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Running head: TEACHER COMPENSATION AND ACADEMIC ACHIEVEMENT

Teacher Compensation and the Academic Achievement
of High School Students

Lisa A. May

May 2009

A dissertation submitted to the Education Faculty of
Lindenwood University
in partial fulfillment of the requirements for the degree
of
Doctor of Education
School of Education

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 any other college or university course or degree here or elsewhere.

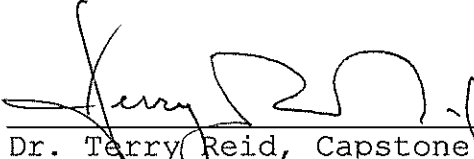
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TEACHER COMPENSATION AND THE ACADEMIC ACHIEVEMENT OF
SECONDARY STUDENTS

Lisa A. May

This dissertation has been approved as partial fulfillment
of the requirements for the degree of
Doctor of Education
at Lindenwood University by the School of Education.



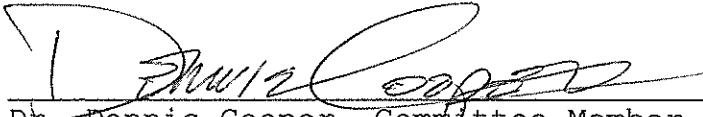
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Abstract

In this collaborative study, the researchers shared common goals, defined their roles in the review of the literature, and coordinated efforts to thoroughly explore the relationship between teacher salaries and student achievement.

Student achievement and teacher salaries obtained from 226 public school districts in Missouri were examined to determine if a significant relationship exists between the two variables. The Missouri Assessment Program (MAP) and American College Test (ACT) data were collected from the 2006-2007 academic year.

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 10th grade mathematics, 11th grade communication arts, and ACT index scores. 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.

The findings from this study suggested that a relationship exists between higher teacher salaries and increased MAP and ACT scores.

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CHAPTER ONE-INTRODUCTION

Increased accountability in the area of student achievement has brought about policies and systems to measure performance in the nation's schools. The No Child Left Behind (NCLB) legislation has focused attention on K-12 education and has held school districts across the nation accountable for student achievement (Jennings & Rentner 2006).

The objectives of NCLB, including increased student achievement and the presence of a highly-qualified teacher in every classroom, have drawn attention to the relationship between teacher salaries and teacher abilities to teach effectively. Do teachers' salaries affect their ability to teach effectively? This is a very important question given that teacher salaries account for a large percentage of the total education expenditures across the United States (Jennings & Rentner 2006).

Increasing school funding is often the primary consideration in solving poor student performance (Nelson & Drown, 2003). Missouri has a wide range of teacher salary schedules. These salary schedules vary between base salary and increments for advanced degrees. Missouri ranked 42nd in the nation for average teacher salary in 2006-2007 according to the Missouri State Teachers Association (MSTA)

annual teacher salary survey (MSTA). The average teacher salary in the state of Missouri was \$43,524 (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 teacher salary pay 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, and teachers are held accountable for these improvements. The purpose of this study was to determine if a higher teacher average salary increased student achievement. MAP index scores in mathematics and communication arts and ACT composite scores were used to represent high school student achievement and the scores were analyzed by subject area. ACT composite scores were used to represent high school student achievement during the 2006-2007 school year.

Purpose of the Study

Increased accountability in public education has generated debate over the cost-effectiveness of America's schools. Taxpayers want to know where dollars are spent and

whether additional monies are justified. The standardized test scores are one indicator of the quality of learning that takes place at a particular school. Increasing teacher salaries can be a sizeable expense for school districts. Approximately 70% of a school district's budget is spent on teacher salaries and benefits (Brunner, 2004).

Research Question

The following research question guided this study:

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

This study was intended to determine if a positive correlation existed between student achievement and teacher compensation. School districts can determine whether spending money on increasing teacher salaries is a worthwhile cause or if their financial resources could be better used in other ways. This study will help school districts make an informed decision regarding teacher salaries based on student performance of 226 randomly selected school districts in the state of Missouri.

As a result, the companion 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. Researcher, Lisa May, compiled portions of

Chapter II relative to the ACT, single-salary pay schedules, NCLB, and public schools with student populations exceeding 1,500 or more.

Hypotheses

Null Hypothesis #1. There is no correlation between teacher compensation and student academic achievement as measured by the Missouri Assessment Program (MAP).

Null Hypothesis #2. There is no correlation between teacher compensation and student academic achievement as measured by the American College Test (ACT).

Definition of Terms

American College Testing (ACT): A standardized achievement examination for college admissions in the United States produced by ACT, Inc. (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 (MODESE, 2008).

Differentiated 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 (MODESE, 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 Department of Elementary and Secondary Education (MDESE): Elementary and secondary education department which regulates public schools in the state of Missouri.

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, J., et al, 2005, et al, 2005).

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

Value-added model: A model which uses student's test scores from the previous year to measure how much they have learned prior to the current year (Van Keuren, 2002).

Assumptions of the Study

1. All districts involved in this study submitted accurate data to the Missouri Department of Elementary and Secondary Education (MDESE) during the 2006-2007 academic year.
2. All data reported by the Missouri Department of Elementary and Secondary Education (MDESE) during the 2006-2007 academic year were accurate.

Limitations of the Study

1. The study was limited to academic data gathered from the 2006-07 academic year.
2. The study was limited to students attending ninth through twelfth grades in Missouri school districts.

3. The study was comprised of 226 randomly selected school districts in Missouri that provided index scores for MAP communication arts and math, and ACT.
4. The study was limited to two measures of student achievement: MAP and ACT.

