

THE UNRAVELING OF AMERICA'S EDUCATION SYSTEM

by

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ABSTRACT

This research project takes a critical look at the data that drives educational policies. This research project looks at the data at the national level as well as the regional levels in order to see if the data is functioning differently at the different levels. All data has been collected from the National Assessment of Educational Progress (NAEP) through reports published by the American Legislative Exchange Council (ALEC), an independent committee assigned to collect and analyze educational data. The data was collected and then correlations were run between the expenditures per pupil, number of pupils per teacher, standardized test scores, such as average ACT, average SAT, average 8th grade Math and Reading tests, and average 4th grade Math and Reading tests.

This research project also included the percentage of minority students in the classroom, a variable whose data has been collected over the years, but it has never been included in any prior analyses. What this research project found is that some of the data, such as the standardized test scores, have a different strength of relationship between variables at the different levels. For example, expenditures per pupil have strength in the relationship between the different standardized test scores at the national level, but once those numbers are broken down by region, the strength in the variables relationship is weakened. This research project also discovered that the make up of the classroom, specifically the percentage of minority students, is a vital factor in the performance of all students.

I dedicate this thesis to my son, Corey, and Steve, and who without all of their support and sacrifice, I would not have been able to complete.

TABLE OF CONTENTS

LIST OF FIGURES	vi
LIST OF ACRONYMS	vii
CHAPTER ONE.....	1
Introduction.....	1
CHAPTER TWO	5
Literature Review.....	5
CHAPTER THREE	17
Methodology	17
Theory/Hypotheses	17
Methods.....	18
CHAPTER FOUR.....	22
Findings.....	22
The Midwest	31
The Northeast.....	36
The South	42
The West.....	48
High Percentage of Minority States versus Low Percentage of Minority States.....	53
CHAPTER FIVE	58
Conclusion	58
Future Research	64
LIST OF REFERENCES.....	70

LIST OF FIGURES

Figure 1: Percentage of Minority Students	25
Figure 2: Northeast Percentage of Minority Students	38
Figure 3: South Percentage of Minority Students.....	44
Figure 4: High Minority Percentages	54
Figure 5: Low Minority Percentages	55
Figure 6: Plausible Alternative Explanations.....	69

LIST OF ACRONYMS

ACT	American College Testing Assessment
ALEC	American Legislative Exchange Council
AYP	Adequate Yearly Progress
NAEP	National Assessment of Educational Progress
NBCT	Nationally Board Certified Teachers
NLSS	National Longitudinal Study of Schools
SAT	Scholastic Aptitude Test

CHAPTER ONE

Introduction

Education is a hot topic these days. Teachers are under the gun with formalized testing. Schools are under scrutiny with the annual publication of school grades. Parents want to ensure that their children receive the best education possible so they attempt to move to the best areas with the best schools, but what makes those schools better than the others? What are the reasons some schools do not perform as well? Those are the questions that the government is continually trying to find the answers to. In response to their own research, the government is continually making new educational policies with the hopes that something would drastically change within the system, but are they targeting the right problems?

In 2001, George W. Bush passed legislation titled the No Child Left Behind Act, which rocked the educational system with a series of radical changes. The foundation behind the Act was sound in that it intends to ensure that all children are able to perform at grade level by a specified year, and if not, then the schools that are not performing will lose Federal funding. However, one thing that the government did not remember is that with every good thing that comes about, there is always a shadow of something negative.

The passing of the Act caused great tension and heightened awareness in the educational field with regard to the governmental meddling in the day-to-day operations of the classroom. That did not go over so well with some teachers and administrators alike. Some educators have been very hostile when told that they will implement this program or that program because someone outside of the classroom thinks they can do it better; an understandable response. These changes have

caused a large number of teachers to leave the profession, as well as left many districts around the country scrambling for replacements, but the No Child Left Behind Act does not leave wiggle room for the Districts to hire just anyone as teachers anymore. All candidates must be “highly qualified” under the new rules.

With educators jumping ship due to new constraints placed upon them by the government and those in the field feeling deflated with the publication of the new grades each summer, it would appear that some of these new changes are being implemented without a chance for the effects to really take hold before the policies are changing in reaction to the most recent data available to the government. The question still comes back to whether or not the government is looking at the right factors affecting education. The government has even appointed its own council to look at the test data and other variables to determine what is working and what is not, but is it enough?

A student in a classroom is more than a number or a test score on a sheet of paper. A student is more than an essay on a sheet of paper that is scored twice throughout his or her academic career. A student is a person with a family history, responsibilities inside and outside of the home, battling day-to-day student issues. Those factors have to be included when looking at the failures and successes of the educational system. Other factors that need to be looked at are the teachers. What type of educational background do the teachers have and how long have they been in the field? How many students are there in the classroom? What type of background do the students have? All of these factors are being overlooked when the government is deciding the changes that need to be made in the classroom in order to increase the performance, or the standardized test scores of the students.

When Michael Masser and Linda Reed were writing their song, “Greatest Love of All,” which was later a top-40 hit when sung by Whitney Houston, they started with the lines, “I believe

that children are our future/teach them well and let them lead the way.” These lines speak the truth. The next generation will someday lead our country and it is up to our current educational system to teach them, but with the current system unraveling each year, what future does our country have? The government is continually reacting to this erosion based on the numbers and not the whole picture of the students involved. This research project is important because it takes the governmental research one step past the numbers approach. It looks at the student as a whole picture, and not just a piece or a number on a grid.

When dealing with people, it is a disservice to look at them as numbers and not as people. When the government looks at education, they focus on the numbers: the test scores, the class sizes, the money spent per student, but they do not look at the students themselves. The students are another piece of the puzzle that just cannot be overlooked. This research project intends to complete the picture of the student.

When the government overlooks the role of the teacher, the picture is also incomplete. The teacher is an integral part of the educational system. It is the teacher in the classroom who is responsible to implement all of the new policy changes, who is responsible for continually improving his or her own education in order to be a better educator, who is responsible to find new and innovative ways to motivate his or her students to want to be inquisitive learners. This research project aims to add the teacher and the teacher’s experiences as another piece of the educational puzzle.

The government has proved that increased spending per student has increased the student’s performance on standardized testing. The government has proved that smaller class sizes improve student performance on standardized testing. However, what the government has not explained is how. How does increased spending and smaller class sizes increase standardized test scores? The

government also seems to think that even though they can show that increased spending per student increases student's performance on standardized testing, and yet, if schools do not perform at an acceptable level, the government is the first to pull the funding. One of the first things that happens with decreased funding is less teachers, which increases the class sizes. When the funding is decreased, then the backlash is like a row of dominoes tripping over one then the next, and so on, almost a snowball effect. How is a school supposed to crawl out of a dark abyss of problems when it takes funding to implement new programs and policies?

The purpose of this research project is to look at the whole picture of the educational system. The educational system is made up of a group of people that affect the outcomes, not just the students, but the teachers as well. Those people are not just a series of numbers on the page, but people with backgrounds, responsibilities and lives outside of the classroom that bleed into their performance in the classroom. This project intends to take all of those pieces and create a whole picture to determine what exactly is causing the current educational system in the United States to unravel at its seams in order to possibly find the problem before its too late.

CHAPTER TWO

Literature Review

On January 3, 2001, George W. Bush signed into law the No Child Left Behind Act. The No Child Left Behind Act was designed to alleviate the problems of the educational system. The No Child Left Behind Act was a guideline for the states to follow in order to reform the school system at the state level. The Act has 12 distinct purposes: 1) ensure that there is a system of assessment, accountability, teacher preparation and training, curriculum and instructional materials that are designed around challenging State Standards in order to measure a common expectation of student academic achievement; 2) meet the needs of the lowest achieving students, especially targeting students in the highest poverty stricken schools, students with limited English proficiency, transient students, and special needs students, such as students with disabilities, neglected students, and students who need reading assistance; 3) eliminate the achievement gap between minority and non-minority groups as well as eliminate the achievement gap between the advantaged and disadvantaged students; 4) ensure that schools are held accountable for the academic performance of the students; 5) provide sufficient resources to local education agencies where the needs are the greatest; 6) improve the system of accountability, teaching and learning through State assessment to increase overall achievement, but targeting the disadvantaged; 7) allow the schools and teachers to make more decisions but being held more accountable for overall student performance; 8) develop special programs to and additional services to schools that increase the amount and quality of instructional time; 9) encourage school wide reform so that students have access to the effective, scientifically based instructional strategies and challenging academic content; 10) ensure that

participating schools have professional development opportunities for the staff to increase the quality of instruction; 11) combine services under all the areas of the Act with other educational services, as well as other agencies when possible to provide services to youth, children and families; and 12) find ways for parents to be able to participate in their children's education. These 12 purposes are the beginning of the different policies that have been implemented across the country in order to reform our educational system.

The American Legislative Exchange Council (ALEC) is a group of bipartisan Congressmen and Senators committed to decentralizing the government and reforming public policy. The ALEC was founded in 1973. The ALEC publishes an annual *Report on Education: State-by-State Analysis*. The ALEC compiles all of its data from the National Assessment of Educational Progress (NAEP), which is funded by the Federal Government. The ALEC tests 100 factors for education. The ALEC consistently put the following clause in its reports:

There is no immediately evident correlation between conventional measures of education inputs . . . and educational outputs . . . In fact, of all the educational inputs measures in this study, only high pupil-to-teacher ratios, fewer students per school and a lower percentage of a state's total budget received from the federal government have a positive impact on educational achievement. These results, however, are weak at best, and do not hold when measured as changes over the past two decades. (ALEC 2004, 2002, 2001)

The ALEC does assert that there has been an increase in overall expenditures per pupil and a slight increase in overall student performance in the past two decades. The ALEC does shy away from asserting that any specific factors are the reasons for problems in the educational system. However, the ALEC only looks at specific factors, such as expenditures per pupil, teacher-to-pupil ratios, and

SAT scores. The ALEC does not take into consideration the demographic make up of the student body. They do, however, collect the data.

There have been many books that have been published before and after the passing of the No Child Left Behind Act involving issues in the classroom. One book, Handbook of Educational Policy, is actually a textbook edited by Gregory Cizek. The second section is titled, “Local, State, National and International Perspectives.” This section includes a case study, Maryland, and discusses in depth the process in which this state has begun to reform its own educational system prior to the passing of the No Child Left Behind Act of 2001.

In Cizek’s case study on Maryland, the state had actually been in the process of educational reform since the mid-1970s. The original phase of education reform was based strictly on the reactions that the lawmakers had to the test scores. The second phase of education reform included a competency test in order for students to receive a high school diploma. This second phase began in 1977. A third phase of education reform began in the early 1990s. This third phase included requiring the schools to report student performance, evaluating that performance, and then using that evaluation as a guide to help implement new programs that would improve performance. Nowadays, Maryland also monitors performance and improvements and provides penalties and rewards accordingly.

Maryland learned in the first phase of reform that the data was an incomplete picture of what it was they were trying to measure. They were only looking at norm-reference test information and not information with regard to attendance, enrollment information, or any subgroup information. Maryland also recognized that they were not comparing their data to any national data. In the second phase of education reform, Maryland recognized that the standards placed on their students were not at an acceptable level; they were too low. They also recognized that the state

objectives were very narrow; therefore, the curriculum was focused more on the test and less on a well-rounded education. In response to the second phase of education reform, the governor appointed a commission to conduct a 2-year study on school performance. The commission laid out a plan for the state board of education in which the schools would become more accountable for school wide improvements by taking into account educational outputs, such as student performance as well as educational inputs, such as teacher-to-pupil ratios and expenditures per pupil.

The third phase of the educational reform in Maryland implemented sanctions for those schools that did not measure up to a level of accountability for a period of two or more years. It also implemented a reward system for those schools that performed at or above state standards. The third phase targeted school improvement and public accounting through publication of annual school report cards. The third phase also implemented a reconstitution program as an option for those schools that consistently did not perform up to standard. A reconstitution program is when the school is given the option to have another authority, such as the local school district, or even the state, to step in and take control of the administration of the school. The third phase of Maryland's educational reform was implemented in the 1990s closely resembled the main purposes behind school reform as outlined in the No Child Left Behind Act of 2001.

Daria Hall, Ross Wiener and Kevin Carey wrote an article entitled "What New "AYP" Information Tells Us About Schools, States and Public Information" about the new Adequate Yearly Progress reporting that is required by the No Child Left Behind Act of 2001. According to Hall, et al. each state bases its own average yearly progress results on the states own assessment. Each state also assesses the students differently. "Because of the central state and local role in education, AYP results don't allow apples-to-apples comparisons of student achievement from one

state to another” (Hall, et al 10). They caution that using the AYP data to analyze different states could cause problems because of the inconsistency between assessments.

