counselors in the Collaborative/Reflective subset. The researcher concluded Principals indicated their schools participated in data usage to a greater extent than any other type of respondent, although the closest were classroom teachers. Principals were either not consistent with their data usage leadership or they have exaggerated their understanding of data usage for survey purposes.

The researcher was also interested in conclusions about best practices within the surveyed schools, since this is also a component (DDDM) being implemented within school districts to improve student performance. Data-driven decision-making (DDDM) has evolved from best practices in industry and manufacturing and is now being employed in school districts during instructional planning. The intent of DDDM is to systematically collect, analyze, and interpret meaningful data to be used during school improvement processes (Marsh, Pane, & Hamilton, 2006; Rudy & Conrad, 2004). The process requires collaboration, reflection, and reflective collaboration, which takes time, continual exposure to data, discussion, and a clear vision focused on student learning.
Data usage and student performance

(NCREL, 2004). The researcher also concluded that the Fine Arts, Counselors, and Other respondents may not be receiving the best practice information therefore accounting for such low subset scores.

Research Questions: Primary Research Question 1: What correlation exists between the level or data usage (high and low) by elementary school personnel regarding MAP student performance in Communication Arts in 2010-2011? There was no significant relationship between the data usage of elementary school personnel and the Communication Arts MAP score, \( r = .26, p \) (one-tailed) > .05. In Chapter 4, Figures 1-6 demonstrate visually that there is no linear correlation between Data Usage and increased Map Scores in Communication Arts. The researcher concluded Data Usage is not being utilized fully in school districts to affect increased test scores.

Primary Research Question 2: What correlation exists between the level of data usage (high and low) by elementary school personnel regarding MAP student performance in Math in 2010-2011? There was no significant relationship between the data usage of elementary school personnel and the Math MAP Advanced/Proficient score, \( r = .12, p \) (one-tailed) > .05. In Chapter 4, Figures 1-6 demonstrate visually that there is no linear correlation between Data Usage and increased Map Scores in Math. The researcher concluded Data Usage is not being utilized fully in school districts to affect increased test scores.

The researcher concluded from the two above research questions that since a correlation was not demonstrated between higher data usage and higher test scores no correlation exists since the group of students tested and taught each year changes or the respondents were not consistent with their answers to the survey. The respondents may
have understated or exaggerated their data usage for survey purposes. Another conclusion the researcher has reached is additional statistical analyses should be conducted, as well as greater data collection, including calculating gains over several years of data.

Implications

Researchers indicate the nationwide movement of school districts attempting to participate in meaningful data analysis, since school districts are under constant scrutiny to improve test scores, resulting in educators and administrators looking for programs and strategies to implement and address test scores. A particular focus becoming more prominent is the practice of data-driven decision-making (Armstrong & Anthes, 2001; Bernhardt, 2000; Hoff, 2006; Horn, 2003). The decisions, made as a result of data analysis, drive the curriculum, assessments, instructional methods and teacher practice. Elementary School Districts in Southeast Missouri are striving for increased student performance on the MAP test through meaningful Data Analysis. The survey results indicated the mean level of most educators "agreed somewhat" regarding their districts level of data use. School districts in Southeast Missouri would benefit from a focus on the practice of data-driven decision-making (Armstrong & Anthes, 2001; Bernhardt, 2000; Hoff, 2006; Horn, 2003). The decisions, made as a result of data analysis, drive the curriculum, assessments, instructional methods and teacher practice.

A current practice in the United States is the Virginia School Turnaround program, which has rapidly been gaining ground with school districts across the country (UVA-STSP, 2010). The Darden/Curry Partnership for Leaders in Education continues to
work within six cohorts, servicing over 121 schools in nine states since 2004 (Darden-Curry- PLE/UVA, 2010). The partnership includes school districts in Missouri, and many struggling schools would benefit from participating in this program.