Summary

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 scrutinize the way funds are being utilized. This study sought to determine if teacher compensation had a significant impact on the academic performance of students. The results of this study provide educators and administrators information that will help determine if their resources are being used to maximize student achievement.

The study focused on public school districts in the state of Missouri which provided data for MAP communication arts in grade 11, MAP math in grade 10, and ACT scores. Data from the 2006-07 academic year to be analyzed included: (MAP) index scores in the areas of math and communication arts and (ACT) district composite scores. Researcher Doug Arnold focused on the Missouri Assessment Program elementary scores. Researcher Lisa May focused on

the (ACT) scores and the (MAP) scores for high school students. The data were analyzed using a linear regression.

This study followed 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 presented the findings of the study. Chapter five summarized and analyzed the findings and discussed the implications for research and practice.

CHAPTER TWO-INTRODUCTION

In these times of increased pressure to raise student achievement it is important to determine if the manner in which financial resources are being used is most beneficial. 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. Approximately 70% of a school district's budget is spent on teacher salaries and benefits (Brunner, 2004). School districts must determine if the school budget dedicated to teacher salaries is a worthwhile cause or if their financial resources could be better used.

This study is important to school districts that are considering increasing teacher salaries and seeking score improvements.

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. Researcher, Lisa May, compiled portions of Chapter II relative to the ACT,

single-salary pay schedules, NCLB, and public schools with student populations exceeding 1,500 or more.

Background

In the debate over public education, great teaching is vital, it's not opinion that tells us that teachers matter; research 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). Improvements in education should produce 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, school administrators 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). It is necessary to question if dollars spent on teacher salaries and benefits

can be linked to improving teacher quality and student performance. It is important to focus on how teachers' experience and education, the characteristics traditionally rewarded in teacher salary schedules, affect student achievement. Many states are restructuring teacher compensation systems to enhance teacher quality based on these elements (Hanushek & Rivkin, 2007).

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 (Odden, 2000).

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 had 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 or graduate hours earned (Odden, 2000).

This formula for calculating teacher salaries assumes that teaching effectiveness is increased with experience and completion of advanced degrees. Critics of this structure claim that teachers are not rewarded for using effective teaching methods and teachers are not held accountable for student learning. In response to these criticisms, 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 (Dee & 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 (Dee & Keys). In an effort to maximize their investment, 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 1970s and 1980s 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, J., et al, 2005, J., 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 or graduate hours earned. This system assumes that teaching ability increases with experience and completion of higher degrees. 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, J., et al, 2005, J., 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-maker's work to ensure alignment of curriculum and assessment, they confront the reality that student

performance hinges on effective teaching. President Bush's 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. However, as review of the not so recent history of public education reform, one is reminded of the Elementary and Secondary Education Act (ESEA), passed in 1965. Federal legislators were careful not to infringe on states' rights to decide 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 academic restrictions on public schools that were doing well academically. As federal dollars increased, the aspiration for accountability 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).

Towards 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 school performance. This monitoring led to score competition 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). National Commission on Excellence in Education's report, *A Nation at Risk* in the 1980s painted a picture of failure in the schools. The report warned if the U. S. did not make drastic changes to education, the nation's economic competitiveness would diminish globally. In 1989, the National Governors' Association held an educational summit.

This era marked the expansion of content standards at the federal level for core subject areas (Standerfer, 2006). In 1993, President Bill Clinton introduced Goals 2000 legislation and the reauthorized ESEA as the Improving America's Schools Act, which mandated schools to generate academic standards in core areas of mathematics and english that would be assessed (Christenson, 2007).

NCLB was passed in 2001 by President George Bush's administration. NCLB implemented 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 NCLB 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, those schools identified as needing improvement, must practice strategies to improve student achievement. Strategies must be based on scientific research demonstrating effectiveness (Peterson, 2005).

No Child Left Behind

This signature reform regulation requires all students in grades 3-8 to be tested annually. 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). 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 in the areas of 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, 2000).

NCLB attempts to hold schools responsible for making academic improvement with students by utilizing 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. (American Federation of Teachers, 2005).

The A in AYP stands for the word adequate. However, 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 (American Federation of Teachers, 2005). The accountability needs to monitor the same students over the same period 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. Large school districts invest between \$4,000 and \$8,000 per teacher per year on professional development. A large portion of that money is spent during days in which school is not in session. 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, 2000). 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, 2000).

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 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 (Jennings & Rentner 2006). NCLB directs a greater attention to low-achieving students and intensifies efforts to improve low-performing school districts. The Center on Education Policy (CEP), a non-profit research and advocacy organization, annually collects information for the purpose of evaluating educational programs. 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 & Rentner, 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 increasing. These states credit their own policies and procedures for 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 that they maximize their student test scores. These strategies have resulted in a higher percentage of their students being counted as proficient. Public schools are focusing on reading and mathematics performance, the two mandates testing state wide. Often times this focus is resulting in a decrease in the time spent on the teaching and learning of social studies, science, and electives (Jennings & Rentner, 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 & Rentner, 2006).

NCLB has increased the amount of tests that students take and has required teachers to be highly trained and meet certain academic qualifications. Experts disagree as to whether these requirements have impacted student learning. Additionally due to low student populations of rural schools, teachers must teach several subjects especially math, special education, and science (Jennings & Rentner, 2006). 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 & Rentner, 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 (MODESE, 2008). NCLB has impacted the way public schools test students, by increasing 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 & Rentner, 2006).

Merit Pay

Harris (2007) indicated the current impetus for a renewed examination of merit pay systems comes from the NCLB 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, 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 U. S. 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 Commission 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).

Many legislators and businessmen desire to run public schools like businesses. They want to pay for performance. Advocates in Denver and Minneapolis have given teachers more options by creating salary schedules with more choices, opportunities and options (Makkonen, 2005).