In their article entitled, “An Analysis of School Report Cards Used in Five Southeastern States,” Russell L. French and Gordon C. Bobbett conducted a research project where they compared the state report cards of five southeastern states, Tennessee, Mississippi, North Carolina, Georgia, and Florida. They found that the states were not consistent in measuring student performance. Each state has its own state assessment test. They suggested interstate collaboration with regard to assessment and possibly curriculum as well. They also suggested looking at changing how schools are graded on the report cards because the states do assess the students differently.

Possible Lives: The Promise of Public Education in America by Mike Rose is a compilation of what Mike Rose found throughout America when he traveled for three and a half years to the different regions and visited the different public schools. Rose believed that the approach to or perception of education is the key to true understanding of the educational system. He begins by explaining the everyday perception of the public schools, stating

We are offered, by both entertainment and news media, depictions of schools as mediocre places, where students are vacuous and teachers are not so bright, or as violent and chaotic places, places where order has fled and civility has been lost. It’s hard to imagine good in all this. (Rose 1)

Rose asserts that we, as a nation, look at education in a very limited way and that this tunnel vision is what shapes our general perception of schools. Rose uses an example of a generalized perception of a teacher. He states that a teacher is not a highly respected profession. It is a very low-paying, devalued position within our society, even judged to contain members with “limited intellectual

content” (Rose 3). It is no wonder with such poor teachers at the helm of the educational system, that the end product is poor as well. Perception.

The first lesson that Rose learned on his travels across the United States is the first lesson taught in Introduction to Education, a staple course for any aspiring teacher: students will live up to, or down to, any expectation that the teacher has for those students. While traveling through the bowels of the LA Basin, he met with teachers who believed in this credo, as well as teachers who whispered of other teachers complaining about the inadequacies of their own students. He witnessed diverse students who were considered inadequate by some engage in the curricula and rise to the occasion when expected. Of course, this was a lesson that was repeated throughout the United States.

The second lesson that Rose learned was that no matter where he went, the same things were being taught, but how those things were being taught was very different. Teaching styles are diverse because the teachers use a combination of subject area knowledge, knowledge of their students, different practices and different ways to relay the information to their students. Rose learned that teachers know that there is not one perfect teaching method, but many effective methods, such as direct instruction, collaborative learning groups, Socratic questioning, etc. Rose also learned that teachers who do not have support in their classrooms through team teaching or a mentoring system feel isolated and will more than likely fall out of the system.

When looking at the reform issue, Rose states that the government asserts that school failure comes from a lowering of academic standards based on the premise that “students don’t work hard enough, teachers don’t demand enough, [and] parents aren’t involved enough” (Rose 423). Rose states that the government also asserts that the structure and management style of the schools have fostered failure as well. Based on what Rose found when he visited the schools, he believed these

assertions by the government are too narrow in scope. They do open the floor up for further discussion when it comes to education, but they are not the only problems.

Rose suggests that curriculum is a problem. He found throughout the country that there are areas where the curriculum is not challenging enough to give the students an opportunity to compete at the upper levels. Rose suggests that with the structure and management of the schools that it could be the governmental bureaucracy that is tightening its grip and not allowing enough creativity within the classroom so teachers are able to explore the different teaching styles and methods. Rose also suggests that there are many local societal problems influencing the schools as well, such as poverty, crime, unemployment, drug abuse, violence, and even demographics.

When Rose was traveling across the country visiting the public schools, he was also researching the histories of the different school districts. He found that the troubles of the schools ran very deep. He found that these troubles were politically and economically motivated. He found that some of these troubles were born out of corruption decades past. He found that these troubles were not born overnight and therefore, could not be fixed overnight, either.

Florida 2001: Educational Policy Alternatives edited by Carolyn Herrington and Katherine Kasten specifically look at the policy changes made to educational system in Florida between 1970 and 2000. According to Herrington and Kasten, due to international events, such as Sputnik and the Vietnam War, educational accountability became an important issue around 1969-1970. Herrington and Kasten look at over 60 pieces of legislation that was enacted in Florida from the early 1970s to 2000 in an attempt to reform the educational system.

To begin, in 1973 the first set of statewide objective per grade per subject area was to be designed and implemented. Also, a state created assessment test was also designed and implemented. As of 1976, the State Student Assessment Test, Part One, covered reading, writing

and math and was administered in 3rd, 5th, 8th, and 11th grades only. Part Two was the high school graduation exam. In the 1970s the teachers were also required to begin taking and passing the Florida Teacher Comprehension Exam in order to become certified in teaching. Other legislation required specific data reporting with regard to certain instructional programs and expenditures, but that legislation turned out to be too costly and later was no longer required.

In the 1980s, legislators wanted to raise the standards of education in Florida. In order to do this they lengthened the school day for high school students to a 7 period day. However, students still only needed to maintain an overall 1.5 grade point average (GPA) in order to pass. There was no evidence of much change in performance after this legislation was enacted.

In the 1990s, school management power shifted to the local entities, rather than the state government. The school advisory council was created. Schools had to design their own improvement plans and meet adequate yearly progress, or be sanctioned. The only problem with that was that it was the schools' own advisory council deciding if they met adequate progress. In response to this, in 1996 the state mandated that the results on the Florida Writes! and FCAT tests were also included in the determination of adequate yearly progress. Title I was also created in 1996 to fund programs for low achieving schools. After three years of failure, a new administration would be in place under Title I.

In 1999 the A+ plan was implemented outlining a school grading system. Under the A+ plan, schools with good grades would be rewarded with bonuses and poor performing schools would be sanctioned. This is also the year that vouchers were recommended.

Even with all the reform and policy changes in Florida, Herrington and Kasten found that the lower performing students, the ones who were the target of the reform initially, only were able to increase their overall performance on the tests for the first 7 years. After that, their test scores

leveled out. They also noticed that the education gap between minority and majority students did not decrease, but actually increased. Herrington and Kasten concluded that even though these reform measures were making a difference to a point, they were not enough to make a difference long-term.

History and Educational Policymaking by Maris A. Vinovskis addresses a pattern of educational reform with regard to the policymakers. Its seventh chapter entitled, “Systemic Educational Reform,” discusses in depth what Vinovskis believes to be systemic reform. He begins the chapter by asserting that there is some confusion as to what systemic reform really is, however, he seems to believe that it is an overall reform of the educational system, in a systematic way, with an overall goal in mind. Other interpretations of what it means include curriculum driven reform, educational and social services for school aged children and possibly any reform with the hope of long-term success.

Vinovskis claims that most interpretations of systemic reform are the belief in a common national or state curriculum with an accompanying assessment. However, there is no scientific evidence to support that any type of national curriculum would be the needed reform since the spectrum of educational research has been narrow, or only focused on test scores and other limiting factors. Vinovskis believes that the problem with educational reform is that the education research does not factor in all of the influences on the student performance outcomes, such as motivation, societal pressures, situational difficulties, inadequate medical care, and/or inadequate nutrition. Vinovskis also states that any type of reform that focuses on just the performance scores without the parental factor should be cautioned against since it could lead to the perception that the school is the fix all without the need for any type of parental involvement. Vinovskis believes there is a direct

correlation between the parental involvement and student performance. Of course, this is just an assumption of Vinoskis.

David Lee Stevenson and Kathryn S. Schiller decided to take a look at changes in American high schools between 1980 and 1993. In their article entitled, “State Education Policies and Changing School Practices: Evidence from the National Longitudinal Study of Schools – 1980-1993,” they focused on school policies with regard to graduation requirements, broadcasting of test scores, and school management. In their article, Stevenson and Schiller first addressed the publication, “A Nation at Risk – The National Commission on Excellence in Education,” which was published in the early 1980s. According to the national report, schools were not asking enough of students, nor did they give students the skills needed for the country to compete economically or to sustain democracy. Stevenson and Schiller intended to find out if any changes were being made in the schools as a result of the national report. What they found was “between 1980 and 1993, 45 states raised their high school graduation requirements by demanding students take more academic courses” (Stevenson and Schiller 264). States began to find ways to judge school performance and publicize those reports without offering options schools could use to improve, therefore, schools were left to fend for themselves and figure it out on their own. States were also encouraged, but not mandated, to adopt “best practices” procedures, which includes extensive parental involvement, decision-making to include teachers and principals, define clearer academic expectations for students, and to change the principal’s primary role to instructional leader and not administrator.

The National Longitudinal Study of Schools (NLSS) prepared a survey to measure graduation requirements, dissemination of test scores, and school management and sent those surveys to high school principals around the country in 1980 and 1993, asking identical questions both times. According to Stevenson and Schiller, the survey results showed a trend of increasing

math and science requirements without decreasing other subject area requirements. However, the English and social studies requirements increased on average an additional one quarter year of coursework and math and science requirements increased an average of one half to two-thirds of one year added coursework. The NLSS found schools that increased their academic standard in 1984 were more likely to have higher requirements in 1993. They also found that a publication of test scores showed a shift of increased students from the general to academic track. However, the number of minority students on a vocational high school track increased. The NLSS believed this to be due to increased immigration across the country.

Another interesting finding is they found that “state policies requiring dissemination of test scores to the public and parents does not significantly affect who influences school decisions on personnel and management” (Stevenson and Schiller 277). They found that site-based management policies increased the influence of teachers and school council on personnel and resources, while decreasing the influence of the central office. The survey also showed that urban schools and schools with a greater number of minority students saw a greater decentralization as well.

The last finding of the survey was that student outcomes, or test scores, in 1980 and 1993 are not significantly related to changes in school practices. They “did not find that the performance of students in the school is a significant factor in how schools change their practices” (Stevenson and Schiller 279). This could become a key factor considering that the independent committee at the national level, the ALEC, relies heavily on test scores as a way to measure students’ performance and outcomes. Another important note to make is that the ALEC is the currently the authority in macro-analysis of educational performance. It is the only entity that could be found during this research process that took the time to look at individual educational inputs and outputs. It is believed by this researcher that even though the national government has many agencies to collect

educational data, there is only entity, made up of multiple governmental officials, who consistently take the time to analyze that data and not just publish the various statistics and changes with regard to those statistics.

CHAPTER THREE

Methodology

Theory/Hypotheses

There are many factors that influence education. However, with all the research that has been done, not one entity has been able to figure out what it is that really erodes the current educational system in the United States. The prior researchers consistently look at the same basic factors: expenditures per pupil, teacher-to-pupil ratios, and test scores, and have been coming up with inconclusive results. I theorize that the prior researchers are coming up short because they are not looking at the uniqueness of the classrooms across America. The researchers are not taking demographics into account. They also are not looking at teachers' experience levels and what that means for the pupils.

Hypotheses:

1. There is a positive relationship between expenditures per pupil and student performance.
2. There is a negative relationship between teacher to pupil ratios and student performance.
3. There is a negative relationship between the student demographic make up and student performance.
4. There is a positive relationship between teachers' experience and student performance.
5. There is also a negative relationship between teachers' experience and student performance.

Methods

The data that I used all comes from the American Legislative Exchange Council published *Report Card on Education: State-by-State Analysis* and the *State Education Rankings 2004-2005*. Both entities compiled their data from the National Assessment of Educational Progress (NAEP) funded by the Federal Government. I was able to get complete data for “input” factors. These were expenditures, teacher-to-pupil ratios, number of students enrolled in school, number of students per school, number of students per district, number of schools per district, number of districts per state and the demographic information of the student population. An independent study was conducted by the National Board of Professional Teaching Standards that isolated teacher experience in particular regions of the United States. No further data was available with regard to teaching experience.

I was also not able to get consistent data for “output” factors. The output factors available for multiple years are SAT scores. Also available, but not consistently, are ACT scores, the percentage of students taking the ACT test, percentage of students taking the SAT test, average reading, writing and math scores for 4th and 8th graders, percentages of students at or above proficient levels in reading, writing and math for 4th and 8th graders and high school graduation rates. Because the “output” factor was limited to SAT scores, that was the only dependent variable available for the research to be used over a long period of time.

Student performance is the dependent variable. Prior research tends to use SAT scores as the sole concept used to measure student performance. The difficulty with only using SAT scores is that they do not apply to the performance of students at all levels of the educational system. SAT scores are operationalized through a recording of the average score for the state. In order to truly see how different factors are effecting education, there must be performance outputs for more than

the secondary level. Also, SAT tests are not mandatory for all students, nor are they specific to a grade level. Therefore, the make up of the students taking the tests is unknown. Even though the percentages of students taking the tests are available, it is unknown the grade level of the students taking the exam, or if the students taking the exam have taken the exam multiple times during the collection period. Gregory J. Marchant and Sharon E. Paulson note in their article, “State Comparisons of SAT Scores: Who’s Your Test Taker?” that some states only test their “best and brightest” students, whereas other states test students from varying backgrounds and abilities. Therefore, they caution that relying solely on SAT scores as a measure of a particular state’s student ability could lead to misinformation. Also, they noted that there are many states that rely heavily on the ACT, rather than the SAT and again, those scores could as well not be representative of all students within a particular state.

