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The impact of principal salary, district wealth, student socioeconomic status and school size on the achievement level of students in selected Mississippi public schools

Michael Henry McNeece

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THE IMPACT OF PRINCIPAL SALARY, DISTRICT WEALTH, STUDENT

SOCIOECONOMIC STATUS AND SCHOOL SIZE ON THE

ACHIEVEMENT LEVEL OF STUDENTS IN SELECTED

MISSISSIPPI PUBLIC SCHOOLS

By

Michael Henry McNeece

A Dissertation
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Mississippi State University
in Partial Fulfillment of the Requirements
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Department of Instructional Systems and Workforce Development

Mississippi State, Mississippi

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Title of Study: THE IMPACT OF PRINCIPAL SALARY, DISTRICT WEALTH, STUDENT SOCIOECONOMIC STATUS AND SCHOOL SIZE ON THE ACHIEVEMENT LEVEL OF STUDENTS IN SELECTED MISSISSIPPI PUBLIC SCHOOLS

Pages in Study: 109

Candidate for Degree of Doctor of Philosophy

The purpose of this study was to examine the impact of four variables, principal salary, district wealth, student socioeconomic status, and school size, on the achievement level of public school students in Mississippi. The first, principal salary, was found not to have been studied as a variable that may correlate with student achievement.

One may have hypothesized that more effective principals would correlate with increased student achievement test scores and that those principals would have been rewarded with higher salaries. The results of this study did not support that idea. The data indicated that there was no meaningful correlation between highly paid principals and higher student achievement.

There was no significant correlation between district wealth and student achievement. This may indicate that Mississippi school funding (MAEP) and federal funding have been effective in aiding low-wealth schools as was intended by lawmakers.

There was a significant low positive correlation between school size and student achievement in non-urban elementary schools and a significant very low positive correlation with student achievement in high schools. That places this study in the minority camp of recent research in concluding that larger schools did not correlate with lower achievement.

The most significant, meaningful, and important finding of this study was the dramatic impact that student poverty has on student achievement in Mississippi. In urban schools and rural schools, in elementary, middle, and high schools, poorer children scored poorly on their achievement tests. Correlations were significant moderate to high at all levels, with the highest at middle schools with a significant high negative correlation of -.636. The analysis indicates that a decrease in poverty will result in a dramatic increase in student achievement.

DEDICATION

I dedicate this to my wife, Lettie, without whose support and encouragement I would not have begun, continued, or completed this process. Special thanks also to my children and extended family members for their words of encouragement and support. Lastly, I trust that this will in some way challenge my grandchildren to become life-long-learners. I love them all.

ii

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

These are turbulent times for the American educational system. This is nothing new. Education has been experiencing turbulent times for decades. A dissertation published in Mississippi back in 1970 began "national concern over the quality of public education has never been greater than at present" (Arnold, 1970, p. 1). Since then education has been reformed repeatedly, and we can expect yet more reform in the future (Crowson, 2003). Since the closing years of the Twentieth Century, education has been engulfed in the turbulent reform of assessment and accountability with high-stakes testing. This reform movement began slowly a few decades ago as states increased both the funding and the centralization of their school systems. Legislative bodies and state agencies began seeking ways to hold their school districts more accountable for the anticipated results of these actions (Conley, 2003).

Just as paper and pencil testing has long been an important method in the evaluation of the student learning in the classroom, the public and their representatives turned to standardized academic testing as a primary tool for holding schools accountable. Academic testing has often been used as a general proxy for positive student outcomes, to determine whether students have learned

1

the prescribed curriculum, to determine how well they have learned it, and at what point in their education they had learned it (Conley, 2003). The pressure was on in Mississippi with testing that began in early elementary school and ended with high school exit exams (Johnson, 2003). Similar testing was mandated across the country by the No Child Left Behind Act of 2001, and educators dared not expect high-stakes testing to end soon (Flanigan, 2004).

Statement of the Problem

Accountability has been the driving force behind all the reforms of the past decades (Odden & Picus, 2000). Schools have always been held to some level of accountability and liability by their governing authority, usually local boards, and their states' Departments of Education. Mississippi schools reached a new level of accountability in September 2003 with the implementation of the *Mississippi Public School Accountability Standards* (Mississippi Department of Education [MDE], 2004). The strength of this system is that it emphasized criterion-referenced tests that yielded data on student performance of practical use to educators at every level (Johnson, 2003). What concerned many educators and other stakeholders was that non-testable, non-academic aspects of schooling might be de-emphasized or left out entirely (Fullan, 2001).

Under the Mississippi system, school boards, superintendents, principals, and teachers have all been held accountable for achievement and growth of

2

student test scores (Mississippi Department of Education, 2007b). Fullan (2001) disapproved of what he called "heavy-handed" accountability schemes, as he characterized systems like the one in Mississippi. Nevertheless, he did acknowledge that positive results could be achieved if incentives are included as part of a total accountability package that includes building capacity and implementing other educational reforms.

Many identified, and perhaps yet unidentified, variables have influenced students and test scores. In this study the researcher surveyed the literature on the influence of principal salary as one of the possible variables affecting student achievement. Other variables included in this study were district wealth, socioeconomic status of students, and size of the school. Student achievement was quantitatively measured by scores on the standardized achievement tests required by the state of Mississippi, the Mississippi Curriculum Test (MCT) and the Subject Area Tests (Subject Area Test Program [SATP]). These were criterion-referenced tests based on the State required curriculum for all public schools.

The Principal Variable

"Behind every successful school is a successful principal," according to Roland Barth of Harvard (1986, p. 156). The National Commission on Excellence in Education in its report, *Nation at Risk* (1984), contended that principals played a crucial role in developing support for improving schools. The National

3

Association of Elementary School Principals (NAESP) and the National Association of Secondary School Principals (NASSP) contended that "every school improvement plan depends on strong leadership" (Educational Research Service [ERS], 1998, p. 3). As schools set higher goals under more demanding accountability standards and school reform requirements, they need leadership that is more effective. More than ever, schools have been expected "to do something they have never done before: educate all children to high standards" (Ravitch, 2000, p. 13).

For success in the future, school-based change must include "strong, expert, and collaborative leadership" (Odden & Picus, 2000, p. 321) requiring new principal skills. Fullan (2001) and Glickman (2002) wrote that effective principals are the leaders who create conditions for school improvement. The effective-schools researchers also found a positive relationship between school leadership and school success (Casavant & Cherkowski, 2001). Edmonds (1980) identified several variables that helped improve success for poor and minority pupils. Included in his list of requirements for the success of poor and minority students was the presence of a strong, effective principal, "a principal who will ensure high expectations, an orderly environment, a focus on academic skills, and regular testing" (p. 121).

Research by the Fordham Institute for the Broad Foundation declared, "Superintendents and principals are key to ensuring that all children achieve at

4

high levels" (Broad Foundation, 2003, p. 9). Since the principal is the keystone of a good school (Cusick, 2003; ERS, 2000), an important variable in successful schools generally, then principals prove to be an important variable affecting student achievement in Mississippi schools.

The District Wealth Variable

Our society professes a high value and concern for education. We believe that education "provides access to a wide range of economic and social opportunities throughout our society…" (Reschovsky, 1994, p. 189). Communities of all sizes across the state and nation point with pride to their schools. Candidates for public office have often declare themselves pro-education candidates. Once elected, they become "Education Governors," "Education Presidents," etc. The State of Mississippi, with self-proclaimed if not universally perceived education-supporting governors and legislators, regularly spends a very large portions of the state's total budget funding public education (Johnson, 2003).

Throughout the United States, public school spending has increased dramatically over the last century, from $2 billion to $187 billion, growing more than three times faster than growth in the GNP (gross national product) (Hanushek, 1997). In Mississippi, state funds appropriated for public education have also increased and amounted to 47.5% of the total general fund

5

appropriations from the treasury in the 2005-2006 budget year. Total state funding for public schools amounted to 54.54% of the total school expenditures. Local and federal sources provided the remainder of the education budget at 27.52% and 20.94% respectively. Even with this high level of commitment by the state and by local governments, Mississippi educators remain poorly paid and schools poorly funded when compared with national averages (Bounds, 2007). Specifically, Mississippi recently ranked 48th in per-pupil expenditures, even when adjusted for regional cost differences (Olson, 2005).

While communities in Mississippi value education, they do not value it equally. Communities and their 152 school districts differ by, and have been limited by, the wealth (property values) of the district from which they draw tax revenue. Districts also have differed by the tax rates (millage) that they choose to impose on property owners. Districts have calculated the revenue they choose to raise locally by calculating the property value (wealth) and the tax rate. This combination of millage multiplied by property value has resulted in widely varying levels of funding from district to district. The 2005-2006 millage levies varied from a low of 22.45 in Amite County to 75.99 in the city of Jackson (Bounds, 2007). In the 2005-2006 school year, per student spending ranged from $5,787 to $19,261. These variations have caused concern from supporters of the egalitarian philosophy that contends that education, like justice, should be equally available to everyone (Reschovsky, 1994). The $5,787 represented the North Pike

6

district in Southwest Mississippi on the Louisiana line and the $19,261

represented the Bay St. Louis-Waveland district on the Gulf Coast that was

severely damaged by Hurricane Katrina. The highest per student expenditures for

the year were mostly on the coast and those numbers were inflated by expenses

caused by the hurricane's destruction and subsequent rebuilding. In contrast,

consider the smallest district in the state, Clay County, that reported an

expenditure of $13,504 for each of its 182 students (Bounds, 2007).

Mississippi, like most states, has based state support of schools on a

foundation funding formula (Duncombe & Yinger, 1998; "Finance Snapshots,"

2005; King, Swanson, & Sweetland, 2003). The most current financing formula,

the Mississippi Adequate Education Program (MAEP), has as its goal the

provision of sufficient funds for an adequate education for every child.

Unfortunately, the state has not always provided full funding according to the

specified formula. Even though the MAEP remained unfunded or underfunded for

several years, it did meet one of its goals: Mississippi holds the distinction of

being one of only five states never to have been taken to court over its school

finance system ("Finance Snapshots," 2005).

The Socioeconomic Status Variable

The Coleman Report (1966), using the production function approach,

produced perhaps the best known and most controversial study of education and

schools. Coleman and his colleagues held that the socioeconomic status of the student's family was the principal variable in educational outcomes and that "throwing money" at schools would not likely improve student performance. Supporting Coleman, Miller-Whitehead's (2000) research in Tennessee examined variables that predicted student success and found that low socioeconomic status had the greatest negative effect of the predictor variables studied. Leithwood, Louis, Anderson, and Wahlstrom (2004) agreed and stated that socioeconomic status was a crude proxy for a family educational culture that included other negative influences including poor parenting, isolation, abuse, violence, and neglect.

There was near universal agreement in the research that socioeconomic status had a negative correlation with student achievement (Fowler & Walberg, 1991; Hedges, Laine, & Greenwald, 1994). This was sufficient reason to include socioeconomic status of the student in this study.

The School Size Variable

During the last century schools increased in size. One-room schoolhouses slowly grew into larger facilities, approaching college-size campuses in some instances, e.g., Olive Branch High and Tupelo High School. Although schools began consolidating slowly, the pace picked up, especially for high schools, during the Cold War in the 1950s (Ravitch, 2000). The Soviet Union's launch of

8

the Sputnik satellite alarmed Americans and gave rise to a perceived need for more engineers and professionals (Ayers, Bracey & Smith, 2000). Large, comprehensive high schools appeared to be the answer with benefits such as efficiently offering more courses in math, foreign languages, and advanced studies. Unfortunately, there were unintended consequences. These related to student achievement, behavior, and climate factors stemming from the anonymity of students and teachers and their psychological distance from each other. Students were less likely to experience social interactions and more likely to feel lost in the crowd (Ayers et al., 2000). Furthermore, larger schools more negatively affected students in lower socioeconomic groups (Abbott, Joireman, & Stroh, 2002; Alspaugh & Gao, 2003; Bickel, Howley, Williams, & Glascock, 2001).

A growing body of evidence from research over the past 30 years has found smaller school size has a significant positive effect upon student achievement (Alspaugh & Gao, 2003; Earthman, 2001; Lee, 2004; Lee & Smith, 1997). Fowler and Walberg (1991) studied 293 public secondary schools in New Jersey to determine which of 23 independent variables significantly affected student outcomes. Seven variables were identified as significant, including size of school, number of schools in the district, percentage of low-income students, percentage of teachers with a bachelor's degree, pupil-teacher ratio, average teacher salary, and district socioeconomic status. Three of these seven significant

9

variables were included in this study. Principal salary was not identified as a variable.

Statement of Purpose

The purpose of this study was to examine the impact of four variables, principal salaries, district wealth, student socioeconomic status, and size of the school, on the achievement level of public school students in Mississippi. Student achievement was quantitatively measured by the state-required achievement tests.

Research Questions

The following research questions were addressed:

1. Is there a significant relationship between student achievement in reading in Mississippi public, non-urban (suburban and rural) elementary schools (grades kindergarten through fifth grade) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

2. Is there a significant relationship between student achievement in reading in the public, urban elementary schools (kindergarten through fifth grade) of a large Mississippi city and salaries paid to principals, district wealth, student socioeconomic status, and school size?

3. Is there a significant relationship between student achievement in reading in Mississippi public middle schools (grades six through eight) and

10

salaries paid to principals, district wealth, student socioeconomic status, and school size?

4. Is there a significant relationship between student achievement in social studies (U. S. History) test scores in Mississippi public high schools (grades nine through twelve) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

Need for the Study

Education in America is a constantly evolving entity. It has changed radically over the last few decades, and one can only speculate as to how it may appear in the future. There is no doubt that accountability with high-stakes testing and standardized assessments has become the order of the day (Darling-Hammond, 2004). Student scores on these tests are often used as a proxy for academic achievement and positive student outcomes. Educators may debate whether this is beneficial to students or to education as an institution, but it is the everyday reality with which educators must deal. Student achievement test scores certainly do not represent all of the desirable goals of school systems, but educators ignore them at their peril.