Odden, 2000 emphasized the strong positive impact of teacher skills on increasing student performance. He defined these skills as use of class time efficiently, administration of contemporary, pertinent lessons, and 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. 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 (Odden, 2007). 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, or improve student performance (Makkonen, 2005, 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. However,

merit pay systems may promote competition, and not collaboration, among teachers because districts only have 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. 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 require school officials to 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 (Koppich, 2005).

Administrators must give serious consideration to 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 adopted career ladders. Career ladder systems were intended to provide teachers with opportunities to take on new roles or responsibilities in addition to classroom teaching. There is a mixture of career ladder systems that work to increase teachers' skills and responsibilities (National Association of State Boards of Education, 2002). Some of those systems 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. 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).

TAP Program

One example of this is the Milken Family Foundation Teacher Advancement Program (TAP) , 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, 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, 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, 2006).

Seven TAP school districts in Arizona have noted gains in student achievement in 2000-2001. 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 including school size, minority, location, and achievement. Student performance between these groups was compared using the reading, math,

and language scale scores of the Stanford Achievement Test for students in grades 2-8 enrolled in both groups. The majority of TAP school districts outperformed the control group between 2000 and 2003 by 9 to 46 percentile points (Glazerman, 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, 2006). The Milken Family Foundation developed TAP in the late 1990's. 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, 2006). The Milken group provides support for schools who implement the program, including 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, 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. 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.

(Glazerman, 2006).

In 2002-2003, 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 Catholic school districts in Indiana that 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).

Similarly the Denver, Colorado school system implemented a new compensation package for Denver's teachers in 2004. The Professional Compensation System for Teacher pays annual salary increases to teachers whose students have demonstrated academic improvement and to

teachers in schools that 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).

However, 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 second language, and school size. The pilot student scores of elementary students were lower than the control students' scores on all tests except the Iowa test with the exception of the

language portion. The pilot middle school student scores were higher than the control group's scores in the area 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 academic 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, J., et al, 2005). Students of teachers who met two objectives on the 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, J., et al, 2005). Teachers work 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, J., 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, J., et al, 2005).

The South Carolina School Incentive Reward Program (SIRP) has the longest running tenure among performance plans in the U. S. 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-price 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).

The state of 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 included 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 student progress. Sander's value-added model attempted to separate student effects (ethnicity, family background, socioeconomic status) from school effects (teachers, administrators, programs). The model could project 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 became NBPTS certified were eligible for placement on the doctoral level of their salary schedule or elected to receive \$2,000 annually in addition to their regular salary (Plucker, 2005).

Quality Teachers

Research on the impact of performance-based pay and other alternative compensation programs has mostly focused on their impact on teachers (Dee & Keys, 2005). Research conducted indicates increased student achievement in areas such as math and reading. Students have improved academically due to the various alternative compensation programs (Dee & Keys).

Teachers play a key role in any school improvement; the 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 incentives which will encourage improved teaching and learning. At least 20 states utilize 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 is 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 city schools the advantage of attracting top quality teachers by offering superior salaries. Many teachers will not volunteer to teach in a difficult school. In school districts across the country are offering incentives 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. Perhaps education in 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. This plays a role in how the United States is perceived (Gay, 2006). 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).

Educational institutions are being burdened with more and more responsibilities due to the decline in American society. In past years, schools in the United States were only responsible for the cognitive knowledge that students needed to succeed in life. This is not the case in the 21st century. Schools are now responsible for educating the students in the core areas as well as teaching values and morals. One could argue that the decline in families and churches has had a strong impact on the youth of the United States (Newton, 2000).

Most of the current literature on the structure of salary schedules reflects not the views of classroom teachers but the views of political leaders. Few share 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 (MAP) test as a measure of student achievement aligned to the Show-Me standards. 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 wrote the Grade-Level Expectations for the tested areas of communication arts, mathematics, science, and social studies. The Grade-Level Expectations (GLEs) form the foundation for the model state curriculum. To comply with the NCLB 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 4th, 5th, 6th, and 8th grades. Student performance on the MAP is a major part of the

accreditation process for Missouri public schools (MDESE, 2008).

ACT

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 through the years; 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). 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 academic 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 that high schools provide access for all students to take the ACT, ensure core curriculum is a priority, ensure students are taking the right kinds of courses, evaluate the rigor of courses offered, and plan guidance activities based on students' career and college aspirations. (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 (Tracey & Robbins, 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 postsecondary education. Long-term change in salary is a strong indicator of career success and economic well-being. A recent study (Neumann, Olitsky, & Robbins, 2007) 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. Findings of their 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).

Parent Involvement

When discussing accountability, 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. 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 ten 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 options that have been contemplated are charter schools, open enrollment, voucher and privatization. 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. Parents may not monitor the time or content that children watch on television, or the amount of sleep or nutrition they receive. Parents may 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 fifteen years experience in the top four 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, J., 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, J., 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, J., et al, 2005). In addition, some research indicates it may be negatively affected after 20 years of teaching. During the 1980s 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, J., 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, 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. Administrators debate 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, 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 a hard-to-fill area such as math and science (Glazerman, 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,

J., et al, 2005). District-wide awards offer greater appeal to some by encouraging collaboration instead of competitiveness. Research finds 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, J., 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, J., et al, 2005).

Successful programs for teacher compensation are diverse in their 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, systems tend to be more readily accepted. Teacher unions generally support an idea if it is teacher led (Odden, 2000). 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. 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, J., et al, 2005).