The ACT scores are a concept used to measure student performance. The difficulty with only using ACT scores is that they do not apply to the performance of students at all levels of the educational system. ACT scores are operationalized through a recording of the average score for the state. In order to truly see how different factors are effecting education, there must be performance outputs for more than the secondary level. Also, ACT tests are not mandatory for all students, nor are they specific to a grade level. Therefore, the make up of the students taking the tests is unknown. Even though the percentages of students taking the tests are available, it is unknown the grade level of the students taking the exam, or if the students taking the exam have taken the exam multiple times during the collection period.

The average standardized math and reading test scores for 4th and 8th grades. The difficulty with using the standardized math and reading test scores for 4th and 8th grades is that even though they do apply to the performance of all the students within a particular grade level, the standardized

test scores have only been reported for the past few years consistently due to the passing of the No Child Left Behind Act. The standardized math and reading test scores for 4th and 8th grades scores are operationalized through a recording of the average score for the state. In order to truly see how different factors are effecting education, there must be performance outputs for more than a few years. Standardized math and reading test scores for 4th and 8th grades are mandatory for all students; however, each state has a standardized test created by a different entity. There are also difficulty discrepancies from state to state. For example, the standard FCAT tests in Florida go to the state for grading on a 5 point scale, 3 being passing. The norm-referenced test in Florida has been reduced in difficulty to the point that in order for a student to score a “3” on the FCAT test; they would have scored in the 95th percentile on the norm-reference test.

There are multiple independent variables. These are expenditures per pupil, teacher-to-pupil ratios, years of teacher experience and the demographics of the student population. They are all operationalized by recording the information for each year per state and then comparing those figures against the other states. Each of these independent variables brings into play a plethora of plausible alternative explanations, as well as other questions that need to be answered prior to truly running correlations strictly using these variables. These variables are only a few of the many variables that could be influencing student performance, however, until the issues with the measurement of student performance are ironed out, at this point only minor cross comparison can be done. These variables have also shown in prior research studies, with the exception of years of teaching experience and demographics, to have an affect on student performance. Years of teaching experience and demographics are the new variables attempting to be researched in this study.

Expenditures and teacher-to-pupil ratios might become control variables with later studies because they have proven in the past to have an affect on student performance. By running a

correlation with these variables controlled, the magnitude of change from district size and the make up of the student population would be more easily isolated. At this juncture, however, without a reliable measure for performance, there is no point in controlling for any of the variables.

All that I have to work with is a descriptive analysis across the states using graphs and charts to show the trends with each of the variables, independent and dependent, in order to possibly give the research project further direction. Later on with a better measurement for student performance, it is possible to use multi-factor correlation, as well as logit and probit statistics in order to find statistical significance between variables. Again, at this early stage, and without the solid consistency in reporting of performance across the different grade levels, I am forced to compare the data that I have and make inferences, as well as formulate more possible theories and questions for future work.

CHAPTER FOUR

Findings

There are a few set variables that are consistently examined in order to figure out a way to “solve” the problems in education. Those variables are expenditures per pupil, pupil to teacher ratios, average ACT scores and average SAT scores. With the passing of the No Child Left Behind Act of 2001, the states have been required to implement a standardized test and report the test scores for the 4th and 8th grades.

The current trends in education with regard to these variables have not changed over the past 35 years. In 1969, the average expenditure per pupil was \$2,813.98. As of 2004, the average expenditures per pupil were \$8,088.32. Even though there are a few peaks and valleys over the decades, the overall trend has been to pour more money into the school system. According to the ALEC reports, these amounts are in constant dollar terms.

The number of pupils to teacher ratios has also shown a pattern of change. In 1969, the average number of pupils to teacher ratio was 22.4. As of 2004, the average number of pupils to teacher ratio was 16.7. However, with the trend decreasing, there are other factors that are included in the calculation of the pupils to teacher ratio which can skew the actual average. For example, special education classes that consist of 4 through 7 students are added into the number of students for the schools. In some instances, there are multiple faculty members assigned to the special education classes. Therefore, the actual number of pupils per teacher in the typical classroom is actually higher than what is reflected in the reporting.

There are two standardized test for college entrance, the ACT and the SAT. Depending on the state, depends on the test scores that were reported. The trend over the years has been an increase in the overall average score. For example, in 1972, the average ACT test score was 19.5. In 2004, the average ACT test score was 21.2. However, only 25 states have consistently used and reported average ACT test scores. The SAT test is used and reported for all 50 states. The trend has also been an increase with the average test score in 1979 being 1031 and in 2004 the average test score was 1074. With the added writing test, the average will change over the next few years with the English, math and writing scores needing to be calculated and analyzed separately.

Before the No Child Left Behind Act of 2001, most states had already implemented a standardized test. Reporting of those average test scores has been intermittent and inconsistent from state to state. However, after the No Child Left Behind Act of 2001, more states are taking the initiative to implement different standardized testing for all grade levels. With regard to standardized math test scores for 8th graders and 4th graders, the trend has been an overall increased average test score. 8th grade math test scores have increased from an average of 256 in 1990 to an average of 277 in 2003. One important thing to note is that only 23 states have consistently reported the average test scores. Average 4th grade math test scores have also increased from an average of 222 in 1996 to an average of 235 in 2003. Another important note is that only 35 states have consistently reported the 4th grade average math test scores. However, with reading, because of the lack of data, there is no obvious trend for 8th graders since only 2 years have been reported. The average reading test score was 261 in 1998 and 263 in 2003 with only 32 states reporting for both years. With 4th graders, there seems to be the beginning of an increase in the average reading test score, but since again there were minimal amount of years reported, the trend is hard to distinguish.

The average reading test score for 4th graders was 217 in 1992 and 218 in 2003. Again, only 32 states reported consistently for the four years data was collected.

One important factor that has not been taken into account when evaluating educational performance is the actual makeup of the students in the classroom. Legislators take into account the money that is being spent per student in the classroom and they have an idea of about how many students there are per classroom, but what about the students themselves? What does the average classroom look like? What backgrounds do the students have? What are their cultural similarities and differences and how do those factors play out in the classroom and standardized performance testing?

Most states have been reporting the percentage of minority students since 1976 on a reasonably consistent manner. For example, data is consistent for 41 of the 50 states during the reporting period. A note should be made as to what constitutes a minority student. For the purpose of consistency, all students that are classified as any race besides white, such as black, Hispanic, Pacific Islander, Native American, etc., are considered a minority. The only problem with the classification and reporting of the students is that there is no separate category for multiracial; therefore, some students that qualify as multiracial could be classified in any particular category, depending on how the states view multicultural students. Of course, given our immigration rates, there is an obvious increase in the percentage of minority students throughout the United States. In 1976 the average percentage of minority students in the classroom was 20.1%. In 2002, the average had increased to 30.5%. Looking at Figure 1, it can also be inferred that some states are having difficulty with their own classification rules since there are some extreme peaks and valleys in some states that have not necessarily seen an increase in immigration.

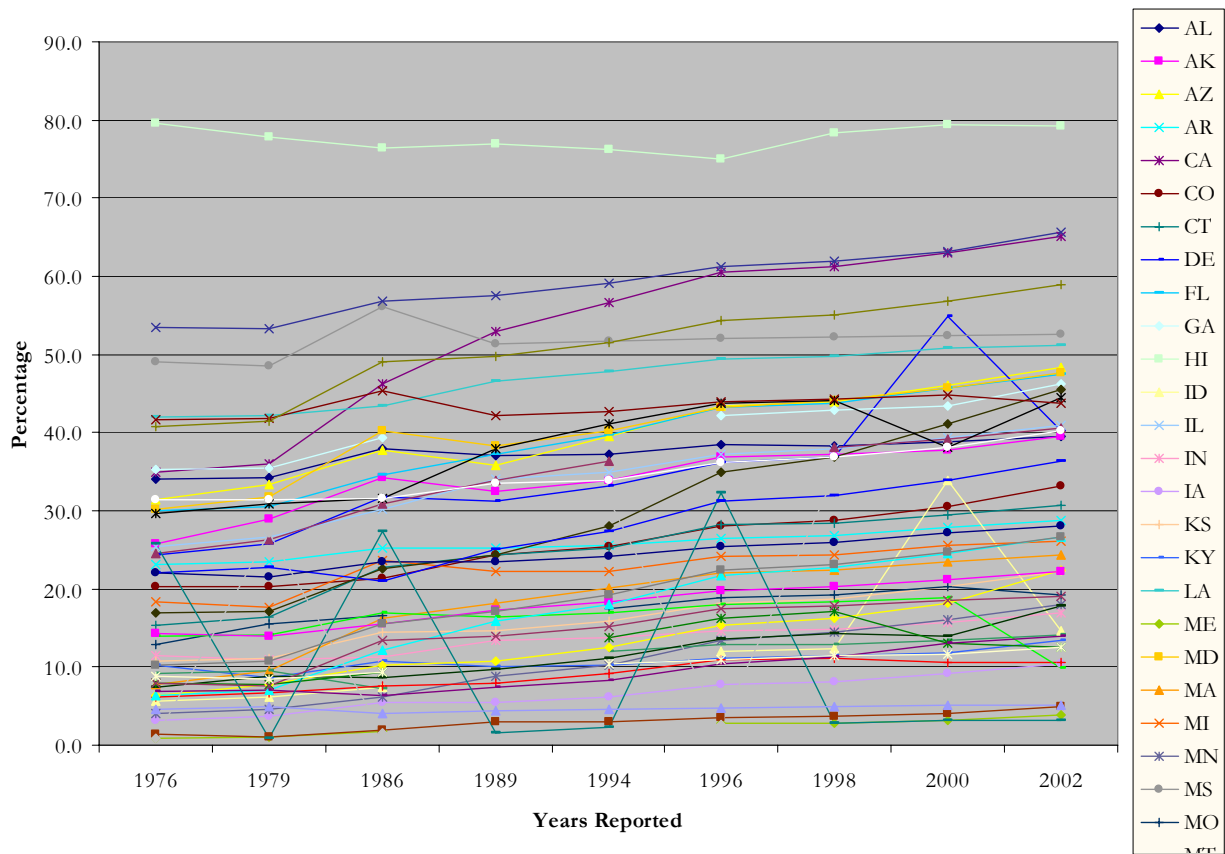


Figure 1: Percentage of Minority Students

Since it is the national statistics that drive the policy changes in education, it is important to run correlations between the different factors to see what is happening with education at the national level. Correlations were run for all corresponding years between expenditures per pupil and the average number of pupils per teacher. The corresponding years that were reported for both variables were 1969, 1970, 1978, 1984, 1985, 1988, 1993, 1994, 1995, 1996, and 1998. For all years except 1970, 1978, 1985, 1996 and 1996, the correlations showed statistical significance at the 0.01 level, this means that the results could be predicted at the frequency of one per every one hundred cases. For 1996 and 1998, the correlations showed statistical significance at the 0.05 level, meaning that the results could be predicted at the frequency of one per every five hundred cases. The

relationship is also a negative relationship, which means that as the expenditures per pupil increases, the number of pupils per teacher decreases. This correlation reinforces all the prior research within this field.

Correlations were also run between the expenditures per pupil and the reported standardized testing. For the average ACT test scores, the corresponding years reported were 1972, 1982, 1992, 1993, 1994, 1995, 2002 and 2004. All years except for 1982 and 1994 showed that there is statistical significance between the average expenditures per pupil and the average ACT test score. A few notes to make, however, is that only college bound students are the students who take the ACT test and not all states use the ACT as a measure for standardized testing. Since only 25 states consistently report average ACT test scores, it also should not have a large bearing on the policies being changed because of the relationship, since there are not at least 30 states to use for the measure and because it is not a true representation of the performance of the complete student population.

Correlations were run between expenditures per pupil and the corresponding years of average SAT scores. The corresponding years are 1982, 1992, 1994, 2002 and 2004. Every year except 1982 showed that there is statistical significance between the average expenditures per pupil and the average SAT test score. One note to make, however, is that only college bound students are the students who take the SAT. For the SAT test scores, all states report the results as a measure for standardized testing, but because it is not a true representation of the performance of the complete student population, these results should only have a minimal amount of bearing on policy making.