This research is significant because it produced additional information about the relationship between principal salaries and student achievement. It has implications for education policy-makers in the legislature and on school boards,

11

for educational policy researchers, and for all other stakeholders. It behooves educators and researchers to study any variables that may affect student learning and, in turn, achievement test scores. If research indicates that principal salary, district wealth, student socioeconomic status, or size of schools in Mississippi is significantly related to student achievement, then policymakers and other stakeholders should take note.

Limitations of the Study

This study was limited to only four of numerous variables that affect, or may affect, student achievement. The study of these four variables was further restricted as follows:

1. The set of public schools were all from Mississippi. Demographic research has often found Mississippi in first or last place in national rankings. The results may not be generalizable to other parts of the nation.

2. Achievement scores were from standardized tests administered by all public schools and were strictly controlled by the Mississippi State Department of Education. The tests were designed specifically to evaluate the Mississippi curriculum.

3. Fringe benefits or supplements of any type paid or awarded to principals were excluded from the calculations of principal salary.

12

4. An indeterminate number of student, teacher, principal, school, and community variables were not included in this study.

5. Data were limited to the most current available through the Mississippi State Department of Education and only for the 2005-2006 school year. August, 2005, saw serious destruction by Hurricane Katrina in the southern part of the state. This affected every aspect of schooling as well as data collected from that area.

6. Educators have identified some cohorts of students as more successful test-takers than other cohorts.

7. Socioeconomic status was quantified using the percentage of students receiving free lunch as a proxy and data as reported by the Mississippi Department of Education.

8. Data were not included from the three "agricultural" high school districts as they form a distinct type of district with unique funding and governance.

9. Data were not included from schools or districts that had provided incomplete data to the State Department of Education. This included five schools in the kindergarten through fifth grade division, two schools in grades six through nine, and nine schools in the ninth through twelfth divisions.

13

10. Private schools were not included because the state does not hold them to the same standards as public schools. They do not administer the same tests nor do they provide the degree of transparency that the state or public demands of tax-supported institutions.

Definition of Terms

For the purpose of this study, the following terms are defined:

Adequacy – is achieved when the achievement level of poor students reached that of advantaged students. "Adequacy involves improving all structures and practices linked to student achievement, including education finance, school organization, and teaching" (Association for Supervision and Curriculum Development [ASCD], 1995, p. 4).

Criterion-referenced test – "a test designed to reveal what a student knows, understands, or can do in relation to specific performance objectives" (MDE, 2004, p. 54).

District wealth – this study used the Mississippi Department of Education definition as "maximum yield of one mill at the uniform minimum school district ad valorem tax levy per pupil" (Johnson, 2003, p. 147). District wealth is calculated by taking the gross assessed valuation that includes all real, personal, and public service property. Exemptions are then allowed for those 65 years old or older or disabled as defined by statute. Homestead exemption credit is then

14

given for most homeowners under the age of 65 and a calculated reimbursement is made to the district by the state for both credit categories, resulting in the district wealth, or the taxable property value for the district, per pupil. This definition was used "for comparative purposes to show the effect of placing all districts at the same levy and determining the effects of the assessed valuation differences between districts" (p. 147).

Effort – the level of taxation actually imposed on taxpayers of a school district to support local schools.

Elementary school – the lower grade division of the educational system that comprises grades kindergarten through five.

Foundation funding – a system of state funding for education that "does not count local taxes as a funding factor and does ensure a minimum per-pupil expenditure for all districts" (ASCD, 1995, p. 2).

High school – "the secondary division within the educational system of the school district comprising grades 9-12" (MDE, 2004, p. 57).

High-stakes testing – "the use of scores on achievement tests to make decisions that have important consequences for examinees and others" (Darling-Hammond, 2004, p. 1048).

Middle school – a school with a configuration of intermediate grades six through eight whose principal may be licensed as an elementary school administrator or a secondary school administrator.

15

Mississippi Curriculum Test – the statewide criterion-referenced test that "measures student performance in reading, language, and mathematics at grades 2 through 8" (Johnson, 2003, p. 67).

Principal – "the individual who is responsible for the total program of a school and who holds valid and appropriate administrator certification" (MDE, 2004, p. 59).

Principal salary – the annual contract pay to the school principal.

School size – number of students in average daily attendance as reported to the Mississippi Department of Education during a specified period.

Standardized test – a test that "has been normed to a large group and given under standard conditions" (Hirsch, 1996, p. 198).

Student achievement – "how well certain students in the school scored on selected measures at the end of the school year" (Johnson, 2003, p. 8). The selected measures used to determine student achievement in this study were the fifth and eighth grade Mississippi Curriculum Tests in reading and the U. S. History subject area test for high school students.

Student socioeconomic status – the percent of students qualifying for free or reduced lunch based on family income served as a proxy for socioeconomic status. The Mississippi Department of Education web site provided these data disaggregated to school level (Mississippi Department of Education, 2007a).

16

Subject Area Testing Program – the "end-of-course, criterion-referenced tests in Algebra I, Biology I, U.S. History from 1877, and English II with a writing component" (Johnson, 2003, p. 68).

Suburban or rural school district – a school district in a county with a population of less than 250,000.

Urban school district – a school district in a city with a population of 250,000 or more residents.

17

CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature provided a wealth of information about principals, their importance to schools in general, and their influence on student achievement. Reviewed literature indicated that not only was an effective principal important, but that there was a shortage of effective principals and that there were identifiable reasons for that shortage. Several remedies were prescribed by researchers to alleviate the shortage and one common thread throughout their recommendations was the need to increase salaries. Literature specific to Mississippi was included in this review.

Three other important variables were included: district wealth, student socioeconomic status, and school size. These three variables have appeared in published literature much more often and have received much more attention than has principal salaries.

At least 147 separate variables (educational production functions) have been identified in various studies (Hanushek, 1986) and "thousands of original studies" (Wang, Haertel, & Walberg, 1990, p. 33) of these variables have gone into the literature. Wang, Haertel, & Walberg's meta-analysis of 179 sources

18

found eight categories of variables that had been associated with student achievement. These were state and district variables, out of school context variables, school-level variables, student variables, program design variables, implementation variables, classroom instruction and climate variables. It is clear that education researchers have spent untold hours working this ground and that the thirst for greater knowledge appears unquenchable.

This chapter describes relevant literature on the variables of principal salary, district wealth, student socioeconomic status, and school size as they relate to student achievement. Finally, assessment and accountability through high-stakes testing specific to Mississippi is considered.

The Principal Variable

"Leadership not only matters, it is second only to teaching among school-related factors in its impact on student learning," concluded Leithwood et al. (2004, p. 3), in a review of research commissioned by the Wallace Foundation. The impact of principals was found to be critically important, albeit indirect, through influence on teachers and other features of the school according to a report by the Institute for Educational Leadership (IEL, 2000). More recent research from Title 1 elementary schools in the adjacent state of Tennessee concurred (Sims, 2005).

19

Given that research indicated, and experts agreed, that good school leadership was required for school success, exactly how did the principal affect student success? Hallinger, Bickman, and Davis (1996) in a study of 87 elementary schools in Tennessee found positive but indirect effects between principal leadership and student achievement. The study declared a statistically significant ($p < .01$) positive relationship between principal leadership and selected school climate variables. Two of these variables, a clear school mission and high expectations for student achievement, were found to have a positive subsequent effect on student achievement in reading ($p < .05$).

Two years later, Hallinger and Heck (1998) reviewed the empirical literature on principal effects that included 40 journal articles published during the years from 1980 to 1995. The research consistently indicated that principals exercised an indirect but measurable and meaningful effect on school effectiveness and student achievement.

In another wide-ranging study, Waters, Marzano and McNulty (2003) at the Mid-Continent Research for Education and Learning consortium conducted a meta-analysis of research on principal leadership and student achievement. They chose 70 of the more than 5,000 studies completed since the early 1970s, identified 21 leadership traits, and correlated them with measures of student achievement. Waters was able to demonstrate a substantial relationship between principal leadership traits and student achievement, with an average effect size of

20

.25 (expressed as a correlation). This difference in student achievement between less effective and more effective principal leaders translated into an increase of 10 percentile points, moving mean achievement from the 50th percentile to the 60th percentile.

Another multi-year, qualitative study of four urban elementary schools provided further insight on principal effects. Student achievement was influenced indirectly by principals through different aspects of professional development by enhancing teacher competence and building a professional learning community (Youngs & King, 2002).

Witziers, Bosker, & Kruger (2003) in their quantitative meta-analysis of 37 international studies done between 1986 and 1996 also found relatively small and indirect links between principal leadership and student outcomes where other people, events, and organizational and cultural factors mediated the leadership of the principal. They further concluded that principals had an impact on those cultural factors and the school organization.

Edmonds (1980) concluded that the most important element necessary for an effective school was an effective principal who "will ensure high expectations, an orderly environment, a focus on academic skills, and regular testing" (p. 121). His research, which was directed toward minority students, made it especially relevant to this study. African-American children make up a majority of the

21

nearly half-million students enrolled in Mississippi public schools (Hoffman, Sable, Naum, & Gray, 2005).

Hank Bounds, Mississippi Superintendent of Education (Miller, 2007), recently reminded the public that there was a time when principals were considered good enough if they just kept their schools clean. He then added, "In the days of high stakes accountability, principals have to do much more than that. In today's schools, principals must possess a much broader skill set and we need them to be experts from the first day" (¶ 16).

Finally, effective principals are critical to retaining teachers in Mississippi. This was a finding of the CLEAR Voice survey (Hirsch, Fuller, & Church, 2007) completed by 67 percent (more than 25,000) of teachers in the state in the spring of 2007. Approximately 85 percent of Mississippi's teachers planned to stay in their current school. Those who plan to stay believed that their school's leadership was effective, trusted teachers, and clearly communicated expectations. When asked about working conditions that most influenced "stayers" to stay, the most common response was school leadership. Movers and leavers did not believe that their schools had effective leadership.

The Shortage of Highly Qualified Principal Candidates

"Next to 'crisis,' the word most commonly attached to school leadership in recent years has been 'impossible'" (Lashway, 2002, ¶ 13). Whitaker's survey

22

(2001) of superintendents in a western state found a moderate to extreme shortage of principal candidates. The pool of candidates for the secondary principalship, in particular, was declared to be average or below in quality, if not quantity, by the Education Commission of the States (Glass & Bearman, 2003). Cusick (2003), at the Education Policy Center at Michigan State University, in a qualitative study of schools in that state, concluded that the number of applicants had dropped to about half to two-thirds the number of 15 years ago. If the pool of licensed applicants is small, there is less likelihood of a school district finding highly qualified, effective principals.

The Wallace Foundation commissioned the Center on Reinventing Public Education (CRPE) to conduct a major, multi-year, multi-million dollar research project on various education topics (Roza, Celio, Harvey, & Wishon, 2003). The CRPE team surveyed 84 public school districts in 10 regions throughout the nation and used data from the National Center of Education Statistics. Most of the 84 districts were located in large metropolitan areas of high growth or with education labor shortages. They found no shortage of licensed principals by any reasonable definition, but a serious problem existed in the recruiting and placing of highly qualified principals into the most difficult schools with greater stress and less pleasant working conditions. Their recommendations included the following: Get the incentives right, pay more for harder-to-staff schools, lower the stress on principals, improve their working conditions, and let market forces

23

govern the distribution of talent. "Salary is a powerful inducement…" (Roza et al., p. 43).

The only category of school districts with good numbers of first-rate, quality candidates was wealthy districts with large high schools (Cusick, 2003). In Mississippi there are only a very few wealthy districts with large high schools. This means that the shortage of highly qualified principals that exists in much of the rest of the country (ERS, 2000) exists in many areas of Mississippi (Sutley, 1999). Tom Burnham, Dean of Education at the University of Mississippi and a past Mississippi State Superintendent of Education, agreed, "Like most other states, Mississippi is facing a shortage of school administrators. This deficit is beginning to approach a crisis level, as approximately 40 percent of all current school administrators across the state are eligible for retirement" (Burnham, 2006, p. 2).

Mike Walters, a retired superintendent and a past Executive Director of the Mississippi Association of School Administrators, expressed his concern about the shortage of qualified candidates when he said "we won't have the people to run schools the way we need to to get results. We're either going to have to figure out how to get people into the profession or figure out how to run schools without principals" (Sutley, 1999, p. 2).

24

The Problem of Salaries and the Principal Shortage

If there is a shortage of highly qualified candidates, then there will likely be fewer highly qualified principals in the future. Education researchers have identified a number of reasons for the shortage of highly qualified principal applicants. Always first on the list is money (Cusik, 2003). Those who could reasonably be expected to apply cite several additional reasons for avoiding the job of principal: increasingly long hours, job stress, the complex social problems of students, excessive demands of constituents and employer, and other quality-of-life issues (Adams, 1999; Cusik, 2003; Institute for Educational Leadership, 2000; McCreight, 2001; Munoz, Winter, & Rinehart, 2003; Stover, 2002; Yerkes & Guaglianone, 1998).

The National Association of Elementary School Principals (NAESP) and the National Association of Secondary School Principals (NASSP) commissioned the Educational Research Service (ERS, 1998) to conduct an exploratory study of the principal shortage. A national survey of superintendents concluded that lack of sufficient compensation is the most discouraging barrier to the principalship, being cited by 60% of respondents. This is true for urban, suburban, and rural areas. Stress and time requirements account for the second (32%) and third (27%) most identified problems. Scores for the second two factors totaled less than the total score for insufficient compensation (ERS, 1998, p. 12). Their follow-up study, *The Principal, Keystone of a High-Achieving School* (ERS, 2000),

25

confirmed the earlier research and endorsed the recommendations of the exploratory study.

A significant number of researchers have concluded that adequate compensation would aid in enlarging the principal pool and retaining currently serving principals (Broad Foundation, 2003; ERS, 1998; Pounder & Merrill, 2001; Roza et al., 2003; Whitaker, 2001; and Yerkes & Guaglianone, 1998). Dyer (1997), at the time Executive Director of the NASSP, wrote:

> Considering the long days, including weekends, that principals work; the high pressure of managing a school building and staff; the responsibility of ensuring the well being of their students; and the importance of being immediately accessible to parents, school boards and the community; the pay they receive is pitifully low. (p. 3)

The incentives are just not there to lure teachers into the principalship, a job that many education professionals and others view as among the most demanding and thankless jobs in America (Carr, 2003; ERS, 2000).