As recently as 2005, 14 states 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. (Azordegan, J., 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, J., et al, 2005). The guidelines called for establishing multiple career paths, objective evaluation systems and professional development that align with performance pay. Schools that agreed to enact a salary schedule other than 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, J., et al, 2005).

During the 1998-1999 academic 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, J., et al, 2005). The majority of students at Vaughn are on the free and reduced lunch program and many are English Language Learners (ELL). The base salary for teachers at Vaughn is 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 equated to \$2,000. The total performance pay amount possible was \$13,050 (Azordegan, J., 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, 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, J., 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, 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, 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 relies on strict evaluations that includes student performance, but also addresses various other components of quality teaching (Glazerman, 2006).

Researchers have noted that to improve student achievement, teachers need to increase their skills. In order to motivate teachers to attain new skills we 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' level of 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 earning additional 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 (AFT, 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 (AFT, 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 academic year. The law defined a highly-qualified teacher as one who has received a bachelor's degree, is fully certificated, 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, J., et al, 2005). In order to move to the next level, the beginning teacher must

complete the two-year program and receive a satisfactory evaluation. School districts are 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 begins 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, J., 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. Teacher quality is increasingly debated. 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 will make 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 their 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, 2007). 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 been successful implementing 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 including 66 metropolitan areas, 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, 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 claimed 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 spent grading papers, doing 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, 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, 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, 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 claimed 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. Students in small schools have a greater opportunity to hold positions of authority and leadership thus preparing them for direction 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, 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, 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, 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, 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 academic 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 \$10,000 for a down payment which was forgiven if they lived in the home for a minimum of five years (Glazerman, 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, 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, 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, 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 years 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, 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, demonstrating professionalism in the school, participating in professional development, and adheres 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, 2006).

Similarly, 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 receive a bonus of \$2,000 per year for up to three years (Glazerman, 2006).

In 2001, North Carolina passed legislation that dictated if a student did not pass the 10th grade basic competency test they 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 failing 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 preparation for the world of work. They questioned what a person should know once they earned 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 teaching in critical shortage areas such as math, science, foreign language, and special education, teachers 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 funding 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 1990's. The assessment is linked to the Kentucky Education Reform Act (KERA) goals. The program requires schools to demonstrate 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 place them 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. 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 students at least ten percent 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 were evaluated every two years. The 1992-94 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 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 about school size and quality of education was conducted in the late 1980s. The study concluded that there was no significance 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 (Melinck, 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 academically from not having to change buildings so often and that remaining housed in a central location benefited them academically. They also believed 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. More than any other country in the world, America likes to reward and punish individuals. The problem with teacher compensation systems is it is difficult to evaluate and reward 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 (Shanker, 2006). 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. Heneman believed it was 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 or she 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. A wide disparity exists between good schools and bad schools across our nation. Where a child lives determines what kind of education he or she 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 trapped in 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. Educators must equip students 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 test score 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 (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 the desegregation they lost sight of the students' lack of achievement. Opponents wanted the judge to address the achievement issue and not so much the integration issue. The judge had done what many educators thought he should do to improve student performance, including 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 planning, 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 priced 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, 2000).

In the early 2000s, the Los Angeles Unified School District (dollars) 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 increased 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, 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 were more secure. 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, 2000).

A 1998-99 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, 2000).

Class Size

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 billion and that the state is already lacking qualified teachers. They claim there won't be adequate funding 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).

Teacher Certification

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. Researchers 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, 2000).

Research on whether providing alternative routes to teacher certification as 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 shows teachers who earn certification by the traditional methods produce higher student test scores than those who become teachers via alternate routes (Corcoran, 2007). The research demonstrated that the teachers who became certified via alternate routes catch up by year three.

Experts disagree 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 this may not be the case. When a teacher interviews and has the appropriate certification, it is difficult to select another candidate over the certificated 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 a 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).

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 occupation; 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, 2005).

The National School Boards Association suggested that to improve student performance 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, 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, 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 academic 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 exists across the nation that 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 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) suggested hiring reading and mathematics specialists to provide teachers with research-based lessons and training. AFT also supports lower 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 (AFT, 2005).

Evidence suggests 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 would help solve this inadequacy problem. Our nation should increase academic standards, reject classroom methods that are outdated, improve teacher content knowledge, provides 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 fund schools, while public schools rely on federal, local and state governments to fund the schools (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; sometimes 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. The country

is diverse and so should the educational system. Our public school system should be open to the public, paid for by the public, and held accountable to the public. We 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). 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 were 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 times 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 increase 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 times 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 collaboration teamwork among teachers (Blair, 2001). Equitable placement of qualified teachers can be a problem within a district where certain buildings have more senior teachers working in buildings that have higher performing students versus the least experienced teachers working in schools that have a high concentration of poverty with students that have low academic performance. A second equity issue is the wealth of a school district 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 districts best teachers because they can give higher salaries. 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 professionals. 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-INTRODUCTION

Increased accountability in the area of student achievement has brought policies and systems to measure performance in our nation's schools. The NCLB legislation has focused attention on K-12 education and has held school districts across the nation accountable for student achievement (Jennings, 2006). The objectives of the NCLB Act (NCLB) including increased student achievement and the presence of a highly qualified teacher in every classroom have drawn attention to the issue of teacher salaries and teacher abilities to teach effectively. Do teachers' salaries correlate with higher test scores? This is a very important question given that teacher salaries account for a large percentage of the total education expenditures across the United States (Nelson & Drown, 2003).

Research Setting

The purpose of this study is to determine if there is a significant relationship between teacher compensation and student achievement. School districts reporting index scores for MAP communication arts in grade 11, MAP math in grade 10, and ACT composite scores will be used in this study. Student achievement is measured in terms of index scores on the MAP in mathematics and communication arts at

the secondary level and composite scores on the ACT. The hypothesis was two-fold.