Correlations were run between expenditures per pupil and the corresponding years of average 8th grade math test scores, average 4th grade math test scores, average 8th grade reading test scores and average 4th grade reading test scores. The reporting years for these standardized testing

are limited; however, they are representative of the complete student body within a particular state who reported the data. 8th grade math test scores increased at a statistically significant level for the reporting years of 1992, 1996 and 2000. 4th grade math test scores increased at a statistically significant level for the reporting years of 1996, 2000 and 2002. There was only 1 year that corresponded between expenditures per pupil and 8th grade reading tests. The correlation for 1998 showed there was statistical significance at the 0.05 level. There were only 3 years that corresponded between expenditures per pupil and 4th grade reading tests. For the years 1992 and 1994, the correlation showed that there was statistical significance between expenditures per pupil and the average test score. For the 8th grade and 4th grade standardized testing, there were at least 31 states that consistently reported data in order to calculate the statistical significance, but until all states are reporting the standardized testing for these grades and there are more years of reporting, these results should only have a minimal effect on the overall policies being implemented at those grade levels.

A correlation was also run between expenditures per pupil and minority percentages. The corresponding years of data were 1994, 1996, 1998, 2000 and 2002. For all years run, no statistical significance was found between the two variables. This is a good correlation to show that other correlations run with the minority percentages are not actually masking a statistical significance in this area. It also reinforces the reliability of the correlations because this correlation between expenditures per pupil and minority percentages isolates the effect of the variables on each other.

The next important variable when it comes to the breakdown of the classroom makeup is the number of pupils per teacher. Therefore, correlations were run for the corresponding years between the number of pupils per teacher and the standardized testing reported. The corresponding years for which correlations could be run were 1993, 1994, and 1995 for ACT test scores and 1994

for SAT test scores. For all years that correlations were run, there was no statistical significance between the variables.

The number of pupils per teacher is also important when analyzing the standardized testing data for the 8th and 4th grade students. The corresponding years between the two variables is also limited. There was only one corresponding year between the number of pupils per teacher and the 8th grade math test scores and the 4th grade math test scores. For that year, 1996, the correlation showed no statistical significance between the variables. There was also only one corresponding year between the number of pupils per teacher and the 8th grade reading test scores. For that year, 1998, the correlations showed a negative relationship between the two variables with a statistical significance of 0.05. There were two corresponding years between the number of pupils per teacher and the 4th grade reading test scores. Both years, 1994 and 1998, showed that there is statistical significance between the two variables with a negative relationship, ranking 0.01 in 1994 and 0.05 in 1998. These statistics are important if it can show that these variables are still statistically significance over a longer period of time.

Because the focus of this thesis is how the make up of the classroom is related to the overall student performance, it was important to run correlations between the minority percentages and the test scores. The corresponding years between the percentage of minority students and the average ACT test scores were 1994 and 2002. For both years the correlations showed a negative relationship between the two with a statistical significance of 0.01. There were four corresponding years between the percentages of minority students and the average SAT test scores. For those years, 1979, 1989, 1994 and 2002, the correlation also showed a negative relationship between the variables with a statistical significance rating of 0.01 for all year except for 1979, which showed a statistical significance of 0.05. One important note about these variables is one must take into consideration

the make up of the students who are college bound and the percentages of minority students who actually take the college entrance exams. If the percentage of minority students who are taking the college entrance exam is low, then this could skew the data.

Correlations were also run between the percentage of minority students and the testing performed at the 8th grade and 4th grade levels. There were two corresponding years between the percentage of minority students and 8th grade math test scores. For both 1996 and 2000, the correlations showed that there was a negative relationship between the two variables at a statistical significance level of 0.01. The three corresponding years between the percentage of minority students and the 4th grade math test scores were 1996, 2000, and 2002. All three correlations between these variables showed that there was a negative relationship between the two variables at a statistical significance level of 0.01. The only corresponding year between the percentage of minority students and 8th grade reading test scores was 1998. For that one correlation there was a negative relationship between the two variables with a statistical significance of 0.01. On an interesting note, for the two corresponding years between the percentages of minority students and 4th grade reading test scores, those years being 1994 and 1998, the correlations showed no statistical significance between the two variables.

Even though it is the statistics at a national level that determine the policies that are implemented for the educational system; however, it is important to note that the educational system does not function as a national entity. Therefore, correlations were also run at regional levels to see if there is anything going on at that particular lower level.

There are multiple ways of defining the different regions of the United States. There are many different websites and authorities that define the different regions; however, they all define the regions differently. What I have found is that most agencies separate the United States into four

basic regions: Midwest, Northeast, South and West. For the purpose of this level of analysis, the states within each region are defined as follows: The Midwest includes Illinois, Indiana, Iowa, Kansas, Michigan, Missouri Minnesota, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. The Northeast includes Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia. The South includes Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia. The West includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. The states were divided based on proximity to the area in question, as well as previously acceptable definitions for each area. The Midwest includes the plains states as well as the states that include the Great Lakes. The Northeast includes all the New England states, as well as those states in proximity of the New England states that are not included in the Midwest or South. The South includes all the original states in the Confederacy with the exception of Oklahoma since Oklahoma has similar characteristics to the other states in the region as well as a close proximity to Texas. The West includes the remaining states, which includes the states located on the Pacific Coast and the states located in the Rocky Mountain area.

For the purposes of consistency, the same correlations that were run at the national level were run for each of the individual regions. It is important to note that because the correlations include smaller groups of states; they no longer have the minimum acceptable number of case studies for meaningful discussion of statistical significance, but do have importance in that they show that regionally our educational system functions differently than nationally. Each new region only includes 12-13 cases.

Please also note that as with the national level data, there is inconsistency with states reporting the average test scores for 8th and 4th grades. Because of this inconsistency, the results of those correlations should be used as an indication of things to come, but more analysis should be performed once there are more reporting years and a greater consistency of reporting among the states. This seems quite possible, as states are now required to report this data, whereas they were not required to prior to the passing of the No Child Left Behind Act of 2001.

As noted above, all consideration given to the national level data with respect to the expenditures per pupil, calculation of the pupils to teacher ratio and the make up of the students who are college bound and the percentages of minority students who actually take the college entrance exams should be maintained. As noted with the national data, even though there are a few peaks and valleys over the decades, the overall trend has been to pour more money into the school system. There is also the discrepancy of actual number of students per classroom and the average number of pupils per teacher due to the inclusion of special education classes and special programs in the schools. A reminder as well is that not all students take the SAT test in all states, and therefore the prior cautions must be maintained as well.

The Midwest

In 1969, the average expenditure per pupil in the Midwest was \$2,904.37. As of 2004, the average expenditures per pupil were \$8,098.08. As with the national level data, even though there are a few peaks and valleys over the decades, the overall trend has been to pour more money into the school system.

The number of pupils to teacher ratios has also shown a pattern of change. In 1969, the average number of pupils to teacher ratio was 21.3. As of 2004, the average number of pupils to teacher ratio was 16.2.

There are two standardized test for college entrance, the ACT and the SAT. Depending on the state, depends on the test scores that were reported. The trend over the years has been an increase in the overall average score. For example, in 1972, the average ACT test score was 20.0. In 2004, the average ACT test score was 21.6. However, only 10 states in the Midwest states have consistently used and reported average ACT test scores. The SAT test is used and reported for all 12 states in the Midwest. The trend has also been an increase with the average test score in 1979 being 1093 and in 2004 the average test score was 1151. Comparing those test scores with the national averages, the Midwest is performing slightly better than the nation as a whole.

With regard to standardized math test scores for 8th graders and 4th graders, the trend fluctuates depending on the test scores being analyzed. 8th grade math test scores have increased from an average of 245 in 1990 to an average of 283 in 2003. Only 4 states in the Midwest have consistently reported the average test scores. Average 4th grade math test scores have also increased from an average of 229 in 1996 to an average of 238 in 2003. Only 7 states in the Midwest have consistently reported the 4th grade average math test scores. However, with reading, because of the lack of data and since only 2 years have been reported, it is difficult to assess any particular trend for the Midwest. It does appear that the test scores are increasing slightly, though, from an average test score of 266 in 1998 to an average test score of 267 in 2003. Only 4 states in the Midwest consistently reported the average 8th grade reading test scores. With 4th graders, there seems to be a decrease in the average reading test score, but since again there were minimal amount of years

reported, the trend might not be valid. The average reading test score for 4th graders was 222 in 1992 and 221 in 2003. Only 6 states in the Midwest consistently reported data for these years.

Like the nation as a whole, the Midwest has also seen an influx of minority students. Only 10 of the 12 states within the Midwest have consistently reported the percentage of minority students for the years reported. Out of those cases, the average percentage of minority students has increased from 10.8% in 1976 to 18.7% in 2002.

The same correlations were run at the regional level as was with the national level. Correlations were run for all corresponding years between expenditures per pupil and the average number of pupils per teacher. The corresponding years that were reported for both variables were 1969, 1970, 1978, 1984, 1985, 1988, 1993, 1994, 1995, 1996, and 1998. Unlike the national level statistics, only the years of 1970, 1985, 1995, and 1998 showed statistical significance. Of those years, 1970 and 1985 had a statistical significance at a 0.01 level. The level of statistical significance for the years of 1995 and 1998 was 0.05. The relationship is also a positive relationship, which means that as the expenditures per pupil increases, the number of pupils per teacher also increases. All 12 states in the Midwest consistently reported data for the reported years. This correlation is the opposite of the previous research within this field, as well as the national level data.

Correlations were also run between the expenditures per pupil and the reported standardized testing. For the average ACT test scores, the corresponding years reported were 1972, 1982, 1992, 1993, 1994, 1995, 2002 and 2004. None of the years exhibited a statistical significance between the average expenditures per pupil and the average ACT test score. 11 of the 12 states in the Midwest consistently reported average ACT test scores.

Correlations were run between expenditures per pupil and the corresponding years of average SAT scores. The corresponding years are 1982, 1992, 1994, 2002 and 2004. As with the

average ACT test scores, no years exhibited a statistical significance between the average expenditures per pupil and the average SAT test score. All 12 states in the Midwest have consistently reported average SAT test scores for the reporting period.

Correlations were run between expenditures per pupil and the corresponding years of average 8th grade math test scores, average 4th grade math test scores, average 8th grade reading test scores and average 4th grade reading test scores. The reporting years for these standardized testing are limited; however, they are representative of the complete student body within a particular state who reported the data. 8th grade math test scores did not exhibit any statistical significance for the reporting years of 1992, 1996 and 2000. 4th grade math test scores also did not exhibit any statistical significance for the reporting years of 1996, 2000 and 2002. There was only 1 year that corresponded between expenditures per pupil and 8th grade reading tests. The correlation for 1998 also showed there was no statistical significance between the two variables. There were only 3 years that corresponded between expenditures per pupil and 4th grade reading tests. For the years 1992 and 1994, the correlation showed there was no statistical significance between expenditures per pupil and the average test score. For the 8th grade and 4th grade standardized testing, only a limited number of states consistently reported data in order to calculate the statistical significance.

A correlation was also run between expenditures per pupil and minority percentages. The corresponding years of data were 1994, 1996, 1998, 2000 and 2002. In the Midwest, the correlation run between these variables did reflect a statistical significance for the year 1994. The level of statistical significance was 0.05. All other years showed no statistical significance was found between the two variables. All 12 states in the Midwest consistently reported data for all years reported.

Correlations were run for the corresponding years between the number of pupils per teacher and the standardized testing reported. The corresponding years for which correlations could

be run were 1993, 1994, and 1995 for ACT test scores and 1994 for SAT test scores. Like the national outcomes, for all years that correlations were run, there was no statistical significance between the variables.

The number of pupils per teacher is also important when analyzing the standardized testing data for the 8th and 4th grade students. The corresponding years between the two variables is also limited. There was only one corresponding year between the number of pupils per teacher and the 8th grade math test scores and the 4th grade math test scores. For all years of average math test scores reported, the correlation showed no statistical significance between the variables. There was also only one corresponding year between the number of pupils per teacher and the 8th grade reading test scores. Like the average math test scores, the correlation showed no statistical significance between the two variables. There were two corresponding years between the number of pupils per teacher and the 4th grade reading test scores. Both years showed that there is no statistical significance between the two variables. These statistics are important because they show that the variables function differently at the regional level than at the national level. Only 4 states in the Midwest consistently reported the 8th and 4th grade average test scores for the reporting period.

Again correlations were run between the percentage of minority students and the average test scores. The corresponding years between the percentage of minority students and the average ACT test scores were 1994 and 2002. Only the correlation for 2002 showed a negative relationship between the two variables with a statistical significance of 0.05. 11 of the 12 states of the Midwest consistently reported data for both variables during the reporting period. There were four corresponding years between the percentage of minority students and the average SAT test scores. For those years, 1979, 1989, 1994 and 2002, the correlation did not exhibit any statistical

significance. 10 of the 12 states of the Midwest consistently reported data for both variables during the reporting period.