To attract effective principals (and superior teachers) to high-poverty and low-performing schools, Prince (2002) declared that much higher rates of pay are needed. He pointed out that harder work in more difficult conditions rates higher pay in many professions, including the military with its combat pay. That would justify increasing pay for principals in the least attractive schools. Pay raises of 20 or 30%, perhaps more, may be necessary to provide the compensation required to

26

attract and retain high-performing principals in the neediest schools. The Detroit Public School District (Walsh-Sarnecki, 2000) took this approach. The Chief Executive Officer (district superintendent) in Detroit asserted, "The road to better academic performance runs through the principal's office" (¶ 1). His plan was to improve academics by rewarding good principals, removing bad ones, and improving pay to attract better replacements.

In a study of Kentucky schools, Winter and Morgenthal (2002) used the experimental approach and simulation methods previously used in the private sector to conclude that school achievement level had a significant influence when it came to attracting principal applicants. They determined that 64% of the variance in job desirability ratings was related to school achievement levels and that school location was not a direct factor. Their recommendation of a way to increase the number of quality applicants and attract effective principals to low-achieving schools was to increase monetary and non-monetary incentives.

Monetary incentives could possibly come from the federal government. The Alliance for Excellent Education (2002) and others have recommended and lobbied for annual federal income tax credits of $2,000 to $4,000 for teachers and principals who work in high-poverty schools.

In a different interpretation of data, it was also possible that higher pay might not improve student achievement in all conditions. Reporting on rural schools, Beeson and Strange (2003) agreed that effective principal leadership was

27

a consistent factor in teaching and achievement. Nevertheless, their research conducted for the Rural School and Community Trust concludes that either too much or too little of the budget spent on school-level administration was likely to be counterproductive to student achievement. Nevada, Oregon, and Kansas were listed as over-spenders on administration. Mississippi was not on their list. Their research did identify Mississippi as the rural state in most critical need of help to improve education. Recommendations included increased spending on teacher salaries, on upgrading computers and technology, on school administration, and on improving transportation.

Contrary results also came from Newton's survey of Alabama teachers (Newton, 2001). She found that salary was neither a positive nor negative factor as an attractant to teachers considering moving into the principalship. However, the subjects of this study were teachers who were already in an educational leadership program leading to school administrator certification.

In research that may or may not transfer from the business world, Collins (2001) found no "systematic pattern linking executive compensation to the process of going from good to great" (p. 49). This finding was contrary to his earlier hypothesis. Collins concluded that it was not salaries, but that high-performing companies simply hired better executives than poor-performing companies.

28

Melvin (1999) analyzed principal salaries in Virginia and demonstrated that the average educational level of community members was the best predictor of average principal salaries. He found that principal salaries were often adjusted to compete with neighboring districts and that local fiscal capacity (district wealth) was not a significant predictor. An earlier study in Pennsylvania (Matthews, Watt, Brown, & Dayton, 1992) of teacher salaries (not principal salaries) found that salaries in contiguous districts had the most impact on salaries, but they differed with Melvin in finding that local wealth was also a significant factor.

Principal Salaries in Mississippi Schools

The Mississippi Legislature's Joint Committee on Performance Evaluation and Expenditure Review (Joint Committee on Performance Evaluation and Expenditure Review [PEER Committee], 1993) reported that students in districts that spent more on overall administrative salaries did not, when factoring in socioeconomic backgrounds, score better on standardized tests than those districts that spent less per student. In this study, district wealth (assessed valuation per pupil) explained only about 5% of the variance in test scores. The best predictor of administrative expense was the total district per-pupil spending. The PEER Committee report did not differentiate between the salaries of central office staff

29

and salaries of principals. Further, there was a tendency of smaller districts to spend more on central office staff on a per-pupil basis (PEER Committee, 1993).

Mississippi does not have a state salary schedule for principals, nor is there a state board policy, nor any other form of guidance for local districts to follow in determining principal salaries. Tradition and, perhaps more importantly, accreditation by the Southern Association of Colleges and Schools dictate that the principal should be paid more than any other certified (licensed) employee at a school site (Southern Association of Colleges and Schools Council on Accreditation and School Improvement, 2005).

Historically, there has been little market sensitivity to educator salaries in this state for teachers, or more significantly, for administrators. Local school boards set the salaries of elected superintendents and negotiate the salaries of appointed superintendents. Superintendent salaries do not necessarily, nor directly, affect the salaries of building principals. Appointed superintendents usually work under multi-year contracts. Principals receive single-year contracts by custom, not by statute. Teachers' base salaries are determined by the state salary scale based on personal attributes, i.e., education and tenure, with minor adjustments for additional duties and responsibilities, e.g., coaching or band directing. Principals are most often paid according a district-level scale that is modified based on the demands of the position and further mediated by the negotiating skills of the parties involved (Hilling, 2004).

30

According to human capital theory, wages are determined by skills. Over the last thirty years compensation has been moving toward pay-for-performance (Lazear & Shaw, 2007). Some districts have been experimenting with pay-for-performance or merit pay for teachers and principals. It has been a tedious experiment since teacher and principal output is more difficult to measure than that of a salesperson. Nevertheless, during the 2006-2007 school year, the Denver Public School system paid principals bonuses of up to $35,000 based on criteria that included student test scores (Mitchell, 2008).

Research in 180 Kentucky elementary schools found no correlation between principal leadership and student achievement. The principal as instructional leader may sound good in theory, but the principle did not hold up in practice (Rothrock, 2004). Principals may see their pay increase with increased student or teacher performance, as was the case in Denver. But in light of the Kentucky study, they may be better served if their performance is not evaluated or based on student test scores.

District Wealth

American public elementary and secondary education was largely a privately funded endeavor until the late nineteenth century. Education first became public in Mississippi following the radical changes brought about by defeat in the War Between the States and the subsequent occupation and

reconstruction. The reconstituted state government established publicly funded schools throughout the state. Government funded school systems were also begun in most of the rest of the country during the same period. Funding for these schools was provided almost entirely by local property taxes (Murray, Evans, & Schwab, 1998; Reschovsky, 1994).

During the twentieth century, scholars and public officials became concerned about the inequities brought about by local funding. Flat grants by the state legislatures marked the first attempts to equalize education financing (Reschovsky, 1994). More dramatic change occurred in the last quarter of the last century as litigation and a desire for property tax relief brought more state funding of schools and the state control that inevitably followed (Loeb, 2001). Federal government funding increased very gradually, providing 7.9 percent of educational spending nationally in the 2001-2002 school year (Olson, 2005). Larger shares per pupil went to poorer states, with Mississippi getting 15 percent of its education budget from Washington that year (Johnson, 2003). Federal education spending continued its dramatic growth since the turn of the century and during the 2005-2006 school year amounted to 21 percent of Mississippi school funding (Bounds, 2007).

Until recent years, many educators have not been concerned with the relationship between funding and achievement or, perhaps more importantly, subsequent quality of life. Efficient use of available funds was not their priority.

32

Some statistical analyses found only weak connections between dollars spent and impact of schooling on children (King et al., 2003). Murray et al. (1998) found that court-ordered changes in school finance systems reduced in-state inequalities in spending by 19 to 34 percent. At the 11 percent level, they concluded that future earnings in the poorest districts could increase by 1.5 percent and high school graduation rates would increase by six percent. Later, Card and Payne (2003) studied spending equalization across poorer and richer districts following court-ordered changes and changes in the achievement gap in SAT scores. In the twelve states their research included, the difference in average scores between children of highly-educated and poorly-educated parents narrowed by about 5 percent between the late 1970s and early 1990s (Card & Payne, 2003).

Kentucky has had perhaps the most significant educational reform in recent times, especially in school finance (Clark, 2003). The State Supreme Court ruled the entire system of public education unconstitutional and the resulting Kentucky Education Reform Act (KERA) of 1990 sought to provide the remedy. Along with changes in governance, accountability, and curriculum, was the overhaul of the finance system. Clark found that per-pupil expenditures were equalized and remained so throughout the decade. The gap in test scores between rich and poor districts did not change in a statistically significant way. Black students did make generally positive but statistically insignificant gains relative to

33

whites, i.e. "a .12 standard deviation increase in the 8th grade math scores" (p. 36). White students' scores remained unchanged compared to their peers in Tennessee.

A weakened economy, stagnant tax collections, and stable-or-decreasing levels of education funding early in the decade got the attention of educators and their supporters. Educators then began increasing their efforts to spend in such a way as to increase student achievement (King et al., 2003).

In Mississippi, as in other states, local property taxes have accounted for a significant part of a school district's funding, and this funding was not equitable (Odden, 1999; Reitz, 1993). It was not horizontally equitable because of the widely varying property tax base as well as the widely varying level of school taxes each district levies. Napier (1997) found that the state's more highly accredited districts, with higher achieving students, imposed taxes upon themselves at a higher rate than poorer districts. Callahan (1997) found disparities between low- and high-wealth districts in the state that prevented students in poor districts from receiving either an equitable or an adequate education.

Vertical equity would have required higher levels of per-pupil funding in the low wealth districts. As in most of the country, the accident of parentage, birthplace, or neighborhood often placed children in a pocket of excellence or indifference (Kozol, 1991; Pinkerton, 2003).

Counter-intuitively, per-pupil expenditures did not guarantee excellence. Some small districts have had high per-pupil expenditures because of their small

34

size compared with larger districts. In 2005-2006, the DeSoto County District, one of the booming Memphis suburbs with highly rated schools, spent only $6,264 per student, while the small Delta district of Tunica County adjoining DeSoto County spent $10,509 per student. The smallest districts in Mississippi, Benoit (municipal separate district) and Clay County, spent at a per pupil rate of $13,036 and $13,504, respectively. Tunica, Benoit, and Clay County have historically had low-performing schools (Bounds, 2007).

Orlofsky (2002), in research for the Education Trust, calculated the gap in funding between the highest- and lowest-poverty districts in each state. He did this by measuring the mean state and local funding of the highest-poverty quartile and lowest-poverty quartile. According to his research, although the gap has narrowed recently in Mississippi, there remained a mean difference of $133 per pupil.

A study for the Rural School and Community Trust (Johnson, 2005) investigated the relationship between student achievement and resources in Mississippi school districts. The resource-poor, low-achieving districts were identified by their low local property tax base and correspondingly lower local revenues than the high-achieving districts. Using data available from the Mississippi Department of Education, Johnson's findings suggested the following:

35

The distribution of human and fiscal resources throughout the state does in fact mirror the distribution of student achievement, in ways that place school systems serving the most challenged student populations in the unenviable position of attempting to do more for their students with fewer resources available. (p. 3)

Although this study was limited to Mississippi, solving the concerns of equity and adequacy across district lines was shortsighted in view of the more serious differences noted in cross-state comparisons according to Odden (1999). Agreeing with Odden, Murray et al. (1998) concluded that "roughly two-thirds of nationwide inequality in spending is between states and only one-third is within states" (p. 808).

A big-picture solution to school funding equity would require a significant increase in federal funding. The need for federal funds and federal intervention is made manifest in that interstate spending inequalities have changed little in the past 20 years. The tenth amendment to the US Constitution constrained federal involvement in education until early in the Twentieth Century (Conley, 2003). This amendment, also known as the "enumeration clause" states, "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." This was understood to mean that responsibilities for education were not delegated to the federal government, but were reserved to the States.

36

Beginning with the Smith-Hughes Act in 1917, the General Welfare Clause (Article 1, Section 8) was used to legitimize federal involvement in education (Conley, 2003). The General Welfare clause states that, "Congress shall have the power to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defense and general welfare of the United States."

Federal influence, authority, and funding took a dramatic jump in 2001 when Democrats and Republicans joined to pass the No Child Left Behind Act (NCLB) (Conley, 2003). Increasing equity was one of the NCLB goals and the level of federal funding for education has continued to increase each year.

Socioeconomic Status of the Student

The most cited analysis of schooling in the last half century, the best known, and one of the most controversial, is the Coleman Report of 1966 (Hanushek, 1986). Coleman "appeared to demonstrate that differences in schools had little to do with differences in students' performance" (Hanushek, 1986, p. 1150). Coleman's (1966) research was commonly held by educators to be flawed, yet it has been a foundation basis for much production function and other school research (Hanushek, 1986).

Coleman's (1966) research not only indicated that family socioeconomic status and family background produced the overriding statistical effect, but that

37

additional money would have little impact on student achievement. Coleman concluded, "…schools bring little influence to bear on a child's achievement that is independent of his background and general social context" (p. 325). Hanushek, an economist concerned with public policy, later reviewed other research and agreed with Coleman. However, he did affirm that there were "huge differences across schools" and asserted that the big difference was "which teacher your child gets" (Clowes, 2000, ¶ 8).

What has often been referred to as the "money-doesn't-matter" hypothesis has been dismissed by most of today's researchers, policymakers, and educators (Grissmer, Flanagan, & Williamson, 1997; Hedges et al., 1994; Johnson, 2005; Verstegen & King, 1998). Just as there was an accepted link between money spent and educational outcomes, there are established correlations to a number of other variables (Grissmer et al., 1997; Hedges et al., 1994; Verstegen & King, 1998). These variables include student attributes, such as socioeconomic status and home language; school attributes, such as class size, school size, location, community support, and district wealth; and numerous teacher attributes including salaries (Kozol, 1991).

Coleman (1966) stated strongly that the socioeconomic status of students' families is such a dominant predictor of educational outcomes that other variables could be essentially ignored. Other research affirmed that the socioeconomic status of students is a highly significant variable and that the effects of

38

socioeconomic status on learning is identifiable well before formal schooling began (Kober, 2001; Leithwood et al., 2004).

Fowler and Walberg (1991) confirmed the importance of socioeconomic status as they were investigating the effects of school size on secondary schools in New Jersey. They looked at 18 school outcomes and regressed on 23 school characteristics. The most influential and consistent variables were the socioeconomic status of the district and the percentage of students from low-income families. District socioeconomic status was significantly and positively associated with 17 of the 18 outcomes.