The program calls for schools to track attendance, dropouts, and test scores on a daily basis and make the data available to everyone. A program such as the UVA-STSP requires new instructional methods, teacher practices, curriculum and assessments involving knowledge creation which requires structural changes within instructional team design (Bruffee, 1999; Carr & Harris, 2001; Nonaka & Takeuchi, 1995). New teaming requires the allotment of time for social discourse to facilitate creation, application, and reflection among the administrators, teachers, and students (Bolman & Deal, 2003; Lencioni, 2002). Additional restructuring enables educators’ time to enact action plans derived from data analysis techniques of standardized test scores and assessments. School districts in Missouri would have to challenge their belief systems and include the community to develop a sound vision for educational change, and dedicate the required time for a program to develop and show results.

**Future Research**

As the need for increased test scores continues through the NCLB initiatives, school districts will continue to find the best practices necessary to boost teacher effectiveness and student performance. Continued research is needed in Southeast Missouri to identify the forms of data analysis that are informing best practices in high performing schools. Individual case studies including Action Research and Qualitative studies would begin to identify the elements needed for successful data analysis' impact.
on instructional strategies. Although analysis of data can reveal the skills students are missing, additional research is needed to discover if the barriers discovered are actually being addressed through appropriate interventions (Bernhardt, 2003; Carr, 2001).

Keeping up with the research includes educators learning how to retrieve reliable data, since this data has the potential to inform instructional practice. As educators change instructional practice potential strategies are developed to enable the closing of achievement gaps between racial, ethnic, and economic groups (Hoff, 2006). Boudett et al (2005) caution educators that in order to use data successfully careful planning and professional development is necessary.

Another avenue of further research is determining the combination of data sources schools use to inform best practices. School districts often use their own local assessment data because of the availability, while other schools rely solely on Standardized Test scores, and some schools rely on programs such as Reading First, Math First, and Acuity. According to researchers, keeping up with the research includes educators learning how to retrieve reliable data, since this data has the potential to inform instructional practice. Scores from high stakes testing, coupled with data from district assessments, classroom assessments, observations, and socio-educational factors such as attendance, tardiness, and GPA may prove to be a benefit of decision-making for changes in instructional strategies (Gulek, 2003).

Another area of study that would be valuable to the research base, is evaluating the effectiveness of Professional Development and Collaborative/Reflective practices. Often times educators are reluctant to try new strategies, go through the motions during professional development and collaborative/reflective time, and still return to the
classroom using the same instructional strategies. A study to find where the breakdown occurs when educators learn new strategies and fail to implement them is needed to guide districts to continuously strive for excellence. Exemplary schools and districts use data to identify strengths and weaknesses in student, teacher, and school performance. They track and share results of various interventions in order to pinpoint successful strategies for achieving goals. The indicators of a school using DDDM include school leaders enabling the staff to collect information pertaining to school, district, and state goals and standards. The principals and faculty analyze and interpret the data to inform the decision-making, and educators at every level are trained to use and analyze data (NCREL, 2007). Additional studies are needed to find out where schools fail in implementing the programs they begin, where they fall short in using gathered data and as Bernhardt (2003) warns against, entering “analysis paralysis” – gathering data and doing nothing to analyze it.

Summary

The Missouri Department of Elementary and Secondary Education (DESE) responded to the need for educational reform by passing the Outstanding Schools Act of 1993 (DESE, 2009). By 1996 Missouri educators were implementing the Show Me Standards, Frameworks and Annotations for Curriculum Development and by 1998 were required to administer the first Missouri Assessment Program (MAP) test in Math. By 2000, the MAP test was also being administered in Communication Arts, Science and Social Studies (DESE, 2009). Missouri had entered the testing realm and was addressing the NCLB requirements. Reports were generated and disseminated to the school district
Data usage and student performance

administration, and results were shared with the faculties across the state, while the media also reported school performance to the general public. Through NCLB, school districts were required to show improvements each year in testing performance.

The purpose of the study is to examine the level of data usage (high and low) of the public elementary schools in Southeast Missouri (16 counties) and the correlation with student MAP performance in Communication Arts and Math. Data usage includes teachers and principals engaging in data analysis of standardized tests, benchmarks, common assessments, professional reflection, professional collaboration, and job-embedded professional development. The levels of data usage were determined through the survey results. The rationale is that public elementary schools, which have participated in high level data usage in the sample would have a result of increased student performance on the MAP test. The study observed whether or not this is true in the schools selected based on survey results.