Correlations were also run between the percentage of minority students and the testing performed at the 8th grade and 4th grade levels. There were two corresponding years between the percentage of minority students and 8th grade math test scores. For both 1996 and 2000, the correlations showed that there was no statistical significance between the two variables. The three corresponding years between the percentage of minority students and the 4th grade math test scores were 1996, 2000, and 2002. All three correlations between these variables showed that there was no statistical significance between the variables. 8 of the 12 states in the Midwest consistently reported average math test score data for the reporting period. The only corresponding year between the percentage of minority students and 8th grade reading test scores was 1998. The correlation also did not show any statistical significance between the two variables. For the two corresponding years between the percentages of minority students and 4th grade reading test scores, those years being 1994 and 1998, the correlations showed no statistical significance between the two variables. Only 4 states in the Midwest reported average reading test scores for the reporting period.

The Northeast

In 1969, the average expenditure per pupil in the Northeast was \$3,254.42. As of 2004, the average expenditures per pupil were \$10,197.00.

The number of pupils to teacher ratios has also shown a pattern of change. In 1969, the average number of pupils to teacher ratio was 21.3. As of 2004, the average number of pupils to teacher ratio was 15.3.

There are two standardized test for college entrance, the ACT and the SAT. Depending on the state, depends on the test scores that were reported. The trend over the years has been an increase in the overall average score. The data for the average ACT test scores in the Northeast cannot be analyzed, as only 1 state in the region consistently reported data for the reporting period. The SAT test is used and reported for all 12 states in the Northeast. The trend has also been an increase with the average test score in 1979 being 1006 and in 2004 the average test score was 1020. Comparing those test scores with the national averages, the Northeast is performing slightly lower than the nation as a whole.

With regard to standardized math test scores for 8th graders and 4th graders, the trend fluctuates depending on the test scores being analyzed. 8th grade math test scores have increased from an average of 261 in 1990 to an average of 280 in 2003. Only 6 states in the Northeast have consistently reported the average test scores. Average 4th grade math test scores have also increased from an average of 224 in 1996 to an average of 237 in 2003. Only 8 states in the Northeast have consistently reported the 4th grade average math test scores. The average 8th grade reading test scores have increased from an average of 265 in 1998 to an average of 266 in 1998. Only 7 states in the Northeast have consistently reported the average test scores for both years. Average 4th grade reading test scores have also increased from an average of 220 in 1996 to an average of 223 in 2003. Only 8 states in the Northeast consistently reported the average 4th grade reading test scores. Since again there were minimal amount of years reported, the trends might not be valid.

Like the nation as a whole, the Northeast has also seen an influx of minority students. All 12 states within the Northeast have consistently reported the percentage of minority students for the years reported. Out of those cases, the average percentage of minority students has increased from

15.4% in 1976 to 24.5% in 2002. Vermont also seemed to have a problem with classification with their minority students as shown in the extreme changes on Figure 2.

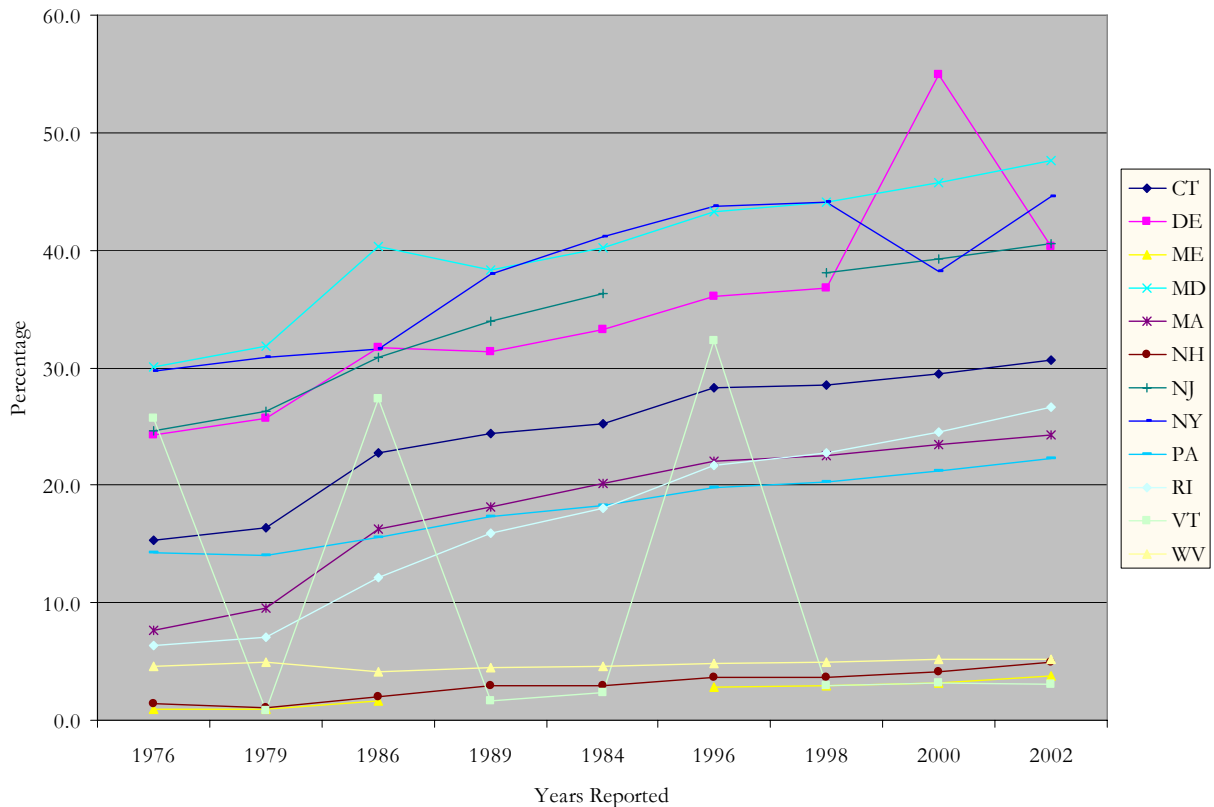


Figure 2: Northeast Percentage of Minority Students

Again, the same correlations were run for the Northeast, as was run for the Midwest and the national level. Correlations were run for all corresponding years between expenditures per pupil and the average number of pupils per teacher. The corresponding years that were reported for both variables were 1969, 1970, 1978, 1984, 1985, 1988, 1993, 1994, 1995, 1996, and 1998. Unlike the national level statistics, only 1998 showed statistical significance. The level of statistical significance was 0.05. The relationship is also a negative relationship, which means that as the expenditures per pupil increases, the number of pupils per teacher decreases. All 12 states in the Northeast

consistently reported data for the reported years. This correlation is the opposite of the results from the Midwest, but consistent with research within this field, as well as the national level data.

Correlations were also run between the expenditures per pupil and the reported standardized testing. Since there was only one state that reported average ACT test scores for the reporting period, no correlations could be run. On the other hand, all 121 states in the Northeast consistently reported average SAT test scores for the reporting years. Therefore, correlations were run between expenditures per pupil and the corresponding years of average SAT scores. The corresponding years are 1982, 1992, 1994, 2002 and 2004. No years exhibited a statistical significance between the average expenditures per pupil and the average SAT test score.

Correlations were run between expenditures per pupil and the corresponding years of average 8th grade math test scores, average 4th grade math test scores, average 8th grade reading test scores and average 4th grade reading test scores. The reporting years for these standardized testing are limited; however, they are representative of the complete student body within a particular state who reported the data. Average 8th grade math test scores did not exhibit any statistical significance for any of the reporting years. Average 4th grade math test scores also did not exhibit any statistical significance for any of the reporting years. Only 8 states in the Northeast consistently reported average math test scores for the reporting period. There was only 1 year that corresponded between expenditures per pupil and 8th grade reading tests. The correlation for 1998 also showed there was no statistical significance between the two variables. There were only 3 years that corresponded between expenditures per pupil and 4th grade reading tests. For all years, the correlation showed there was no statistical significance between expenditures per pupil and the average test score. Only 7 states in the Northeast consistently reported average reading test scores for the reporting period.

A correlation was also run between expenditures per pupil and minority percentages. The corresponding years of data were 1994, 1996, 1998, 2000 and 2002. In the Northeast, the correlation run between these variables did reflect a statistical significance for the years 1994, 1998 and 2002. The level of statistical significance was 0.05. All other years showed no statistical significance was found between the two variables. 11 of the 12 states in the Northeast consistently reported data for all years reported.

Correlations were run for the corresponding years between the number of pupils per teacher and the standardized testing reported. Again, correlations could not be run between the number of pupils per teacher and the average ACT test scores because only one state in the Northeast reported average ACT test scores for the reporting period. However, a correlation could be run for the 1994 average SAT test scores. Like the national outcomes, there was no statistical significance between the variables.

The number of pupils per teacher is also important when analyzing the standardized testing data for the 8th and 4th grade students. The corresponding years between the two variables is also again limited. There was only one corresponding year between the number of pupils per teacher and the 8th grade math test scores and the 4th grade math test scores. For all years of average math test scores reported, the correlation showed no statistical significance between the variables. There was also only one corresponding year between the number of pupils per teacher and the 8th grade reading test scores. Like the average math test scores, the correlation showed no statistical significance between the two variables. There were two corresponding years between the number of pupils per teacher and the 4th grade reading test scores. Both years showed that there is no statistical significance between the two variables. These statistics are important because they show that the variables function differently at the regional level than at the national level. Only 9 states in the

Northeast consistently reported the 8th and 4th grade average math test scores for the reporting period. Only 7 states in the Northeast consistently reported the 8th and 4th grade average reading test scores for the reporting period.

Again correlations were run between the percentage of minority students and the average test scores. Average ACT test scores could not be run through correlation due to the limited number of states that report average ACT test scores in the Northeast. There were four corresponding years between the percentage of minority students and the average SAT test scores. For those years, 1979, 1989, 1994 and 2002, the correlation did not exhibit any statistical significance. 11 of the 12 states of the Northeast consistently reported data for both variables during the reporting period.

Correlations were also run between the percentage of minority students and the testing performed at the 8th grade and 4th grade levels. There were two corresponding years between the percentage of minority students and 8th grade math test scores. For both 1996 and 2000, the correlations showed that there was no statistical significance between the two variables. The three corresponding years between the percentage of minority students and the 4th grade math test scores were 1996, 2000, and 2002. All three correlations between these variables showed that there was no statistical significance between the variables. 8 of the 12 states in the Northeast consistently reported average math score data for the reporting period. The only corresponding year between the percentage of minority students and 8th grade reading test scores was 1998. The correlation also did not show any statistical significance between the two variables. For the two corresponding years between the percentages of minority students and 4th grade reading test scores, those years being 1994 and 1998, the correlations showed no statistical significance between the two variables. 9 of

the 12 states in the Northeast consistently reported average reading score data for the reporting period.

The South

In 1969, the average expenditure per pupil in the South was \$2,210.38. As of 2004, the average expenditures per pupil were \$6,823.38

The number of pupils to teacher ratios has also shown a pattern of change. In 1969, the average number of pupils to teacher ratio was 23.9. As of 2004, the average number of pupils to teacher ratio was 16.4.

There are two standardized test for college entrance, the ACT and the SAT. Depending on the state, depends on the test scores that were reported. The trend over the years has been an increase in the overall average score. For example, in 1972, the average ACT test score was 17.8. In 2004, the average ACT test score was 20.1. However, only 7 states in the South have consistently used and reported average ACT test scores. The SAT test is used and reported for all 13 states in the South. The trend has also been an increase with the average test score in 1979 being 1024 and in 2004 the average test score was 1064. Comparing those test scores with the national averages, the South is performing slightly lower than the nation as a whole.

With regard to standardized math test scores for 8th graders and 4th graders, the trend fluctuates depending on the test scores being analyzed. 8th grade math test scores have increased from an average of 256 in 1990 to an average of 271 in 2003. Only 8 states in the South have consistently reported the average test scores. Average 4th grade math test scores have also increased from an average of 217 in 1996 to an average of 231 in 2003. Only 11 states in the South have

consistently reported the 4th grade average math test scores. However, with reading, because of the lack of data and since only 2 years have been reported, it is difficult to assess any particular trend for the South. It does appear that the test scores are increasing slightly, though, from an average test score of 258 in 1998 to an average test score of 259 in 2003. 12 of the 13 states in the South consistently reported the average 8th grade reading test scores. With 4th graders, there seems to be an increase in the average reading test score, but since again there were minimal amount of years reported, the trend might not be valid. The average reading test score for 4th graders was 212 in 1992 and 214 in 2003. 11 of the 13 states in the South consistently reported data for these years.

Like the nation as a whole, the South has also seen an influx of minority students. The exception with the South is that the states have seen a severe increase in the percentage of minority students. Only 11 of the 13 states within the South have consistently reported the percentage of minority students for the years reported. Out of those cases, the average percentage of minority students has jumped from 29.4% in 1976 to 40.3% in 2002. Like Vermont in the Northeast, Virginia has also had some difficulty classifying the minority students. As noted in Figure 3, Virginia also has many peaks and valleys throughout the years.