The socioeconomic level of students has figured prominently in debates over school funding and accountability requirements. Odden (2000) concluded that low socioeconomic status students require extra money compared with money spent on average students, if schools want to help the low socioeconomic students succeed and if the schools wanted to meet the new accountability standards.

Leithwood et al. (2004) determined that low socioeconomic status is a crude proxy for a family-educational culture that includes many other negative influences on students, including poor parenting, isolation, abuse, violence, and neglect. They also found that there is a significant positive relationship between higher socioeconomic status and student achievement.

39

School Size

The decade of the 1990s saw a dramatic increase in research on the relationships between school size and student achievement, graduation rates, post-secondary enrollment rates, etc. (Bickel et al., 2001). Research on a data set of Texas high schools (n = 1001 or 83.6% of all Texas high schools) found that as schools became larger, student achievement scores decreased for economically disadvantaged groups (Bickel et al.). This study was first conducted in California and then replicated in six other states with consistent results. There may have been size-related benefits for some students in larger schools, but the size-related costs were inequitably borne by the poor (Bickel & Howley, 2000).

Lee (2004) argued that school size is important to student outcomes, not directly, but indirectly through the academic and social organization of schools. She restated her earlier work (Lee & Smith, 1997) indicating that the ideal school size for high schools is 600-900 students.

Researchers investigating the possible connection between school size, student achievement, and socioeconomic status data from Montana, Georgia, Ohio, and Texas found that the relationship between achievement and socioeconomic status was weaker in small schools than in larger schools (Howley & Bickel, 1999). This research, the Matthew Project, indicated that ideal size varies depending on the socioeconomic level of the students.

40

Bickel and Howley (2000), using data from Georgia, continued their work from the Matthew Project and suggested that there were adverse consequences of poverty tied to school size and that poor students may be disadvantaged in larger districts. Lee and Loeb (2000) found similar results in Chicago. They used quantitative data on 264 K-8 schools and found that students in small schools scored .40 standard deviations above students in larger schools. (Chicago data may or may not generalize to Mississippi schools due to the urban vs. rural differences.)

Researchers in Washington State reviewed Bickel and Howley (2000), Lee and Loeb (2000), and others and became concerned with school size influences in their state (Abbott et al., 2002). Their research replicated Bickel and Howley's methods from Georgia and found that "large district size is detrimental to achievement in Washington 4th and 7th grades in that it strengthens the negative relationship between school poverty and student achievement" (Abbott et al., 2002, p. 16).

Achievement scores in elementary schools (n = 39) in a large Missouri district were found to vary significantly according to size (Alspaugh & Gao, 2003). Smaller schools in this study tended to be in the older inter-city part of the district while the larger schools were in the newer suburban areas. After controlling for socioeconomic status, its fifth-grade level scores declined as enrollments increased.

41

School size research has led many districts and states, not to mention the Bill and Melinda Gates Foundation, to promote smaller schools as an element of reform and school improvement. Most schools in Mississippi already are smaller than many urban schools. It is not a matter of reform for they have existed as the center of their small communities for decades. Many survive under the threat of consolidation, especially in the more impoverished communities. Nationally, more affluent rural communities have had greater success in retaining their small schools and small school districts (Howley & Howley, 2004).

To note one disadvantage of smaller schools, Ingersoll (2001) found that they have had a higher teacher turnover. His research showed that for each enrollment difference of 100 students there was a 4% increase in teachers leaving per year. Beyond this, some researchers observed that "not all small schools are successful" (Darling-Hammond, Ancess, & Ort, 2002, p. 642). Small size is not enough in itself (Howley & Howley, 2004), but it is a variable worthy of recognition and is a part of many reform packages.

Measuring Student Achievement in Mississippi

A primary goal of the American system of education is that students learn a defined curriculum to a defined level of competence. Principals, those who supervise them, and those whom they supervise, work toward that end. The level of learning has been measured in many ways, but in the current climate of

42

standards and accountability, standardized tests are the primary measure. Parents, educators, and policy-makers, fairly or unfairly, use these tests to determine the success of individual students, teachers, principals, and schools.

The Mississippi Legislature mandates a combination of performance-based, criterion-referenced, standardized tests for all districts as a way to evaluate academic performance. This requirement came about with the passage of the Adequate Education Program Act of 1996 (Thompson, 2001). Beginning with the 2001-2002 school year, districts, but not their individual schools, were assigned an accreditation status based on a new set of process standards. Districts were deemed either "accredited," "advised," "probation," or "withdrawn." No districts in the state were "withdrawn" in 2006-2007 (Bounds, 2007).

In the fall of 2003, Mississippi implemented a new accountability system. It emphasized individual schools as opposed to the previous system that rated the district as a whole. The school evaluation under the new system was based largely on the Mississippi Curriculum Test (MCT), a criterion-referenced test that was administered in grades two through eight, and the high school Subject Area Testing Program for Algebra I, Biology, English II, and U.S. History from 1877. The Subject Area Tests were also criterion-referenced. These tests have provided an array of useable data about student performance at the school level as well as meeting many of the requirements of the NCLB (Johnson, 2003).

43

School administrators have taken these tests, often referred to as high-stakes tests, much more seriously than the achievement tests of years past. There are many possible sanctions for low-performing schools, including the take-over of low performing schools by the State Department of Education. Administrators could lose their jobs (Johnson, 2003).

Summary

Each school is unique in some fashion, but each school shares a common thread of measurable characteristics and variables. Extensive research concludes that many of these variables affect educational outcomes and student achievement. These variables include student attributes such as socioeconomic status and home language; school attributes including class size, school size, location, community support, and district wealth; numerous teacher attributes including salary; and principal effects.

Regarding principal effects, there is a substantial body of research that links effective principal behaviors and leadership to educational outcomes and student achievement. The degree to which principal behaviors have direct or indirect effects is not settled, but the importance of effective principal behaviors to successful schools is not in doubt. Confounding the goal of increasing student achievement and the resulting test scores is the looming specter of the shortage of highly qualified principal candidates and highly qualified principals. It is often the

44

local school principal to whom the public, the politicians, and the policymakers look for school improvement.

Finally, there are growing demands for higher student achievement. Teachers, principals, and even superintendents and school boards are held accountable for producing higher levels of student achievement. Students' scores on high-stakes standardized tests have been the measure of everyone's achievement. Low test scores may cost educators at all levels, school districts, and even communities, their reputations and possibly their futures.

Is there a correlation between the level of student achievement in Mississippi's public schools and salaries paid to their individual school principals? Is there a correlation between student achievement and district wealth, student socioeconomic status, or school size? We continue our quest to improve student achievement and to improve schools with no child being left behind. It is important that educators and other stakeholders fully understand the four variables in this study as well as the many others that affect student learning and achievement.

45

CHAPTER III

METHODOLOGY

The review of the literature explored four of many variables and their relationship to educational outcomes, specifically student achievement as measured by state-required achievement tests. The four predictor variables are principal salaries, district wealth, student socio-economic status, and school size. Federal, state, and local stakeholders have been increasing demands for higher student achievement and that, in turn, has been placing increasing emphasis on high-stakes testing of the students. Student academic achievement, as measured by standardized test scores, has been driving school reform efforts in Mississippi. This study seeks to add a small increment to the body of knowledge of those whose goal it is to help students learn more and score higher on the tests.

This chapter employs quantitative, correlational research, and data collected ex post facto. None of the data were manipulated by the researcher, and all data were collected by the Mississippi Department of Education. This research was not designed to show a relationship of causation. Correlational research is carried out to either help explain or to predict likely outcomes (Fraenkel & Wallen, 2000). This chapter also lists the research questions answered by this study and the statistical procedures that were used. It identifies the population and

46

described how and why they were selected. Data collection is clearly explained as is the method of analysis.

This study examines the possible relationships between student academic achievement in Mississippi schools and salaries paid to principals, district wealth, the socioeconomic status of students, and the size of the school. Data sets were disaggregated to the school level to discover variations that might be masked by higher levels of aggregation such as district level. The exception is district wealth data, obviously. School district superintendents, local school boards, and other stakeholders at all levels may use this information in ongoing policy discussions and in working with schools and their principals.

Research Design

A quantitative design with correlational analysis was chosen for this study because the variables were known, measurable, valid, and publicly available (ex post facto) (Rudestam & Newton, 2001). Descriptive statistics were included in tables. The same reporting procedures were used by all schools and school districts, therefore, any data collection mistakes should have been random ones. The data were reviewed and any obviously erroneous data were deleted from the data set. Any school for which any data were incomplete was deleted in its entirety. No surveys, questionnaires, or other direct contact with school districts

47

or school affiliated individuals was required since all data were in the public domain.

Research Questions

The following research questions were addressed:

1. Is there a significant relationship between student achievement in reading in Mississippi public, non-urban (suburban and rural) elementary schools (grades kindergarten through 5) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

2. Is there a significant relationship between student achievement in reading in the public, urban elementary schools (kindergarten through 5) of a large Mississippi city and salaries paid to principals, district wealth, student socioeconomic status, and school size?

3. Is there a significant relationship between student achievement in reading in Mississippi public middle schools (grades 6 through 8) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

4. Is there a significant relationship between student achievement in social studies (U. S. History) test scores in Mississippi public high schools (grades 9 through 12) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

48

Population

The population consisted of public schools in 149 of the 152 public school districts in Mississippi. The three "agricultural" high school districts were omitted as they form a distinct type of district with unique funding and governance. Private schools were not included because the state does not hold them to the same standards as public schools. They do not administer the same tests nor do they provide the degree of transparency that the public demands of tax-supported institutions.

Public schools in the population were classified according to the grades served by each individual school. Thirty-nine different grade configurations were identified. The greatest frequencies occurred (see Table 1) in kindergarten through sixth grade elementary schools (K-6, n = 129), ninth through twelfth grade high schools (9-12, n = 131), kindergarten through fifth grade elementary schools (K-5, n = 115), and sixth through eighth grade middle schools (6-8, n = 69).

49

Table 1

Most Common School Grade Configurations in Mississippi

Kindergarten through fifth grade	115 schools
Kindergarten through sixth grade	129 schools
Sixth through eighth grade	69 schools
Ninth through twelfth grade	131 schools

The schools in this study include kindergarten through fifth grade non-urban elementary (n = 78), kindergarten through fifth grade urban elementary (n = 32), sixth through eighth grade middle (n = 67), and ninth through twelfth grade high schools (n = 122). The grade divisions were chosen so that all K-12 grades would be included without duplication. Of the total 110 elementary K-5 schools in this study, 32 were in the one urban city school district. This relatively homogeneous group was separated to form a fourth category, Research Question 2, to prevent it from becoming a threat to internal validity. Five elementary, two middle, and nine high schools with incomplete data were deleted in their entirety. With this exception, the study included all of the remaining schools in the grade configurations shown in Table 2.

50

Table 2

Grade Configurations in the Study Population

Kindergarten through fifth grade (non-urban)	78 schools
Kindergarten through fifth grade (urban)	32 schools
Sixth through eighth grade	67 schools
Ninth through twelfth grade	<u>122 schools</u>
Total in study	299 schools

Data Collection

Data on student achievement for individual schools were taken from the

Mississippi Department of Education web site (MDE, 2007a). Student

achievement test scores for both sets of elementary schools were coded using the

percent proficient and above (PAA or proficient and advanced) scores on the

fifth-grade reading portion of the Mississippi Curriculum Test (MCT). Student

achievement test scores for the middle schools were coded from the percent

proficient and above scores on the eighth-grade reading portion of the MCT. High

school achievement scores were coded as the mean scale scores on the Subject

Area Test in U.S. History. These particular tests were selected because these were

the highest levels at which achievement tests were administered at the subject

schools. The U.S. History test is administered in the eleventh grade or twelfth

51

grade and students are required to pass the test prior to graduation. It is normally the last standardized test required to be taken by high school students.

Principal salary data has long been public record in the school board minutes of each school district. Salary data for this study were collected by and made available by request from the Mississippi Department of Education.

Data on school enrollment in all public schools are available on the Mississippi Department of Education web site as are data on the percent of free and reduced lunch (Mississippi Department of Education, 2007a). This research uses the "official" values that were reported to the U.S. Department of Education. The values were calculated by the MDE Office of Management and Information Systems (MSIS). Students qualifying for free or reduced lunch served as a proxy for socioeconomic status. These data were disaggregated by district and by school.

"District wealth" is identified in Mississippi Department of Education publications as the "maximum yield of one mill at the uniform minimum school district ad valorem tax levy (33.04) per pupil" (Johnson, 2003, p. 147). The calculation is made by taking the gross assessed valuation that includes all real, personal, and public service property. Exemptions are then allowed for those 65 years old and older or disabled as defined by statute. Homestead exemption credit is then given for most homeowners under the age of 65 and a calculated reimbursement is made to the districts by the state for both credit categories. This

52

calculation results in the wealth, or the taxable property value, for the district per pupil. The maximum yield of one mill at the uniform minimum school district ad valorem tax levy per pupil is "used here for comparative purposes to show the effect of placing all districts at the same levy and determining the effects of the assessed valuation differences between districts" (Johnson, 2003, p. 147). District wealth would not necessarily correlate with district effort, the actual level of taxation on the wealth. The district wealth merely indicats potential tax revenue for schools.

Method of Analysis

The unit of the analysis was each individual school. Descriptive data were included with the mean and standard deviation having been calculated and described for all sets.

Research Question 1: Is there a significant relationship between student achievement in reading in Mississippi public, non-urban (suburban and rural) elementary schools (grades K-5) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

Procedure: Multiple regression analysis, analysis of variance (ANOVA), along with Pearson product-moment correlation were used to answer this question. Multiple regression "enables researchers to determine a correlation between a criterion variable and the best combination of two or more predictor

53

variables" (Fraenkel & Wallen, 2000, p. 363). Data were reported on variables relative to student achievement (the dependent, criterion variable) and principal salaries, socioeconomic status, district wealth, and school size (the independent, predictor variables). The Pearson product-moment coefficient of correlation was computed to identify the degree of the initial relationships between the variables used in the study. Descriptive statistics were also displayed in a table.

