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Teacher Compensation and the Academic Achievement of Elementary Students

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Doctor of Education

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DECLARATION OF ORIGINALITY

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for another college or university course or degree here or elsewhere.

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TEACHER COMPENSATION AND THE ACADEMIC ACHIEVEMENT OF ELEMENTARY STUDENTS

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Abstract

This study examined Missouri Assessment Program achievement scores and teacher salaries to determine if a correlation existed. Student achievement scores and teacher salaries were obtained from the Missouri Department of Elementary and Secondary Education for the 2006-2007 school year. Analysis of the data indicated there was a significant correlation between student achievement as measured by the Missouri Assessment Program and teacher salaries.

This study is part of a companion project. The researchers collaborated on the research portion of this study. The researchers shared common goals, defined their roles in the review of literature and coordinated efforts to produce this project. Each researcher utilized a different target population but focused on the same topic.

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CHAPTER ONE-INTRODUCTION

Every year more and more pressure is applied from the state and federal levels on schools to increase student achievement. This has brought about policies and systems to measure performance and strengthen accountability of schools. One such example is the No Child Left Behind Act (NCLB) of 2001. Under this legislation, all students should perform at a proficient level in the core academic areas by the year 2014 (Jennings & Rentner, 2006). Teacher quality and teacher shortages are topics discussed frequently among educators, lawmakers, and researchers. A high concern are the quality and number of teachers available in certain content areas and those available to serve certain groups of students (Goldhaber, 2003).

Increasing school funding is often considered the answer to solving the problems of poor student performance. In response to concerns about teacher supply and quality, some have called for school districts to move away from the common practice of basing teacher salaries on degrees and experience (Hassel, 2002).

Missouri has wide-ranging teacher salary schedules with varying base salaries and increments. The Missouri State Teachers Association (MSTA) reported the range in

base salary in the school year 2006-2007 ranged from $23,000 to $39,140, with the average teacher salary in the state of Missouri at $43,524. According to the MSTA annual survey, Missouri ranked 42nd in the nation for its average teacher salary in 2006-07 (MSTA, 2007).

Statement of the Problem

This study examined if a correlation exists between student achievement and average teacher salary. Many school districts have increased their base salary pay in order to attract quality teachers to their districts. States have mandated improved student achievement scores on state exams and NCLB legislation has significantly increased the emphasis and accountability for student achievement. In Missouri, educators are held accountable for Missouri Assessment Program (MAP) scores. The purpose of this study was to determine if higher teacher average salary increased student achievement. MAP index scores in Math and Communication Arts were used to represent student achievement. The scores were analyzed by individual subject area.

Purpose of the Study

Increased student achievement is a goal of all educators and administration. The purpose of this study was

to determine whether or not teacher compensation is correlated with student achievement. Standardized test scores are one indicator of the quality of learning that takes place at a particular school. Increased teacher salaries cost school districts and the state money. Approximately 70% of a school district's budget is spent on teacher salaries and benefits (Dees and Keys, 2005). The following question guided this study:

1. Does increasing teacher pay increase student achievement on the Missouri Assessment Program?

Additionally, this study was intended to determine if a positive correlation existed between student achievement and teacher compensation. Individual school districts must determine whether spending money on increasing teacher salaries is a worthwhile cause or if their financial resources could be better used in other ways.

Increased accountability in public education has generated debate over the cost-effectiveness of America's schools. Taxpayers want to know where dollars are being spent and whether additional monies for teacher salaries are justified (Hassel, 2002). This study will help school districts make an informed decision regarding teacher

salaries based on student performance of randomly selected school districts in the state of Missouri.

Null Hypotheses

H_0: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured by the mean third through fifth grade index scores.

H_1: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the third grade level in communication arts.

H_2: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the third grade level in mathematics.

H_3: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fourth grade level in communication arts.

H_4: There is no statistically significant correlation at the .05 level between teacher compensation and student

academic achievement on the Missouri Assessment Program as measured at the fourth grade level in mathematics.

H_5: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fifth grade level in communication arts.

H_6: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fifth grade level in mathematics.

Definition of Terms

American College Test (ACT). A college-entry exam, which is taken by a student during his or her sophomore, junior or senior years (ACT, 2008).

Career ladder: A performance-based compensation program which provides teachers with opportunities to take on new roles and responsibilities in addition to their classroom duties (MDESE, 2008).

D*ifferentiated compensation system.* A compensation system that rewards teachers for being skilled in their profession (Shanker, 2006).

Grade level expectations (GLE's). Grade Level Expectations for each grade level and subject area at the secondary level (DESE, 2008).

Merit pay: Supplemental pay based on performance reviews and for assuming extra responsibilities outside of the classroom (Blair, 2001).

Missouri Assessment Program (MAP): A performance based assessment system, as required by the Outstanding Schools Act of 1993, which is used by all public schools in the state of Missouri (Ciotti, 1998).

Missouri State Teachers Association (MSTA): The Missouri State Teachers Association is a grassroots organization made up of local Community Teachers Associations in each local school district (MSTA, 2007).

No Child Left Behind (NCLB): Legislation that requires schools make "adequate yearly progress" in raising student achievement (Peterson, 2005).

Single-salary schedule: A compensation plan that compensates teachers based on their years of service and the number of college degrees earned (Azordegan, et al., 2005).

Uniform-salary schedule: A salary schedule which pays teachers based on their experience and education (Dees & Keys, 2005).

Assumptions of the Study

1. All districts involved in this study submitted accurate data to the Missouri Department of Elementary and Secondary Education during the 2006-2007 school year.

2. All data reported by the MDESE during the 2006-2007 school year was accurate.

Limitations of the Study

1. The study was limited to academic data gathered from the 2006-2007 school year.

2. The study was limited to students attending third through fifth grades in Missouri public school districts.

3. The study was comprised of randomly selected school districts in Missouri.

Summary

This study focused on 300 randomly selected school districts in the state of Missouri. Data from the 2006-2007 school year were analyzed using Missouri Assessment Program (MAP) index scores in the areas of Math and Communication Arts and American College Testing (ACT) district composite

scores. Researcher A focused on the MAP scores and Researcher B focused on the American College Test (ACT) scores. The data were analyzed using a linear regression. Due to the increase in state and federal mandates to raise student achievement, educators and policy makers search to find solutions. The ultimate goal of increasing student performance causes school districts to utilize school funds in the most important way. The purpose of this study was to determine if teacher compensation has a significant impact on the academic performance of students. The results will help educators and administrators determine if their resources are being used in an advisable method.

This study was presented following a five chapter format, with chapter one providing an introduction to the study. Chapter two provided an extensive review of relevant literature in the areas of school reform, achievement results, and teacher compensation systems. Chapter three presented the research design and methodology in detail. Chapter four examined the findings of the study. Chapter five summarized and analyzed the findings and discussed the implications for further research and practice.

CHAPTER TWO-REVIEW OF RELEVANT LITERATURE

Introduction

This study was designed to determine whether or not teacher compensation is correlated with student achievement. Increased pressure to raise student achievement makes it important to determine if financial resources are used in the most beneficial manner. Standardized test scores are an indicator of the quality of learning that takes place at a particular school (Gallagher, 2002). The increase in teacher salaries costs school districts and the state money. A portion of every dollar a district receives is spent on instructional items such as salaries for classroom teachers, supplies, and professional development (Dees and Keys, 2005). Approximately 66% of a school district's budget is spent on teacher salaries and benefits (Brunner, 2004). School districts can determine if the school budget dedicated to teacher salaries is a worthwhile cause or if their financial resources could be better used in other ways.

In the debate over public education, great teaching is vital. Research, not opinion, shows that teachers have a greater impact on student achievement than any other

educational factor (Hassel, 2002). During the past decade, efforts to improve public education have made great strides including a focus on accountability, school choice expansion, and a commitment to invest in the future of education (Hassel, 2002). It is unfathomable to imagine improvements in education without dramatic improvements in teaching. Teaching experience is loosely related to teaching quality, especially beyond the first few years in teaching (Hassel, 2002).

In order to improve teaching, educators must entice more people with high teaching potential to the profession, convince effective teachers to remain in the classroom, encourage and support great teachers to take on tough teaching assignments, support teachers with professional development to increase student achievement, and encourage ineffective teachers to withdraw from the profession (Hanushek & Rivkin, 2007). Are dollars spent on teacher salaries and benefits linked to improved teacher quality and student performance? It is important to focus on how teachers' experience and education, the characteristics traditionally rewarded in teacher salary schedules, effect student achievement. Many states are restructuring teacher

compensation systems to enhance teacher quality based on these elements (Hanushek & Rivkin, 2007).

Researcher Lisa May compiled portions of Chapter II relative to the American College Test (ACT), single-salary pay schedules, NCLB, and public schools with student populations exceeding 1,500 or more. Researcher Doug Arnold focused on the Missouri Assessment Program (MAP), merit pay, career ladder, alternative pay methods, and public schools with student populations of fewer than 1,500 students.

Salary Schedules

The vast majority of United States school districts base teacher pay on a single-salary schedule that rewards years of experience in combination with degrees earned or advanced courses taken (Odden, 2000). How teachers are paid is once again a hot political issue with a number of legislators across the nation. Many are calling for a shift away from the seniority-based pay system and would prefer to have a compensation system that is tied to student results.

The single-salary teacher compensation structure has been in place across the United States for at least the last 50 years (Odden, 2000). By 1950, 97 percent of all

schools adopted the single-salary structure which provides teachers monetary and incentive rewards based on years of experience in the profession and the number of college degrees earned. This formula for calculating teacher salaries assumes that teaching effectiveness is increased with experience and completion of advanced degrees increases teaching ability and performance in the classroom. This structure has been criticized for not providing opportunities for teachers to be rewarded for using good teaching methods and for not holding teachers accountable for student learning. In response to this structure, merit pay systems were developed.

In the early 2000s, public elementary and secondary schools spent roughly $180 billion on teachers' salaries and benefits, about half of their total expenditures (Dees & Keys, 2005). Most of this was distributed according to a fixed salary schedule. A uniform-salary schedule pays teachers based only on their experience and education (Dees & Keys, 2005). In an effort to maximize the investment return, states and school districts across the country have experimented with a variety of teacher compensation methods, including linking teacher pay to student

performance. The main types of teacher compensation systems include the single-salary structure and the performance-based compensation system (Plucker, 2005).

Teacher unions have defended a standard single-salary schedule in the name of employee equity and fairness. The 1970's and 1980's brought experiments with merit pay. In this system, teachers were awarded pay increases based on their administrator's personal judgment of their prior year's performance (Azordegan, et al., 2005).

With the single-salary schedule system, a teacher is rewarded for his or her years of service and for the number of college degrees earned. This system assumes that teaching ability increases with experience and completion of college degrees increases teaching ability and performance in the classroom. Teachers working in this system feel the freedom to help and work with one another instead of hiding their strategies and techniques (Heneman, 2006).

The single-salary structure has been criticized for not providing opportunities for teachers to be rewarded for using outstanding teaching methods and for not holding teachers accountable for students' learning. Quality

teachers are paid the same as those teachers who do not perform as well. This has a negative impact on recruiting high quality individuals to the teaching profession (Azordegan et al., 2005).

Public School Reform

The idea of results-focused compensation is gaining credibility due in part to the standards-based accountability movement. As accountability oriented policy makers work to ensure alignment of curriculum and assessment they confront the reality that student performance hinges on effective teaching. President Bush's No Child Left Behind (NCLB) legislation recognized this reality in its requirement of a qualified teacher in every classroom. Educators and legislators are constantly seeking policies and programs that will increase student achievement scores (Peterson, 2005). NCLB is the most recent federal legislation to impact public education. The Elementary and Secondary Education Act (ESEA) was passed in 1965 while Lyndon Johnson was president. Federal legislators were careful not to infringe on states' rights to make decisions on curriculum and the general operations of schools. The ESEA seemed to promise that the federal

government's role in education would decrease the achievement gap between students of differing backgrounds. One of the most interesting pieces of ESEA was that it would not place higher restrictions on public schools that were succeeding academically. As federal dollars increased, the aspiration for accountably rose (Standerfer, 2006).

Comprehensive school reform was integrated into the 1994 reauthorization of the federal ESEA. Schools in which at least 50 percent of the student population was disadvantaged were encouraged to implement school-wide reforms. In 1997, Congress created the Comprehensive School Reform Demonstration program. This program required schools to address nine components in their school improvement plans to be eligible for program grants. Some of these components were professional development, greater parent and community involvement, measurable goals for student achievement, and annual evaluation of both implementation and achievement results (Education Commission of the States, 2004).

Toward the end of the 1960's, the National Assessment of Educational Progress (NAEP) test was introduced as a way to monitor and evaluate student learning. Test scores were

reported regionally with the intent of monitoring how schools performed. This monitoring led to competition of student achievement among states and within states (Standerfer, 2006).

During the 1970s, various school reform issues and programs developed, including special education legislation. ESEA, however, did not deliver the anticipated corrections to the achievement gap (Standerfer, 2006).

The 1980's were noted by the National Commission on Excellence in Education's report *A Nation at Risk*. This description painted a picture of failure and indicated that if the United States did not make drastic changes to the way the United States educate children our economic competitiveness would diminish globally. In 1989, an educational summit was held by the National Governors' Association. President George H. Bush was the commander-in-chief during this time. This era marked the expansion of content standards at the federal level for core subject areas (Standerfer, 2006). In 1993, Bill Clinton introduced Goals 2000 legislation and the reauthorization of ESEA as the Improving America's Schools Act, which mandated schools

generate academic standards in core areas that would be assessed (Christenson, 2007).

The NCLB Act was passed in 2001 under President George W. Bush's administration. NCLB gives schools and country groundbreaking education reform, based on stronger accountability for results, more flexibility for states and communities, encouragement of proven education methods, and more options for parents. Congress approved the No Child Left Behind Act, a new reauthorization of the ESEA, and incorporated Comprehensive School Reform Demonstration components into Title I. Under Title I, the largest federal K-12 program, schools identified as needing improvement must practice strategies designed to improve student achievement. Strategies must be based on scientific research demonstrating effectiveness (Education Commission of the States, 2004). This signature reform regulation requires all students in grades 3-8 to be annually tested. The objective of NCLB is to elevate academic achievement for all students regardless of their ethnicity or background. President Bush also desired to close the gap that separated students of color and low-income students from their peers (Peterson, 2005).

No Child Left Behind

The NCLB Act has shifted the focus of the education system from inputs to outcomes and has required student achievement scores to meet certain standards. Accomplishing the student performance goals of the NCLB federal guidelines requires better use of educational dollars. In the past 50 years, there has been a change in how educational dollars are spent. In the 1950s, the majority of education dollars were spent on regular classroom teachers such as math, science, reading/writing, and history. Today, a significant amount of money is spent on art, music, vocational education, family and consumer education, and health and physical education teachers. Money is also spent on instructional aides to help students who struggle academically (Odden, 2007). NCLB attempts to hold schools responsible for making academic improvement with students. NCLB utilizes Adequate Yearly Progress (AYP) as a method for doing so. AYP does not measure the annual progress of the same students; therefore, the achievement gaps are not effectively addressed. For example, 3rd grade students in the state of Missouri are tested annually in communication arts and mathematics. They are then compared

to the previous year's students (American Federation of Teachers, 2005).

The A in AYP stands for the word adequate. The AYP targets are out of reach (American Federation of Teachers, 2005). By the year 2014, all students across the nation are expected to be proficient in communication arts and mathematics. Students learn at different rates and not all students have the same gifts academically. Therefore, almost all public schools in the United States will fail AYP by the year 2014 if not sooner (American Federation of Teachers, 2005). The accountability with regard to students should monitor the same students over various periods of time. A method for testing and tracking students annually needs to be the focus of NCLB (American Federation of Teachers, 2005).