There were several limitations to the study. The first limitation involved the school administrators, namely principals who received the mailed request to participate in the survey and did not pass the information on to their staff. The second limitation was although the surveys were distributed by the principals, the staff members did not always take the time to respond. A final limitation was the timeline the researcher was held to depending on the leadership of the district and when approval was granted to send out the survey to the principals and whether the survey would be classified as optional by the district leadership.

Additional information explaining this study includes the assumptions made by the researcher. The first assumption was information reported by the participants through
the survey was honest and accurate. Second, the test data received from the MAP Data reports was accurate. The final assumption is that most principals and teachers assume they are affecting positive educational change, even if they are unsure how to go about implementing this change (Fullan, 2001).

Approximately 65 school districts, including 104 elementary schools, within the sixteen Southeast Missouri counties will be asked to participate in the survey, providing a possibility of over 1000 participants including principals and teachers. Out of these schools, 22 returned the surveys, with a total 396 respondents. Through analysis 12 schools were chosen with a total of 283 respondents.

High and low elementary school data usage of tools and data implementation were measured using a 20 question survey. Through the assessment of the data, districts were categorized into high utilization, low utilization groups or eliminated from the survey pool. The percentages of the staff participation rates can be found in Table 4. The schools are labeled High 1 to High 6 and Low 1 to Low 6.

The data usage levels were assessed through survey items 3, 5, 6, and 7 as reported by each individual school. The items measured the (a) participants’ understanding of data usage (b) the frequency of data usage, and (c) whether they felt data usage had an impact on their students’ achievement. The overall average for the high implementation groups for data usage was 3.71 and the low implementation group overall average for data usage was 2.86. All four subsets had a Cronbach alpha's approaching or meeting the desired range of 0.80 indicating they were good components. The mean score for each subset by school can be viewed in Table 6, Chapter 4.
The mean scores between high and low data usage schools only showed a mean difference of .67. The mean score for each subset by respondent can be viewed in Table 7. The Principal scored higher in all four subset categories over all other respondent groups. The difference between Principal means and Classroom Teacher was less than one in all subsets except Implementation (6.14 - 4.46 = 1.68).

A univariate analysis of variance demonstrated a significant difference between high and low data usage schools (see Table 9). The High usage groups mean scores were higher in most categories over the Low usage groups (see Table 6). The campus means for the High usage groups in all categories were higher than the Low usage groups, and the overall average of the four subset groups also demonstrated that the High usage group was 4.88, while the Low usage group was 4.21.

The findings for the primary research questions demonstrated there was no significant relationship between the data usage of elementary school personnel and the Communication Arts MAP nor was there a significant relationship between the data usage of elementary school personnel and the Math MAP Advanced/Proficient score. Further research is needed to isolate the components of best practices of high performing schools, as well as determining the variance between groups of tested students each year, since assessment is an important part of education in the 21st century.

Since assessment is paramount in education today, educational reform movements and standardized testing have undergone many changes. Testing progressed from minimal competency to norm-referenced tests and finally to criterion-referenced tests. The standards movement ushered in NCLB requiring all states to implement a statewide testing program and to show student performance growth every year until 2014 when 100
percent of all students should be performing at or beyond grade level. States are required
to report performance of individuals, groups of individuals, and schools. As a result, data
analysis of individual, group, school to school, and many other comparisons have become
a focus for school improvement efforts. Additional research is needed to find best
practices for school districts, as well as finding where the breakdown is between learning
and implementation.
References


Horn, C. (2003). *Theory into practice: High-stakes testing and students: stopping or perpetuating a cycle of failure?* Ohio State University.


Madaus, G., & Clarke, M. (2001). *The impact of high-stakes testing on minority students*. In M. Kornhaber & G. Orfield (Eds.), Raising standards or raising barriers; Inequality and high stakes testing in public education (pp. 85-106). New York: Century Foundation.