Research Question 2: Is there a significant relationship between student achievement in reading in the public, urban elementary schools (K-5) of a large Mississippi city and salaries paid to principals, district wealth, student socioeconomic status, and school size?

Procedure: Multiple regression analysis, analysis of variance (ANOVA), along with Pearson product-moment correlation were used to answer this question. Data were reported on variables relative to student achievement (the dependent variable) and principal salaries, socioeconomic status, district wealth, and school size (the independent variables). The Pearson product-moment coefficient of correlation was computed to identify the degree of the initial relationships between the variables used in the study. Descriptive statistics were also displayed in a table.

Research Question 3: Is there a significant relationship between student achievement in reading in Mississippi public middle schools (6-8) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

54

Procedure: Multiple regression analysis, analysis of variance (ANOVA), along with Pearson product-moment correlation were used to answer this question. Data were reported on variables relative to student achievement (the dependent variable) and principal salaries, socioeconomic status, district wealth, and school size (the independent variables). The Pearson product-moment coefficient of correlation was computed to identify the degree of the initial relationships between the variables used in the study. Descriptive statistics were also displayed in a table.

Research Question 4: Is there a significant relationship between student achievement in social studies (U. S. History) test scores in Mississippi public high schools (grades 9-12) and salaries paid to principals, district wealth, student socioeconomic status, and school size?

Procedure: Multiple regression analysis, analysis of variance (ANOVA), along with Pearson product-moment correlation were used to answer this question. Data were reported on variables relative to student achievement (the dependent variable) and principal salaries, socioeconomic status, district wealth, and school size (the independent variables). The Pearson product-moment coefficient of correlation was computed to identify the degree of the initial relationships between the variables used in the study. Descriptive statistics were also displayed in a table.

55

Summary

The intent of this chapter is to present the methodology that was used in this study to identify the possible relationship between student achievement in Mississippi school and four predictor variables: principal salaries, district wealth, socioeconomic status of the students, and school size. The research questions, population, data collection methods, and analysis methods are provided.

CHAPTER IV

STUDY RESULTS

The purpose of this study was to examine the impact of four predictor variables, principal salaries, district wealth, student socioeconomic status, and size of the school, on the achievement level of public school students in Mississippi, the dependent variable. Research cited indicated that these predictor variables may have influenced student achievement to some degree, either directly or indirectly. Student achievement was quantitatively measured by the state-required achievement tests. The data were obtained from the MDE website, publications, and in correspondence with the Mississippi Department of Education.

All public schools in the state were included if the scope of grades served were kindergarten through fifth grade, sixth through eighth grade, or ninth through twelfth grade. These three groups were addressed in the four research questions, ex post facto. There were a total of 315 schools in the state that had the grade configurations to be included (Table 1). Data were incomplete from 16 schools, so they were totally deleted. There remained a total of 299 schools (Table 2) for study.

57

Of the 110 elementary schools in this study, 32 were from one large, urban district. These schools were addressed separately in Research Question two to prevent a threat to internal validity

Descriptive statistics were used to determine the range, means, and standard deviations. An analysis of variance (ANOVA) was calculated and tested for statistical differences. Multiple linear regressions were performed to test which variable was the best predictor of student achievement test scores.

The results of this study are presented in the order of the four research questions that were answered by the study. The two elementary school questions were followed by the middle school and high school questions.

The significance of the correlation coefficient, Pearson product-moment coefficient, or Pearson *r*, between two variables is somewhat arbitrary (Hinkle, Wiersma, & Jurs, 1998). Fraenkel and Wallen (2000) asserted that "correlation coefficients below .35 show only a slight relationship between variables. Correlations between .40 and .60 are often found in educational research and may have theoretical or practical value, depending on the context" (p. 370). They further contend that correlations of less than .65 are frequently in error. Hinkle et al. provided Table 3 as a "rule of thumb for interpreting the size of a correlation coefficient" (p. 120).

58

Table 3

Describing the Strength of Correlations

0.00 - .19	Very low correlation
.20 - .39	Low correlation
.40 - .59	Moderate correlation
.60 - .79	High correlation
.80 - 1.00	Very high correlation

Research Question 1

Research Question 1 asked if there was a significant relationship between student achievement in reading in Mississippi public, non-urban (suburban and rural) elementary schools (grades K-5) and salaries paid to principals, district wealth, student socioeconomic status, and school size. There were 78 schools in this category.

Descriptive statistics were used to determine the range and mean as a measure of central tendency and to determine standard deviations (*SD)*. The non-urban elementary schools data indicated that there were higher *SDs* in district wealth, school size, and principal salary than in student test scores (Table 4). Approximately 68% of the schools' enrollment was between 215 and 830. That is one *SD* below to one *SD* above the mean of 523. The percentage of students in poverty within one *SD* of the mean was 35% to 98%. For principal salaries, the

59

one *SD* limits were \$60,579 and \$74,220, and for district wealth, \$24.77 and

\$73.86. The student test scores, the dependent variable, were closer to the mean of

85 (% PAA), with lower one *SD* calculated at 76 and the higher one *SD* at 94.

Table 4

Descriptive Statistics of Non-Urban Elementary Schools

	Min	*Max*	*Mean*	*Std. Deviation*
School size	102	1,524	522.72	307.40
Student poverty	0.3% [a]	100.0%	66.56%	31.76%
Principal salary	\$50,350.00	\$83,796.00	\$67,399.26	\$6,820.25
District wealth	\$19.58	\$122.93	\$49.31	\$24.55
Student test scores (% PAA)	62	96	84.95	8.76

[a] This incongruous minimum may be the result of a reporting error. n = 78

Simple Pearson *r* correlations were run on Research Question 1 data as

shown in Table 5. Using the standards established in Table 3, the data analysis

revealed a significant moderate negative relationship between student test scores

and student poverty, -.436. Thus, as student poverty increases, student

achievement test scores are more likely to decrease. There was a significant low

positive relationship between student test scores and school size, .350. There were

eight schools with enrollments of more than 1000 and five of these had mean test

60

scores of over 90%. This included three of four large elementary schools in DeSoto County, along with New Albany City and Madison County schools.

There was a significant low positive relationship between student test scores and principal salary, .281. Seven of the eight large elementary schools noted above pay principals above the mean for this group.

Data analysis also revealed a significant high negative relationship between school size and student poverty, -.601. All eight large schools have poverty levels below the mean of 66.56%. The large DeSoto County schools have poverty levels at the low end of the range. This indicates that larger schools are located in areas of less poverty.

It was also expected that there would be a significant low negative relationship between school size and school district wealth, -.291, for the reason noted in the last paragraph. There was also a significant low positive relationship between student poverty and school district wealth, .329. A review of the data revealed that of the schools with the highest district wealth, Tunica, Madison, Pascagoula, and Gulfport, only 2 of 25 schools were above the mean poverty level. Gulfport's seven elementary schools had poverty levels of between 98.5% and 100% for the school year studied. These four districts comprise almost 1/3 of the 78 non-urban elementary schools. (The Pascagoula and Gulfport schools were in the area devastated by Hurricane Katrina in August, 2005. The data indicates

61

both high property wealth for the district and high levels of poverty for students…unexpected data possibly related to the storm damage and rebuilding.)

Data analysis revealed a significant moderate positive relationship between principal salary and school district wealth, .465, indicating that salaries may be linked to school district wealth. No significant relationship was identified between principal salary and school size or student poverty.

Table 5

Pearson Correlation Data for Non-Urban Elementary Schools

Variables (Level of 2-tailed significance) Size	Poverty	Salary	Wealth	Scores
School size --	-.601**	-.050	-.291**	.350**
Student poverty	--	-.113	.329**	-.436**
Principal salary		--	.465**	.281*
District wealth			--	-.003
Achievement test scores				--

*p < .05; ** p < .01; n = 78

A linear regression analysis model summary (Table 6) determined if the four predictor variables accounted for a statistically significant amount of the variation in the dependent variable, student achievement in K-5 elementary schools (non-urban) in Mississippi. As shown in the table, R squared represents

62

the proportion of variations in the dependent variable explained by the regression

model, with possible values between 0 and 1. For these results R^2 indicated that

30.1% of the total variation in the student achievement scores in the elementary

schools can be accounted for by the linear combination of the four predictor

variables.

Table 6

Model Summary for Predictor Variables for Non-Urban Elementary Schools

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.549[a]	.301	.263	7.6737

a. Predictors: School size, Student poverty, Principal salary, District wealth

The R squared value of .301 indicated that slightly more than 30% of the

variability of student achievement was explained by the four predictor variables:

$R^2 = .301$, $F(4, 73) = 7.868$, $p < .001$ (See Table 7). The adjusted R square

attempted to adjust the R square for a better model fit. The F statistic indicated

that the predictor variables taken together were significant predictors of the

dependent variable.

63

Table 7

ANOVA[b] Results for Research Question 1, Non-Urban Elementary Schools

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1853.167	4	463.292	7.868	.000[a]
	Residual	4298.628	73	58.885		
	Total	6151.795	77			

a. Predictors: School size, Student poverty, Principal salary, District wealth

b. Dependent Variable: Student achievement (test scores)

The regression model (Table 8) displayed unstandardized and standardized coefficients. The Beta coefficients indicated the magnitude of the relationship between each of the predictor variables on the dependent variable, student achievement test scores. The greatest and only significant correlation with student achievement was student poverty and was negative: Beta = -.431, t (73) = -3.349, $p < .001$.

For Research Question 1, the only test that was statistically significant was the test for student poverty. This result indicated that only one variable, student poverty, significantly contributed to the predication of student achievement. The contribution of the other three variables to the predication of student achievement was explained by chance.

64

Table 8

Coefficients[a] for Research Question 1, Non-Urban Elementary Schools

	Variable	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	87.204	6.495		13.425	.000
	School size	2.123	1.284	.205	1.653	.103
	Student poverty	-5.300	1.583	-.431	-3.349	.001
	Principal salary	1.549	1.524	.111	1.017	.313
	District wealth	2.141	1.179	.213	1.816	.073

a. Dependent Variable: Student achievement (test scores)

Research Question 2

Research Question 2 asked if there was a significant relationship between student achievement in reading in the public, urban elementary schools (grades K-5) of a large Mississippi city and salaries paid to principals, district wealth, student socioeconomic status, and school size. There were 32 schools in this category.

Descriptive statistics were used to determine the range and mean as a measure of central tendency and to determine *SD* of the urban elementary schools. In comparing Table 9 data for the urban elementary schools with Table 4 data for non-urban elementary schools, there were higher standard deviations in student

65

achievement test scores and principal salary in the urban schools than in the non-urban schools. Lower standard deviations were found for students in poverty and in the size of the urban schools.

Approximately 68% of the schools' enrollments were between 326 and 558, that is one *SD* below to one *SD* above the mean of 442. The percentage of students in poverty within one *SD* of the mean was 68% to 94%. For principal salaries, the one *SD* limits were $67,319 and $75,201. The student test scores, the dependent variable, were closer to the mean of 81 (% PAA), with lower one *SD* calculated at 71 and the higher one *SD* at 90.

District wealth was the same for all schools, since all schools were in the same district. The district wealth variable was not included in the descriptive statistics table (Table 9) nor in any of the other statistical correlations or tests (Tables 10-13). However, for researcher information, the non-urban mean wealth was $49.31 maximum yield of one mill at the uniform minimum school district ad valorem tax levy per pupil, while this urban district's wealth was calculated by the MDE to have been $37.19.

66

Table 9

Descriptive Statistics of Urban Elementary Schools

	Min	*Max*	*Mean*	*SD*
School size	226	638	442.47	115.93
Student poverty	37.2%	94.1%	81.19%	12.53%
Principal salary	$64,794.00	$89,819.00	$75,201.03	$7,881.96
Student test scores (%PAA) 67		96	80.72	9.24

Note. District wealth = $37.19; n = 32

Simple Pearson *r* correlations were run on data for Research Question 2, as shown in Table 10. Using the standards established in Table 3, a moderate significant negative correlation was identified between test scores and student poverty, -.455. A similar moderate significant negative correlation, -.436, was found for the non-urban elementary schools in Research Question 1. No other significant correlations were identified for this research question.

67

Table 10

Pearson Correlation Data for Urban Elementary Schools

Variables (Level of 2-tailed significance)	Size	Poverty	Salary	Scores
School size	--	.061	.039	-.158
Student poverty		--	.155	-.455**
Principal salary			--	-.128
Test scores				--

** $p < .01$; n = 32

A linear regression analysis model summary determined if the three predictor variables accounted for a statistically significant amount of the variation in the dependent variable, student achievement in K-5 urban elementary schools in Mississippi (Table 11). R squared represents the proportion of variation in dependent variables that are explained by the regression model, with possible values between 0 and 1. The results indicated that 10.9% of the total variation in the student achievement scores in these elementary schools was explained by the combined influence of the three predictor variables.

68

Table 11

Model Summary for Predictor Variables for Urban Elementary Schools

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.331[a]	.109	.014	9.17535

a. Predictors: (Constant) School size, Student poverty, Principal salary

The R squared value of .109 indicated that about 11% of the variability of student achievement was explained by the three predictor variables: $R^2 = .109$, $F(3, 28) = 1.145$, $p < .348$ (Table 11). The F statistic indicated that the predictor variables taken together were not significant predictors of the dependent variable (Table 12).

Table 12

ANOVA[b] Results for Research Question 2, Urban Elementary Schools

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	289.230	3	96.410	1.145	.348[a]
	Residual	2357.239	28	84.187		
	Total	2646.469	31			

a. Predictors: School size, Student poverty, Principal salary
b. Dependent Variable: Student achievement (test scores)

69

The regression model displayed unstandardized and standardized coefficients (Table 13). The Beta coefficients indicated the magnitude of the relationship between each of the predictor variables on the dependent variable, student achievement test scores. The only significant correlation with student achievement was student poverty and was negative: Beta = -.261, t (28) = -1.458, $p < .156$.