Professional development is key for improving classroom instruction and student learning. Large school districts invest between $4,000 and $8,000 per teacher per year on professional development. A large portion of that time is spent during days in which school is not in session or during the summer. Research indicates the majority of professional development is far reaching in content, but not in-depth enough. Studies also indicate teacher

professional development has little to do with content in core subjects and has insignificant impact on teaching and learning (Odden, 2007). Odden suggested schools conduct an audit or needs assessment to determine the direction for professional development. Some examples of how school districts across the nation have increased student achievement scores include setting high goals for student proficiency, analyzing student performance data, reviewing effective instruction techniques, and investing heavily in teacher training. These schools have also provided extra tutoring time for struggling students, created smaller class sizes, and allocated more time for core subject areas (Odden, 2007).

The Texas commissioner of education decided to disregard NCLB mandates for special education testing in 2005. The state of Texas was penalized over $400,000 of its federal education allocation due to missing a data reporting deadline (Peterson, 2005).

According to Peterson (2005), “The Bush administration in April 2005 offered greater flexibility on testing requirements for students with severe learning disabilities” (p. 2). Resistance to the overall law

increased nonetheless as its requirements became harder to meet. NCLB requires yearly increases in the number of students who pass standardized tests in reading and math until all students are passing by 2014. Missouri and Florida asked for permission to alter their three-year stair-step plan to avoid the higher standards and instead joined five other states (Arkansas, Delaware, Illinois, Maryland, and North Dakota) that raised testing targets in smaller, yearly increments (Peterson, 2005).

The disagreements over NCLB are not only about funding, but also about the federal government providing stipulations for academic achievement for public schools. States have always considered education to be a local decision. Many state legislators argue that because the federal mandates are unfunded the states should not have to adhere to the guidelines. President George W. Bush contended that NCLB is not an unfunded legislative mandate. He argued that states have received increases in federal dollars in the three years prior to 2005 (Peterson, 2005).

NCLB has resulted in increased accountability in public schools. Many state and local administrators believe that this dependence on tests is too narrow a gauge of educational achievement. NCLB directed a greater attention

to low-achieving students and intensified efforts to improve low-performing school districts. The Center on Education Policy (CEP) annually collects information for the purpose of evaluating educational programs. The CEP is a non-profit research and advocacy organization. The CEP surveys officials in all state departments of education and administers a questionnaire to sample schools across America. They also conduct case studies of individual schools (Jennings, 2006).

This review of NCLB has produced varied results and analysis. State and local administrators reported that student achievement on state tests has risen. Seventy-five percent of states reported that the scores on state tests in reading and mathematics were going up. These states credit their own policies and procedures as important in attaining these results, although they acknowledge that the Adequate Yearly Progress (AYP) has made an impact on these results as well. NCLB defines student achievement as the proportion of students who score at the proficient level on these state exams. States have implemented various strategies to ensure they maximize their student test scores. These strategies have resulted in a higher percentage of their students being counted as proficient.

Public schools focus on reading and mathematics performance. NCLB mandates that these two areas be tested nation-wide. Often this focus results in a decrease in the time spent on the teaching and learning of social studies, science, and electives (Jennings, 2006).

Districts have updated and revamped their curriculum due to NCLB. Schools have analyzed their approach to instruction and attempted to implement scientific research-based techniques. NCLB mandates that specific changes occur in schools that fail to meet AYP for two years in a row. The most prevalent improvements are curriculum alignment and instruction relevant to test data (Jennings, 2006).

No Child Left Behind has increased the number of tests students take and has required teachers to be highly trained and meet certain academic qualifications. Experts disagree if these requirements have impacted student learning. Additionally, there is a struggle for rural schools where teachers teach several subjects, especially math, special education, and science (Jennings). Public schools are more focused than ever on achievement gaps between groups of students. NCLB requires schools be responsible for improving academic achievement levels of all sub groups as well as student achievement as a whole.

Two areas of concern are special education students and students who use English as a second language. Administrators argue they do not see the need to test non-English speaking students, however, NCLB mandates this (Jennings, 2006).

The federal government is playing a more significant role in public education due to NCLB. Each state has assumed greater responsibilities due to the NCLB mandates. The additional testing that NCLB requires has added a financial burden to school districts. If a school fails to meet AYP, the district must also use its resources to correct the problems; otherwise the state department of education is required to step in with specific plans of action (Missouri Department of Elementary and Secondary Education, 2008). No Child Left Behind has impacted the way public schools test students. It has increased the amount of testing and the accountability factor. NCLB has impacted the curriculum of schools and has impacted low-performing school districts. NCLB has affected the requirement of teacher qualifications and has had a positive effect on student test scores in reading and math (Jennings).

Merit Pay

Harris (2007) indicated the current impetus for a renewed look at merit pay systems comes from the No Child Left Behind Act. With this renewed recent interest in the quality of American schools, merit pay is making a rebound. Currently Minnesota and Florida have state-wide policies in place which mandate that every school in the state disperse a portion of teacher compensation based on student test score improvements (Makkonen, 2005). The federal government is also supporting this effort with financial resources for merit pay structures. The Department of Education's Teacher Incentive Fund (TIF) will grant up to a total of $99 million for the design and execution of performance and outcome-based compensation systems in high-need schools. In 2006, 16 TIF grants were distributed totaling $42 million (Makkonen, 2005).

The National Commission on Teaching and America's Future has ranked the United States progress toward having a qualified teacher in every classroom. The most recent summary report identified teacher retention as the number one problem for schools today (Makkonen, 2005). The Commision noted that raising salaries alone is not

sufficient to address this problem. The commission proposed adding incentive pay for additional knowledge and skills that contribute to improved student learning (Makkonen, 2005).

There is a focus for creating greater professionalism of teaching as a career. Many legislators and businessmen desire to run public schools like businesses. They want to pay for performance. There are advocates in Denver and Minneapolis that have given teachers more options by creating salary schedules with more choices, opportunities and options (Makkonen, 2005).

Odden (2007) emphasized the strong positive impact of teacher skills on increasing student performance. He defined these skills as use of class time efficiently, administering contemporary, pertinent lessons, and nurturing a respectful classroom atmosphere. There exists an absence of competitive salary structures to recruit and retain skilled teachers. Virtually all teachers are evaluated annually, and very few are offered extra compensation for a positive evaluation. Most advances on the salary schedule for teachers are based on certifications and college degrees (Odden, 2007). Differentiated compensation is intended as a way of

rewarding skilled teachers. It is also being used to attract them and make sure they are working where they are most needed. In the current differentiated-pay systems, teachers may receive bonuses, start higher on the salary schedule, or move more quickly up the scale if they teach in hard to fill content areas, take on additional professional responsibilities, acquire valued knowledge and skills, and/or improve student performance (Makkonen, 2005).

Merit pay systems were designed to supplement the existing single-salary structure. They provide incentive pay for teachers based on performance reviews and for assuming extra responsibilities outside of the classroom. This system of teacher compensation was known as payment by results (Gorian, 2000). Under this method, the compensation given to teachers was determined by the number of students passing examinations and on student attendance. A concern that arises when discussing merit pay is that merit pay systems may promote competition, and not collaboration, among teachers. Contributing factors may also include competition among teachers for a fixed amount of bonus money. A negative effect of such practice could be that a school’s capacity to reach performance targets would be

diminished (Gorian, 2000). At the other end of the spectrum, performance-based compensation models seek to promote cooperation among faculties and provide incentive pay to all qualified teachers. Performance-based compensation models are generally more complicated than single-salary and require extensive planning to be effectively executed. These models demand school officials develop a salary structure that rewards good teaching and is clearly linked between teacher knowledge and skills and improvements in student performance. The allocation of funding to support such systems is an additional challenge for school districts (Gorian, 2000).

Serious consideration must be given to whether a school district should offer rewards based on students meeting a specific achievement level or based on students making agreed upon academic progress. Standards-based awards are most typically seen in a program that rewards schools for meeting state performance goals, such as making adequate yearly progress (Koppich, 2005).

In addition to performance-based compensation methods, some states and school districts have developed career ladders. Career ladder systems were intended to provide teachers with opportunities to take on new roles or

responsibilities in addition to classroom teaching (MDESE, 2007). There is a mixture of career ladder systems that work to increase teachers' skills and responsibilities. They include performance based ladders, job improvement ladders, and professional development ladders. Teachers progressing up these career ladders can be rewarded for their efforts in a number of areas. More importantly these career ladders allow teachers to advance along their career path without removing them from the classroom (NASBE, 2002). School districts across the nation have implemented variations of the performance-based compensation and career ladder programs. These programs differ in configuration; they include elements of competency-based pay, group-based performance pay, and pay-for-performance programs (NASBE, 2002).

The Milken Family Foundation Teacher Advancement Program (TAP) is a performance-based compensation program that has been implemented in various school districts across the nation. TAP was created to attract and retain teachers (Glazerman & Silva, 2006). The elements of the TAP program include multiple career paths, ongoing applied professional growth, instructionally focused

accountability, and performance-based compensation. Teachers are allowed to investigate career options while still remaining a classroom teacher. They can also join a leadership team by taking positions as mentor teachers. The leadership teams evaluate teachers and set yearly goals for the school (Glazerman & Silva, 2006). While involved in TAP the teachers are allowed time during the school day to plan and visit with other teachers about professional growth. Mentor teachers lead the group discussions to facilitate the reflection process. Teachers are compensated based upon their responsibilities, student success, and evaluations. They are also rewarded for teaching in hard-to-staff school districts (Glazerman & Silva, 2006).

TAP school districts in Arizona have noted gains in student achievement. There were seven schools in Arizona that implemented the TAP program in 2000-2001 (Glazerman & Silva, 2006). Student numbers increased involvement in the TAP program from 949 to 1,571 two years later. The TAP schools were compared to a control group. The control group matched the TAP schools based on comparative characteristics. The characteristics included school size, minority, location, and achievement (Glazerman & Silva, 2006). Student performance among these groups was measured

using the reading, math, and language scale scores of the Stanford Achievement Test for students in grades 2-8 enrolled in both groups. The Stanford Achievement Test measures reading, mathematics and language abilities of students. The majority of TAP school districts outperformed the control group between 2000 and 2003 by 9 to 46 percentile points (Glazerman & Silva, 2006).

In the Teacher Advancement Program (TAP), teacher salaries and advancements are linked to student achievement scores. TAP aims to attract talented teachers to the field and retain them by offering incentive pay. Teacher salary increases are based on student growth, teacher observation, qualifications in high need areas, and a willingness to become a mentor. Professional development is a key component in the TAP system (Glazerman & Silva, 2006).

The Milken Family Foundation developed TAP in the late 1990s. The program offers teachers opportunities for additional pay, career advancement, and continual professional growth. The four principles in TAP include: multiple career paths, ongoing applied professional growth, instructionally focused accountability, and performance-based compensation. Teachers have the option of remaining classroom teachers or being promoted to mentor or master

teachers. TAP builds time into the school day for targeted teacher learning that addresses student academic weaknesses. Teachers meet in teams at designated times weekly. Each year a teacher is evaluated four to six times based on his or her students' progress. Classroom teachers may earn incentive pay based on both instructional performance and student performance (Glazerman & Silva, 2006). The Milken group provides support for schools who implement the program. They offer training and certification services to prepare master and mentor teachers for evaluating other teachers as well as conducting the professional development sessions. Each school designates the amount of salary incentives.

TAP schools across the nation have a range for master teachers of $5,000 - $11,000, and bonuses for mentor teachers are between $2,000 and $5,000. Teacher performance bonuses have three parts. Fifty percent of the bonus is tied to the observed teacher evaluation, 30% is based on student academic improvement, and 20% is based on school-wide academic improvements. TAP recommends $2,500 per teacher for annual performance rewards (Glazerman & Silva, 2006). In order for schools to become TAP schools, the staff must vote to express support for the new program. The

selection is competitive and not every applicant is chosen. Schools must show a financial commitment to the program. Since the start of the program in 2002, TAP schools have seen changes in enrollment figures. It appears the main reason for schools discontinuing the program is lack of funding. A study in Arizona and South Carolina showed greater student achievement gains than their comparison schools. States that have implemented TAP include: Florida, Colorado, Arkansas, South Carolina, Minnesota, Arizona, and Louisiana (Glazerman & Silva, 2006).

South Carolina also participated in the TAP program in recent years. In 2002-2003, there were over 2,000 South Carolina students enrolled in TAP schools. A control group was formed, much like Arizona, where similar students within the South Carolina school system were chosen and tested utilizing the Palmetto Achievement Challenge Test (PACT). Students in grades 3-8 were tested on reading, language, and math. TAP mathematics students outperformed control group students by 14 to 27 percentile points, and TAP reading students outperformed control group students by 6 to 26 percentile points (Plucker, 2005). There are some private school districts in Indiana that have utilized performance-based salary packages as well. Catholic schools

in Indianapolis have implemented the Milken TAP program and have witnessed increased results. After implementing the TAP program, 100 percent of the 6th graders passed the mathematics portion of their standardized test (Plucker, 2005).

The Denver, Colorado, school system implemented a new compensation package for Denver's teachers in 2004. The Professional Compensation System for Teachers pays annual salary increases to teachers whose students have demonstrated academic improvement and to teachers in schools who show gains in performance (Plucker, 2005). Teachers may also receive compensation for acquiring additional knowledge and skills that are related to their core teaching area. Teachers may also receive monetary increases in pay if they teach in hard-to-fill areas in low-performing schools (Plucker, 2005).

Officials in the Denver system had difficulty linking teacher and student performance data and assessing nonacademic teachers' performance relative to compensation. Based on these pay-for-performance areas of concern, the program was revised to include incentives for teachers to earn professional development units, meet student growth

objectives and serve in hard-to-fill positions (Plucker, 2005). To evaluate the impact of their new salary system, the Denver School District conducted an analysis to compare student performance with a control group that did not utilize the new salary system. Students were tested on standardized exams including the Iowa Test of Basic Skills and the Colorado Student Assessment Program (Plucker, 2005). The control group was selected based on free and reduced lunch rates, percent of English as a second language, and school size. The elementary pilot students' scores were lower than the control students' scores on all tests except the Iowa test language portion. The pilot middle school students' scores were higher than the control group's scores in the areas of reading, writing, and math. The high school students at the pilot school districts had significantly higher increases than their counterparts in the control group, especially in the areas of math and language (Plucker, 2005).

Denver, Colorado began a pay-for-performance system during the 1999-2000 school year. The program ran from 1999 to 2003 in 16 schools. Denver linked teacher pay to student achievement. Students in grades K – 12 who attended these

16 schools outperformed students whose teachers received a higher evaluation than whose teachers who did not (Azordegan, et al., 2005). Students of teachers who met two objectives on the rubric scoring guide had significantly higher test scores than students of teachers who met one or no objectives. The system has four components with nine elements through which teachers could earn compensation. The plan, Professional Compensation Plan for Teachers, was adopted by the Denver Public School system in 2004 (Azordegan, et al., 2005). Teachers worked with their principal to set annual goals. Those teachers who met their goals received a salary index increase of 1% and those teachers who did not meet their goals received zero increase. Teachers whose students achieved above the normal one year growth on the state assessment received a 3% increase in salary. Teachers who worked in schools that earned special recognition based on accreditation factors received a 2% bonus. The factors were related to attendance and graduation rates. Those that attended a Professional Development Unit in their content area received a 2% increase in salary (Azordegan, et al., 2005). Teachers who garnered a National Board Certificate received a salary increase of 9%. Those teachers who taught in hard-to-fill

areas received a 3% salary increase. Denver also rewarded teachers who worked in schools with a high free and reduced lunch count. Those teachers earned a 3% increase in salary. If a teacher received a satisfactory evaluation, they earned a 3% increase in salary (Azordegan, et al., 2005).