Retrieved on June 26, 2008 from

http://www.ncsl.orff/programs/educ/NCLBHistory.htm


Appendix A

Data Analysis Survey
Data usage and student performance

University of Missouri: Educational Leadership and Policy Analysis (ELPA)

Data Driven Decision-Making Survey
Southeast Missouri Public School Districts
Melissa A. Cooper, Doctoral Candidate

October 2011
**Data Analysis Survey**

The following survey is designed to gather data on current practices regarding data analysis. The questions will gather information regarding the use of standardized testing and local assessment practices in Southeast Missouri Elementary Public Schools. Please identify your school by the number provided in the attached list.

**Directions:** Choose only one answer unless asked to mark all that apply.

1. Organization Number_______________________________

2. I am a:
   - □ Principal
   - □ Assistant Principal
   - □ ESL, Special Education, or Speech teacher
   - □ Counselor
   - □ Instructional Specialist or Coach
   - □ Classroom teacher
   - □ Fine Arts Teacher
   - □ Other

3. Select all that apply:
   - Data analysis has helped me understand how to impact instruction through:
     - □ Analyzing MAP Data
     - □ Analyzing benchmark and/or common assessment data
     - □ Meeting regularly with colleagues to professionally dialogue
     - □ Sharing data results with colleagues
     - □ Sharing ideas and resources with colleagues
     - □ Reviewing student work for rigor and relevancy
     - □ Reviewing teacher made tests for rigor and relevancy
     - □ Creating and action plan for my students based on the data
     - □ Taking part in job-embedded professional development opportunities such as sharing strategies, observing other teachers, and book/article studies
     - □ Using other Data Analysis tools such as Vertical Alignment and Classroom Common or Benchmark Assessments.

4. I understand the need for common and benchmark assessments.
   - Strongly Disagree 1  2  3  4  5  6 Strongly Agree
TOOLS

5. Select all that apply.
   How often do you analyze and/or access student data?
   □ Weekly
   □ Monthly
   □ At the beginning of the school year only
   □ At the beginning of the school year and after each benchmark/common assessment
   □ After each Benchmark/common assessment
   □ I do not analyze and/or access student data

6. Select all that apply.
   I understand how to use the following data analysis tools to inform instruction.
   □ MAP Data Report
   □ Benchmark assessment data
   □ Common assessment data
   □ Vertical Alignment

7. Select all that apply.
   I actually use the following data analysis tools to inform instruction.
   □ MAP Data Report
   □ Benchmark assessment data
   □ Common assessment data
   □ Vertical Alignment

8. I use data analysis results to help me plan for my professional development.
   Strongly Disagree 1       2       3       4       5       6 Strongly Agree

9. I use one or more data analysis tools to guide my decisions about what student interventions to implement.
   Strongly Disagree 1       2       3       4       5       6 Strongly Agree

10. Data analysis results are available in a timely manner to modify instruction.
    Strongly Disagree 1       2       3       4       5       6 Strongly Agree

11. I have access to data analysis, benchmark, and common assessment results.
    Strongly Disagree 1       2       3       4       5       6 Strongly Agree
IMPLEMENTATION

12. I meet regularly with my peers to collaborate on student performance results.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

13. The implementation of Data analysis is supported in my school.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

14. I regularly implement strategies I learn at grade level/vertical team meetings.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

15. The strategies I learn at grade level/vertical team meetings are effective.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

16. I feel adequately trained to implement strategies through data analysis.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

17. My school district uses early release days effectively for data analysis.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

18. I feel that I need more data analysis training.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

19. I know whom to contact if I have questions about data analysis and implementation.
   Strongly Disagree 1 2 3 4 5 6 Strongly Agree

20. Answer this question only if you utilize data analysis.
    I have seen an improvement in student performance since we began data analysis.
    Strongly Disagree 1 2 3 4 5 6 Strongly Agree
Appendix B

Letter to Superintendent of School District:

Permission to Survey
Dear Superintendent,

The elementary school(s) in your district are invited to participate in an educational research study conducted by Melissa A. Cooper, doctoral student from the University of Missouri, Educational Leadership and Policy Analysis. The purpose is to gather data on current practices regarding elementary school usage of student data in Southeast Missouri as it impacts student performance in Missouri Assessment Performance (MAP) Communication Arts and Math. Your elementary schools were selected as possible participants in this study because you have been identified within the 16 counties of Southeast Missouri schools used in the study.