1. No correlation exists between teacher compensation and student academic achievement as measured by the Missouri Assessment Program.
2. No correlation exists between teacher compensation and student academic achievement as measured by the American College Test.

Sampling Procedure

Data collected for the study was readily available from the Missouri Department of Elementary and Secondary Education. Data included index scores from Missouri Assessment Program (MAP) in the areas of mathematics and communication arts at the secondary level and composite scores for the American College Test (ACT) from 226 randomly selected public school districts during the 2006-2007 academic year. Salaries from the randomly selected school districts were also obtained from the Missouri Department of Elementary and Secondary Education.

Research Design Procedure

The public school districts which provided all three scores: MAP communication arts in grade 11, MAP math in grade 10 and ACT composite scores were used in this study. The student achievement scores will be compared from the

tenth grade level MAP mathematics, eleventh grade level MAP communication arts, and ACT composite scores.

Treatment of Data

Data generated from DESE data sources will be computed using a linear regression. Linear regression analyzes the relationship between two variables, X and Y. The data will be examined to determine whether the null hypothesis will be accepted or rejected.

Summary

Increasing school funding is often a consideration for solving poor student performance. Utilizing funding to increase teacher salaries is one way school boards and administration may try to overcome student performance shortfalls. Missouri ranked 42nd in the nation for the average teacher salary, in 2006-2007, according to the Missouri State Teachers Association (MSTA) annual teacher salary survey. The average teacher salary in the state of Missouri was \$43,524 (MSTA, 2007).

This study will determine if teacher salary affects student performance. This study was necessary to determine if schools with higher salaries have higher student performance as measured by the MAP and ACT tests.

CHAPTER FOUR-INTRODUCTION

The purpose of this study is to determine if there is a significant relationship between teacher compensation and student achievement. School districts Missouri reporting index scores for MAP communication arts in grade 11, MAP math in grade 10, and ACT composite scores during the 2006-2007 will be used in this study. Student achievement is measured in terms of index scores on the MAP in mathematics and communication arts at the secondary level and composite scores on the ACT. The null hypothesis was two-fold.

1. There will be no correlation between teacher compensation and student academic achievement on the Missouri Assessment Program.
2. There will be no correlation between teacher compensation and student academic achievement on the American College Test.

Data 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 10th grade math, 11th grade communication arts, and ACT composite scores. 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 average teachers' salary was converted to thousand bases. 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 seem to be within the acceptable and expected range for all variables indicated.

Table 1.

Descriptive statistics for different variables in the data.

Variable	N	Mean	Std Dev	Minimum	Maximum
MAP index Grade 10 (Mathematics)	453	722.89	28.04	610.5	823.5
MAP index Grade 11 (Communication arts)	454	734.70	22.61	629.4	851.7
ACT index	447	20.68	1.55	14.0	25.4
Average Teachers' Salary	453	35.2	6.5	24.6	69.4

To test the possible correlation of teachers' salary with students' achievements a linear regression was used.

Three analyses were be carried out. One for each of the measurements of students' achievement, and they are 1- MAP index for grade 10 (Mathematics), 2- MAP index for grade 11 (Communication arts), and 3- ACT index. The independent variable was always be teachers' average salary measured in thousands of dollars. These analyses allow for the utilization of the whole data and accounts for all variation in teachers' salary.

Results

From table 2 it can be seen that the effect of teachers' salary had a significant correlation on MAP index for grade 10 in mathematics with P-value of 0.04. As the P-value (significance level) is less than 0.05, the effect is considered of statistical significance. In other words, we have sufficient evidence to conclude that teachers' salary has a positive correlation on MAP index for grade 10 in mathematics.

The other important value in the table to examine is the parameter estimate (slope in this case). The estimate of the slope was positive which indicates that with the increase of teachers' salary, there would be an increase in MAP index for grade 10 in mathematics. The magnitude of this change is determined by the value of the estimate of the slope. In this case we would expect an increase of 0.42

units in MAP index for grade 10 in mathematics for each one thousand dollar increase in the average salary of the teachers.

From the table, a prediction equation of MAP index for grade 10 in mathematics can be developed as MAP index for grade 10 in mathematics = 708.37 + 0.42 * average teachers' salary in thousands of dollars.

The analysis also generates another estimate which is the R-square (not shown in the table above). The R-square value in this analysis was 0.0093. This indicates that 0.93% of the variation in students' MAP index for grade 10 in mathematics can be explained by the variation in teachers' salary.

Table 2.

Effect of teachers' salary on MAP index for grade 10 (Mathematics)

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	708.37	7.28	97.33	<.01
Average Teachers' Salary	1	0.42	0.20	2.05	0.04

As in the previous analysis, it can be seen that the effect of teachers' salary had a significant correlation

with MAP index for grade 11 in communication arts with P-value of less than 0.01. As the P-value (significance level) is less than 0.05, the effect is considered of statistical significance. In other words, there is sufficient evidence to conclude that teachers' salary has a true correlation on MAP index for grade 11 in communication arts. The estimate of the slope was also positive which indicates that with the increase of teachers' salary, there would be an increase in MAP index for grade 11 in communication arts. The magnitude of this change is determined by the value of the estimate of the slope. In this case we would expect an increase of 0.63 units in MAP index for grade 11 in communication arts for each one thousand dollar increase in the average salary of the teachers.

From table 3 a prediction equation of MAP index for grade 11 in communication arts can be developed as MAP index for grade 11 in communication arts = $712.64 + 0.63 * \text{average teachers' salary in thousands of dollars}$.

The R-square value in this analysis was 0.0323. This indicates that 3.23% of the variation in students' MAP index for grade 11 in communication arts can be explained by the variation in teachers' salary.