The South Carolina School Incentive Reward Program (SIRP) has the longest running tenure among performance plans in the United States. Implemented in 1984, the SIRP awards school districts financially based on several criteria (Plucker, 2005). Each school is placed in one of five areas based on the school's percentage of students receiving free lunches, reduced-priced lunches, teacher's average years of education beyond a bachelor's degree, and percentage of students meeting or exceeding standardized test score minimums. All schools compete with each other based upon the band in which they fall (Plucker, 2005). Band 1 consists of low-performing schools with the highest percentage of students receiving free or reduced lunch, and Band 5 consists of higher performing schools with the lowest percentage of students receiving free or reduced lunch. Index scores are calculated for each school based on three criteria: (1) student achievement, (2) teacher

attendance, and (3) student attendance. Student attendance is the most critical measure. In order to be eligible for an award a school must meet the minimum improvement index based on its grouping category (Plucker, 2005).

Student achievement is calculated utilizing standardized test scores. The tests include a version of the Boem Readiness Tests, a South Carolina criterion-referenced test. By and large, schools have shown improvement in student performance on standardized exams. However, student and teacher attendance has not seen noticeable improvement. Schools in the lowest socio-economic status band saw the greatest improvement in student achievement (Plucker, 2005).

Tennessee implemented the Tennessee Value-Added Assessment System as a measuring tool for student achievement and teacher productivity. The plan encompassed teacher recruitment and retention, and tried to attract quality teachers to some of Chattanooga's lowest performing schools. It also aimed to increase students' performance in reading, language arts, math, science, and social studies. The pay plan rewards teachers with $5,000 bonuses for individual teachers and the potential of a $2,000 bonus for

every teacher in the school if the school receives a high overall score. Other incentives provided to teachers by the program include loans toward the purchase of a house, free legal services, and free tuition toward a master's degree. These incentives have increased teacher recruitment and reduced retention issues. Chattanooga has witnessed improved student achievement at the nine schools that participate in this program. The percentage of 3rd graders reading at or above grade level doubled between 2000 and 2002 (Holland & Soifer, 2004).

Research by Sanders made it more reasonable to justifiably hold teachers accountable for how much their students progress during the time they are in a particular teacher's charge. Sander's value-added model attempted to separate student effects (ethnicity, family background, socioeconomic status) from school effects (teachers, administrators, programs). The model projected a test score for each student based on previous academic achievement. The difference between the student's actual score and his projected score was the value added by the teacher (Wright, Horn, & Sanders, 1997).

In 1995, Indiana school districts began reimbursing teachers who obtained the National Board for Professional

Teaching Standards (NBPTS) certification. Indiana wanted to promote high-quality teachers and reward those who earned additional licensure or advanced certification. Teachers were allowed five release days to prepare for certification (NCREL, 1999). Teachers who become NBPTS certified are eligible for placement on the doctoral level of their salary schedule or may elect to receive $2,000 annually in addition to their regular salary (Plucker, 2005).

Research on the impact of performance-based pay and other alternative compensation programs has mostly focused on their impact on teachers (Dees & Keys, 2005). However, there has been some research regarding the impact of alternative teacher compensation on student achievement outcomes. Research conducted indicated increased student achievement in areas such as math and reading. Students have improved academically due to the various alternative compensation programs (Dees & Keys, 2005).

Teachers play a key role in any school improvement; political leaders are increasingly interested in programs which relate educational performance, usually measured by student achievement test scores, with teacher compensation. The goal is to provide an incentive which will encourage improved teaching and learning. There are at least 20

states where schools are utilizing some sort of bonus system linked to teacher performance. This number is projected to grow and is reinforced by the growing recognition that motivated and skilled teachers are an important component of real and lasting educational reform (Lafree, 2000).

One of the major variables in attracting qualified teachers is the school district's expenditures and property tax rates. Inequality in teacher quality between school districts has been a problem (Van Keuren, 2002). Teachers are often hesitant to seek employment in large inner-city centers and rural schools. Property tax wealth and capacity to pay for quality teachers give uptown schools the advantage of attracting top quality teachers by offering superior salaries. Many teachers will not volunteer to teach in a difficult school. Incentives are being offered in school districts across the country to attract and retain teachers in the schools that serve students with the greatest needs. Some incentives include signing bonuses, housing subsidies, relocation allowances, free rent and utilities, loans, grants, low-interest mortgages and help with down payments and closing costs (Van Keuren, 2002).

Improving student achievement is a growing concern for everyone. One could argue that the United States is lacking because of the unique concept of educating the entire student population instead of a select few. The belief in only educating a portion of the population does exist in some cultures (Gay, 2006). This plays a role in how the United States is viewed. The United States is perceived to be inferior due to this fact. However, this fallacy occurs because the United States tests all students. The United States does not discriminate between the best and brightest and the lower-performing student that would not be receiving an education if he or she lived in another country (Gay, 2006).

Most of the current literature on the structure of salary schedules reflects not the views of classroom teachers but the views of political leaders. Little literature reflects the views of the classroom teachers, the ones who impact the quality of teaching and learning taking place in our schools. Teachers' views must be taken into account for school reform to work as it is intended (Newton, 2000).

In Missouri, MDESE adopted the Missouri Assessment Program (MAP) test as a measure of student achievement. The

Outstanding Schools Act of 1993 called for the Show-Me standards to define the knowledge, skills, and competencies students needed. The MAP test was aligned to the Show-Me standards. In order to clarify the Show-Me standards, curriculum consultants in collaboration with teachers from across the state have written the Grade-Level Expectations for communication arts, mathematics, science, and social studies. The Grade-Level Expectations (GLEs) form the foundation for the model state curriculum. To comply with the No Child Left Behind Act of 2001, the MAP assessments in math at the 4th, 8th and 10th grade level and communication arts at the 3rd, 7th, and 11th grade level were expanded to include math at 3rd, 5th, 6th, and 7th grades and communication arts at fourth, fifth, sixth, and eighth grades. Student performance on the MAP is a major part of the accreditation process for Missouri public schools (MDESE, 2008).

The ACT assessment is a standardized examination required by many colleges and universities in the United States for admission to undergraduate degree programs (ACT, 2008). The ACT was created in 1959 by E. F. Lindquist, a professor at the University of Iowa. Lindquist is an expert in the field of testing which measures the academic

abilities of prospective college students. The ACT is a multiple-choice exam that lasts 2 hours, 55 minutes and measures English, math, reading, and science skills. The format of the questions in the areas of English, math, reading, and science has remained the same; however sections to provide institutions with additional information about students were added in 1965. Nearly 1.7 million ACT tests are administered each year to prospective college students (ACT, 2008). Most students take the ACT during high school in their junior year or at the beginning of their senior year. The ACT is scored on a scale of 1 to 36 with nearly half of all students who take the test scoring in the range of 17 to 23 (ACT, 2008).

During the 2006-2007 school year, 23% of 2007 graduates met all four ACT College Readiness Benchmark scores. To improve students' scores and increase the percentage of students identified as college ready, ACT suggests providing access for all students to take the ACT, insuring core curriculum is a priority, making sure students are taking the right kinds of courses, evaluating the rigor of courses offered, and planning guidance activities based on students' career and college aspirations. Student scores can increase if these

suggestions are implemented and evaluated yearly within school districts (ACT, 2008).

The National Governors Association and the Commission on the Future of Higher Education both support increased communication and curricular alignment between postsecondary institutions and secondary schools. With augmented alignment students are more likely to be ready for credit-bearing entry-level college courses. Students who take higher-level mathematics, social studies, and science courses in high school are generally more likely to enroll in college than students who do not. This has been found to be true for most gender, race, ethnic, or family income groups (Robbins, et al., 2006).

In the increasingly complex and specialized global economy, education and training beyond high school is essential so high school graduates can earn a self-sufficient living and to support a family. In order to succeed in college, students must graduate from high school ready for the demands of post-secondary education. Long-term increase in salary is a strong indicator of career success and economic well-being. A recent study examined whether the long-term earnings of first-year college students can be predicted by their academic preparation in

high school, as measured by ACT composite scores and the degree to which their career interests fit their planned choice of career (Neumann, Olitsky, & Robbins, 2007). Findings of the study indicated as ACT composite scores increased, average salary increased. The positive relationship between ACT composite scores and earnings speak to the importance of academic achievement and early career planning in the future of our workforce. Not only do college readiness and career planning directly affect success in postsecondary education, they also predict long-term salary attainment (Tracey & Robbins, 2006).

When discussing accountability, the parents' responsibility in educating their children is rarely mentioned. The general public has seen, through media and politicians, the comparative statistics showing the United States trailing other nations in many categories. They see superior test scores as the only factor by which to judge schools and how schools should be held accountable. Focus is often directed at schools, and blame is put on the educational process, yet school officials usually do not have the impact on a student that the parent will have (Bippus, 2005). From birth until adulthood, children spend

only 10 percent of the hours they are awake in the school setting. The rest of the time is in the home environment where parents may or may not be supportive of or involved in the child's education (Bippus, 2005). Some answers that have been contemplated are charter schools, open enrollment, voucher and privatization; with these approaches forcing schools to do a better job of teaching students. The role of parents in improving academic performance is left out of these discussions totally. Examples of ways parents can negatively affect student achievement are to never read to their children or to not get involved in their education by reviewing homework or assignments. Often parents will not monitor the time or content that children watch on television, or the amount of sleep or nutrition they receive. Parents often hinder educators by lying to school officials about attendance, failing to attend parent-teacher conferences, refusing to discuss the student's progress, or even not teaching basic manners or attaching consequences to misbehavior (Bippus, 2005). Common sense should tell us that parents who see it as their responsibility to read to their children, guarantee they eat and sleep enough, and supervise their

educational progress ensure a better education for their children. A child who is read to for at least 20 minutes a day absorbs 600 hours of structured language. School districts need to work with parents to open communications and share expectations with all parents (Bippus, 2005).

In 1996, the governor of Oklahoma, Frank Keating, proposed a nearly $11 million bonus-pay incentive program. This incentive program rewarded teachers in the twenty percent of schools that improved the most over a three year period. Teachers in 360 schools received bonuses ranging from $500 to $4,000. The largest bonus went to the teachers with at least 15 years experience in the top 4 percent of schools. The state used standardized test scores and factors such as dropout rates to determine which schools were most improved (Lawton, 1996).

Diversifying the way teachers are paid is gaining support as a possible way to increase accountability and improve student achievement. Some states are experimenting with a variety of pay systems that base salary on knowledge skills or performance of schools or teachers. The process for moving away from a salary schedule based solely on degrees and experience is a difficult one. As more attempts are made to devise new methods of compensating teachers,

educators are learning more about what it takes for such a plan to succeed. Several educational studies confirm the long-held belief that teacher quality is one of the utmost factors of student achievement (Azordegan, et al., 2005). As a result, legislators have given considerable attention to methods for improving teacher quality and teacher compensation. It is generally assumed that teachers earn smaller salaries than comparably educated workers in other occupations. Many proponents argue that uniform increases in teacher salaries will improve both the recruitment and retention of highly skilled teachers thus raising overall teacher quality. Some studies find higher salaries lead to improved teacher quality and student achievement, but others find unilateral salary increases have little effect on student performance and teacher retention (Azordegan, et al., 2005).

Teachers have been compensated based on a single salary schedule using lanes and steps for over 75 years. They advance in pay based on years of experience and education attained. Statistics show the relationship between teacher quality and years of teaching experience is minuscule or non-existent after a teacher’s first five years

(Azordegan, et al., 2005). In addition, some research indicates it may be negatively affected after 20 years of teaching. During the 1980's and 1990s, most redesigned teacher payment systems were either merit pay or career ladder systems. Merit pay plans tended to rely on subjective evaluations of teachers to determine some percentage of salary and were, in most cases, poorly designed. Educators reported dissatisfaction with the programs, believing they presented faulty evaluation and no clear direction toward improvement for teachers who ranked at the bottom. Districts utilizing career ladder programs exhibited some improvement in student achievement only after several years of existence. Many of those career ladder programs were not funded long enough to determine student achievement gains (Azordegan, et al., 2005).

Those who criticize the familiar teacher salary schedule with lanes and steps argue that it does not reward good teaching as fairly as other pay systems in which teachers are rewarded for obtaining special skills. Supporters of the traditional systems claim that experience and education are important predictors of how a teacher will perform (Glazerman & Silva, 2006). School leaders have

attempted to mesh the two systems. Selecting an alternative is extremely difficult due to the lack of scientific research on whether it impacts student performance. Several schools across the nation have tried various teacher pay systems and it has proven to be a formidable challenge. There has been lengthy discussion about whether teacher pay incentives improve the quality of the teacher or if the incentives help recruit a higher quality individual into the teaching field (Glazerman & Silva, 2006). In 2006, Mathematica Policy Research Company conducted a study on teacher pay feasibility. They broke the study into three main areas: pay for performance, pay for knowledge and skills, and pay for filling a need. The pay for performance section focused on plans that rewarded teachers for increased student achievement scores. The pay for knowledge and skill section focused on plans that rewarded teachers who demonstrated a special skill or took on additional responsibilities. The pay for filling a need category focused on plans that used incentive pay for teachers who taught in a needed area such as high poverty or hard-to-fill areas such as math and science (Glazerman & Silva, 2006).

Some schools have experimented with using a compensation system that focuses on student performance. They reward either the individual teacher or entire school with monetary rewards. Those who oppose individual-based performance awards disagree that current testing systems do not precisely assess improvement made by students. Proponents for individual-based awards contend that when carefully integrated into a refined measure of teacher quality, student achievement test scores can provide an autonomous measure for teacher performance (Azordegan, et al., 2005). District-wide awards offer greater appeal to some by encouraging collaboration instead of competitiveness. Research found that teachers in performance-award systems show signs of greater motivation toward improved student performance, and the district shows higher retention rate of highly qualified teachers (Azordegan, et al., 2005).

In spite of the potential of these systems for improved compensation, there is considerable resistance to change. Critics argue that performance-award systems may promote higher test scores, but if the tests are not aligned properly, such improvement may not correlate to actual learning. Teacher groups such as the National

Education Association (NEA) often oppose these pay systems based on the effectiveness of the evaluation process and the teacher's abilities to meet continually higher standards for student performance. The strong teacher union presence makes it difficult for legislators and educators to change the existing single-salary pay schedule. Evaluation systems based only on student test scores are sometimes criticized as holding teachers accountable for factors outside of their control. Schools that utilize evaluation systems based on the teacher's performance rather than student performance are often criticized as subjective (Azordegan, et al., 2005).

Successful programs for teacher compensation are ones in which diversity is used. A range of evaluation techniques are utilized such as evaluating teacher skill and knowledge, principal reviews, peer reviews as well as student achievement increases. The success of these systems hinges on teacher support. When teachers are involved in the planning and implementation of the compensation systems, they tend to be more readily accepted. Teacher unions generally support an idea if it is teacher led (Odden, 1997). Developing a system in which teachers are

paid based on student achievement should be a collaborative effort. Teachers, administrators, parents, and policymakers all have a vested interest and should be involved in the process.

Compensation plans that rely on student performance should be easy to understand. Teachers should be given the training necessary to increase the students' chance for success and improved test scores. New compensation plans take time to be implemented, and community members should be patient. Improvements in teacher quality and student achievement will take time. The design of a pay-for-performance system should be cognizant of the needs of students and teachers. The history of how teachers have been paid is ingrained in American society, and change is difficult to implement. Any reform to the single salary schedule is often a modification to the existing system rather than a whole-hearted change (Azordegan, et al., 2005).

As recently as 2005, there were 14 states that proposed reforming the traditional teacher salary schedule. Iowa proposed individual performance awards based on student achievement. Alabama provided incentives for

teachers to teach in poverty areas and rewarded teachers for completing the National Board Certification. Rhode Island funded a program in which schools implemented a new salary system other than the existing single-salary schedule (Azordegan, et al., 2005).

The state of Minnesota enacted an alternative pay system called Quality Compensation in July 2005. The state allocated $86 million statewide for the program and established guidelines for schools (Azordegan, et al., 2005). The guidelines called for establishing multiple career paths, objective evaluation systems and professional development that aligned with performance pay. Schools that agreed to enact a salary schedule that was not the conventional single-salary schedule were eligible for the increased funding. Teachers and teacher unions have praised the new system for student increases and incentive pay (Azordegan, et al., 2005).