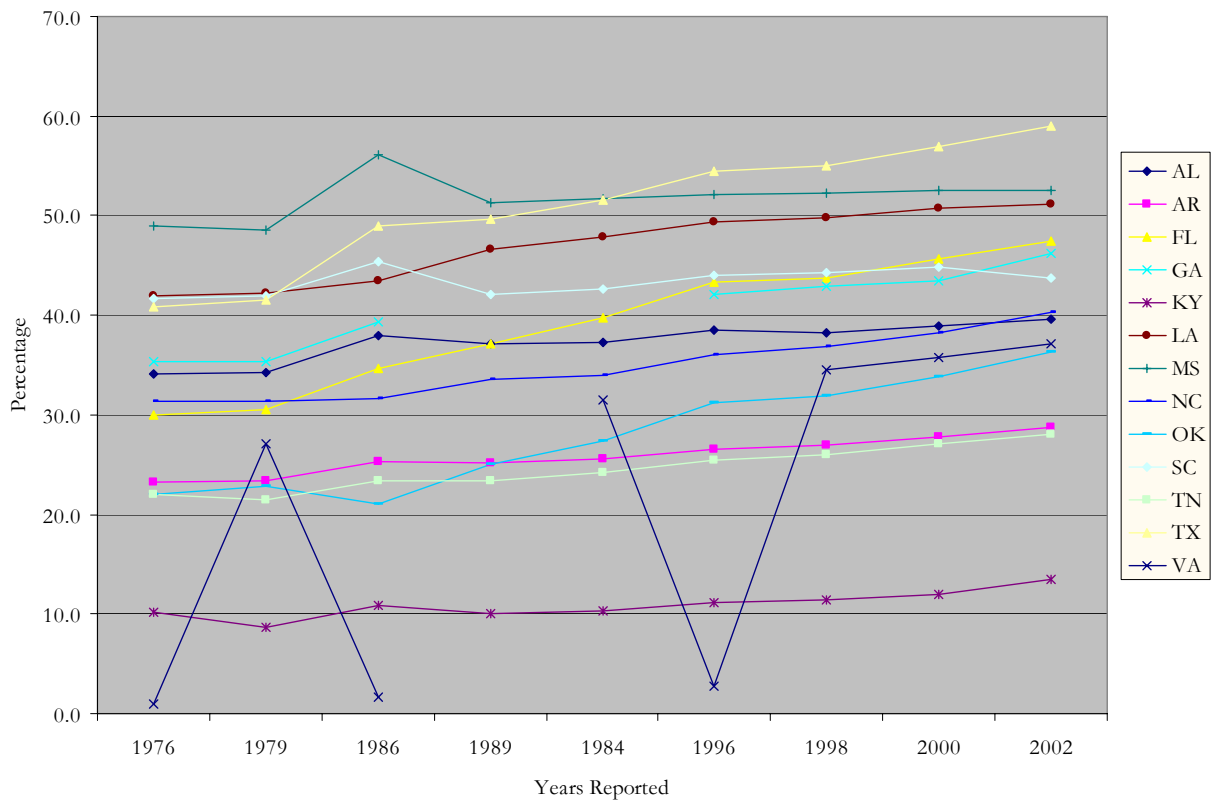


Figure 3: South Percentage of Minority Students

The same correlations were run at the regional level as was with the national level. Correlations were run for all corresponding years between expenditures per pupil and the average number of pupils per teacher. The corresponding years that were reported for both variables were 1969, 1970, 1978, 1984, 1985, 1988, 1993, 1994, 1995, 1996, and 1998. Unlike the national level statistics, only the years of 1984, 1988, and 1998 showed statistical significance. Of those years, 1984 and 1988 had a statistical significance at a 0.01 level. The level of statistical significance for the 1998 was 0.05. The relationship is also a positive relationship, which means that as the expenditures per pupil increases, the number of pupils per teacher also increases. All 13 states in the South consistently reported data for the reported years. This correlation is inconsistent with the previous research within this field, as well as the national level data.

Correlations were also run between the expenditures per pupil and the reported standardized testing. For the average ACT test scores, the corresponding years reported were 1972, 1982, 1992, 1993, 1994, 1995, 2002 and 2004. Out of all the years reported, only 2002 exhibited a statistical significance between the average expenditures per pupil and the average ACT test score. The level of statistical significance was 0.05. 7 of the 13 states in the South consistently reported average ACT test scores.

Correlations were run between expenditures per pupil and the corresponding years of average SAT scores. The corresponding years are 1982, 1992, 1994, 2002 and 2004. As with the average ACT test scores, only minimal years exhibited a statistical significance between the average expenditures per pupil and the average SAT test score. In 1994, the correlation showed a statistical significance at the 0.05 level. In 2002, the correlation showed a statistical significance at the 0.01 level. All 13 states in the South have consistently reported average SAT test scores for the reporting period.

Correlations were run between expenditures per pupil and the corresponding years of average 8th grade math test scores, average 4th grade math test scores, average 8th grade reading test scores and average 4th grade reading test scores. The reporting years for these standardized testing are limited; however, they are representative of the complete student body within a particular state who reported the data. 8th grade math test scores did not exhibit any statistical significance for the reporting years of 1990, 1992, and 1996, but did show a statistical significance in 2000 at the 0.05 level. 4th grade math test scores also did not exhibit any statistical significance for the reporting years of 1996 or 2000, but did exhibit statistical significance at the 0.01 level for 2002. 12 of the 13 states in the South consistently reported average math score data for the reporting period. There was only 1 year that corresponded between expenditures per pupil and 8th grade reading tests. The correlation

for 1998 also showed there was no statistical significance between the two variables. There were only 3 years that corresponded between expenditures per pupil and 4th grade reading tests. For the years 1994 and 1998, the correlation showed no statistical significance between expenditures per pupil and the average test score, but the correlation for 1992 showed statistical significance at the 0.05 level. 12 of the 13 states in the South consistently reported average reading scores for the reporting period.

A correlation was also run between expenditures per pupil and minority percentages. The corresponding years of data were 1994, 1996, 1998, 2000 and 2002. In the South for all years, the correlation run between these variables did reflect a statistical significance. All 13 states in the South consistently reported data for all years reported.

Correlations were run for the corresponding years between the number of pupils per teacher and the standardized testing reported. The corresponding years for which correlations could be run were 1993, 1994, and 1995 for ACT test scores and 1994 for SAT test scores. Like the national outcomes, for all years that correlations were run, there was no statistical significance between the variables.

The number of pupils per teacher is also important when analyzing the standardized testing data for the 8th and 4th grade students. The corresponding years between the two variables is also limited. There was only one corresponding year between the number of pupils per teacher and the 8th grade math test scores and the 4th grade math test scores. For all years of average math test scores reported, the correlation showed no statistical significance between the variables. There was also only one corresponding year between the number of pupils per teacher and the 8th grade reading test scores. Like the average math test scores, the correlation showed no statistical significance between the two variables. There were two corresponding years between the number of pupils per

teacher and the 4th grade reading test scores. Both years showed that there is no statistical significance between the two variables. These statistics are important because they show that the variables function differently at the regional level than at the national level. 12 of the 13 states in the South consistently reported the 8th and 4th grade average test scores for the reporting period.

Again correlations were run between the percentage of minority students and the average test scores. The corresponding years between the percentage of minority students and the average ACT test scores were 1994 and 2002. Only the correlation for 2002 showed a negative relationship between the two variables with a statistical significance of 0.05. 7 of the 13 states of the South consistently reported data for both variables during the reporting period. There were four corresponding years between the percentage of minority students and the average SAT test scores. For those years, 1979, 1989, 1994 and 2002, the correlation did not exhibit any statistical significance. 11 of the 13 states of the South consistently reported data for both variables during the reporting period.

Correlations were also run between the percentage of minority students and the testing performed at the 8th grade and 4th grade levels. There were two corresponding years between the percentage of minority students and 8th grade math test scores. All of the correlations showed that there was no statistical significance between the two variables. The three corresponding years between the percentage of minority students and the 4th grade math test scores were 1996, 2000, and 2002. All three correlations between these variables showed that there was no statistical significance between the variables. 11 of the 13 states in the South consistently reported average math test score data for the reporting period. The only corresponding year between the percentage of minority students and 8th grade reading test scores was 1998. The correlation also did not show any statistical significance between the two variables. For the two corresponding years between the percentages of

minority students and 4th grade reading test scores, those years being 1994 and 1998, the correlations showed no statistical significance between the two variables. 11 of the 12 states in the South reported average reading test scores for the reporting period.

The West

In 1969, the average expenditure per pupil in the West was \$2,927.31. As of 2004, the average expenditures per pupil were \$7,397.77.

The number of pupils to teacher ratios has also shown a pattern of change. In 1969, the average number of pupils to teacher ratio was 22.9. As of 2004, the average number of pupils to teacher ratio was 18.8.

There are two standardized test for college entrance, the ACT and the SAT. Depending on the state, depends on the test scores that were reported. The trend over the years has been an increase in the overall average score. For example, in 1972, the average ACT test score was 19.8. In 2004, the average ACT test score was 21.4. However, only 7 of the 13 states in the West have consistently used and reported average ACT test scores. The SAT test is used and reported for all 13 states in the West. The trend has been a decrease with the average test score in 1979 being 1071 and in 2004 the average test score was 1062. Comparing those test scores with the national averages, the West is performing approximately the same as the nation as a whole.

With regard to standardized math test scores for 8th graders and 4th graders, the trend fluctuates depending on the test scores being analyzed. 8th grade math test scores have increased from an average of 260 in 1990 to an average of 276 in 2003. Only 5 states in the West have consistently reported the average test scores. Average 4th grade math test scores have also increased

from an average of 220 in 1996 to an average of 233 in 2003. Only 9 states in the West have consistently reported the 4th grade average math test scores. However, with reading, because of the lack of data and since only 2 years have been reported, it is difficult to assess any particular trend for the West. It does appear that the test scores are being maintained with an average test score of 260 for both 1998 and 2003. Only 9 states in the West consistently reported the average 8th grade reading test scores. With 4th graders, there seems to be a decrease in the average reading test score, but since again there were minimal amount of years reported, the trend might not be valid. The average reading test score for 4th graders was 214 in 1992 and 215 in 2003. Only 6 states in the West consistently reported data for these years.

Like the nation as a whole, the West has also seen an influx of minority students. The trend with the West has been similar to the trend in the South. Only 10 of the 13 states within the West have consistently reported the percentage of minority students for the years reported. Out of those cases, the average percentage of minority students has jumped from 23.9% in 1976 to 37.0% in 2002.

The same correlations were run at the regional level as was with the national level. Correlations were run for all corresponding years between expenditures per pupil and the average number of pupils per teacher. The corresponding years that were reported for both variables were 1969, 1970, 1978, 1984, 1985, 1988, 1993, 1994, 1995, 1996, and 1998. Unlike the national level statistics, only 1988 showed any statistical significance between the two variables, indicating a significance level of 0.05. All 13 states in the West consistently reported data for the reported years. This correlation is the opposite of the previous research within this field, as well as the national level data.

Correlations were also run between the expenditures per pupil and the reported standardized testing. For the average ACT test scores, the corresponding years reported were 1972, 1982, 1992, 1993, 1994, 1995, 2002 and 2004. None of the years exhibited a statistical significance between the average expenditures per pupil and the average ACT test score. 7 of the 13 states in the West consistently reported average ACT test scores.

Correlations were run between expenditures per pupil and the corresponding years of average SAT scores. The corresponding years are 1982, 1992, 1994, 2002 and 2004. Only the correlation for 1992 showed any statistical significance between the two variables with a significance level of 0.05. All 13 states in the West have consistently reported average SAT test scores for the reporting period.

Correlations were run between expenditures per pupil and the corresponding years of average 8th grade math test scores, average 4th grade math test scores, average 8th grade reading test scores and average 4th grade reading test scores. The reporting years for these standardized testing are limited; however, they are representative of the complete student body within a particular state who reported the data. 8th grade math test scores did not exhibit any statistical significance for the reporting years of 1992, 1996 and 2000. 4th grade math test scores also did not exhibit any statistical significance for the reporting years of 1996, 2000 and 2002. 7 of the 13 states in the West consistently reported average math test scores for the reporting period. There was only 1 year that corresponded between expenditures per pupil and 8th grade reading tests. The correlation for 1998 also showed there was no statistical significance between the two variables. There were only 3 years that corresponded between expenditures per pupil and 4th grade reading tests. For the years 1992 and 1994, the correlation showed there was no statistical significance between expenditures per pupil

and the average test score. 8 of the 13 states in the West consistently reported average reading test scores for the reporting period.