If you decide to allow your elementary schools to participate, a survey of 20 questions will be mailed to each principal and teacher for them to answer. The survey should take no longer than 15-20 minutes. Postage-paid and self-addressed envelopes will be included for your teacher’s convenience. Only I will have access to the survey, and I will personally enter all data on a non-networked computer station. Any information obtained in connection with this study and that can be identified with the schools will remain confidential and will be disclosed only with your permission or as required by law.

There are no anticipated risks, compensation, or other direct benefits to the participants in this survey. They are free to withdraw their consent to participate and may discontinue their participation in the survey at any time without consequence.

If you have any questions about this research protocol, please contact me at 573-238-2220 or my faculty supervisor, Dr. Ruth Ann Roberts, at 573-651-2427. Questions or concerns about rights as research participants may be directed to the University of Missouri IRB, Michelle Reznicek, Compliance Officer, 483 McReynolds, Columbia, MO 65211, 573-882-9585.

Please sign and return the attached consent form giving permission for the researcher to send the survey materials to your elementary school(s) within seven days of receipt or an e-mail of permission can be sent (see below). A second copy of the consent form is provided for your records. Your signature indicates that you have read and understand the information provided above, that you willingly agree to allow your elementary school(s) to participate, that they may withdraw consent at any time and discontinue participation without penalty, that you have received a copy of this form, and that you are not waiving any legal claims. I would also appreciate a call or e-mail listed below so I can begin the mailings in a timely manner.
Thank you for your time and I would greatly appreciate your elementary school(s) participation.
Sincerely,

Melissa A. Cooper
Woodland R-IV K-6 Music Specialist
Doctoral Candidate: University of Missouri - ELPA
mcooper@woodland.k12.mo.us
573-238-2220(home) 238-2822 (school) 208-0081 (cell)
Consent to Participate in Survey: Signature Page

I have read the procedure described regarding the survey research for the Southeast Missouri Elementary Public schools Missouri Assessment Program data analysis and impact on student achievement. I voluntarily agree to participate in the survey and have received a copy of this description.

___________________________________                      _______________________
Signature of Participant                      Date

If you would like a copy of the final survey data manuscripts submitted to the instructor please provide your name and school address.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Appendix C

Letter to Principal of School:

Permission to Survey
Consent to Participate in Survey

Dear Principal,  

September 20, 2011

The elementary school(s) in your district are invited to participate in an educational research study conducted by Melissa A. Cooper, doctoral student from the University of Missouri, Educational Leadership and Policy Analysis. The purpose is to gather data on current practices regarding elementary school usage of student data in Southeast Missouri as it impacts student performance in Missouri Assessment Performance (MAP) Communication Arts and Math. Your elementary schools were selected as possible participants in this study because you have been identified within the 16 counties of Southeast Missouri schools used in the study.

Your superintendent has given me written permission to include your school. If you decide to allow your elementary schools to participate, a survey of 20 questions will be mailed to each principal and teacher for them to answer. The survey should take no longer than 15-20 minutes. Postage-paid and self-addressed envelopes will be included for your teacher’s convenience. Only I will have access to the survey, and I will personally enter all data on a non-networked computer station. Any information obtained in connection with this study and that can be identified with the schools will remain confidential and will be disclosed only with your permission or as required by law.

There are no anticipated risks, compensation, or other direct benefits to the participants in this survey. They are free to withdraw their consent to participate and may discontinue their participation in the survey at any time without consequence.

If you have any questions about this research protocol, please contact me at 573-238-2220 or my faculty supervisor, Dr. Ruth Ann Roberts, at 573-651-2427. Questions or concerns about rights as research participants may be directed to the University of Missouri IRB, Michelle Reznicek, Compliance Officer, 483 McReynolds, Columbia, MO 65211, 573-882-9585.