During the 1998-1999 school year, Vaughn Elementary school in Los Angeles, California, implemented a skill-based pay system. The compensation system was designed to address inequity in teacher pay, promote teacher retention, increase salaries of teachers with longevity, and link teacher pay to student performance (Azordegan, et al.,

2005). The majority of students at Vaughn were on the free and reduced lunch program and many were English Language Learners (ELL). The base salary for teachers at Vaughn was determined by certification and years of experience. Those teachers who were Nationally Board Certified earned an additional $4,000, and those who had a master's degree earned an additional $2,000. The additional money teachers earned at Vaughn was based on performance. The performance was teacher performance, not student performance. Teachers received additional salary based on a 3 tier system. Level I equated up to $5,550; Level II equated to $5,500 and Level III was $2,000. The total performance pay amount possibility was $13,050 (Azordegan, et al., 2005).

The Cincinnati, Ohio public school system implemented a pay-for-performance system in 2003. The plan measured teachers' performance with a set of standards. The thought process included a second stage in which teachers would be compensated for student performance gains. The plan also included a provision in which teachers could earn additional incentive pay if they obtained advanced degrees or certification (Glazerman & Silva, 2006). They retained the current single-salary schedule and added these

incentive pay programs to coexist with the original plan. The new plan was called the Teacher Evaluation System (TES) and teachers could move through five categories: Apprentice, Novice, Career, Advanced and Accomplished. Teachers had to move to a subsequent category annually in order to be rehired for the following school year. Teachers who were at the Advanced or Accomplished stage received stipends ranging from $3,000 - $6,500. The stipend was paid based on the teacher becoming a lead teacher, serving on a curriculum committee, or mentoring a new teacher (Azordegan, et al., 2005).

Cincinnati, Ohio, implemented a compensation system that tied teacher pay to levels of teacher mastery and performance as measured by classroom observations and portfolio reviews. Cincinnati replaced the traditional teacher salary schedule of lanes and steps with a system that tied in teacher evaluations based on certain criteria (Glazerman & Silva, 2006). The criteria included preparing for student learning, creating a positive environment for learning, teaching for learning, and professionalism. Teams of educators reviewed the teacher portfolios of lesson plans and observed the teacher teaching lessons. Ratings provided the teacher with guidance and feedback. Teachers

were then placed in categories which determined their salary. Cincinnati did away with the traditional teacher salary schedule and paid teachers based on their movements up or down the ladder. Advancement in salary was not automatic. Teachers were reviewed and evaluated every two to five years. These reviews were noteworthy as they determined the instructor's salary. Student test scores were not part of the evaluation process. The evaluation team was made up of a lead teacher and a principal. The reviews were comprised of portfolio reviews and classroom observations. The portfolios included lesson plans, student work, statistics on teacher attendance, as well as professional development activities. Teachers went through a comprehensive review every few years. New teachers were classified as Apprentice teachers. Apprentice teachers advanced to Novice teacher status by the end of their second year. Novice teachers had to pass the PRAXIS III exam and attain promotion to Career ranking by the end of their fifth year as a Novice or else be terminated. Teachers moved up or down the ladder. Teachers who dropped levels received a cut in salary (Glazerman & Silva, 2006). Cincinnati also introduced a "Lead Teacher" program in which

teachers mentored other teachers and received an annual $5,000 to $6,000 stipend for mentoring a fellow teacher. Cincinnati's pay system was touted as a positive example that relied on strict evaluations that included student performance, but also addressed various other components of quality teaching (Glazerman & Silva, 2006).

Researchers have noted that to improve student achievement, teachers need to increase their skills. In order to motivate teachers to attain new skills educators must adopt a skill-based pay system. The system implemented needs to reward teacher knowledge and skills that contribute to student learning (Gallagher, 2002). Reports exist that show student performance is often impacted more by poverty and the communities' perception of education than by the teachers themselves. Parents' education does impact a student's education on some levels, but the impact of a highly-qualified teacher is notable as well. Based on the fact that teacher quality is important for student learning, skills-based pay seeks to provide incentives for teachers to improve their instructional skills. Skills-based pay can improve student performance if teacher knowledge and skills are focused in key areas, if teachers

are evaluated in those areas, and if the teachers are motivated to gain the skills (Gallagher, 2002). A well-qualified and highly-trained teacher is the most important component in contributing to increasing student performance. Teachers need to be properly trained, know their subject matter, and be held responsible for student growth. Experienced teachers can meet the NCLB mandate of being highly qualified by taking an exam or by scoring high on the state's standard evaluation tool. In order to produce an increased pool of highly-qualified teachers, the requirements and planning must improve. The government needs to provide school districts with incentives to increase compensation packages for teachers. Beginning teachers need to have the correct support system in place to increase the odds for success. Teachers need the option of increasing their salary through performing additional responsibilities. NCLB should require targeted professional development and training to core area teachers. Teacher skills need to improve, and with the quick advances in technology, teachers need to be kept up to speed with those advances (American Federation of Teachers, 2005).

More money is needed to ensure that all students have a well-qualified teacher. Evidence exists that employing highly-qualified teachers to work in poverty stricken schools depends upon improving school facilities, providing modern and updated textbooks, hiring qualified administrators, and furnishing appropriate professional development (American Federation of Teachers, 2005).

NCLB has increased apprehension about the employment difficulties faced by schools that serve a high number of low-performing students. NCLB mandated each student be taught in all core subjects by a highly-qualified teacher by the 2005-2006 school year. The law defined a highly-qualified teacher as one who has received a bachelor's degree, is fully certified, and has proven that they know the subject they teach. As of June 2006, there was not one school district nation-wide that had met this goal. School districts were required to submit a plan to their respective state as to how they would ensure all classrooms had a highly-qualified teacher. States also had to show that these teachers were divided equally between rich and poor schools (Wheeler, 2007).

Iowa adopted a plan in 2001 to improve teacher quality and student performance. The plan addressed the issue of rural and urban teacher shortages as well as the disparity of teacher salaries compared to neighboring states. A beginning teacher must have successfully completed a preparation program and hold at least a provisional teaching certificate (Azordegan, et al., 2005). In order to move to the next level, the beginning teacher must have completed the two-year program and received a satisfactory evaluation. School districts were required to raise the minimum salary for a first year teacher by at least $1,500 per year. After successfully completing the Beginning Teacher program, the teacher began work on a professional development plan. Iowa required that schools create at least a $2,000 difference between a Beginning Teacher and a Career Teacher. Iowa also created the Variable Pay Pilot in 2001 in which schools created a team-based pay plan. The plans involved student performance goals and multiple indicators to determine progress. If the goals were met, all certified staff members at that school received cash bonuses (Azordegan, et al., 2005).

Teacher quality makes a difference in how students perform in the classroom. There has been increased public

pressure for schools to ensure students are learning at a high level. NCLB mandates proficiency by the year 2014 and thus schools across the nation are focused on improving student achievement. Administrators and educators desire to know how best to train, develop, evaluate, and compensate teachers to obtain the desired results. There is increasing debate over what defines teacher quality. Teachers advocate that teaching is a profession that requires significant preparation and rigorous licensing. This thought process expects teachers to have curriculum knowledge, teaching skill, and assessment knowledge. Opposing views hold that teaching is a duty that most intelligent people can perform and that the skills necessary for success can be learned on the job. This line of thought believes that alternative routes to teaching certificates should be allowed (Corcoran, 2007).

Each state sets its own guidelines for teacher certification. During the last 10 years, testing potential teachers has become increasingly popular. In 2005, 48 states required teachers to pass at least one test in order to be certified to teach (Corcoran, 2007). Many states use the nationally renowned Educational Testing Services (ETS) to test teachers. The American Board for Certification of

Teacher Excellence (ABCTE) is developing a test that provides a common standard should the state adopt it. This test makes teaching licenses transferable from one state to another. One of the advantages to licensing is that it takes the pressure off of local school boards during the hiring stage. If a teacher is not licensed, they are not eligible for the job position. Opponents argue that teacher licensure does not guarantee high teacher quality. If standards are raised for teachers, there will be a cost factor. Candidates will be harder to find and the likelihood of hiring a highly qualified person will diminish (Corcoran, 2007).

Many states advocate developing and financially supporting teacher induction programs. These support systems provide guidance and sustainability as teachers transition into the classroom. The hope is that these beginning teachers will have the support system in place to become successful at a quicker pace. The induction model includes mentors, additional training, and feedback on performance. There are issues such as teacher turnover that impact the bottom line. States could potentially save thousands of dollars if there is better teacher retention. Supporters of teacher induction programs believe if quality

teacher support groups were formed and funded the state could save money by reducing teacher turnover. A research study in Texas found that the state's annual 15.5% teacher turnover rate costs a minimum of $330 million per year (Corcoran, 2007).

Discussion about how teachers are paid is gaining political attention. Research is clear that neither educational credits, degrees, nor years of experience are linked to student achievement gains (Odden, 2000). Kentucky, Colorado, and Minnesota have tried school level performance rewards. Several have experimented with providing salary increases for teachers who earn national certification. Some states have offered a form of career ladder stipends. To date, very few have successfully implemented paying teachers for student performance (Odden, 2000). Teacher unions are committed to keeping the single-salary teacher pay schedule in spite of the indication of inequality. Schools have offered signing bonuses, loan forgiveness, housing assistance, moving expenses, and tuition reimbursement to attract teachers in mathematics, science, special education, etc., but have not altered the single-salary schedule. Proponents for the individual

teacher rewards maintain that gains on student performance tests can provide an independent measure for teacher performance (Corcoran, 2007).

It is often assumed that public school teachers are poorly paid. Seldom do you read about how teacher pay compares to other occupations. In a recent U.S. Bureau of Statistics survey, some comparisons were reported. The survey included 66 metropolitan areas and compared the hourly pay of teachers. According to the survey, the average teacher in the United States earned $34.06 per hour, and worked an average of 36.5 hours per week in 2005. By comparison, white-collar workers worked 39.4 hours per week (Greene & Winters, 2007). Compared with public school teachers, reporters earned 24% less; architects, 11% less; psychologists, 9% less, and mechanical engineers, 6% less. On the other extreme, airplane pilots earned 186% more; doctors, 80% more; lawyers, 49% more. The National Education Association claims it is easier to earn more money in other fields and that teachers are under paid. Public school teachers earn 86% more than the average white collar worker in Elkhart, Indiana. After the U. S. Bureau's survey was released, some argued that the salary

comparisons did not include the extra time teachers spend grading papers, preparing lesson plans, etc. The survey included all of these extra activities in the calculations. School teachers reported taking work home on a consistent basis, but so did the other professionals who were surveyed. Thirty percent or more of the workers in management and professional occupations reported working at home during the May 2004 survey period (Greene & Winters, 2007).

An additional study was performed recently where comparisons were made between metro areas in which teacher pay was higher, and outlying areas where the teachers were paid less. The metro area's graduation rate was not significantly higher than the outlying group. Increased spending and student-teacher ratio had no effect on high school graduation rates either (Greene & Winters, 2007). These results suggest that increasing the pay of teachers does not increase student achievement. Teacher groups are avid about increasing teacher pay. Often times the concept of working long hours for inadequate pay is cited. The level of teacher pay is greatly fashioned by whatever the

political process decides it should be (Greene & Winters, 2007).

School districts with smaller student-to-teacher ratios have a greater opportunity to positively impact student performance due to having a better relationship with their students. By living in a smaller community, the teachers have a greater opportunity to know the parents better than teachers do in a larger district. Melnick claims that school size is not the determining factor in the quality of a child's elementary school education. He believed that factors such as the leadership of the principal, dedication of the staff, and community support are also important factors. There is also a greater opportunity for students in small schools to hold positions of authority and leadership thus preparing them for leadership once they exit high school (Melnick, 1986).

Rural schools struggle to find enough teachers to support student enrollment. Many times the candidate pool is small or non-existent. Teacher salary is often cited as the main issue in recruiting and retaining teachers, but health insurance and benefits also play an important role. As health insurance premiums increase, school districts are

forced to choose between covering the cost of the teacher's health insurance and spending those dollars on other educational needs. In the 2008 legislative report regarding the state of Idaho, researchers found the supply of certificated instructors was not adequate. The number of college students entering the teaching field was down while the number of Idaho college graduates leaving the state to teach in neighboring states had increased. Idaho struggled to match neighboring states teacher salary levels (Idaho, 2008).

The Douglas County Pay for Performance Plan received attention because of its longevity. Douglas County is located in Colorado. The system rewards teachers annually for years of satisfactory experience. The pay plan has been in place since 1994 (Glazerman & Silva, 2006). A feature of the plan is that teachers must earn a satisfactory rating on their summative evaluation in order to receive the salary increase. Educators also may receive several bonuses each year such as a onetime payment of $1,250 for the Outstanding Teacher bonus and $12,500 over five years for the Master Teacher bonus. The Outstanding Teacher bonus is given based on a portfolio submission. Teachers who earn

the Master Teacher bonus must demonstrate student growth, professional leadership, and professional recognition (Glazerman & Silva, 2006).

Benwood Initiative is a teacher incentive plan in Chattanooga, Tennessee, which began in 2002 to improve student achievement in the area of reading (Glazerman & Silva, 2006). The program targeted nine low-performing schools. The plan aimed to recruit and retain highly qualified teachers by offering cash bonuses and various other benefits. These incentives were based on improved student achievement scores. The thought process was that if teachers saw an increase in pay as a goal, they would, in turn, work harder to ensure their students performed well on state exams. The program also included money that was spent on professional development, materials, additional staff, and after school programs for students. The individual teacher incentives included $5,000 bonuses for high scores from the Tennessee Value-Added Assessment System (TVAAS) and teachers were eligible for free enrollment in the Master's program in education at the University of Tennessee. School-wide teams earned $1,000 or $2,000 based on the students' three-year gains (Glazerman &

Silva, 2006). The team bonuses were awarded to principals, assistant principals, special subject teachers, and librarians as well as the classroom teacher. The principals also earned $10,000 if their school received the team bonus. Beginning in the 2004-2005 school year, assistant principals could earn an additional bonus of $5,000 if their school team met its goal. In order to increase retention, the teachers had to return to Benwood the following school year to receive their bonus. Teachers at Benwood were also eligible for financial help in buying a home in downtown Chattanooga. Educators could receive a loan of up to $10,0000 for a down payment which was forgiven if they lived in the home for a minimum of five years (Glazerman & Silva, 2006).

Charlotte, North Carolina's Mecklenburg school has a pay-for-performance program that focuses on improving student achievement in low-performing schools by rewarding staff based on their attendance, professional development, and student achievement (Glazerman & Silva, 2006). Employees are paid bonuses if their school meets its goals. Teachers were paid bonuses if their students' test scores improved. The tests included the North Carolina End of

Grade or End of Course tests as well as local school district exams. During the first year of implementation, the bonus focused on student achievement. Teachers who volunteered for the program were given student achievement goals. Teachers could also earn additional bonuses based on their attendance and professional development. Attendance bonuses were given if a teacher missed four or fewer days per school year and attended at least thirty hours of professional development. Classroom teachers who met the student achievement goal were awarded $1,400 bonuses and teachers who met their attendance goal earned an additional $600. During the first year of the program, approximately 25% of the teachers earned bonuses (Glazerman & Silva, 2006).

The state of California implemented an incentive program that focused on improving standardized test scores. It provided cash bonuses to all certified staff that showed student academic growth from one year to the next. The cash bonuses were as high as $25,000. Each bonus was linked to student test scores (Glazerman & Silva, 2006). The program was in place for one year only and then cut due to budgetary reasons. For California schools to participate in the reward system, their students had to be in the lower

half of the baseline score data and the school had to have shown improvement in the prior year's test scores. The California Education Department ranked all qualified school districts based on their test growth. They then considered the number of Full Time Equivalent (FTE) staff at each school. For schools who had 1,000 FTEs, each certified staff member received $25,000; schools that encompassed the next 3,500 FTEs received $10,000 per person; schools encompassing the next 7,500 FTEs received $5,000 per person (Glazerman & Silva, 2006).