A correlation was also run between expenditures per pupil and minority percentages. The corresponding years of data were 1994, 1996, 1998, 2000 and 2002. In the West, the correlation run between these variables did not reflect any statistical significance for any of the reporting years. All 13 states in the West consistently reported data for all years reported.

Correlations were run for the corresponding years between the number of pupils per teacher and the standardized testing reported. The corresponding years for which correlations could be run were 1993, 1994, and 1995 for ACT test scores and 1994 for SAT test scores. Like the national outcomes, for all years that correlations were run, there was no statistical significance between the variables. 8 of the 13 states in the West consistently reported average ACT test scores for the reporting period. All 13 states in the West reported average SAT test scores for the reporting period.

The number of pupils per teacher is also important when analyzing the standardized testing data for the 8th and 4th grade students. The corresponding years between the two variables is also limited. There was only one corresponding year between the number of pupils per teacher and the 8th grade math test scores and the 4th grade math test scores. For all years of average math test scores reported, the correlation showed no statistical significance between the variables. 11 of the 13 states in the West reported average math test scores for the reporting period. There was also only one corresponding year between the number of pupils per teacher and the 8th grade reading test scores. Like the average math test scores, the correlation showed no statistical significance between the two variables. There were two corresponding years between the number of pupils per teacher and the 4th grade reading test scores. Both years showed that there is no statistical significance

between the two variables. These statistics are important because they show that the variables function differently at the regional level than at the national level. Only 9 states in the West consistently reported the 8th and 4th grade average reading test scores for the reporting period.

Correlations were run between the percentage of minority students and the average test scores. The corresponding years between the percentage of minority students and the average ACT test scores were 1994 and 2002. Both correlations exhibited a negative relationship between the two variables with a statistical significance of 0.05. 7 of the 13 states of the West consistently reported data for both variables during the reporting period. There were four corresponding years between the percentage of minority students and the average SAT test scores. For those years, 1979, 1989, 1994 and 2002, only the correlation for the reporting period of 2002 showed any statistical significance at the 0.05. 10 of the 12 states of the West consistently reported data for both variables during the reporting period.

Correlations were also run between the percentage of minority students and the testing performed at the 8th grade and 4th grade levels. There were two corresponding years between the percentage of minority students and 8th grade math test scores. For both 1996 and 2000, the correlations showed that there was a negative relationship between the two variables with a statistical significance level of 0.01. The three corresponding years between the percentage of minority students and the 4th grade math test scores were 1996, 2000, and 2002. All three correlations between these variables showed that there was a negative relationship between the two variables with a statistical significance level of 0.01. 10 of the 13 states in the West consistently reported average math test score data for the reporting period. The only corresponding year between the percentage of minority students and 8th grade reading test scores was 1998. The correlation also did show that there was a negative relationship between the two

variables with a statistical significance level of 0.01. For the two corresponding years between the percentages of minority students and 4th grade reading test scores, those years being 1994 and 1998, the correlations showed that there was a negative relationship between the two variables with a statistical significance level of 0.01. Only 9 states in the West reported average reading test scores for the reporting period.

High Percentage of Minority States versus Low Percentage of Minority States

Particular states within the different regions have seen an influx of minority students. Since some states have a percentage of minority students greater than 50%, those states were isolated and the correlations were rerun with regard to the percentage of minority students and all other variables. The states that have a percentage of minority students over 50% are California, Hawaii, New Mexico and Texas. See Figure 4. Once those four states are isolated, the correlations between the percentage of minority students and the other variables. The remaining 46 states have percentages of minority students less than 50%. See Figure 5. The purpose of running these correlations is to see if the same thing is happening with the states as the classroom makeup moves toward a greater homogeneity and when the make up of the classroom is moving toward greater diversity. Also note that the correlations that are run with the 4 isolated states have minimal use because the set does not include the required minimum of 30 cases for meaningful discussion of statistical significance. It is important to note as well that even though these 4 states can be considered outliers, a closer look should be taken to the overall effects of the increase in minority students as other states begin to resemble the same classroom makeup.

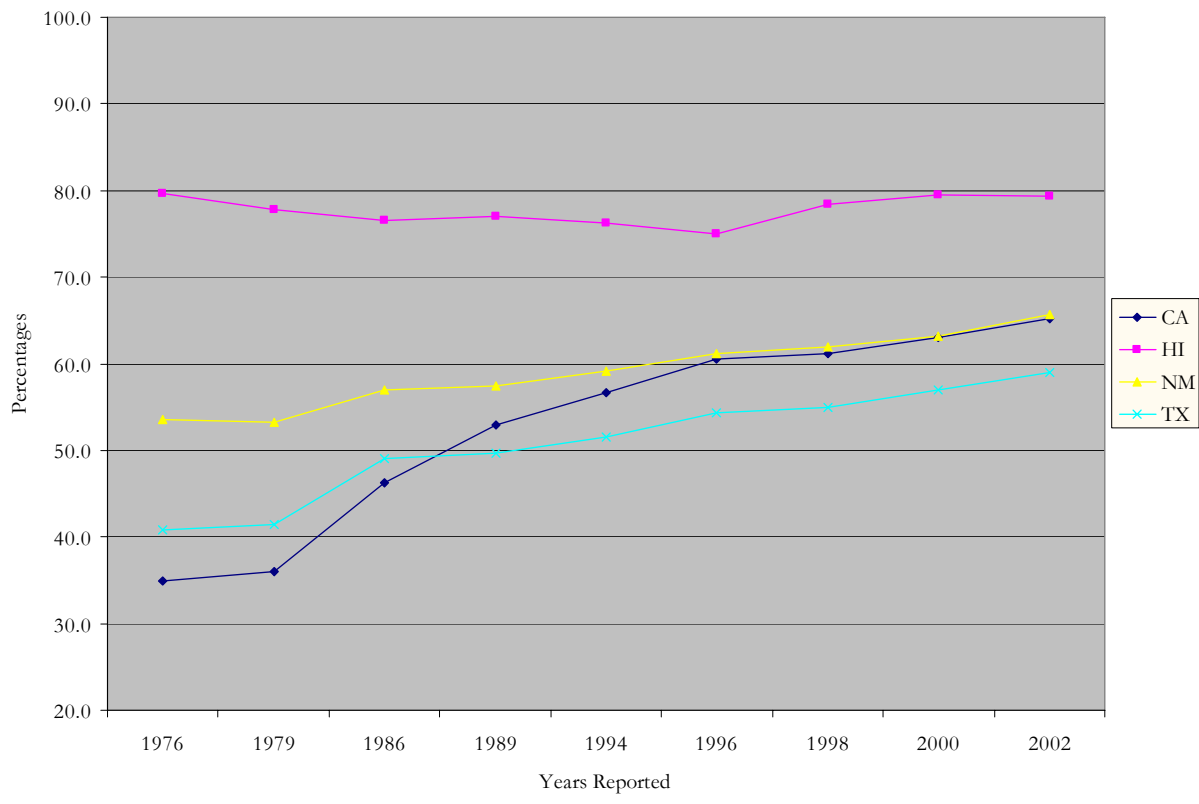


Figure 4: High Minority Percentages

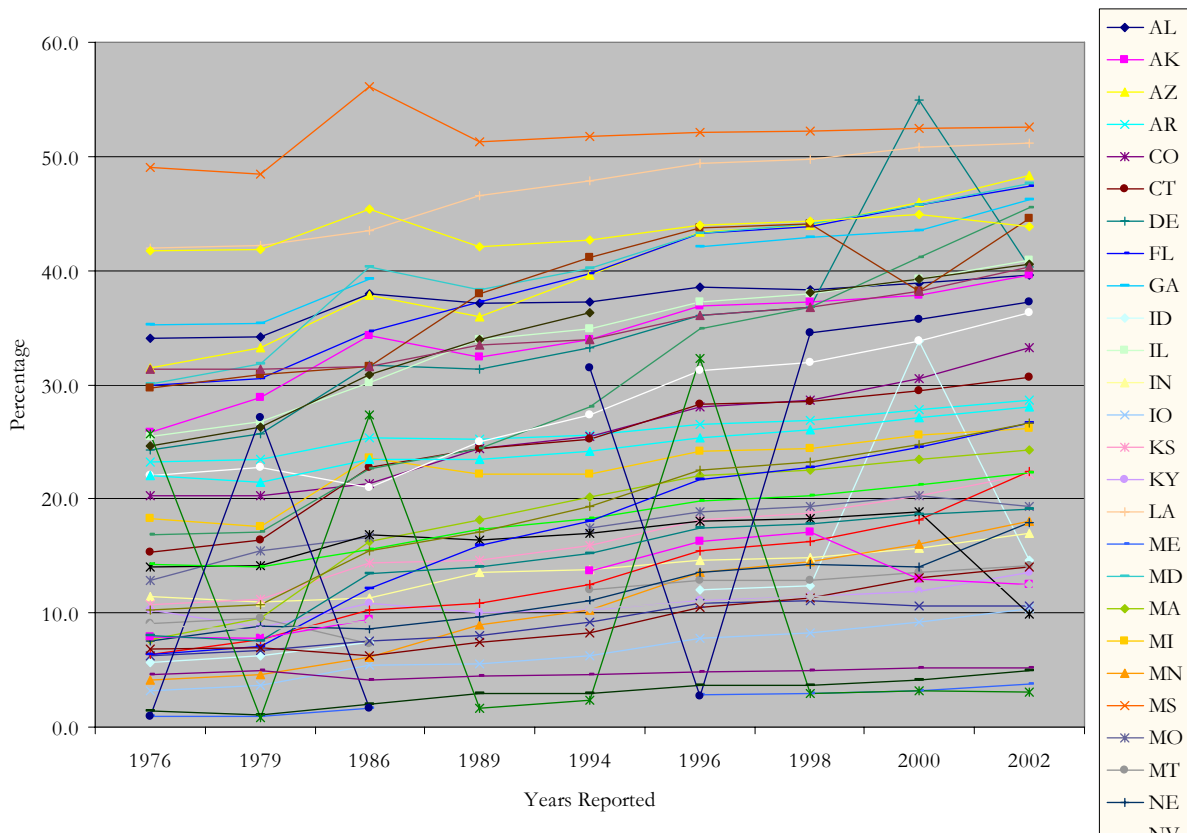


Figure 5: Low Minority Percentages

The only correlations that were run with the states separated this way were the correlations relating to the percentage of minority students. The first correlation that was run was between expenditures per pupil and minority percentages. The corresponding years of data were 1994, 1996, 1998, 2000 and 2002. For the 46 states with a low percentage of minority students, the correlation showed no statistical significance between the two variables. The results for the remaining 4 states were the same in that there was no statistical significance between the variables.

Correlations were run between the percentage of minority students and the average test scores. The corresponding years between the percentage of minority students and the average ACT test scores were 1994 and 2002. For the 46 states with the lower percentage of minority students, 25 states consistently reported average ACT data for both years. The correlation showed that there was

a statistical significance level of 0.01 between the two variables. Both correlations also exhibited a negative relationship between the two variables. This is consistent with the national trend. Because only 1 of the remaining 4 states reported average ACT test scores, no correlation could be run between the variables.

There were four corresponding years between the percentage of minority students and the average SAT test scores. For those years, 1979, 1989, 1994 and 2002, there was statistical significance between the two variables for the 46 states that have low minority percentages. All years were at a significance level of 0.05 with the exception of 1979 which reflected a statistical significance level of 0.01. For the 4 isolated states with a high percentage of minority students, no statistical significance was found.

Correlations were also run between the percentage of minority students and the testing performed at the 8th grade and 4th grade levels. There were two corresponding years between the percentage of minority students and 8th grade math test scores. For both 1996 and 2000, the correlations showed that there was a negative relationship between the two variables with a statistical significance level of 0.01. The three corresponding years between the percentage of minority students and the 4th grade math test scores were 1996, 2000, and 2002. All three correlations between these variables showed that there was a negative relationship between the two variables with a statistical significance level of 0.01. 36 of the 46 states with a low minority percentage of students consistently reported average math test score data for the reporting period. The 4 isolated states consistently reported average math test score data for the reporting period; however, the correlations did not show any statistical significance between the two variables.

The only corresponding year between the percentage of minority students and 8th grade reading test scores was 1998. The correlation also did show that there was a negative relationship

between the two variables with a statistical significance level of 0.01. For the two corresponding years between the percentages of minority students and 4th grade reading test scores, those years being 1994 and 1998, the correlations only showed that there was a negative relationship between the two variables with a statistical significance level of 0.01 for 1994. The correlation for 1998 reflected no statistical significance between the two variables. Only 28 of the 46 states with a low minority percentage of students consistently reported average reading test scores for the reporting period. The 4 isolated states consistently reported average reading test score data for the reporting period; however, the correlations did not show any statistical significance between the two variables.