Please sign and return the attached consent form giving permission for the researcher to send the survey materials to your elementary school(s) within seven days. A second copy of the consent form is provided for your records. Your signature indicates that you have read and understand the information provided above, that you willingly agree to allow your elementary school(s) to participate, that they may withdraw consent at any time and discontinue participation without penalty, that you have received a copy of this form, and that you are not waiving any legal claims. I would also appreciate a call or e-mail listed below so I can begin the mailings in a timely manner.
Thank you for your time and I would greatly appreciate your elementary school(s) participation.
Sincerely,

Melissa A. Cooper
Woodland R-IV K-6 Music Specialist
Doctoral Candidate: University of Missouri - ELPA
mcooper@woodland.k12.mo.us
573-238-2220 (home) 238-2822 (school) 208-0081 (cell)
Consent to Participate in Survey: Signature Page

I have read the procedure described regarding the survey research for the Southeast Missouri Elementary Public schools Missouri Assessment Program data analysis and impact on student achievement. I voluntarily agree to participate in the survey and have received a copy of this description.

__________________________________                      __________________________
Signature of Participant                      Date

If you would like a copy of the final survey data manuscripts submitted to the instructor please provide your name and school address.

_________________________________________
_________________________________________
_________________________________________
__________________________  _____________
Appendix D

Letter to Potential Participant
Consent to Participate in Survey

Dear Educator,

You are invited to participate in an educational research study conducted by Melissa A. Cooper, doctoral student from the University of Missouri, Educational Leadership and Policy Analysis. The purpose is to gather data on current practices regarding elementary school usage of student data in Southeast Missouri as it impacts student performance in Missouri Assessment Performance (MAP) Communication Arts and Math. You were selected as a possible participant in this study because you have been identified as a highly successful educator in a Southeast Missouri elementary school.

The Superintendent and Principal of your school have given permission for me to include you in this study. If you decide to participate, a survey of 20 questions has been included for you to answer. The survey should take no longer than 15-20 minutes. A postage-paid and self-addressed envelope is included for your convenience. Only I will have access to the survey, which I will personally enter data on a non-networked computer station. Any information obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

There are no anticipated risks, compensation, or other direct benefits to you as a participant in this survey. You are free to withdraw your consent to participate and may discontinue your participation in the survey at any time without consequence.

If you have any questions about this research protocol, please contact me at 573-238-2220 or my faculty supervisor, Dr. Ruth Ann Roberts, at 573-651-2427. Questions of concerns about your rights as a research participant may be directed to the University of Missouri IRB, Michelle Reznicek, Compliance Officer, 483 McReynolds, Columbia, MO 65211, 573-882-9585.

Please sign and return the attached consent form and the completed survey in the enclosed envelope within two weeks of receipt. A second copy of the consent form is provided for your records. Your signature indicates that you have read and understand the information provided above, that you willingly agree to participate, that you may withdraw your consent at any time and discontinue participation without penalty, that you will receive a copy of this form, and that you are not waiving any legal claims. Thank you for your time and I would greatly appreciate your participation.

Sincerely,

Melissa A. Cooper
Woodland R-IV K-6 Music Specialist
Doctoral Candidate: University of Missouri
Educational Leadership and Policy Analysis (ELPA)
Consent to Participate in Survey: Signature Page

I have read the procedure described regarding the survey research for the Southeast Missouri Elementary Public schools Missouri Assessment Program data analysis and impact on student achievement. I voluntarily agree to participate in the survey and have received a copy of this description.

___________________________________                      _______________________
Signature of Participant                      Date

If you would like a copy of the final survey data manuscripts submitted to the instructor please provide your name and school address.

_________________________________________
_________________________________________
_________________________________________
_________________________________________
Appendix E

Sample E-mail Reminder Communications
Dear Principal,

October 10, 2011

The elementary school(s) in your district are invited to participate in an educational research study conducted by Melissa A. Cooper, doctoral student from the University of Missouri, Educational Leadership and Policy Analysis.