Career Ladder

Missouri's Career Ladder program was established in 1985. The goal of the program was to improve student performance by offering teachers opportunities for extra pay for extra work and professional development. Teachers who meet statewide and district-level performance criteria received additional pay. The Career Ladder program does not replace the salary schedule but offers additional pay for teachers who elect to participate. The Career Ladder has three stages which are based on a teacher's years of experience. To advance on the ladder, teachers are evaluated at each level and must submit documentation that

they have completed a set of established goals (MDESE, 2008). Stage I participants earn $1,500; Stage II participants earn $3,000; Stage III participants earn $5,000.

Other states have attempted Career Ladder programs, but Missouri's is the longest running program of its kind. Missouri's Career Ladder has components that include teacher performance, tenure, and extra responsibilities. The cash bonuses are awarded based on duties and extra responsibilities the teacher takes on outside of their teacher contract time (MDESE, 2008). School districts choose whether they want to participate or not. Missouri's Career Ladder program is a matching funds program. Districts must match part of the cash award. Percentages are based on a school's poverty rate. The state covers 40, 50 or 60 percent of the cost depending on the school's poverty rating. Some schools elect not to participate due to the cost of their portion of the program. Teachers are eligible to participate if they are full time employees, have the appropriate certification, and formally enroll in the program (MDESE, 2008). Participants must develop a Career Ladder Plan and have it approved locally by an

elected group of educators and an administrator. Teachers are expected to demonstrate evidence of performance at or above the expected level on 20 criteria on the school's Performance Based Teacher Evaluation (PBTE). The criteria can include engaging students, assessing students, showing content knowledge, professionalism in the school, participating in professional development, and adherence to the district's mission. To qualify for Stage I, a teacher must have five years of teaching experience in Missouri. To qualify for Stage II, the teacher must have completed two years on Stage I. To qualify for Stage III, the teacher must have completed three years of service on Stage II. Stage I participants must spend a total of 60 hours or more on at least two different responsibilities. Stage II participants must spend a total of 90 hours or more on at least three different responsibilities. Stage III participants must spend a total of 120 hours or more on at least four different responsibilities. Missouri's Career Ladder Program was in response to the report *A Nation at Risk* in 1983 (Glazerman & Silva, 2006).

Arkansas offers a bonus program for teachers who teach in small, rural schools. The program is statewide, but

focuses on schools with enrollments of 1,000 or less and that have over 80% free and reduced lunch rates. Educators in Arkansas receive bonus pay for working in a high need district. The cash bonuses are awarded for agreeing to teach in one of these school districts. The bonus also applies to returning teachers. Student performance has no bearing on the cash bonus. New teachers to the district receive a signing bonus of $4,000 and a retention bonus of $3,000 per year for each of the following two years. Teachers already in the district when the program was instituted received a bonus of $2,000 per year for up to three years (Glazerman & Silva, 2006).

In 2001, North Carolina passed legislation that dictated if a student did not pass the 10th grade basic competency test he or she would not graduate from high school. The test was given in grade 10 and in subsequent years until the student passed (Public School Forum, 1999). With the prospect of several thousand students not passing the test and not graduating from high school, North Carolina educators took a long, hard look at how they spent educational dollars. Educators asked themselves about the proper balance between academics and preparing students for the world of work. They questioned what a person should

know once they earn a North Carolina diploma. Paul Ensley's study found that good teaching matters and that teaching salaries should be differentiated based on supply and demand. He also believed that teachers teaching in critical shortage areas such as math, science, foreign language, and special education should be compensated accordingly. North Carolina created two model high schools and recognized that money mattered. The North Carolina School of Science and Mathematics and the North Carolina School of the Arts have become models for states across the nation. Annually the Mathematics and Science school is one of the nation's top three performers in the science area. Per pupil expenditures at both schools are high. North Carolina found that money did make a difference. Money meant smaller class sizes and classrooms with technology. Money also translated into recruiting more highly qualified teachers. Teachers in 87% of the state's lowest performing schools went from being low performers to receiving $1,500 bonuses from the state because they met expected goals in one year's time (Public School Forum).

Kentucky instituted an accountability program entitled the Kentucky Instructional Results Information System

(KIRIS) in the 1990s. The assessment is linked to the Kentucky Education Reform Act (KERA) goals. The program requires schools to show levels of improvement on performance-based assessment or face sanctions that could result in dismissal of teachers. Teachers whose students show improvement are eligible to receive financial awards. There are two high stakes tests used in Kentucky. One is an exam that is used for a student's promotion or graduation. The other test is used as a reflection of instructional quality. Opponents of the system argue that the system may encourage poor test takers to drop out of school or cause them to be placed in special education classes. Critics also claim that administrators move the best teachers to accountable grade levels. Some fear teachers will want to transfer to schools that have a better chance of doing well on the exams (Kannapel, 1996).

Educators continue to explore ways to hold schools and teachers accountable. High stakes testing seems to be here for the long haul. Some studies in recent years have shown positive outcomes from performance-based testing. Legislators in Kentucky mandated the development of a performance-based assessment program to hold schools accountable for student achievement (Kannapel, 1996).

Students in grades 4, 5, 8, 11, and 12 are tested annually with an assessment instrument that includes written portfolios, multiple-choice and open response questions, as well as performance events. Schools that show improvement of at least one percent and move at least ten percent of their students to a higher level receive cash rewards which are divided according to the desires of the majority of teachers at the school. Schools that do not meet the minimum standards are subject to sanctions. Schools are evaluated every two years. The 1992-1994 test scores resulted in $2,602 bonuses for each teacher. One third of Kentucky's public schools received some sort of cash bonus (Kannapel, 1996).

Kentucky's desire to increase student performance was met with a fair amount of criticism. In a 1994 survey, 85% of the 70 educators surveyed stated they did not believe that all students could achieve at a high level. Some commented that the student's home life and lack of motivation kept them from performing at high levels. Opponents of Kentucky's pay system felt the focus should be on the students and not on teachers (Kannapel, 1996).

A study in Connecticut concerning school size and quality of education was conducted in the late 1980's. The study concluded that there was no significant difference between large and small schools in relation to expenditure per pupil. The study did indicate that smaller schools did pay higher educational tax rates (Melnick, 1986). Connecticut had experienced a reduction in high school class enrollments statewide and was considering consolidation of some schools. Those that supported consolidation claimed that students benefited from larger schools due to a more varied curriculum, better facilities, extracurricular activities, etc. The proponents of smaller schools claimed students benefited from not having to change buildings so often and that remaining housed in a central location benefited them academically. They also touted that attending a small school meant closer relationships with teachers and families. They claimed the time spent riding a bus would be detrimental. They also admonished that students had a greater opportunity to participate in extracurricular activities due to smaller enrollment populations (Melnick, 1986).

Our nation is fixated with individual accountability. It seems that more than any other country in the world America likes to reward and punish individuals. The problem with teacher compensation systems is the difficulty of evaluating and rewarding individuals. Most of the pay for performance systems focuses on test scores and not on teaching. Test scores are more prone to corruption than instructional practices. The potential for cheating on state exams has never been higher than it is today. Educators are under stress to perform and perhaps would be willing to be dishonest to obtain the necessary goals. Performance pay is not sufficient. The system has to be supported by strong professional development (Shanker, 2006).

There are teacher pay systems that reward knowledge and skills. Some pay plans reward additional certifications or National Board Certification. There are a few teacher pay plans that recognize mastery of a technology skill, leadership components and teacher performance when measured by standards-based evaluation. There is a competency model entitled the Framework for Teaching that applies to all grade levels. The Framework describes teacher performance from beginner to experienced. The four performance domains

are planning and preparation, classroom environment, instruction, and professional responsibilities. The Framework for Teaching may be used as an instrument for standards-based evaluation. Herbert Heneman believed that teachers need to prove competency before advancing in salary. It is important to develop rubrics, prepare teachers and principals methodically, train evaluators effectively, and support teachers in gaining knowledge and skills (Heneman, 2006).

Dropout rates have declined in the past 20 years and college attendance has been on the rise. High school students are taking more advanced coursework than ever before, and yet our student achievement level has remained flat (Fordham, 1998). It appears elementary students through grades 5 or 6 show an annual increase, but somewhere in middle school and high school they plateau. It seems in America the longer a child stays in school, the farther behind he falls. Business owners claim finding quality personnel is more difficult than ever and that they have to train and retrain individuals on simple technological skills. There exists a wide disparity between good schools and bad schools across our nation. Where a child lives determines what kind of education he receives.

The United States is at a crossroads educationally. The decision to educate all students or simply keep them in school until they reach a certain age has become a dilemma. Thousands of poor and minority children are stuck with the school district in which they reside. Many times these schools have the least qualified teachers and the poorest facilities. Even if their parents wanted to do something different for their children they lack the ability to see that it occurs (Fordham, 1998).

Principals should be held accountable for teachers who are not performing. Principals should have the authority to hire and fire teachers. If the teachers' students are not showing improvement, the teacher should not be retained. If the school fails, the principal should not be retained. It is our responsibility to ensure students have the opportunity to be successful. Educators must equip them with the necessary skills to live a prosperous and responsible life. Once they graduate from high school, they should be ready to enter the work force (Fordham, 1998).

In the 1980s, the Kansas City Missouri School District was told by a federal judge to develop a plan to improve the education of black students and encourage

desegregation. The judge told the Kansas City District that he would find the money to pay for their plan. Kansas City spent $11,700 per pupil which bought higher teacher salaries, 15 new schools, an Olympic swimming pool, television studio, field trips to Mexico, etc. The student teacher ratio was 13 to 1 which was the lowest of any major school in the United States (Ciotti, 1998).

Even with all of the money spent in the Kansas City School District, the results were less than desirable. Student achievement did not improve and the black versus white gap ratios did not shrink. There was less integration than before the judge's court order. This experiment with expenditures suggested that educational problems cannot be solved with money alone (Ciotti, 1998).

The judge told the Kansas City School District in 1985 to spend nearly $2 billion over the next dozen years to build new schools, integrate schools, and bring student test scores up. During this time span, the number of blacks attending black schools increased instead of decreased and student test performance did not improve. The Kansas City example was a major humiliation to supporters of increased funding for schools (Ciotti, 1998).

The judge had focused so much attention on desegregation he lost sight of the students' lack of achievement. Opponents wanted the judge to address the achievement issue more than the integration issue. The judge had done what a lot of educators thought he should do to improve student performance such as reduce class size, decrease teacher workloads, increase teacher pay, and radically increase per pupil expenditures. The school district still failed. In retrospect, some thought the Kansas City School District should have implemented merit pay, incentive pay, vouchers, rewards for effective teachers, and penalties for ineffective teachers (Ciotti, 1998).

Vaughn Elementary School in Los Angeles, California, is a school that utilizes knowledge and skills-based pay. Vaughn is a charter school that educates approximately 1,200 students. Vaughn is 100% Title I and has a 100% free and reduced lunch rate. Prior to getting a charter in 1983, Vaughn had extremely low student test scores. Student achievement has greatly improved and the school has been recognized as a Blue Ribbon School in recent years (Gallagher, 2002).

In 1998, Vaughn began implementing a skills-based pay plan. Teachers were evaluated during three week-long windows throughout the school year on lesson plans, classroom management, literacy, mathematics, language development, special education inclusion, social studies, science, art, and technology. Teachers were given a score in the range of 1 to 4 on each standard (Gallagher, 2002).

In the early 1990s, the Tennessee legislature adopted a plan to track elementary teachers' performance yearly. Tennessee lawmakers touted the plan as one based not on traditional indicators such as training and experience, but on student performance. Tennessee compared the importance of teacher effectiveness with other variables such as class size, free and reduced lunch students, etc. They also compared urban and rural schools. The research indicated that teacher effectiveness was 20 times as significant as these other factors (Dawson & Billingsley, 2000).

In the early 2000s, the Los Angeles Unified School District (LAUSD) offered a uniform salary increase of six percent for teachers. In addition to this raise teachers whose students had an increase on their Stanford-9 scores received bonus pay. Some research indicates that teachers

who have a strong academic background leave teaching within a few years for more lucrative careers. There is little evidence that higher uniform salary schedules increase student performance. Salary does play a role in teacher turnover but is only one of many variables. The average annual rate of turnover nationwide is around 11 percent of all workplace employees. Teacher turnover is only slightly higher at 12 percent. Research in the state of California indicated that teacher turnover rates had no significant impact on student achievement (Dawson & Billingsley, 2000).

Teacher turnover is higher at the secondary level than at the elementary level. United States Secretary of Education Richard Riley forecasted in 2000 that public schools were going to struggle to keep qualified teachers in the classroom. It appears at the secondary level physics and chemistry teachers have the highest rates of turnover. Communication Arts and social studies teachers are more secure. Statistics indicate teachers in math and science in California leave the teaching field due to the rigor of entry and the stagnant salary schedules that prevent them from earning a higher salary (Dawson & Billingsley, 2000).

A 1998-1999 California study by the Center for the Future of Teaching and Learning (CFTL) found that 40% of

California's new hires in 1998 were teachers who were entering the teaching field for the second time. The CFTL defined "under-qualified" as teachers who did not hold a full certificate in their area of instruction. CFTL reported that 1 in 10 classrooms were staffed by an unqualified teacher. The research found that schools with the highest free or reduced lunch program enrollment also had the highest percentage of unqualified teachers. The most significant statistic in the CFTL study was that schools with the highest student achievement had the fewest number of under-qualified teachers. Third grade reading test scores were drastically higher in schools that had teachers who were fully certified. The highest scoring schools had only 4 percent of teachers who were unqualified, while schools that scored lower had teachers who were unqualified 22 percent of the time (Dawson & Billingsley, 2000).

Teacher Certification

One other important factor in raising student achievement has been identified as reducing class size. In the 1990s, the Education Commission of the States identified twenty-four states that have established

guidelines, grants, or other financial assistance for schools to lower class sizes (Kennedy, 2003). In 2002, Florida voters approved a sweeping plan requiring the states' schools to set a ceiling on the number of students in every classroom from kindergarten through high school. The passage of this law also amended Florida's constitution relative to student class size. By the year 2010, class size must not exceed 18 in kindergarten through third grade, 22 in fourth through eighth grades, and 25 in high school. Small class sizes allow teachers to give more individual attention to students, manage their classrooms more effectively, and create a more positive atmosphere for teaching and learning (Kennedy, 2003). With smaller classroom enrollment, teachers have an increased opportunity to get to know their students on a more personal level and more accurately learn the students' strengths and weaknesses. Discipline problems should also diminish with fewer students per classroom. The financial burden of this new law will potentially cost the state of Florida hundreds of thousands of dollars. It will mean more school buildings and many more classroom teachers. Opponents to Florida's plan claim the price tag will be $27

billon and that the state is already lacking qualified teachers. They claim there will not be enough money to give adequate raises to the existing teachers and administrators if this plan remains a law. Studies on the effect of class size, state that reducing class size is most effective when class size range is between fifteen and nineteen. Schools and students that benefit the most are low-income and low-achieving. It is also recommended that teachers with reduced class sizes receive quality professional development in order to offer a demanding curriculum to all students (Kennedy, 2003).

The National Educational Longitudinal Study of 1998 found that teachers who had some type of certification made a statistically significant impact on students' math performance compared to students with teachers who lacked certification in the math field. It was estimated the difference in certification amounted to three fourths of a year of learning. The research also indicated students who had instructors with math degrees outperformed those students whose math teachers did not have a math degree (Dawson & Billingsley, 2000).

Research on whether providing alternative routes to teacher certification is a positive has been inconclusive. Proponents argue that alternative methods to teacher certification provide a more diverse pool of candidates. The question of teacher quality still remains when alternative certification practices are used. Evidence exists that teachers who earn certification by traditional methods produce higher student test scores than those who become teachers via alternate routes. The research shows that the teachers who became certified via alternate routes catch up by year three. There is increasing disagreement about the best way to prepare teachers. Some argue that reducing the requirements for entry into the teaching field will attract strong candidates. Opponents feel reducing the requirements will lessen teacher preparedness. The National Council for the Accreditation of Teacher Education (NCATE) and the Teacher Education Accreditation Council (TEAC) are the two institutions that accredit teacher education programs. Both of these groups desire college institutions to gather data on their graduates (Corcoran, 2007).