Table 3.

*Effect of teachers' salary on MAP index for grade 11
(Communication arts)*

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	712.64	5.79	123.01	<0.01
Average Teachers' Salary	1	0.63	0.16	3.88	<0.01

As in the previous two analyses, it can be seen that the teachers' salary had a significant correlation with ACT index with P-value of less than 0.01 (which is less than 0.05). In other words, we have sufficient evidence to conclude that teachers' salary has a true effect on ACT index. The magnitude of the effect of teachers' salary on ACT index is determined by the estimate of the slope. In this case we would expect an increase of 0.06 units in ACT index for each one thousand dollar increase in the average salary of the teachers. From the table, a prediction equation of ACT index can be developed as $ACT\ index = 18.71 + 0.06 * \text{average teachers' salary in thousands of dollars}$. The R-square value in this analysis was 0.0517. This indicates that 5.17% of the variation in students' ACT

index can be explained by the variation in teachers' salary.

Table 4.

Effect of teachers' salary on ACT index

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	18.71	0.41	46.11	<0.01
Average Teachers' Salary	1	0.06	0.01	4.92	<0.01

Conclusions

Teachers' salary was found to have a significant correlation with students' achievements as measured by MAP index in grade 10 in mathematics, MAP index in grade 11 in communication arts, and in ACT index. The correlation with teachers' salary on students' achievement was found to be positive. However, only a small proportion of the variability in students' achievement can be attributed to differences in teachers' salary.

CHAPTER FIVE

The purpose of this study was to determine if there is a significant relationship between teacher compensation and student achievement. School districts reporting index scores, during the 2006-2007 academic year, for MAP communication arts in grade 11, MAP math in grade 10, and ACT composite scores were used in this study. Student achievement is measured in terms of index scores on the MAP in mathematics and communication arts at the secondary level and composite scores on the ACT. The independent variable used was teachers' salaries and the dependent variables were MAP index scores for grade 11 in communication arts, MAP index scores for grade 10 in math and ACT composite scores.

The data demonstrates that both null hypotheses were rejected. The results from the research suggest that the higher the teacher salary the higher the student achievement will be on the MAP and ACT tests.

Conclusions

The purpose of this study was to determine if there was a significant relationship between teacher salaries and student achievement. The null hypotheses: There is no correlation between teacher compensation and student academic achievement on the Missouri Assessment Program.

There is no correlation between teacher compensation and student academic achievement on the American College Test were rejected and could conclude that districts that pay the highest salaries are more likely to have students score higher on the student achievement measures of both the MAP and ACT tests.

Results of this study would indicate schools that pay higher salaries may attract higher quality candidates that in turn will help students to achieve at a higher level. With schools more accountable than ever with the NCLB legislation, attracting higher quality candidates would increase student achievement. The results of this study would indicate to school boards and administration that it is important to pay teachers well. When schools attract teachers by means of higher salaries, they in turn could expect higher student achievement.

Recommendations

Schools in Missouri are given the guidelines for school improvement as detailed in the Missouri School Improvement Program (MSIP). By utilizing the standards a school could measure student learning and teacher performance and design a plan for improvement.

Schools could explore different compensation programs that pay for performance, as utilized in many other states.

Several compensation plans were researched and reported in the review of the literature. This researcher sees this as potentially problematic for school boards who are unwilling to look at salary structures in a different way.

This study found that a relationship exists between teacher salaries and student achievement. An interesting further study would be to determine if professional development offered to teachers at school districts and the incentive to obtain graduate degrees impacted student achievement.

The study was limited to 226 randomly selected public school districts in Missouri and for the academic year 2006-2007. Future research to expand the span of school years to three or five might show differences between the dependent and independent variables.

Different measures of student achievement may yield different results. This study was limited to MAP and ACT scores. Currently, meeting or exceeding standards on the MAP test are not required for student promotion or graduation. In the very near future Missouri will be utilizing end of course examinations which will impact student promotion and graduation. Further research using the different measures of student achievement may yield some significant outcome.

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APPENDIX A

The figures of the dependent variables (students' achievement) seem to mostly have bell shape and approximate the normal distribution with no extreme values. The figure of the average teachers' salary clearly shows that most of the salaries were in the range of 28 to 42 thousands. However, in few districts the average salary for the teachers was higher than the rest and few districts had an average salary of more than 50K with one district having an average salary of about 70K. All the values seem to be within the acceptable range and no data will be regarded as outliers.

Figure 1.
MAP index for grade 10 (Mathematics)