Your superintendent has given me written permission to include your school. Previously you indicated your schools would like to participate. The surveys have been mailed and should take no longer than 15-20 minutes for faculty to respond. Postage-paid and self-addressed envelopes will be included for your teacher’s convenience or I can arrange to pick them up from your school. The window for participation will be closing on October 14, 2011.

If you have already completed and mailed them or made arrangements for pick up please disregard this e-mail. Thank you for your time and I greatly appreciate your elementary school(s) participation.

Sincerely,

Melissa A. Cooper
Woodland R-IV K-6 Music Specialist
Doctoral Candidate: University of Missouri - ELPA
mcooper@woodland.k12.mo.us
macnr9@mail.missouri.edu
573-238-2220(home) 238-2822 (school) 208-0081 (cell)
Dear Principal,  

October 14, 2011  

The elementary school(s) in your district are invited to participate in an educational research study conducted by Melissa A. Cooper, doctoral student from the University of Missouri, Educational Leadership and Policy Analysis.  

Your superintendent has given me written permission to include your school. Previously you indicated your schools would like to participate. The surveys have been mailed and should take no longer than 15-20 minutes for faculty to respond. Postage-paid and self-addressed envelopes will be included for your teacher’s convenience or I can arrange to pick them up from your school. The window for participation will be closed on October 14, 2011.  

A two-day extension until October 16 has been provided. This is a reminder to please complete the surveys and arrange for pick-up or mail them. If you have already completed and mailed them or made arrangements for pick up please disregard this email. Thank you for your time and I greatly appreciate your elementary school(s) participation.  

Sincerely,  

Melissa A. Cooper  
Woodland R-IV K-6 Music Specialist  
Doctoral Candidate: University of Missouri - ELPA  

mcooper@woodland.k12.mo.us  
amcnr9@mail.missouri.edu  
573-238-2220(home) 238-2822 (school) 208-0081 (cell)
Dear Principal,

The elementary school(s) in your district were invited to participate in an educational research study conducted by Melissa A. Cooper, doctoral student from the University of Missouri, Educational Leadership and Policy Analysis.

Previously you indicated your schools would like to participate. The surveys were mailed, although they were not received and the window for participation closed on October 18, 2011, following a two-day extension.

Thank you for your time.

Sincerely,

Melissa A. Cooper
Woodland R-IV K-6 Music Specialist
Doctoral Candidate: University of Missouri - ELPA
mcooper@woodland.k12.mo.us
macnr9@mail.missouri.edu
573-238-2220(home) 238-2822 (school) 208-0081 (cell)
VITA

Melissa A. Cooper was born in St. Louis, Missouri on August 12, 1967, the daughter of Sidney and Wanda Porter. After graduating from Reeds Spring High School in Reeds Spring, Missouri, she enrolled in Phillips University, Enid, Oklahoma. After 4 years she transferred to Northwest Oklahoma State University and completed her Bachelors of Music Education in 1990. In August of 1991, she married Kevin S. Cooper of Marble Hill, Missouri. The same year she began teaching K-6 General Music at McKinley Elementary in Enid, Oklahoma. After three years, and a new military assignment for her husband, she began teaching K-6 Elementary Music at McLoud Elementary, in McLoud, Oklahoma, where she taught for five years. During 1995-2000, her two children Kathlyn Amanda and Keegan Madison were born. Upon her husband's retirement, they moved to Marble Hill, Missouri and she taught K-12 General Music, Band, and Choir at Delta R-V for three years. While at Delta she completed her Masters Degree in Elementary Administration at Southeast Missouri State University. She is presently teaching K-6 Music at Woodland Elementary in Marble Hill, MO, beginning her 10th year in the district. While at Woodland, she was awarded Wal-Mart Teacher of the Year, wrote and received two grants from Target and Missouri Arts Council for her school's participation in a Russian Artist in residence, as well as being published in Teaching Music for a trip taken to the Memphis Opera house. Also, in 2006 she was accepted into the Cohort 5 Educational Leadership and Policy Analysis Doctoral Program at University of Missouri - Columbia and Southeast Missouri State University. In December of 2012, she will complete the program and be awarded her Ed. D.

Permanent Address:  P.O. Box 20
Marble Hill, MO 63764