Are teachers discouraged from entering the teaching field due to the possibility of teaching in a low-income region? Do potential teachers decide not to enter the

teaching field due to the lengthy certification process or is it the low salaries? Schools across the nation view experienced teachers as competent and qualified when often times this is not the case. When a teacher interviews and has the appropriate certification it is difficult to select another candidate over the certified one. Principals need to make the ultimate decision on which teacher to hire and then be held accountable for that teacher's performance in the classroom. If student performance does not improve, the teacher should be held accountable.

In many parts of the United States, teachers are not viewed as professionals. There is a belief that anyone with a college degree can teach. Until teachers are treated with respect and compensated accordingly, school districts will continue to employ teachers who are inadequate due to the lack of highly qualified teachers. Research has shown that placing a highly competent teacher in front of a classroom of students is the best way to improve student performance. The single most important factor in whether or not students will achieve at high levels is their teacher's qualifications (Jones, 1998).

Nationwide, the education field has faced challenges in attracting and retaining suitable, qualified teachers. A high turnover ratio in education relates to low pay and lack of high quality professional development. Teachers leave the field in spite of their qualifications due to economic restraints. Even though teachers and administrators have a college degree, they still lack in income comparisons with all workers nationwide. A reform movement in California entitled Compensation and Recognition Encourages Stability (CARES) emerged to address the deficiencies in professional development for educators. The CARES model works to promote teacher retention by improving professional development. The movement also links professional development with increased teacher pay including incentive pay (Whitebook, 2005).

The CARES plan mandated 21 hours of professional development per year. Participants would earn $500 - $6,000 rewards depending on their education and background. The program did not raise base salaries but did provide incentives through the professional development opportunities. In 2000, the state of California made funds available through a matching funds program in cooperation

with CARES. In 2000 – 2001, 14 California counties participated in this matching funds program. That number increased to 41 counties in year number two and in 2004 the total number of counties that participated had risen to 47. The assumption of the CARES plan was that teachers would improve instruction techniques, earn an increased salary, and in turn student performance would increase. An added goal would be workforce consistency. Reviews of the CARES program indicate that the professional development component was accomplished. Educators were motivated and engaged (Whitebook, 2005).

It appears that bonus pay does influence teachers' decisions to remain in the teaching field. Evidence suggests that incentives could increase recruitment and retention in high-need schools and in various subject areas. Salary seems to be the main reason teachers leave the teaching field. Over 30% of North Carolina science teachers who had left the profession indicated they would return to teaching if the salary was higher (Wheeler, 2007).

Some research indicates the need for more intensive education of preschool age children. School age readiness

tends to be lacking now more so than ever before. Students entering kindergarten lack the fundamentals necessary for success. Some states have discussed mandating preschool for all children. Before that initiative becomes a reality the financial aspects must be explored. The current preschool teacher salaries across the United States lack in comparison to the salaries of public school elementary teachers. If preschool becomes mandatory nationwide, the need for highly qualified preschool teachers will be an issue due to the already declining number of highly qualified K-12 public school teachers. Advocates of preschool education claim that preschool teachers should be paid the same as K-12 instructors. Opponents argue the curriculum is not as demanding, and therefore the salaries should not be comparable. Proponents of preschool education claim that in order to attract highly qualified teachers the salary must be comparable. Currently the qualifications for preschool teachers do not compare to the qualifications for an elementary school teacher. Some say a preschool teacher would not require the same monetary benefits because the preschool setting is a less challenging environment; there are more adults per child than a public school setting; the content and curriculum are not as

challenging to teach; discipline is less due to the age of the students; and there are fewer testing and student performance issues with preschool age students (Bellm & Whitebook, 2005).

The National School Board Association suggests that to improve student performance you must start focusing on reading and math early in a child's education. They emphasize using trained tutors and investing in highly qualified teachers. Reducing class size is favorable and setting annual achievement goals with appropriate assessment tools is imperative. The importance of a quality teacher is never more apparent than when a wide range of kindergartners arrive for school. Some kindergarten students arrive knowing how to identify letters and reading while other kindergarten students have rarely heard an adult read a book (Public School Forum, 1999).

Some recent research indicates that quality teaching and caring for these younger students is critical for later success in school. Advocates claim that teacher mastery of a multitude of roles is necessary for these students to be successful. A successful preschool teacher must not only work well with the students, but also work well with the

parents. Parents are more personally involved with preschool teachers due to the age of the child. Proponents argue that preschool age students are more vulnerable and require acute attention and skill from the preschool teacher. Preschool advocates cite the need for an understanding of the student's physical and emotional needs at such a young age. The teacher must have a good understanding of theory, knowledge, and teaching techniques (Bellm & Whitebook, 2005).

Other factors that must be considered before implementing comparable salaries for preschool teachers are the professional development days, vacation and sick leave days, and health insurance coverage. Benefit packages are expensive and it is difficult to compete in the public school arena when it comes to health insurance and retirement plans. Many researchers have noted that the high cost of collective preschool education is worth it when you consider the lasting consequences of a failed generation of youngsters. Georgia and Oklahoma both pay preschool teachers the same as elementary school teachers (Bellm & Whitebook, 2005).

According to a 2003 Education Week's Quality Survey, the states of California, Maryland, Massachusetts, Nevada, and New York offered teachers a signing bonus in the 2003 – 2004 school year. Incentive programs vary from signing bonuses to targeting high-need schools to targeting hard-to-fill subject areas. California and Massachusetts also offer bonus pay for teaching at a high-need school. Massachusetts and New York pay bonuses for teaching in a high-need subject area (Wheeler, 2007).

The majority of incentive pay plans provide bonuses to retain experienced teachers or teachers identified as highly-qualified. The survey stated that 35 states participated in some sort of incentive pay program as of 2003. The state of Virginia was involved in an "Education for a Lifetime" initiative which began in 2004. Two counties in that state participated in that incentive pay program. Arkansas began a program that same year that included incentives to teach in distressed schools. In 2005, the United States House of Representatives Appropriations subcommittee approved President Bush's "Teacher Incentive Fund". This program would provide states money to reward effective teachers as well as reward

highly-qualified teachers that work in poverty areas (Wheeler, 2007).

Evidence across the nation suggests incentive programs focused on high-need schools and subject areas can be beneficial in recruiting and retaining teachers. The school district of Chattanooga, Tennessee used financial incentives focusing on attracting better teachers in nine low-performing elementary schools. Vacancies fell from 30 to two in one year. Third grade reading scores improved in all nine elementary schools (Wheeler, 2007).

Orange County, North Carolina, offers a $1,500 bonus for math, science, foreign language, and “reading recovery” teachers who qualify as fully-certificated and highly-qualified under NCLB. They also offer monetary incentives depending on tenure and experience. Orange County also pays as much as $1,000 to teachers who teach in shortage areas (Wheeler, 2007).

Charlotte, North Carolina, teachers who sign a contract early in the spring receive a $1,000 signing bonus and experienced teachers who teach in high-need areas receive $1,500 to $2,000. Guilford County, North Carolina began a program in 2006 in which special education and math

teachers receive bonus pay. Certificated special education teachers are paid one salary step above regular education teachers. Math teachers who work in poverty areas receive $9,000 and Algebra I teachers receive an additional $10,000. If their students achieve at an increased level they could earn an additional bonus of $2,500 - $4,000 (Wheeler, 2007).

NCLB mandates that all students are proficient by 2014. President George W. Bush knew his plan would cost school districts additional money. It is disconcerting that the government does not fully fund federal mandates. Title I monies are specifically set aside to help schools meet NCLB goals. However, to date Title I is not fully funded. As recently as 2005 Title I was underfunded nation-wide by over 9 billion dollars. The American Federation of Teachers (AFT) suggests hiring reading and mathematics specialists to provide teachers with research-based lessons and training. AFT also supports smaller class sizes and encourages NCLB to provide teachers with wireless internet connections at school and home so they can tap into the vast resources available on-line (American Federation of Teachers, 2005).

There is evidence that students in the United States lag behind other nations in several subject areas. Proponents of school choice believe allowing parents to choose which schools their child attends will help solve this inadequacy problem. Our nation should: increase academic standards, reject classroom methods that are outdated, improve teacher content knowledge, provide other methods for teacher certification, and increase pay for classroom teachers (Fordham, 1998).

In recent years, private schools have been perceived as being more successful in educating students than public schools. Legislators have encouraged public schools to imitate private schools in areas of reform. Some components of private schools that are increasingly discussed among public school opponents are school choice and smaller class sizes. There are methodical differences involving public and private schools. The matter of where students go to school is one and another is the sources of support for private schools. School choice is a hot topic currently as is financial support for public education. Community members want results from school districts across the nation. Private schools depend upon tuition payments and charitable donations to make ends meet, while public

schools rely on federal, local and state governments to pay the bills (Choy, 1997).

The gaps educationally between the haves and the have nots are huge. Poor and disadvantaged children are left to suffer the consequences of a poor school that will no doubt impact their career choices. Students are passed from one grade to the next, oftentimes without the ability to read. Schools should not be one and the same. What works in one part of the country might not work in another. Teachers and administrators need the autonomy to experiment. Our country is diverse; our educational system should be also. Our public school system should be open to the public, paid for by the public, and held accountable to the public. Educators should demand excellence for our students and have high expectations for all. Parents need to be informed about their students' progress and schools should have the power to intervene in cases of parental neglect (Fordham, 1998).

School vouchers relative to public education have continually garnered support in recent years and seem inevitable. Some argue that school choice would help schools improve as they would be competing for students (Choy, 1997). Advocates state that schools would be more

receptive to parents and students if school choice were allowed in the public sector. Parents who are dissatisfied with the public school have the option of sending their students to private schools. There are a variety of private schools available nation-wide including religious affiliated schools. Private schools charge various amounts in tuition, and some have stringent enrollment criteria while others are more lenient. Parents that are more financially stable are more likely to send their children to private schools while those students whose parents cannot afford the tuition are relegated to public schools. Students from families whose annual income was $15,000 or less were far more likely to send their children to public schools versus those families whose income was over $30,000 (Choy, 1997).

Public school teachers typically earn a higher salary than private school teachers. The qualification requirements to teach at public school versus private school also differ significantly. There is more rigor required to be certified to teach in the public school setting. As many researchers point out, one of the most critical components of a student's academic success relies

on the quality of the classroom teacher. Teachers in public schools are far more likely to obtain a master's degree than private school teachers. At the high school level, public school mathematics, foreign language, and English teachers are far more likely to have majored or minored in the subject as undergraduates. Private school teachers rarely are given benefits such as health insurance. Public school teachers, on the other hand, generally do receive health insurance as a benefit. Retirement benefits are also a critical component of the benefit package for public school educators (Choy, 1997).

The importance of school size has been discussed frequently in recent years. Larger schools often offer a wider array of academic course offerings, extracurricular opportunities, and increased support services. Schools that are smaller are easier to manage and the feeling of community is thought to be of great value. As school leaders attempt to raise the success of students, school size is important to consider. Teachers whose class sizes are smaller are able to provide more individualized attention to their students. Their workload is also considerably lower and therefore more enviable. Private

schools often have a more thorough scholastic program. Students who graduate from private schools are more likely to have taken advanced mathematics and science classes (Choy, 1997).

Teacher professional organizations tend to take the position that pay based on performance can be counterproductive to collaborative teamwork among teachers (Blair, 2001). Equitable placement of qualified teachers can be a problem within a district where certain schools have more senior teachers and higher performing students versus the least experienced teachers working in schools that have a high concentration of poverty and students that have low academic performance. A second equity issue is money and the opportunity of wealthier school districts to provide a broader range of programs and quality teachers for their students. It is evident that the differences in community wealth have an impact on the school district's ability to recruit and retain highly qualified teachers. Higher salaries, better benefits, signing bonuses, newer facilities, smaller schools, more resources, more opportunities for professional development, and larger budgets for recruiting give the wealthier school districts an advantage due to the fact they take neighboring school

district's best teachers. The issue of financial equity in schools may not be overcome, even with support from the federal government (Blair, 2001).

Summary

Classroom teachers are the driving force in any child's education. Teacher effectiveness determines whether students receive a quality education or not. The problem is that exceptional teachers are not rewarded for their excellent work, and failing teachers are rarely held accountable for their poor efforts. The teaching profession could benefit from compensation systems similar to those used for other professions. Quality teachers have nothing to fear from pay-for-performance plans. In order for the quality of the teaching field to improve, teachers must be held responsible, paid accordingly, and be given appropriate professional development to increase student achievement. Schools must implement performance pay plans, replace the teacher tenure system with performance contracts for teachers, and apply differential pay for the varied needs of certificated employees.

CHAPTER THREE-DESIGN AND METHODOLOGY

The Missouri Department of Elementary and Secondary Education (MDESE, 2008) requires the administration of the Missouri Assessment Program (MAP) to 3rd, 4th and 5th grade students in the areas of communication arts and mathematics. These results are posted on the MDESE website. This research study focused on determining whether or not teacher compensation correlated with student achievement on the MAP test.

This chapter outlines the procedures utilized in this study. The following areas are included: definition of population and sample, variables studied, research questions, hypotheses, data analysis, and summary.

Definition of Population and Sample

The population for this study included 300 randomly selected public school districts in the state of Missouri. Elementary students in the state of Missouri in grades three through five are given the MAP examination annually in communication arts and mathematics. Data files from MDESE and public information from the DESE website supplied the necessary information for identifying the sample.

Variables Studied

MDESE calculated a MAP index score for each school district by first multiplying the percent of students scoring at each achievement level by the following values: Advanced - 3; Proficient - 2.5; Nearing Proficient - 2; Progressing - 1.5; and Step 1 - 1 (MDESE, 2008). The sum of these products produced the final MAP index score, which ranged from 100 to 300. The dependent variables examined in this study were the MAP index average score as well as index scores for each subject area in each grade level.

The independent variable for this study was average teacher salary. Teacher salary data were collected from the DESE website for 300 randomly selected public school districts in the state of Missouri.

Research Questions

The following questions guided this study:

1. Is there a relationship between higher teacher salaries and higher student Missouri Assessment Program (MAP) scores?
2. Does a positive correlation exist between teacher compensation and elementary student achievement on the MAP?

Hypotheses

H_0: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured by the mean third through fifth grade index scores.

H_1: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the third grade level in communication arts.

H_2: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the third grade level in mathematics.

H_3: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fourth grade level in communication arts.

H_4: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fourth grade level in mathematics.

H_5: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fifth grade level in communication arts.

H_6: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fifth grade level in mathematics.

Data Analysis

This data were gathered from 300 randomly selected Missouri K-12 public school districts using 2007 data. The data was collected from the Missouri Department of Elementary and Secondary Education website. The data included Missouri Assessment Program data as well as finance data regarding average teacher salary for each public school district. The data were organized into a spreadsheet for access by the appropriate statistical program. A linear regression was used to analyze the relationship between the independent variable (teacher salary) and the dependent variable (MAP score). Seven different linear regressions were conducted: 3rd grade communication arts, 4th grade communication arts, 5th grade communication arts, 3rd grade mathematics, 4th grade

mathematics, 5th grade mathematics, and average MAP index. A t-test was used to determine significance.

Summary

The study examined elementary MAP scores of 300 randomly selected public schools in Missouri. The dependent variable was the MAP index scores for students in grades 3 through 5. Independent variables included teachers' average salaries. Descriptive statistics identified the mean, range and standard deviation for each variable. Analyses included linear regressions to determine the relationship between the dependent and independent variables.

Chapter Four presented the procedures employed to analyze the data collected from the study, the study design that contains the research questions, the null hypotheses, population sample, data collection, and methods of analyses.