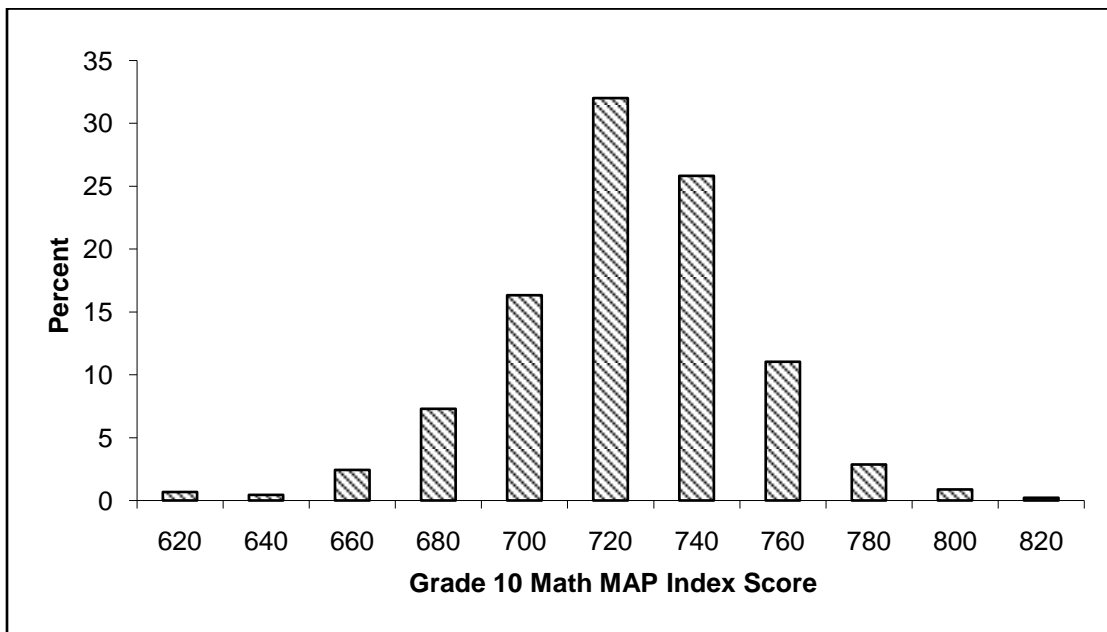


Figure 2.

MAP index for grade 11 (Communication arts)