For Research Question 2 relating to urban elementary schools, the only test that was statistically significant was the test for student poverty. This result indicated that only one variable, student poverty, significantly contributed to the predication of student achievement. The contribution of the other two variables to the predication of student achievement was explained by chance. These were similar to the results for non-urban elementary schools in Research Question 1.

Table 13

Coefficients[a] for Research Question 2, Urban Elementary Schools

	Variable	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	102.954	12.476		8.252	.000
	School size	-.552	2.501	-.039	.221	.827
	Poverty	-5.473	3.753	-.261	-1.458	.156
	Salary	-2.544	2.467	.184	-1.017	.311

a. Dependent Variable: Student achievement (test scores)

Research Question 3

Was there a significant relationship between student achievement in reading in Mississippi public middle schools (6-8) and salaries paid to principals, district wealth, student socioeconomic status, and school size? There were 67 schools in this category.

Descriptive statistics were used to determine the range and mean as a measure of central tendency. As shown in Table 14, the middle school data indicated that there were higher standard deviations in school size, principal salaries, and student test scores than in elementary schools. Approximately 68% of the middle schools' enrollment was between 344 and 1,028, which is one *SD* below to one *SD* above the mean of 684. The percentage of students in poverty within one *SD* of the mean of 61% was 37% to 85%. For principals salaries, the one *SD* limits were \$62,889 and \$80,767, and for district wealth, \$23.51 and \$65.69. The student test scores, the dependent variable, were farther from the mean of 59 (% PAA) than in the elementary schools, with lower one *SD* calculated at 43 and the higher one *SD* at 75.

71

Table 14

Descriptive Statistics of Middle Schools

	Min	*Max*	*Mean*	*Std. Deviation*
School size	145	1,574	683.99	344.06
Student poverty	10%	100%	61.23%	23.97%
Principal salary	$26,325.00[a]	$94,951.00	$71,827.52	$8,939.17
District wealth	$19.58	$122.93	$44.60	$21.09
Student test scores (%PAA)	21	89	58.76	15.64

[a] This incongruity may represent a principal who served less than a year. n = 67

Simple Pearson *r* correlations were run on Research Question 3 data and are displayed in Table 15. Data analysis revealed a significant high negative relationship between student poverty and student achievement test scores, -.636. This is the highest relationship between any variables in any of the four research questions. Analyses of the other three research questions found significant moderate negative relationships between student poverty and student achievement: -.436 for non-urban elementary, -.455 for urban elementary, and - .535 for high schools. Taken together, these data sets indicate that as student poverty increases, student achievement test scores are more likely to decrease.

Data analysis also revealed a significant moderate negative relationship between school size and student poverty, -.409. Only 4 of the 15 middle schools

72

with enrollment of more than 1,000 had poverty levels above the mean of 61%. This indicates that the larger middle schools are in areas of less poverty.

There was a significant low positive relationship between school size and principal salary, .359. This indicates that principals who serve schools with larger numbers of students have higher salaries than principals of smaller schools. Data analysis also revealed a significant low positive relationship between principal salary and school district wealth, .328. Wealthier districts paid middle school principals higher salaries than less wealthy districts. No statistically significant relationship was identified between school size and district wealth or student achievement test scores or between student poverty and principal salary or district wealth.

Table 15

Pearson Correlation Data for Middle Schools

Variables (Level of 2-tailed significance)	Size	Poverty	Salary	Wealth	Scores
School size	--	-.409**	.359**	-.111	.226
Student poverty		--	.026	.215	-.636**
Principal salary			--	.328**	.014
District wealth				--	.121
Achievement test scores					--

** $p < .01$; n = 67

73

A linear regression analysis model summary determined if the four predictor variables accounted for a statistically significant amount of variation in the dependent variable, student achievement in middle schools, grades 6-8, in Mississippi (Table 16). The results indicated that 42.3% of the total variation in the student achievement scores in the middle schools was explained by the combined influence of the four predictor variables.

Table 16

Model Summary for Predictor Variables for Middle Schools

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.650[a]	.423	.386	12.25775

a. Predictors: (Constant) School size, Student poverty, Principal salary, District wealth

The R squared value of .423 indicated that more than 42% of the variability of student achievement was explained by the four predictor variables: $R^2 = .423$, $F(4, 62) = 11.355$, $p < .001$ (Table 17). The adjusted R square attempted to adjust the R square for a better model fit. The F statistic indicated that the predictor variables taken together were significant predictors of the dependent variable.

74

Table 17

ANOVA[b] Results for Research Question 3, Middle Schools

	Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	6824.530	4	1706.132	11.355	.000[a]
	Residual	9315.649	62	150.252		
	Total	16140.179	66			

a. Predictors: School size, Student poverty, Principal salary, District wealth
b. Dependent Variable: Student achievement (test scores)

The regression model displayed unstandardized and standardized coefficients (Table 18). The Beta coefficients indicated the magnitude of the relationship between each of the predictor variables on the dependent variable, student achievement test scores. The greatest significant relationship on student achievement was student poverty and was negative: Beta = -.612, t (62) = -5.930, $p < .001$.

75

Table 18

Coefficients[a] for Research Question 3, Middle Schools

	Variables	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	92.062	10.635		8.657	.000
	School size	.615	2.227	.031	.276	.783
	Poverty	-17.755	2.994	-.612	-5.930	.000
	Principal salary	-1.471	2.521	-.062	-.583	.562
	District wealth	5.804	1.994	.291	2.911	.005

a. Dependent Variable: Student achievement (test scores)

For Research Question 3, the only test that was statistically significant was the test for student poverty. This result indicated that only one variable, student poverty, significantly contributed to the predication of student achievement. The contribution of the other three variables to the predication of student achievement was explained by chance.

Research Question 4

Research Question 4 asked if there was a significant relationship between student achievement in Mississippi public high schools (grades 9-12) and salaries paid to principals, district wealth, student socioeconomic status, and school size. There were 122 schools in this category.

76

Descriptive statistics were used to determine the range and mean as a measure of central tendency and to determine *SD*. As shown in Table 19, the high school data indicated that there were higher standard deviations in school size and in student test scores than in middle schools. The *SD*s were lower for district wealth and achievement test scores.

Approximately 68% of the high schools' enrollment was between 353 and 1,129, one *SD* below to one *SD* above the mean of 741. The percentage of students in poverty within one *SD* of the mean of 57% was 32% to 82%. For principal salaries, the one *SD* limits were $66,309 to $83,763, and for district wealth, $23.63 to $56.15.

The achievement test scores, the dependent variable, for the elementary and middle schools were from the Mississippi Curriculum Test in reading. The high school test used in this research was the American History Subject Area Test. This is usually the last achievement test that students take prior to graduation. It is a high-stakes test that must be passed prior to graduation. Test scores reported by the high schools in this study ranged from 328.7 and 408.0 with a *SD* of 17.3. This placed 68% of the scores between 348 and 382 around the mean of 365.

77

Table 19

Descriptive Statistics of Mississippi High Schools

	Min	*Max*	*Mean*	*SD*
School size	191	1,924	741.28	87.55
Student poverty	14%	100%	57.32%	24.61%
Principal salary	$53,000.00	$100,083.00	$75,036.47	$8,726.76
District wealth	$14.52	$122.93	$39.89	$16.26
Student test scores	328.7	408.0	364.79	17.28

n = 122

Simple Pearson *r* correlations were run on the Research Question 4, high school data, and displayed in Table 20. Using standards established in Table 3, the data analysis revealed a significant moderate negative relationship between student achievement and student poverty, -.535. Significant moderate to high negative relationships were also found between these variables in the elementary and middle school data sets. The results of all four research questions agree that there is a significant negative relationship between student achievement and student poverty.

There was also a significant very low positive relationship between student achievement and school size, .184. The relationship was not as large as in non-urban elementary schools, .350. These two positive relationships indicate that students in larger elementary and high schools score higher on student

78

achievement tests. No significant relationship was found in urban elementary or middle schools.

Data analysis revealed a significant low negative relationship between student poverty and principal salary, -.223. This indicates that high poverty schools have principals who earn lower salaries than principals in schools of lower poverty.

Data analysis also revealed a significant moderate positive relationship between high school size and principal salary, .573. School districts paid principals of larger high schools more than they pay principals of smaller high schools. There was a significant low positive relationship between principal salary and district wealth, .314. There was also a significant, but very low, positive relationship between school size and district wealth, .187. Wealthier districts have larger high schools and paid their principals more than less wealthy districts.

79

Table 20

Pearson Correlation Data for Mississippi High Schools

Variables *(Level of 2-tailed significance) Size*		*Poverty*	*Salary*	*Wealth*	*Scores*
School size	--	-.162	.573**	.187*	.184*
Student poverty		--	-.223*	.139	-.535**
Principal salary			--	.314**	.099
District wealth				--	.049
Test scores					--

*p < .05; ** p < .01; n = 122

A linear regression analysis model summary determined if the four predictor variables accounted for a statistically significant amount of the variation in the dependent variable, student achievement in Mississippi high schools (Table 21). The results indicated that 25.2% of the total variation in the student achievement scores in the high school American History exit exams was explained by the combined influence of the four predictor variables.

80

Table 21

Model Summary for Predictor Variables for High Schools

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.5020[a]	.252	.227	15.19994

a. Predictors: School size, Student poverty, Principal salary, District wealth

As shown in the linear regression table (Table 21), R square represents the proportion of variations in the dependent variable explained by the regression model, with possible values between 0 and 1. For these results the R squared value of .252 indicated that more than 25% of the variability of student achievement was explained by the four predictor variables: $R^2 = .252$, $F(4, 117) = 9.864$, $p < .001$ (Table 22). The adjusted R square attempted to adjust the R square for a better model fit. The F statistic indicated that the predictor variables taken together were significant predictors of the dependent variable.

The regression model displayed unstandardized and standardized coefficients. The Beta coefficients indicated the magnitude of the relationship between each of the predictor variables and the dependent variable, student achievement test scores (Table 23). The greatest significant relationship on student achievement was student poverty and was negative: Beta = -.444, $t(117) = -5.233$, $p < .001$.

81

Table 22

ANOVA[b] Results for Research Question 4, High Schools

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9115.533	4	2278.883	9.864	.000[a]
	Residual	27031.483	117	231.038		
	Total	36147.016	121			

a. Predictors: School size, Student poverty, Principal salary, District wealth
b. Dependent Variable: Student achievement (test scores)

Table 23

Coefficients[a] for Research Question 4, High Schools

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	390.756	9.508		41.099	.000
	School size	3.706	2.147	.158	1.726	.087
	Poverty	-13.706	2.619	-.444	-5.233	.000
	Principal Salary	-4.558	2.282	-.180	-1.997	.048
	District Wealth	4.514	2.201	.167	2.051	.043

a. Dependent Variable: Student achievement (test scores)

For Research Question 4, the only test that was statistically significant was the test for student poverty. This result indicated that only one variable, student poverty, significantly contributed to the predication of student achievement. The

82

contribution of the other three variables to the predication of student achievement

was explained by chance.

CHAPTER V

INTERPRETING FINDINGS

This study was designed to increase the body of knowledge relating to variables that affect student achievement. At least 147 of these variables have been identified in the literature in thousands of original studies (Hanushek, 1986; Wang et al., 1990). Many of these studies took place before the *No Child Left Behind Act of 2001* (U.S. Department of Education, 2002) was enacted and the resulting increased level of high stakes testing. Accountability is the polestar and high stakes tests have been the measure of success in education for the decade. The cry for accountability echoes through our schools and across the state and nation.

It is clear that educators and educational researchers have found student achievement a topic for which there is an unquenchable thirst and that it is fertile ground for continuing work. We seek to understand the immutable attributes of a school and to affect variables in ways to improve student achievement, and ultimately to improve the test scores that measure that achievement. Standardized tests are disapproved of and scorned by many educators. Regardless, the tests remain as the primary measure for student achievement and positive student outcomes (Fullan, 2001).

84

The purpose of the study was to examine the impact of four predictor variables on student achievement levels in Mississippi public schools. These were principal salaries, district wealth, student socioeconomic status, and school size. The schools were divided into four groups: kindergarten through fifth grade, non-urban; kindergarten through fifth grade, urban; sixth through eighth grade; and ninth through twelfth grades. Student achievement was quantitatively measured by the state-required standardized tests. The findings of this study may benefit school governing boards, other policymakers, other stakeholders, and education researchers.

Conclusions

The decision to make student achievement the dependent variable was an easy one. Student achievement is chief of the many outcomes of schooling. The selection of the predictor variables in this study was essentially random, considering the many possible choices. They range from the often studied to the rarely, perhaps never, studied.

Principal Salary

Of the four predictor variables that may have correlated with student achievement in this study, principal salary has rarely been examined. Principal salaries have been studied in connection with other questions, but not as they

relate specifically to student achievement (Melvin, 1999; Newton, 2001; Prince, 2002).

Given past research, one may have hypothesized that more effective principals would in some way, directly or indirectly, cause or correlate with an increase in student achievement. As a result these principals would be rewarded with higher salaries. The results of this study did not support that hypothesis. This study indicated that principal salaries had a significant correlation at the low positive level of .281 with student achievement only in non-urban elementary schools. This level of correlation, though significant in the statistical sense, shows only a slight relationship between the variables (Fraenkel & Wallen, 2000). This finding can be declared significant, but not meaningful.

There was no significant correlation in the urban elementary, middle, or high schools. Taken as a whole, the data indicate that more highly paid principals have not had a meaningful correlation with higher student achievement.

Researchers have often concluded that strong, effective principals are required for successful schools (Broad Foundation, 2003; Casavant & Cherkowski, 2001; Edmonds, 1980; Fullan, 2001; Glickman, 2002). Other research found that principals had statistically significant positive relationships with student achievement (Hallinger et al, 1996; IEL, 2000; Leithwood et al, 2004; Sims, 2005; Waters et al., 2003). Hank Bounds, the Mississippi

86

Superintendent of Education, has called for improving the skills of principals to increase student achievement (Miller, 2007).

The pool of available candidates to replace retiring principals and those who leave otherwise was shallow and of low quality (Burnham, 2006; Cusick, 2003; Glass & Bearman, 2003; Sutley, 1999; Whitaker, 2001). The only exception to the shortage was wealthy large districts (Cusick, 2003). Some districts have increased pay and support to help keep and recruit principals. Others have not. This research indicates that student achievement may not suffer in schools with poorly paid principals.