CHAPTER FOUR-ANALYSIS OF DATA

The purpose of this study was to examine the relationship between teacher salary and student achievement. Variables examined included average teacher salaries from randomly selected schools across the state of Missouri and student MAP index scores. The dependent variable was the 2007 MAP index scores for students in grades 3 through 5. Two areas of academic performance were investigated, MAP mathematics index scores and MAP communication arts index scores. The independent variable was the average teacher salary from school districts across the state of Missouri.

Population and Sample

The population of this study was 300 randomly selected school districts in Missouri. The methods used in analyzing data were descriptive statistics and linear regressions. The null hypotheses considered in this study were:

H_0: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured by the mean third through fifth grade index scores.

H_1: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the third grade level in communication arts.

H_2: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the third grade level in mathematics.

H_3: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fourth grade level in communication arts.

H_4: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fourth grade level in mathematics.

H_5: There is no statistically significant correlation at the .05 level between teacher compensation and student academic achievement on the Missouri Assessment Program as measured at the fifth grade level in communication arts.

H_6: There is no statistically significant correlation at the .05 level between teacher compensation and student

academic achievement on the Missouri Assessment Program as measured at the fifth grade level in mathematics.

Data Collection

Student performance levels on the MAP assessment ranged from Step 1, Progressing, Nearing Proficient, Proficient, to Advanced. A MAP index score is calculated by multiplying the percent of students scoring at each achievement level by the following values: Advanced - 3, Proficient - 2.5, Nearing Proficient - 2, Progressing - 1.5, and Step 1 - 1. The sum of the products yields the MAP index score. These MAP index scores for each school district in this study were averaged to produce a single MAP index score for each school district. The MAP index scores ranged from 100 to 300. The MDESE website supplied the necessary initial MAP index score for each grade level for each school district.

MDESE's website provided the 2007 average teacher salary for each school district. All data was transferred to an excel spreadsheet and then a linear regression was conducted to determine the statistical significance.

Method of Statistical Analysis

This study utilized a linear regression and a t-test as a means of determining statistical significance between

MAP index scores and average teacher salaries. The dependent variable was the MAP index score for 3rd grade communication arts, 4th grade communication arts, 5th grade communication arts, 3rd grade mathematics, 4th grade mathematics, 5th grade mathematics and the average MAP index score. The independent variable was the average teacher salary. The resulting correlations established a measure for determining whether or not to accept the null hypotheses at the .05 level of probability.

Descriptive Findings

Table 1 shows the number of districts, mean, standard deviation, minimum and maximum values. The values for all variables showed moderate variability as can be seen from the standard deviations relative to the value of the means. The minimum and maximum values are within the acceptable and expected range for all variables indicating that there are no extreme values.

Table 1. *Descriptive statistics for different variables in the data.*

Variable	N	Mean	Std Dev	Minimum	Maximum
Grade 3 CA MAP Index score	298	751.73	27.17	681.80	880.00
Grade 4 CA MAP Index score	300	751.38	24.57	666.70	877.80
Grade 5 CA MAP Index score	299	753.39	24.65	675.00	877.80
Grade 3 Math MAP Index score	300	747.42	25.17	672.70	835.70
Grade 4 Math MAP Index score	300	745.90	25.49	680.00	860.00
Grade 5 Math MAP Index score	300	751.66	25.69	650.00	853.30
Average MAP index	298	750.27	18.50	698.33	826.85
Ave Teacher Salary	300	34,780	6.46	23,900	62,800

To further investigate the independent variable (teacher salary) and the dependent variables (MAP indices) for grades 3, 4, and 5 in Communication Arts and Mathematics, refer to the Figures in Appendix A.

The dependent variables (student achievement) have a bell shape and approximate the normal distribution with no extreme values. The average teacher salary demonstrates that most of the salaries were in the rage of $28,000 to $44,000. All the values are within the acceptable range and no data was regarded as outliers.

To test the possible effect of teacher salary on student achievement a linear regression was used. The

following seven analyses were conducted for each of the measurements of student achievement:

1- MAP index for grade 3 (Communication arts),

2- MAP index for grade 4 (Communication arts),

3- MAP index for grade 5 (Communication arts),

4- MAP index for grade 3 (Mathematics),

5- MAP index for grade 4 (Mathematics),

6- MAP index for grade 5 (Mathematics),

7- Average MAP index

Table 2 illustrates teacher salary had a correlation on the MAP index for grade 3 in communication arts with P-value of <0.01. The slope was positive which indicated that as teacher salary increased, MAP index for grade 3 in Communication Arts also increased. The results indicated that as teacher salary increased by $1,000, MAP index scores increased .74 units. The null hypothesis for grade 3 communication arts was rejected at the .05 level.

Table 2 indicates a prediction equation of the MAP index for grade 3 in CA equals (725.84 + 0.74) * average teacher salary. The analysis also generated the R^2 value of 0.0313. This indicated that 3.13% of the variation in students' MAP index for grade 3 in Communication Arts can be

explained by the variation in teacher salary. In other words, about 3% of the variation in MAP index of grade 3 in Communication Arts can be attributed to teacher salary.

Table 2. Effect of teacher salary on MAP index for grade 3 (Communication Arts)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	725.84	8.51	85.34	<0.01
Ave Teach Salary	1	0.74	0.24	3.10	<0.01

Table 3 illustrates teacher salary had a significant correlation on MAP index for grade 4 in communication arts with P-value of 0.01. The P-value (significance level) was significant at the 0.05 level. Evidence indicated teacher salary was correlated with MAP index for grade 4 in communication arts.

The slope was positive which indicated as teacher salary increased, MAP index for grade 4 in communication arts also increased. The magnitude of this change was determined by the value of the estimate of the slope. An increase of 0.56 units in MAP index for grade 4 was exhibited in communication arts for each one thousand

dollar increase in the average salary of the teachers. The null hypothesis for grade 4 communication arts was rejected at the .05 level.

Table 3 indicated a prediction equation of the MAP index for grade 4 in communication arts equals (732.05 + 0.56) * average teacher salary. The R^2 value in this analysis was 0.0213. This indicates that 2.13% of the variation in students' MAP index for grade 4 in communication arts can be explained by the variation in teacher salary. In other words, about 2% of the variation in MAP index for grade 4 in communication arts can be attributed to teacher salary.

Table 3. Effect of teacher salary on MAP index for grade 4 (Communication arts)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	732.05	7.71	94.93	<0.01
Ave Teach Salary	1	0.56	0.22	2.55	0.01

Table 4 illustrates teacher salary had a significant correlation with MAP index for grade 5 in communication arts with P-value of less than 0.01. Evidence concluded

that teacher salary had a correlation with MAP index for grade 5 in communication arts.

The slope was positive which indicated as teacher salary increased the MAP index for grade 5 in communication arts also increased. The magnitude of this change is determined by the value of the estimate of the slope. An increase of 0.98 units in MAP index for grade 5 in communication arts for each one thousand dollar increase in the average salary of teachers was exhibited. The null hypothesis for grade 5 communication arts was rejected at the .05 level.

Table 4 indicates a prediction equation of MAP index for grade 5 in communication arts equals (719.30 + 0.98) * average teacher salary. The R^2 value in this analysis was 0.0661. This indicated that 6.61% of the variation in students' MAP index for grade 5 in communication arts can be explained by the variation in teacher salary. In other words, about 7% of the variation in MAP index for grade 5 in communication arts can be attributed to teacher salary.

Table 4. Effect of teacher salary on MAP index for grade 5 (Communication arts)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	719.30	7.56	95.14	<0.01
Ave Teach Salary	1	0.98	0.21	4.59	<0.01

Table 5 illustrates teacher salary had a significant correlation with MAP index for grade 3 in math with P-value of less than 0.01. Evidence concluded that teacher salary had a true effect on MAP index for grade 3 in math.

The slope was positive which indicated as teacher salary increased the MAP index for grade 3 in math also increased. The magnitude of this change is determined by the value of the estimate of the slope. An increase of 0.83 units in MAP index for grade 3 in math was exhibited for each one thousand dollar increase in the average salary of the teachers. The null hypothesis for grade 3 mathematics was rejected at the .05 level.

Table 5 indicates a prediction equation of MAP index for grade 3 in math equals (718.59 + 0.83) * average teacher salary. The R^2 value in this analysis was 0.0453.

This indicates that 4.53% of the variation in students' MAP index for grade 3 in math can be explained by the variation in teacher salary.

Table 5. Effect of teacher salary on MAP index for grade 3 (Mathematics)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	718.59	7.80	92.10	<0.01
Ave Teach Salary	1	0.83	0.22	3.76	<0.02

Table 6 illustrated teacher salary had a significant correlation with MAP index for grade 4 in math with P-value of 0.02. The P-value (significance level) was significant at the 0.05 level. Evidence indicated teacher salary had a true effect on MAP index for grade 4 in math.

The slope was positive which indicated as teacher salary increased, the MAP index for grade 4 in math also increased. An increase of 0.54 units in MAP index for grade 4 in math was exhibited for each one thousand dollar increase in the average salary of the teachers. The null hypothesis for grade 4 mathematics was rejected at the .05 level.

Table 6 indicates a prediction equation of MAP index for grade 3 in math equals (727.24 + 0.54) * average teacher salary. The R^2 value in this analysis was 0.0185. This indicated that 1.85% of the variation in students' MAP index for grade 4 in math can be explained by the variation in teacher salary.

Table 6. Effect of teacher salary on MAP index for grade 4 (Mathematics)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	727.24	8.01	90.78	<0.01
Ave Teach Salary	1	0.54	0.23	2.37	0.02

Table 7 illustrates teacher salary had a significant correlation with MAP index for grade 5 in math with P-value of 0.01. The P-value (significance level) was significant at the 0.05 level. Evidence indicated teacher salary had a true effect on MAP index for grade 5 in math.

The slope was positive which indicated as teacher salary increased, the MAP index for grade 5 in math also increased. An increase of 0.57 units in MAP index for grade 5 in math was exhibited for each one thousand dollar

increase in the average salary of the teachers. The null hypothesis for grade 5 mathematics was rejected at the .05 level.

Table 7 indicates a prediction equation of MAP index for grade 5 in math equals (731.89 + 0.57) * average teacher salary. The R^2 value in this analysis was 0.0204. This indicated that 2.04% of the variation in students' MAP index for grade 5 in math can be explained by the variation in teacher salary.

Table 7. Effect of teacher salary on MAP index for grade 5 (Mathematics)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	731.89	8.07	90.75	<0.01
Ave Teach Salary	1	0.57	0.23	2.49	0.01

Table 8 illustrated teacher salary had a significant correlation with MAP index for the overall average with P-value of 0.01. The P-value (significance level) was significant at the 0.05 level. Evidence indicated teacher salary had a true effect on MAP index.

The slope was positive which indicated as teacher salary increased the MAP index also increased. An increase of 0.70 units in MAP index for grade 5 in math for each one thousand dollar increase in the average salary of the teachers could be expected.

Table 8 indicated a prediction equation of MAP index equals (725.82 + 0.70) * average teacher salary. The R^2 value in this analysis was 0.0603. This indicated that 6.03% of the variation in students' average MAP index can be explained by the variation in teacher salary.

Table 8. Effect of teacher salary on Average MAP index

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	725.82	5.70	127.29	<0.01
Ave Teach Salary	1	0.70	0.16	4.36	<0.01

The null hypothesis proposed no statistically significant correlation at the .05 level between student achievement as measured by the MAP index scores and teacher salaries.

Summary of Findings

This chapter presented the descriptive data obtained for each of the variables listed. The data collected represents 300 Missouri public schools.

Chapter Five provides the summary, discussion, conclusions, and recommendations that resulted from this study.

CHAPTER FIVE-CONCLUSIONS AND RECOMMENDATIONS

NCLB mandates all students be proficient in communication arts and mathematics by 2014. School districts across the nation are desperately trying to achieve the NCLB requirement. Dollars are being spent in various ways to garner high student achievement scores (Jennings, 2006).

This study was designed to determine a differential in student achievement scores amongst schools that had a higher teacher salary and those that did not.

The study reviewed literature and research that provided information on the following: (1) research on teacher salary schedules, (2) student achievement testing, (3) socioeconomic factors and school expenditures, (4) supplemental salary options, and (5) accountability measures. Data for this study was provided by the Missouri Department of Elementary and Secondary Education. This study utilized descriptive statistics and correlations to determine patterns and relationships that affect the achievement of students on the Missouri Assessment Program.

Discussion

Results of the study suggest that MAP index scores for school districts that have a higher average teacher salary

were significantly higher than those school districts that had a lower average teacher salary. This trend suggests that school districts can entice more productive, effective teachers with higher salaries.

Based on the results of this study, the academic performance of students did appear to be affected by teacher's salary.

Conclusion

Teachers' salary was found to have a significant influence on student achievement as measured by MAP index in grades 3, 4, and 5 in mathematics, and communication arts and in average MAP index. The effect of teacher's salary on student achievement was found to be favorable and student achievement was found to improve with the increase in teacher's salary. However, only a small proportion (ranging from 2 to 7%) of the variability in students' achievement can be attributed to differences in teacher's salary.

Significant factors that were not accounted for in this study include: number of students receiving free or reduced-price lunches, advanced degrees of teachers involved, and median household income of parents.

Accountability for public schools across the nation is at an all time high. Adequate Yearly Progress expectations of NCLB require all students to be proficient in reading and mathematics by 2014. As school districts examine the best use of financial resources, it is imperative that appropriate use of those dollars be attained.

Recommendations

School districts should examine the manner in which funds are distributed and recognize higher teacher salary does not always equate to higher student test scores. Recommendations for future research include: (1) examine the percent of free or reduced-price lunch students in each of the schools listed, (2) examine other factors that motivate teachers besides monetary compensation such as school climate, professional development, and working conditions, and (3) investigate other areas that impact student achievement scores.

Summary

This study showed a significant correlation existed between student achievement scores on the MAP and teacher salary during the 2006 – 2007 school year. Student achievement was measured in grades 3, 4, and 5 in mathematics and communication arts and in average MAP index

scores. All seven student achievement areas displayed a significant correlation.