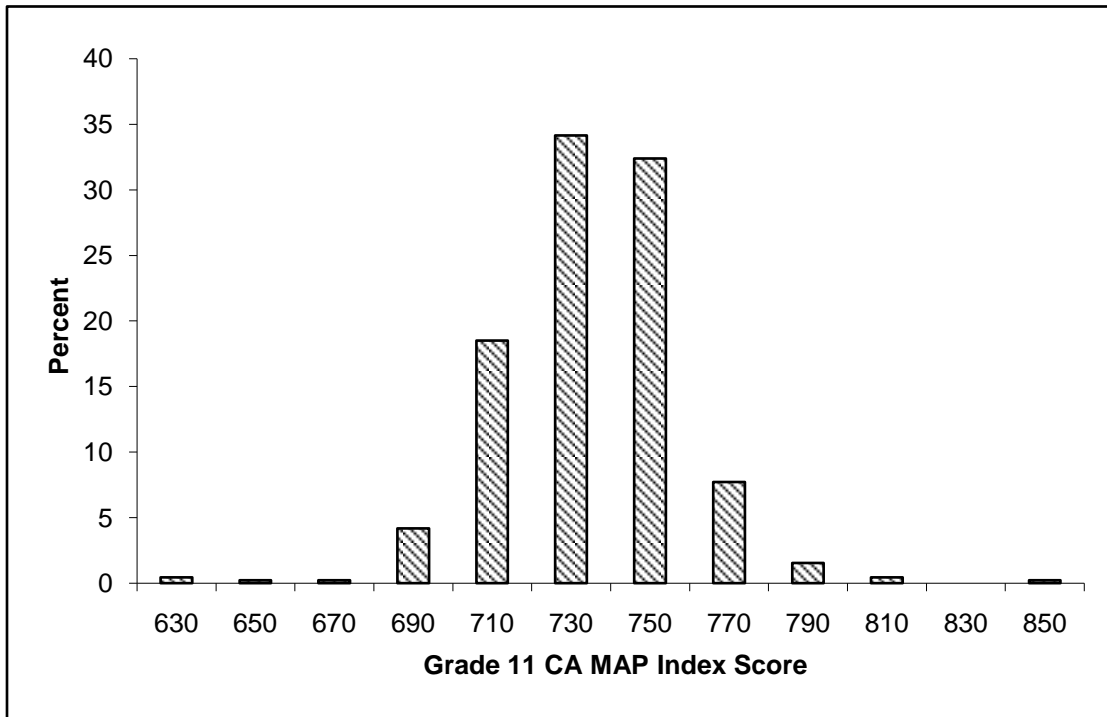


Figure 3.
ACT index

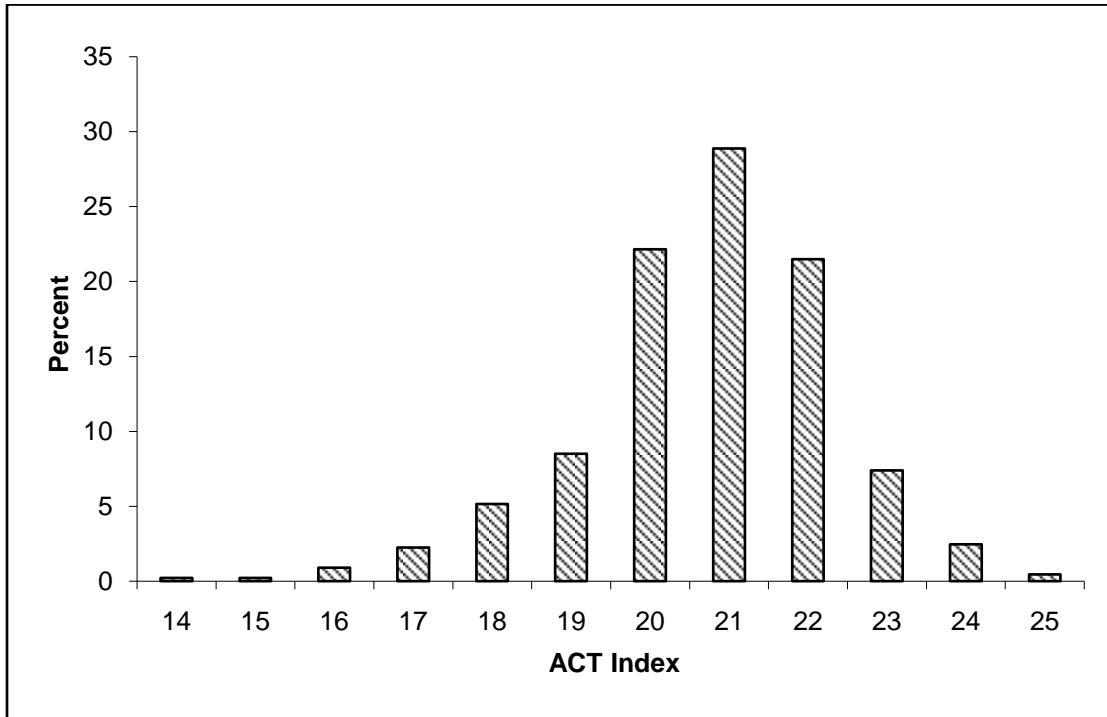
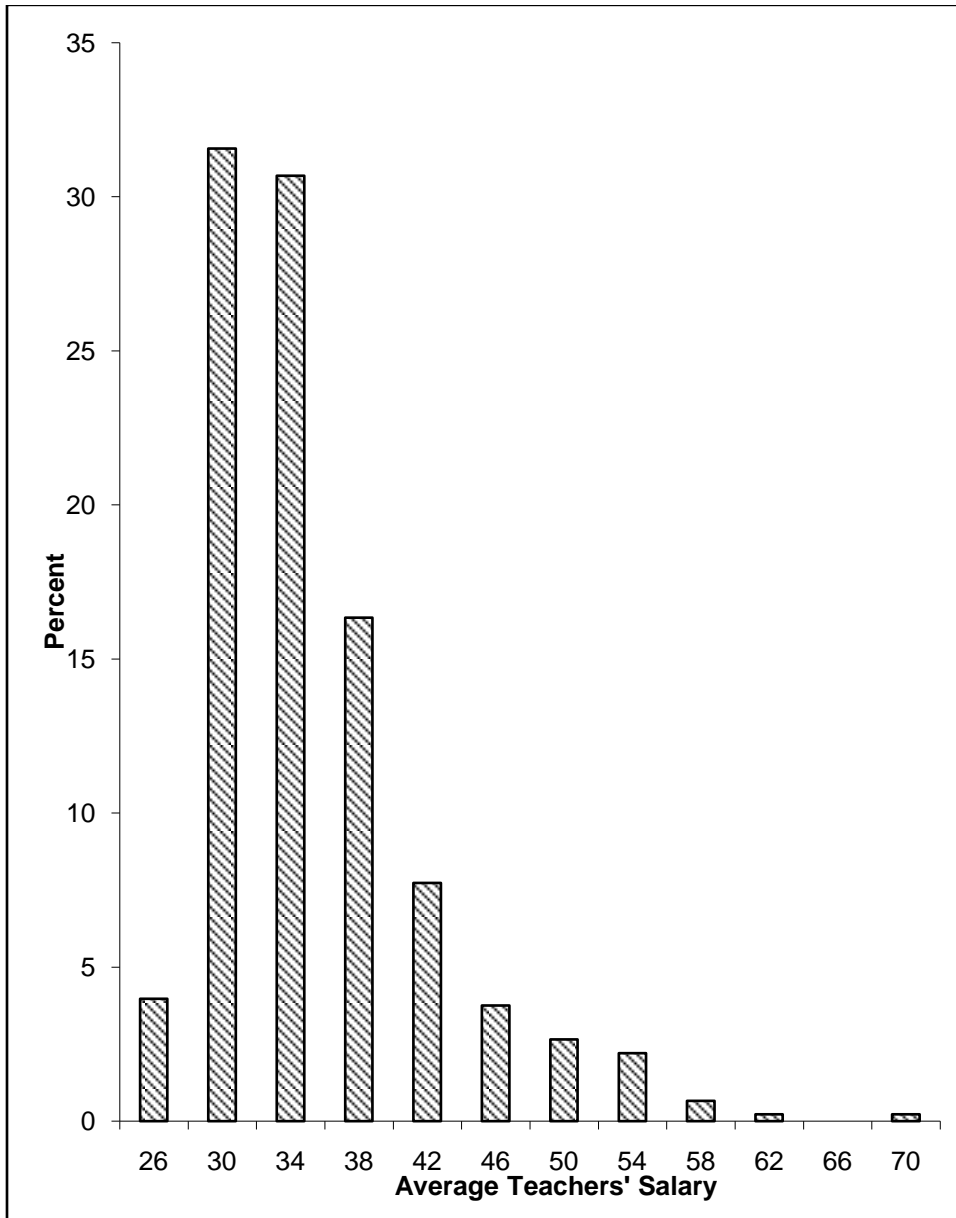


Figure 4.
Average Teacher's Salary



VITA

Ms. Lisa May graduated from high school in 1979. She received a Bachelor of Science in Education in 1982 from Northeast Missouri State University in Kirksville, Missouri, with a major in Special Education. She received her Masters of Education 2003 from Lindenwood University with an emphasis in administration. She holds certification in administration for K-12 grades. She received a Specialist degree in 2008 from Lindenwood University. Ms. May anticipates earning a Doctorate of Education degree from Lindenwood University in St. Charles, Missouri in 2009.

Ms. May began her teaching career in Iowa educating behaviorally disturbed students at the middle school level in 1983. She taught special education from 1985-2001 in various school districts in southwest Missouri. She taught at-risk students at the secondary level from 2001- 2004. In 2004 she accepted the K-12 Principal position at Hurley Schools. She continues to work at the Hurley School district as the Secondary Principal and A+ Coordinator.

Ms. May enjoys spending time with family and friends, reading, and volunteering in her community.