District Wealth

This study found no significant correlation between district wealth and student achievement at either elementary, middle, or high school levels. This may indicate that the Mississippi school funding plan, MAEP, has been working in the way that it was intended and that federal funding is also working as it was intended; that is, that these programs have been helping the districts most in need. Improving equity was one of the goals of the NCLB (Conley, 2003). However, these results contradict Callahan's (1997) and Johnson's (2005) finding that students in low-wealth districts in Mississippi did not receive an equitable or adequate education.

87

There were significant findings. District wealth had a moderate positive relationship with principal salaries at the non-urban elementary level, .465, and a low positive relationship at the middle school and high school levels, .328 and .314. This indicates that wealthier districts pay their principals higher salaries than lower wealth districts.

For the 2005-2006 fiscal year, the local districts in Mississippi provided just over one-fourth of district funding from local taxes, 27.52% (Bounds, 2007). Each district school board determines taxing levels on property, thus contributing significantly to the per pupil spending rate. The tax millage rate is called the local effort. The local effort and the per-pupil spending rates vary greatly among the 152 school districts. State funding plans are relatively straightforward, but federal funding plans use complex formulas to determine the distribution of their money to schools.

This study does not address local effort, nor does it address funding as such. It addresses district wealth, and that potentially affects schools and school finance in several ways. More wealthy districts may choose to provide more revenue while maintaining lower tax rates compared to less wealthy districts. Wealthy districts may be expected to correlate with wealthy parents and higher socioeconomic group students, resulting in higher achievement by students. Wealthy parents have the resources to provide more indirect support to schools, relative to poorer parents, through gifts and booster clubs for extracurricular

88

activities. Alternately, more wealthy parents may use their resources to support non-public schools, thereby draining financial support and higher socioeconomic group students from local public schools.

Socioeconomic Status of the Student

The third variable of the study had the greatest significance. Student socioeconomic status had a significant moderate to high negative correlation with student achievement in every school group. The correlation at non-urban and urban elementary schools was moderate negative at -.436 and -.455. Middle schools had a significant high negative correlation of -.636 and high schools were moderate negative at -.535. These were the highest correlations of this study and they agree with the studies cited above and others cited in the review of the literature.

Student socioeconomic status also had a significant high negative correlation with school size in non-urban elementary schools, -.601, and a significant moderate negative correlation in middle schools, -.409. The findings were not significant for the other school groups. This indicates that elementary and middle schools with larger enrollments of low socioeconomic status students attend smaller schools and students from wealthier families attend larger schools. Elementary schools ranged in size from 102 to 1,524, with the larger schools in

89

the faster growing areas of the state and small schools often in the more rural areas.

Socioeconomic status of the student or student poverty has also been widely studied. Coleman (1966), Hanushek (1986), and the "money doesn't matter" camp, contend that schools and spending on schools have little effect on student performance. They do, however, strongly agree that family socioeconomic status has an overriding statistical effect on student achievement. Indeed, there is almost universal agreement in educational research that student poverty has a negative correlation with student achievement (Fowler & Walberg, 1991; Hedges et al., 1994; Kozol, 1991; Leithwood et al., 2004). This study provided one more support for these findings.

School Size

The fourth variable was school size. There was a significant low positive correlation between school size and student achievement in non-urban elementary schools, .350, and a significant very low correlation with student achievement in high schools, .184. No significant relationship was identified in the other school groups. These low correlations show only a slight relationship between the variables. However, even the low significant correlation places this study with the minority camp in concluding that larger schools did not negatively relate to achievement.

90

School size has been studied for at least a century (Ravich, 2000). Increasing school size was a goal in earlier decades, but the tide turned in more recent years as many schools grew very large. Smaller size schools are now in favor and their positive impact on student achievement is confirmed by several researchers (Abbott et al., 2002; Alspaugh & Gao, 2003; Earthman, 2001; Lee, 2004; Lee & Smith, 1997). Most schools in Mississippi are small by national standards and it must be noted that some research has concluded that providing small schools did not guarantee high achieving students (Darling-Hammond et al., 2002; Howley & Howley, 2004).

Recommendations for Future Study

This study invites further study relating to principal recruitment and retention. Finding and retaining effective principals is a concern of many superintendents, just as finding and retaining quality teachers and superintendents are concerns for principals and school boards.

Additional research should be done into the function of principals in schools. Investigate principal leadership, effectiveness, and even the proper role of the principal in the school. Accountability puts the pressure on everyone in the educational system. Salaries are important and must be balanced with the demands of the position, tempered by the fiscal realities. Job enrichment, such as additional pseudo-administrators and assistants for principals, may be a partial

91

alternative to substantial pay increases. Other quality of life support may induce qualified administrators to remain on the job. Research may provide greater insight.

This study considered the effect of district wealth on student achievement. New research may uncover relationships between district wealth and district effort. There may be a relationship between support for non-public schools and tax rates. Wealthy districts may have more experienced teachers. In education, money always matters.

The research results of this study were inconsistent with other research on school size. What is the ideal size for schools in Mississippi? Why do students do well in larger schools? Have consolidated schools improved student achievement? Further research holds the answer.

Summary

The most significant and most important finding of this study is the dramatic impact that student poverty has on student achievement. In city schools and country schools, in elementary, middle, and high schools, poorer children scored poorly on their achievement tests. The analysis indicates that a decrease in poverty, an increase in student socioeconomic levels, will result in a dramatic increase in student achievement.

92

This confirms all past research: there is a pronounced relationship between poverty and student achievement as measured by test scores. Other relationships pale in comparison. More research may or may not be needed, but action is certainly needed to reduce the number of children in poverty in Mississippi and across the nation. Our goal should be that Mississippi no longer leads the nation in poverty or trails in educational achievement. Education and community spending should be targeted toward increased parenting skills, early childhood interventions and classes, homework support, after-school tutoring, family stabilization initiatives, and other parent assistance. These activities and others can mediate the negative impact of poverty on the student in the classroom.

The No Child Left Behind Act requires that all students meet grade level high standards by 2014. To that end, it is important that educators not only review research such as this paper, but that the information herein reaches those who actually advocate for and affect change.

93

REFERENCES

Abbott, M. L., Joireman, J., & Stroh, H. R. (2002). *The influence of district size, school size and socioeconomic status on student achievement in Washington: A replication study using hierarchial linear modeling* (Tech. Rep. No. 3). Seattle Pacific University, Washington School Research Center. Retrieved February 27, 2008, from https://www.spu.edu/orgs/ research/WSRC%20HLM%20District%20Size%20Final%2010-2-02.pdf

Adams, J. P. (1999). Good principals, good schools. *Thrust for Educational Leadership, 29*(1), 8-12.

Alliance for Excellent Education. (2002, December). *Teacher and principal quality initiative: Overview of current and proposed federal legislation* (Policy Brief). Washington, DC: Author.

Alspaugh, J., & Gao, R. (2003). *School size as a factor in elementary school achievement.* (ERIC Document Reproduction Service No. ED 475 062).

Arnold, J. J. (1970). *Assessing the quality of public education in Mississippi.* Doctoral dissertation, The University of Mississippi, University, MS.

Association for Supervision and Curriculum Development Infobrief. (1995, October). *Expanding the debate to encompass student achievement.* (Policy Brief). Alexandria, VA: Author.

Ayers, W., Bracey, G., & Smith, G. (2000, December 14). *The ultimate education reform? Make schools smaller.* (Report CERAI-00-35). Milwaukee, WI: Center for Education Research, Analysis, and Innovation at University of Wisconsin-Milwaukee. Retrieved February 12, 2008, from http://epsl.asu.edu/epru/point_of_view_essays/cerai-00-35.htm

Barth, R. S. (1986). Principal-centered professional development [Electronic version]. *Theory Into Practice, 25*(3), 156-161.

Beeson, E., & Strange, M. (2003, February). *Why rural matters 2003: The continuing need for every state to take action on rural education* (Report). Washington, DC: Rural School and Community Trust. Retrieved February 27, 2008, from www.ruraledu.org/.../apps/nl/content3 .asp?content_id=%7B376DF16C-808A-4B04-AFEC-44D7C26E531F%7D&notoc=1

Bickel, R., & Howley, C. (2000). The influence of scale on school performance: A multi-level extension of the Matthew principal [Electronic version]. *Education Policy Analysis Archives, 9*(22).

Bickel, R., Howley, C., Williams, T., & Glascock, C. (2001). High school size, achievement, equity, and cost: Robust interaction effects and tentative results [Electronic version]. *Education Policy Analysis Archives, 9(40).*

Bounds, H. M. (2007). *Superintendent's annual report for 2005-2006.* Jackson, MS: Mississippi Department of Education. Retrieved March 2, 2008, from http://www.mde.k12.ms.us/Account/2007Report/TOC07.html

Broad Foundation. (2003, May). *Better leaders for America's schools: A manifesto* (Policy Brief). Washington, DC: Author.

Burnham, T. (2006, Spring). Dean's message. *Ole Miss Educator: School of Education Newsletter, 2*(1), 2.

Callahan, L. Jr. (1997). *An equity study of Mississippi's k-12 state school finance system.* Doctoral dissertation, Mississippi State University, Mississippi State, MS.

Card, D, & Payne, A. A. (2002). School finance reform, the distribution of school spending, and the distribution of student test scores. *Journal of Public Economics, 83*(2002), 49-82.

Carr, N. (2003, February). The toughest job in America. *Education Vital Signs 2003* [Supplement to American School Board Journal], 14-20.

Casavant, M. D., & Cherkowski, S. (2001). Effective leadership: Bringing mentoring and creativity to the principalship. *NASSP Bulletin, 85*(624), 71-81.

Clark, M. A. (2003). Education reform, redistribution, and student achievement: Evidence from the Kentucky Education Reform Act. Unpublished working paper, Princeton University, Princeton, New Jersey. Retrieved March 2, 2008, from http://www.princeton.edu/~maclark/kera.pdf

Clowes, G. A. (2000, January). Incentives: The fundamental problem in education. An interview with Eric A. Hanushek. *School Reform News*. Retrieved February 29, 2008, from http://www.heartland.org/Article.cfm?artId=11101

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfield, F. D., & York, R. L. (1966). *Equality of educational opportunity* (OE-38001). Washington, DC: U.S. Department of Health, Education, and Welfare.

Collins, J. C. (2001). *Good to great: Why some companies make the leap…and others don't.* New York: Harper Collins.

Conley, D. T. (2003). *Who governs our schools? Changing roles and responsibilities.* New York: Teachers College Press.

Crowson, R. L. (2003). The turbulent policy environment in education: Implications for school administration and accountability. *Peabody Journal of Education, 78*(4), 29-43.

Cusick, P. A. (2003, January). *A study of Michigan's school principal shortage.* (Policy Report No. 12). East Lansing, MI: The Education Policy Center at Michigan State University.

Darling-Hammond, L. (2004). Standards, accountability, and school reform [Electronic version]. *Teachers College Record, 106*, 1047-1085.

Darling-Hammond, L., Ancess, J., & Ort, S. (2002). Reinventing high school: Outcomes of the Coalition Campus Schools Project. *American Educational Research Journal, 39*(3), 639-673.

Duncombe, W., & Yinger, J. (1998). School finance reform: Aid formulas and equity objectives. *National Tax Journal, 51*(2), 239-262.

Dyer, T. J. (1997, April). While school enrollment skyrockets, principals' salaries increase slightly. *Newsleader, 44*, 2-3.

96

Earthman, G. I. (July 25, 2001). *The size of the school population is important: A report to the school board and administration, Falls Church City School Division.* Blacksburg, VA: Virginia Polytechnic Institute & State University.

Edmonds, R. R. (1980). Effective education for minority pupils: Brown confounded or confirmed. (Derrick Bell, ed.). *Shades of Brown: New perspectives on school desegregation*. New York: Teachers College Press.

Educational Research Service. (1998). *Is there a shortage of qualified candidates for openings in the principalship? An exploratory study.* Arlington and Reston, VA: National Association of Elementary School Principals and National Association of Secondary School Principals.

Educational Research Service. (2000). *The principal, keystone of a high-achieving school: Attracting and keeping the leaders we need.* Alexandria and Reston, VA: National Association of Elementary School Principals and National Association of Secondary School Principals.

Finance snapshots. (2005, January 6). *Education Week*, *24*, 60-76.

Flanigan, R. L. (2004, February). Setting the bar higher. *American School Board Journal* (Suppl. Education Vital Signs 2004), 21-25.

Fowler, W. J., Jr., & Walberg, H. J. (1991). School size, characteristics, and outcomes. *Educational Evaluation and Policy Analysis, 13*(2), 189-202.

Fraenkel, J. R., & Wallen, N. E. (2000). *How to design & evaluate research in education* (4th ed.). Boston: McGraw Hill.

Fullan, M. (2001). *The new meaning of educational change* (3rd ed.). New York: Teachers College Press.

Glass, T. E., & Bearman, A. (2003, March). *Superintendent selection of secondary school principals* (Issue Paper). Denver, CO: Education Commission of the States. Retrieved March 2, 2008, from http://www.ecs.org/ecsmain.asp?page=/clearinghouse/42/84/4284.doc

Glickman, C. D. (2002). The courage to lead. *Educational Leadership, 59*(8), 41-45.

Grissmer, D., Flanagan, A., & Williamson, S. (1997). *Does money matter for minority and disadvantaged students? Assessing the new empirical evidence.* National Center for Education Statistics. Retrieved March 2, 2008, from http://nces.ed.gov/pubs98/dev97/98212d.asp

Hallinger, P., Bickman, L., & Davis, K. (1996). School context, principal leadership, and student reading achievement. *The Elementary School Journal, 96*(5), 527-549.

Hallinger, P., & Heck, R. H. (1998). Exploring the principal's contribution to school effectiveness: 1980-1995. *School Effectiveness and School Improvement, 9*(2), 157-191.

Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in public schools [Electronic version]. *Journal of Economic Literature, 24*(3), 1141-1177.