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APPENDIX A

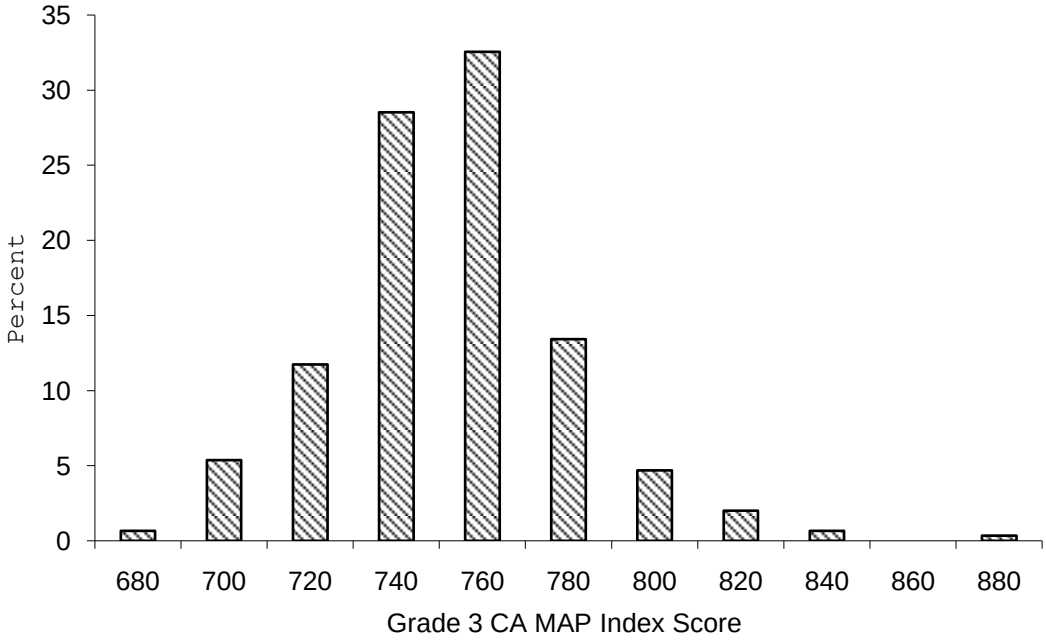

Figure 1. MAP index for grade 3 communication arts, 2006-2007

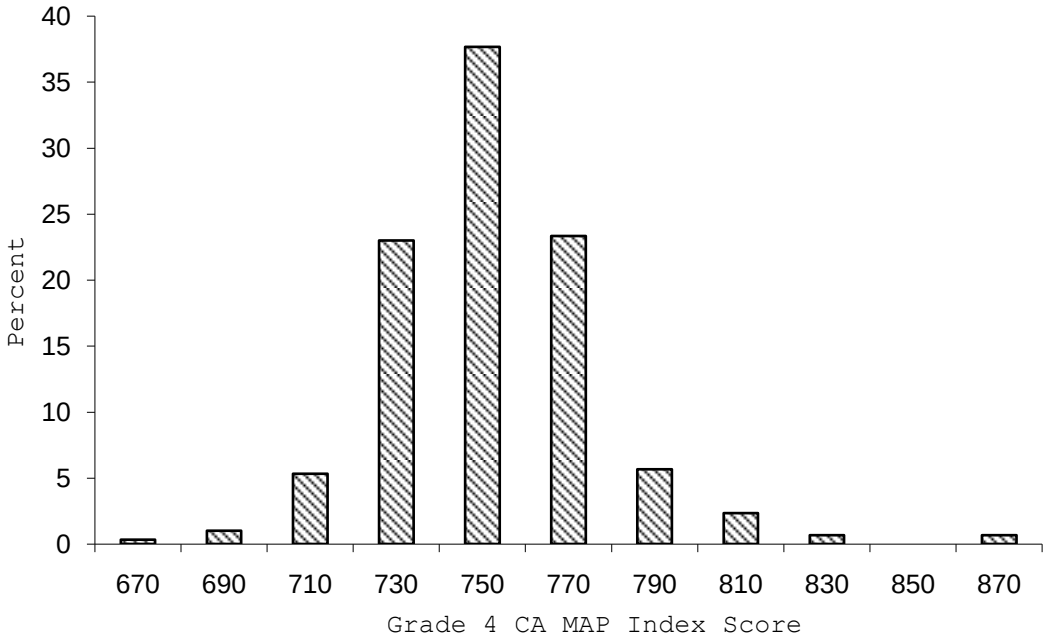

Figure 2. MAP index for grade 4 communication arts, 2006-2007

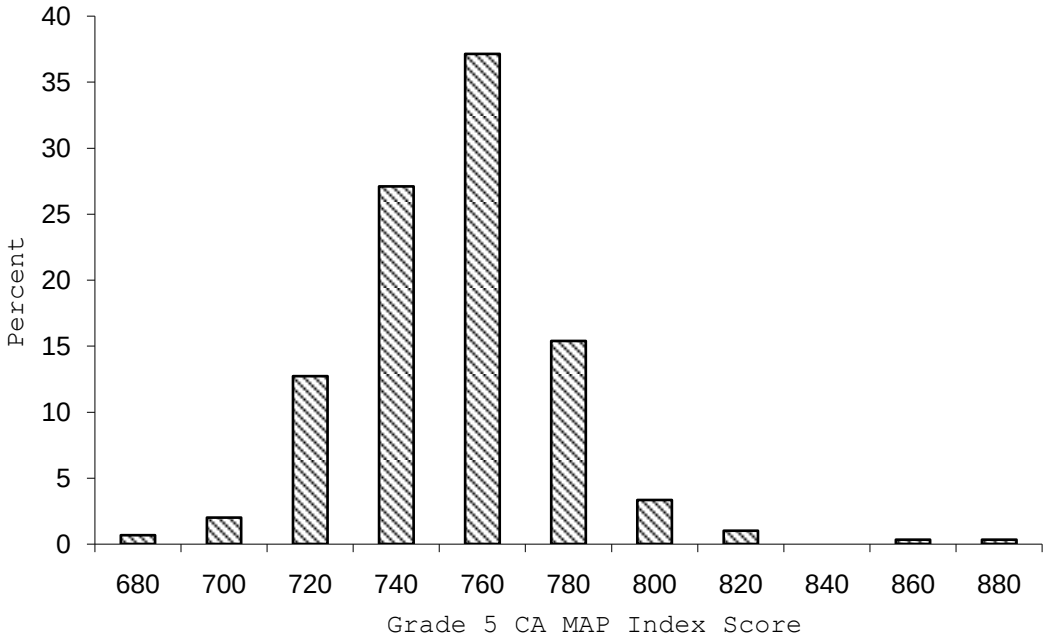

Figure 3. MAP index for grade 5 communication arts, 2006-2007

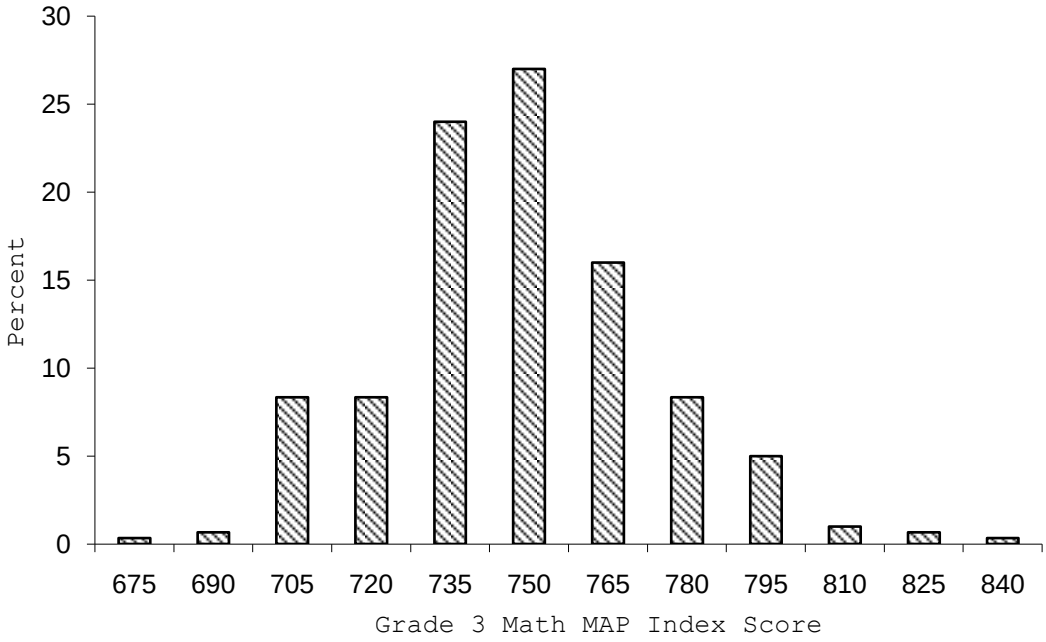

Figure 4. MAP index for grade 3 mathematics, 2006-2007

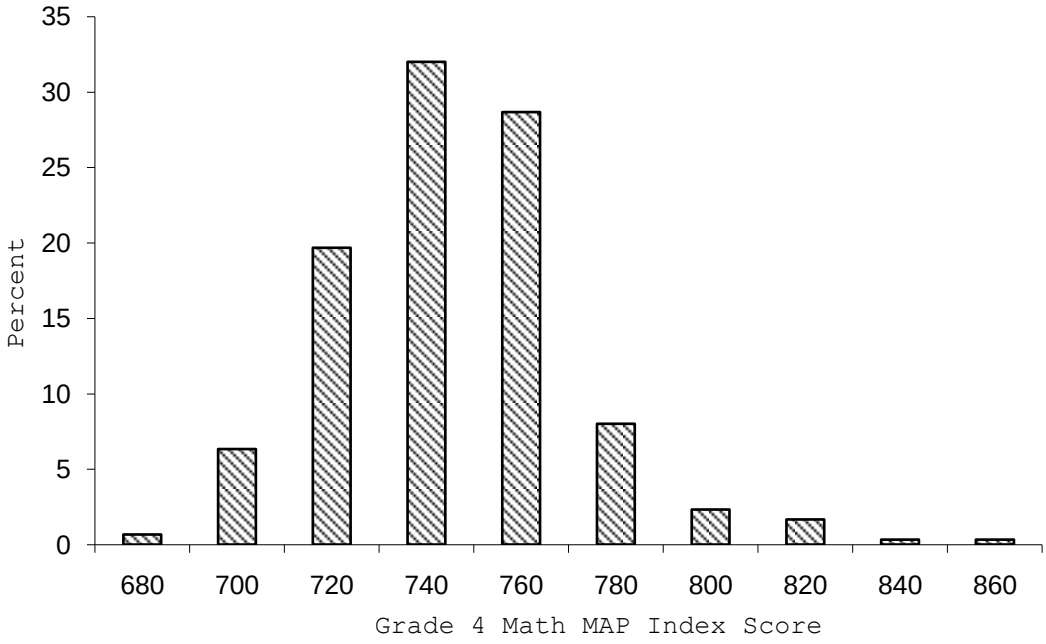

Figure 5. MAP index for grade 4 mathematics, 2006-2007

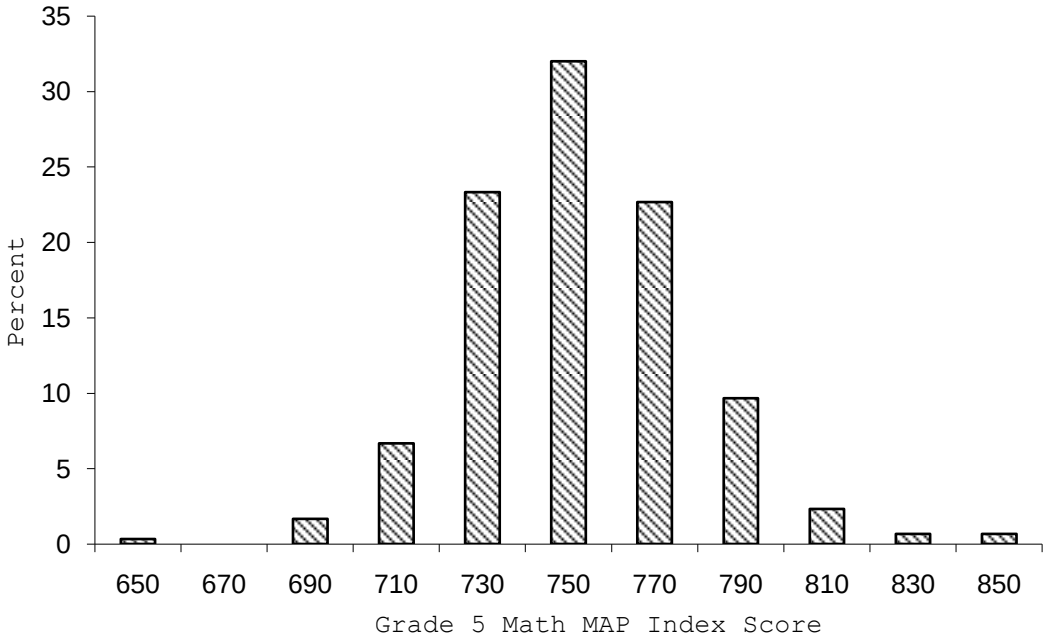

Figure 6. MAP index for grade 5 mathematics, 2006-2007

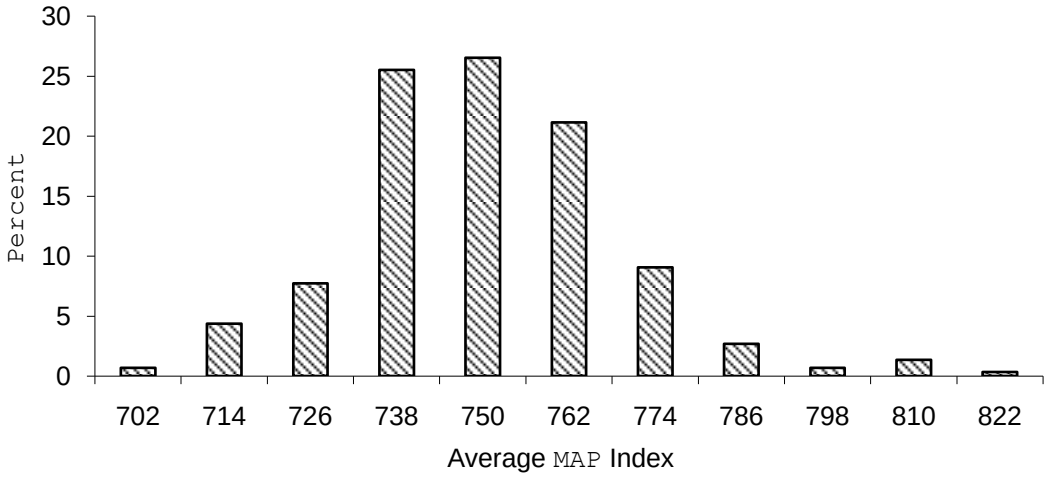

Figure 7. Average MAP index, 2006-2007

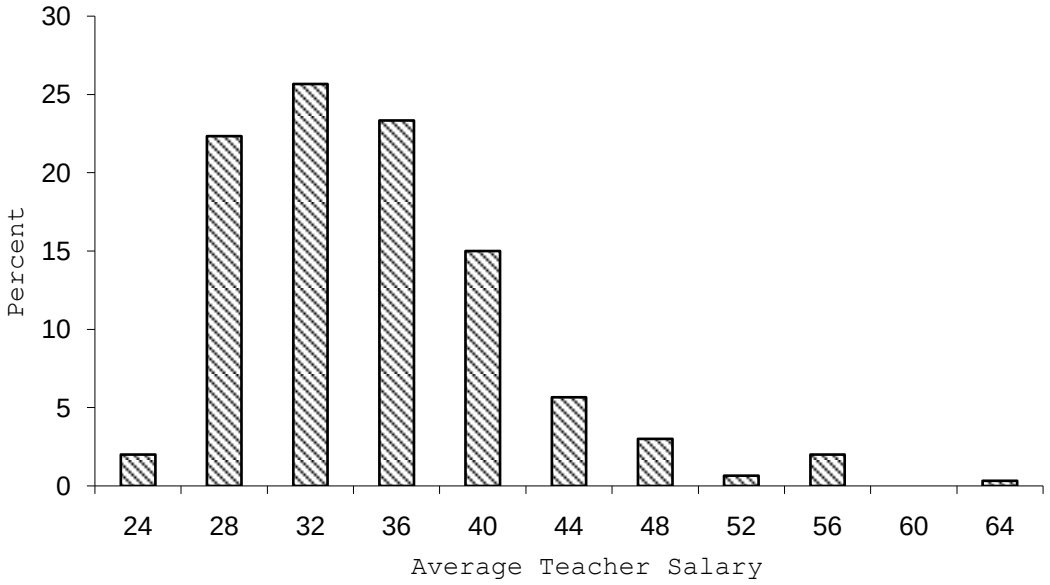

Figure 8. Teacher salary, 2006-2007

VITA

Mr. Doug Arnold graduated from Hollister High School in 1985. He received a Bachelor of Science in 1990 from the College of the Ozarks in Point Lookout, Missouri, with a major in mathematics. He received a Masters of Science in education administration in 1997 and a Specialist degree in 2002 from Southwest Missouri State University. Mr. Arnold anticipates earning his Doctorate of Education from Lindenwood University in St. Charles, Missouri in 2009.

Mr. Arnold began his teaching career in 1990 at Clever, Missouri as a mathematics teacher and head boys' basketball coach. He taught mathematics and coached boys' basketball at Marionville from 1995 to 1998 and Reeds Spring from 1998 to 2000. Mr. Arnold became the assistant high school principal at Reeds Spring in 2000 and in 2001 he became the high school principal at Willard High School. In 2003, he accepted the superintendent position at Hurley R-I School district. With the completion of the Doctorate of Educational Leadership at Lindenwood University, Mr. Arnold plans to continue his service with the Hurley R-I School District.