Hanushek, E. A. (1997). *Adjusting for differences in the costs of educational inputs.* Washington, DC: National Center of Educational Statistics (NCES Research and Development Report 1999-334).

Hedges, L. V., Laine, R. D., & Greenwald, R. (1994). Does money matter? A meta analysis of studies of the effects of differential school inputs on school outcomes. *Educational Researcher, 23*, 5-14.

Hilling, F. (2004). Developing a fair salary policy for principals [Electronic version]. *AASA Journal of Scholarship and Practice, 1*(2), 10-12.

Hinkle, D. E., Wiersma, W., & Jurs, S. G. (1998). *Applied statistics for the behavioral sciences.* Boston: Houghton Mifflin.

Hirsch, E. D., Jr. (1996). *The schools we need and why we don't have them.* New York: Doubleday.

Hirsch, E., Fuller, E., & Church, K. (2007, July 16). *Cultivate learning environments to accelerate recruitment and retention, An interim report on the Mississippi Project CLEAR Voice survey* (Report). Center for Teaching Quality. Retrieved February 29, 2008, from http://projectclearvoice.com/ms07_interim_report.pdf

Hoffman, L., Sable, J., Naum, J., & Gray, D. (2005). *Public elementary and secondary students, staff, schools, and school districts: School year 2002-03* (NCES 2005-314). U. S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved March 2, 2008, from http://nces.ed.gov/pubs2005/2005314.pdf

Howley, C. B., & Bickel, R. (1999). The Matthew project: National report. *Randolph, VT: Rural Challenge Policy Program.* (ERIC Document Reproduction Service No. ED 433 174)

Howley, C. B., & Howley, A. A. (2004, September 24). School size and the influence of socioeconomic status on student achievement: Confronting the threat of size bias in national data sets. *Education Policy Analysis Archives, 12*(52). Retrieved February 22, 2008, from http://epaa.asu.edu/epaa/v12n52/

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*(3), 499-534.

Institute for Educational Leadership. (2000, October). *Leadership for student learning: Reinventing the principalship.* (ERIC Reproduction Service No. ED 458 685). Washington, DC: Author.

Johnson, H. L. (2003). *2003 Mississippi Department of Education Annual Report*. Jackson, MS: Mississippi Department of Education.

Johnson, J. (2005, November). *Student achievement and the distribution of human and fiscal resources in Mississippi public school districts* (Report). Washington, DC: Rural School and Community Trust. Retrieved March 2, 2008, from http://www.ruraledu.org/site/c.beJMIZOCIrH/b.1002805/apps/nl/content3.asp?content_id={673EBA2D-27EC-4084-A780-6F445176BFE1}&notoc=1

99

Joint Committee on Performance Evaluation and Expenditure Review. (1993). School districts' FY 1992 spending for central office administrators' and principals' salaries and potential administrative savings available for redirection to classroom instruction (PEER Report #299). Jackson, MS: The Mississippi Legislature.

King, R. A., Swanson, A. D., & Sweetland, S. R. (2003). *School finance: Achieving high standards with equity and efficiency* (3rd ed.). Boston: Allyn & Bacon.

Kober, N. (2001). *It takes more than testing: Closing the achievement gap.* Center on Education Policy. Retrieved April 19, 2008, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/17/22/a6.pdf

Kozol, J. (1991). *Savage inequalities: Children in America's schools*. New York: Crown Publishers.

Lashway, L. (2002, November). Trends in school leadership. *ERIC Digest 162*. Retrieved March 2, 2008, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1a/96/3b.pdf

Lazear, E. P., & Shaw, K. L. (2007, November). *Personnel Economics: The economist's view of human resources* (Working Paper 13653). National Bureau of Economic Research, Cambridge, MA.

Lee, V. E. (2004). Effects of high-school size on student outcomes: Response to Howley and Howley. *Education Policy Analysis Archives, 12*(53). Retrieved March 2, 2008, from http://epaa.asu.edu/epaa/v12n53/

Lee, V. E., & Loeb, S. (2000). School size in Chicago elementary schools: Effects on teachers' attitudes and students' achievement. *American Educational Research Journal, 37*(1), 5-31.

Lee, V. E., & Smith, J. B. (1997). High school size: Which works best, and for whom? *Educational Evaluation and Policy Analysis, 19*(3), 205-227.

Leithwood, K., Louis, K. S., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning*. New York: The Wallace Foundation.

100

Loeb, S. (2001). Estimating the effects of school finance reform: A framework for a federalist system. *Journal of Public Economics, 80*(2), 225-247.

Matthews, K. M., Watt, A. D., Brown, C. L., & Dayton, J. (1992, March). *Local wealth and teachers' salaries in Pennsylvania*. Paper presented at the American Education Finance Association, New Orleans. (ERIC Document Reproduction Service No. ED 354 602).

McCreight, C. (2001). *Solutions to securing qualified principals*. (ERIC Reproduction Service No. ED 452 613).

Melvin, J. C. (1999). *An analysis of average principals' salaries in the Commonwealth of Virginia.* Doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Miller, G. (2007, November 11). Efforts being made to improve school leadership. *Northeast Mississippi Daily Journal*. Retrieved March 2, 2008, from http://www.djournal.com/pages/story .asp?ID=259492&pub=1&div=News

Miller-Whitehead, M. (2000). *Do teacher salaries make a difference? Tennessee teachers' salaries and student achievement in the year 2000* (Report No. TM032349) (ERIC Document Reproduction Service No. ED 449 206)

Mississippi Department of Education (2007a). *Mississippi assessment and accountability reporting system*. Jackson, MS: Author. Retrieved March 2, 2008, from http://orsap.mde.k12.ms.us:8080/MAARS/index.jsp

Mississippi Department of Education. (2007b). *Mississippi public school accountability standards.* Jackson, MS: Author. Retrieved March 2, 2008, from http://www.mde.k12.ms.us/accred/accred.html

Mitchell, N. (2008, February 9). Principal merit pay plan back on track. *Rocky Mountain News*. Retrieved March 2, 2008, from http://www.rockymountainnews.com/news/2008/feb/09/principal-merit-pay-plan-back-on-track/

Munoz, M., Winter, P. A., & Rinehart, J. S. (2003). Head of the school: How one district recruits new principals. *American School Board Journal, 190*(5), 35-36.

101

Murray, S. E., Evans, W. N., & Schwab, R. M. (1998). Education-finance reform and the distribution of education resources. *The American Economic Review, 88*(4), 789-812.

Napier, L. (1997, November). *Funding disparities between public school districts in Mississippi.* Paper presented at the annual meeting of the Mid-South Educational Research Association, Memphis, TN. (ERIC Document Reproduction Service No. ED 417 471).

National Commission on Excellence in Education. (1984). *A nation at risk: The full account* (USA Research, Ed.). Portland: USA Research.

Newton, R. M. (2001, November). *An investigation of variables that influence teacher attraction for the principalship.* Paper presented at the annual meeting of the Mid-South Educational Research Association, Little Rock. (ERIC Document Reproduction Service No. ED 470 422).

Odden, A. R. (1999). *Improving state school finance systems: New realities create need to re-engineer school finance structures* (CPRE Occasional Paper Series OP-04). Philadelphia: University of Pennsylvania, Consortium for Policy Research in Education.

Odden, A. R. (2000). The new school finance: Providing adequacy and improving equity. *Journal of Education Finance, 25*(Spring), 467-488.

Odden, A. R., & Picus, L. O. (2000). *School finance: A policy perspective* (2nd ed.). New York: McGraw-Hill.

O'Donnell, R. J., & White, G. P. (2005). Within the accountability era: Principals' instructional leadership behaviors and student achievement. *NASSP Bulletin, 89*(645), 56-71.

Olson, L. (2005, January 6). Financial evolution. *Education Week, 24*, 8-14.

Orlofsky, G. F. (2002). *The funding gap: Low-income and minority students receive fewer dollars.* Washington, DC: The Education Trust.

Pinkerton, J. P. (2003, January/February). A grand compromise [Electronic version]. *The Atlantic Monthly*.

Pounder, D. G., & Merrill, R. J. (2001). Job desirability of the high school principalship: A job choice theory perspective. *Educational Administration Quarterly, 37*(1), 27-58.

Prince, C. D. (2002, June). *Higher pay in hard-to-staff schools: The case for financial incentives.* Arlington, VA: American Association of School Administrators. Retrieved March 2, 2008, from http://www.aasa.org/files/ PDFs/Publications/higher_pay.pdf

Ravitch, D. (2000). *Left back: A century of failed school reforms*. New York: Simon & Schuster.

Reitz, J. C. (1993). Public school financing in the United States: More on the dark side of intermediate structures. *Brigham Young University Law Review*, *1993*(2), 623-644.

Reschovsky, A. (1994). Fiscal equalization and school finance. *National Tax Journal, 47*(1), 185-197.

Rothrock, S. (2004). *Predicting elementary school student achievement: The impact of principal gender and principal leadership skills.* (Doctoral dissertation, University of Louisville, 2004). *Dissertation Abstracts International*, ProQuest AAT 3134183.

Roza, M., Celio, M. B., Harvey, J., & Wishon, S. (2003). *A matter of definition: Is there truly a shortage of school principals?* Seattle: The University of Washington, Center on Reinventing Public Education. Retrieved March 2, 2008, from www.crpe.org/about/mr/cv/roza107.pdf

Rudestam, K. E., & Newton, R. R. (2001). *Surviving your dissertation; A comprehensive guide to content and process*. Thousand Oaks, CA: Sage.

Sims, C. E. (2005). *The effects of principals' leadership practices on school climate and student achievement in Title 1 elementary schools*. Doctoral dissertation, Union University, Jackson, TN.

Southern Association of Colleges and Schools Council on Accreditation and School Improvement. (2005). *Accreditation standards 2005.* Decatur, GA: Author.

Stover, D. (2002). Looking for leaders. *American School Board Journal, 189*(12), 38-40.

Sutley, B. (1999, December). *Principal pipeline addresses statewide shortage.* Hattiesburg, MS: University of Southern Mississippi.

Thompson, R. L. (2001). *2001 Annual report of the state superintendent of education.* Jackson, MS: Mississippi Department of Education.

U. S. Department of Education. (2002). *No child left behind.* Retrieved March 2, 2008, from http://www.ed.gov/policy/elsec/leg/esea02/index.html

Verstegen, D. A., & King, R. A. (1998). The relationship between school spending and student achievement: A review and analysis of 35 years of production function research. *Journal of Education Finance, 24,* 243-262.

Walsh-Sarnecki, P. (2000, December 21). School improvements tied to principals. *The Detroit Free Press.* Retrieved May 23, 2005, from http://www.freep.com/news/education/nskuls21_20001221.htm

Wang, M., Haertel, G., & Walberg, H. (1990). What influences learning? A content analysis of review literature. *Journal of Educational Research. 84,* 30-45.

Waters, J. T., Marzano, R. J., & McNulty, B. A. (2003). *Balanced leadership: What 30 years of research tells us about the effect of leadership on student achievement.* Aurora, CO: Mid-continent Research for Education and Learning.

Whitaker, K. (2001). Where are the principal candidates? Perceptions of superintendents. *NASSP Bulletin, 85*(625), 82-92.

Winter, P. A., & Morgenthal, J. R. (2002). Principal recruitment in a reform environment: Effects of school achievement and school level on applicant attraction to the job. *Education Administration Quarterly, 38*(3), 319-340.

Witziers, B., Bosker, R. J., & Kruger, M. L. (2003). Educational leadership and student achievement: The elusive search for an association. *Educational Administration Quarterly, 39*(3), 398-425.

Yerkes, D. M., & Guaglianone, C. L. (1998). Where have all the high school administrators gone? *Thrust for Educational Leadership, 28*(2), 10-15.

Youngs, P., & King, M. B. (2002). Principal leadership for professional development to build school capacity. *Educational Administration Quarterly, 38*(5), 643-670.

APPENDIX A

DATA COLLECTION

106

Data Collection

The following data were retrieved from the Mississippi Department of Education website, Superintendent's Annual Report for the year 2005-2006 (http://www.mde.k12.ms.us/Account/2007Report/TOC07.html):

School district/Schools in grades K-5, 6-8, 9-12

School size - School average daily attendance
Student socioeconomic status - Percent students receiving free or reduced price lunch
District wealth - The maximum yield of one mill at the uniform minimum school district ad valorem tax levy (33.04) per pupil. The calculation was made by taking the gross assessed valuation that included all real, personal, and public service property. Exemptions were then allowed for those 65 years old and older or disabled as defined by statute. Homestead exemption credit was then given for most homeowners under the age of 65 and a calculated reimbursement was made to the districts by the state for both credit categories. This calculation resulted in the taxable property value, for the district per pupil. The maximum yield of one mill at the uniform minimum school district ad valorem tax levy per pupil was used for comparative purposes to show the effect of placing all districts at the same levy and determining the effects of the assessed valuation differences between districts.
Student achievement – Percent students scoring "proficient and above" on the Mississippi Curriculum Test in reading for fifth and eighth grade students. The listed score on the Subject Area Test in U. S. History for high schools

Principal salary data were provided by email upon verbal request to the Mississippi Department of Education. Principal salaries are public record and are available in the school board minutes of each school board. School board minutes are public records by statute.

Data were entered into Excel database format, and then copied to SPSS (Statistical Package for the Social Sciences) for final calculations and analyses.

107

APPENDIX B

INSTITUTIONAL REVIEW BOARD

Institutional Review Board

The Institutional Review Board office was contacted and advised that their approval was not required since there would be no human subjects involved with or contacted in any way whatsoever in the course of this research. All data were public records and are available to any interested party for any reason.

This statement is taken from the Mississippi State University IRB website:

"The Institutional Review Board for the Protection of Human Subjects in Research (IRB) reviews all research activities which involve human subjects for compliance with federal regulations and ethical standards. All human research conducted at, by, or under the auspices of this institution, whether funded or not, and whether conducted by the administrators, faculty, staff, or students, must be reviewed and approved before the research begins. The information available on this page is intended to guide you through the review process."

(http://www.orc.msstate.edu/human/)