CHAPTER FIVE

Conclusion

The educational system is a very complex system in the United States. Different things are happening at the national level that are not necessarily happening at the regional levels. This could indicate that there are things happening differently at the state and even local levels within each state. Since all states have different rules with regards to standardized testing and curriculum, it is possible that all the data at the regional and national levels are not indicative of what is really happening in the individual classroom. The purpose of this research project is to see what is actually happening, what factors are going into the policy decision making at the national level, and how those factors are behaving at the lower levels. Since this research only included the national level and the four major regions of the United States, it is possible that this research project can be duplicated to see if the educational system is functioning differently from state to state as well as from locality to locality.

Based on the correlations that were run, the expenditures per pupil are important at the national level as well as the regional level. It has not been a secret that the more money spent on education usually results in increased test scores. More money spent on schools does not mean that there is more money actually going into the classroom. The money spent on schools could be contributed to new school structures in order to keep control of the increasing population demands, as well as accommodating the new school with textbooks and other essential supplies, the hiring of new teachers and administration to run the new schools, etc. It is important to also remember that the money that is put into the schools is determined by locality and at the state level, not at the

regional or national level. Therefore, the money in one state could be spent replacing used textbooks and supplies while in another state the money could be applied toward accommodating the growth in that particular state. What most people do not realize that is the overall budget that a school district has to work with comes from the local property and sales taxes, with a small amount coming from the federal allotment.

The trend of federal funding has changed over the last few decades. According to Augustina A. Reyes and Gloria M. Rodriguez in their article “School Finance,” the breakdown of funding to the schools has increased as a way to level out the amount of money going to schools in less advantaged areas. For example, there was a time when the schools were funded primarily by local property taxes and state sales taxes, with the government only supplying a minimal amount of funding for each state to specifically go for whatever program the federal government is pushing at the time. However, with the discrepancy in property values and state sales taxes, some school districts were left lagging behind the average amount of money allotted per child. Therefore, the federal government has increased the percentage of funds allotted to the states as a way to supplement their education budget and level out the discrepancies among the school districts.

Of course, there are still plenty of federal programs that are being funded on a state-by-state basis, such as additional funding to those schools that adopt the different policies of the No Child Left Behind Act of 2001. Since the passing of the Act, there has been an increased push at the local and state levels to make sure that all teachers are “highly qualified.” One push coming out of that at the local level is for more teachers to become Nationally Board Certified. Nationally Board Certified Teachers receive supplemental pay for their certification, as well as work hand in hand with administrators with regard to professional development opportunities at the school level. However, when compiling data across the states, the number of Nationally Board Certified teachers per state

was only recorded for 2003. That number was the total number of Nationally Board Certified Teachers and not the percentage of teachers within each state that are Nationally Board Certified. Therefore, the numbers do not reflect the proportion of teachers per classroom and cannot be figured in to any of data or even applied like the average number of pupils per teacher ratio can be. To make matters worse, there is absolutely no way to see if the passing of Act has caused an influx of teachers to work on National Board Certification since there is only one year where the data was collected. It also makes it difficult to assess if the percentage of federal funding to a particular state had increased by a large proportion due to the push for greater certification.

There is not even an obvious pattern from state to state or region to region to see if there is a concentration of Nationally Board Certified teachers within a particular area. Because of the lack of data, it is hard to really even consider the specialized certification of the Nationally Board Certified Teachers as a viable variable to look at with regard to the individual classrooms. Teachers obviously have some influence on the classroom, at a motivational level as well as educating our youth, but in order to really include that influence, more data must be collected.

The entire reasoning behind becoming Nationally Board Certified is that teachers who complete the rigorous training process, as well as pass the different levels of examination within that process, are better trained and better equipped to handle the stresses of the classroom. One concern to note is that teachers cannot even begin the process of becoming Nationally Board Certified until they have worked in a classroom for at least 3 years. This could be a good thing considering the process involves proof of things the teachers did in the classroom to improve the overall classroom. Without a minimal amount of experience, that is an impossible feat.

Another note about Nationally Board Certified Teachers is that they are required to spend a set amount of time on mentoring hours. Those mentoring hours are not student mentoring hours,

but mentoring hours spent working with new teachers to the profession. One thing new teachers are told when going into the workforce is to spend time with experienced teachers and learn from their lead. Of course, new teachers are sometimes overwhelmed with the amount of information they did not have about the daily routine of a teacher upon graduation, such as daily attendance, electronic as well as paper gradebook maintenance, creating the yearly plan, weekly lesson plans, and daily plans to go with whatever curriculum they were assigned, learning the new curriculum, classroom management, etc. With the help of an experienced teacher, this job can seem a bit less considerable and more manageable. However, working in the field of teaching, there are plenty of teachers that are burned out and ineffective, as teachers and as mentors. This is a double-bladed sword. How does the school system fix itself if there are not enough teachers to keep up with the increasing numbers of students, as well as make sure that the teachers do not get burned out?

All the previous educational research addresses expenditures per pupil, the average number of pupils per teacher, and the standardized testing for college entrance exams. Only recently has the data included testing at the 4th grade and 8th grade levels. The average ACT and the average SAT test scores are difficult to draw any conclusions with as they do not utilize all the students, nor are they consistently used in all states. Even though the average SAT test scores are available for every state, those scores are still not indicative of the performance of all students at the high school levels, only those students who have college aspirations.

Plus, what about the other grade levels? Why only count the tests at the 4th grade and 8th grade levels? Isn't it just as important to see that the students are performing at, below or above grade level on a year to year basis and not just monitor that progress every few years? With the testing only being at the elementary and middle school levels, there is no real measure of performance at the high school level. As stated above, the students included in the SAT and ACT

testing process are the students who are college bound and not all of the student body within a particular grade year for some states, as well as all of the student body in others. In order to include the high school level, the states have to report the information from their standardized testing at those higher levels. Of course, in Florida and many other states, once the students pass the exam at the 10th grade level, they do not have to take it again. Does that mean that the current educational system only cares whether or not the students can perform at a 10th grade level, and not at a 12th grade level? That seems to be a bit of a problem to me.

Another flaw with the data is that some students take the SAT and ACT tests multiple times within each year and multiple times over a period of years in order to increase their overall score. The data does not isolate those cases to record only one overall test score per student. Instead, the data collects all of the test scores for all the students, regardless the number of attempts a particular student has made. With the implementation of the No Child Left Behind Act of 2001, there should be better data to work with at the high school level with regard to standardized testing, such as mandatory testing at the upper levels as mentioned above that is inclusive of all students and only administered once per year. With the increase of testing at the 4th grade and 8th grade levels, that data will present a greater probably of statistical significance over time. At this point, however, there is still minimal amount of data that has been collected at the national level for the scores to really have any bearing on overall policy decision making.

One new factor considered in this research is the impact of the make up of the actual classroom. One important feature of the classroom is the percentage of minority students. The initial research at the national and regional levels indicates that there is some relationship between the percentage of the minority students and the overall performance of those students. Even though the states have been reporting that information to the national government for decades, the

national government has not looked at the percentage of minority students as a factor in education. There are three major factors in the classroom: the teacher, the students and the supplies available to each. How can researchers not take into consideration the cultural background and diversity of the students? Of course, in order to really see how the percentage of minority students in a classroom actually affects the performance of the students, a closer look at the state or local region should be considered.

It is also important to remember that the data at the national level should not be completely overlooked. It is a good place to start when generating different pictures of the classroom, but there is a problem with the policies effectively trickling down to the levels in which they need to be effective. With the national level, the students are still just a number on the page and not a person. Dismissing the cultural background of the classroom, which leads to the baseline background information, as well as the classroom's ability to grasp certain subjects, has to be considered when creating and implementing new policies. For example, a school in the South might be composed of a greater number of minority students. In those classrooms, the students might be able to grasp the major concepts of the Civil War than a classroom in Alaska, even though that particular classroom could also have a high percentage of minority students, because of the cultural background of the students living in the South versus the cultural background of the students living in Alaska. Without some type of baseline knowledge, or a way to connect the information to their lives, students will struggle with the material. It is also very difficult to find one common connection among all students in a classroom that has extremely diverse backgrounds.

The policy makers for the educational system need to take these points into account when they are attempting to write effective policies for school reform. Just because one classroom, school or school district might need to focus their efforts on a particular academic area, such as reading or

basic math skills, does not mean that another classroom, school or school district has the same needs. Maybe the other district's need is to find a way to handle the influx of student population caused by increasing immigration rates, money to build schools to handle the new student population, and how to recruit new teachers and equip classrooms with the basic essentials needed to function. In the second case, it would be unfair to have the school district pour all of its money from its budget into implementing new reading or math programs, when they have too many students crammed into the classes to the point where the student body is not even manageable.

Future Research

Many factors need to be taken into consideration when it comes to research in the educational system and the policies that affect them. The only level that has been consistently publishing data and research regarding the educational system is the national level. Of course, as stated before, even though the No Child Left Behind Act of 2001 is requiring the states to mandate standardized testing for all students, the tests are created by the different states and based on the curriculum of the particular states. There is no mandatory national curriculum and there is no national standardized exam to be administered to all students. Therefore, when comparing the test scores from state to state, some consideration needs to be made with the comparison between different tests that test different skill strands per student.

A major problem with looking at the data only at the national level is that the policies that are implemented from the national level could possibly be ineffective at the local level because those policies implemented at a national level are blanket policies intended for a generalized school population. One thing we as a country should have learned throughout our history is that we are

made up of a variety of diverse groups. With the makeup of students being different from state to state depending on immigration rates and the difference in classifications of multicultural students, it is irresponsible to generalize the research to all states all of the time.

The best way to really break down what is happening in the school system, to analyze the true characteristics of the classroom, would be to conduct research at the state and local levels, inclusive of case studies per state based on the research at the different localities. The research would be a balanced mix between quantitative and qualitative research in order to look at the hard numbers of student performance, while still taking into the whole picture the make up of different classrooms at the different educational levels. One cannot speculate how the different states work against or with each other since there is no uniformity from state to state except for the percentage of overall funding received by the national government.

In order to take the national level statistics seriously and to the level in which blanket policies can be implemented for all states, it is important to reorganize the school system to become a national system, instead of a state or local system. For example, in order to truly rely on the overall national data, a national set of educational standards, a nationally defined set curriculum for all grade levels, and a national standardized test for assessment must be implemented. The only problem with a national educational system is that in order for it to also be truly implemented, the states have to relinquish the money collected for the purposes of education and give it to the national government for disbursement of the same. Of course, expecting the states to ever relinquish control over anything to the national government is improbable at best.

Since the states are not willing to give up control and because there is no real uniformity in the educational system between the different states, the only true answer could be to have the national government look at the statistics from a different perspective. The national government

must consider the individual states as case studies to be compared qualitatively and not just quantitatively.

Further research must be conducted at the local levels as well, with the states compiling all the research and performing the case studies. The case studies at that point can be forwarded to the national level with an outline of the different state educational standards, the uniform curriculum for the state and a copy of the different standardized test for each grade level. Once that is done, then the national government can compare the states as apples to apples and no longer as apples to oranges. Until then, the national government will continue to write ineffective blanket policies across the educational system as the educational system continues to unravel at the local levels.

One good thing that could come out of research at the state and local levels is that the different education entities within each state would be able to implement policies specific to that particular state's needs. This research project is not designed to have the states fight with the federal government. It is designed for the federal government to take a critical look at the goings on at the state and local levels before the federal government implements blanket policies that could be ineffective and frustrating to those at the lower levels. The way our government is structured, the national government oversees all educational policies and implements whatever reform it sees fit. However, at the local levels, the power lies in the hand of the local school districts, many times removed from the national level. It seems logical to have those local levels referring to their own research, which in turn is being checked and double checked by the state level in order for any problems to be diverted before we have a serious problem in our educational system of epidemic proportion. Unfortunately, that has not been the case for many years, or else the educational system would not have decayed to the state in which it is. This research is also not stating that our educational system is so bleak that it is beyond repair, either. This research project is stating that as

the educational system unravels, the national government has been trying to analyze data and restructure the system at a national level, when in fact, the educational system functions at a local and state level.

Just looking at the data is also a problem because there are many plausible alternative explanations for the different happenings at the local level. See Figure 6. As you can see, just because a state has increased the amount of money spent in per pupil, does not mean that the money is actually making it into the classroom. In some states, more money is going toward renovating dilapidated schools and building new schools to handle the increased immigration rates. Other states are spending more money on increased teacher salaries. There is no way to truly measure expenditures per pupil without actually knowing where the money is going. As noted above as well is the misrepresentation of the true pupil to teacher ratios. Certain exceptional education classes restrict class size to less than 10, as well as require multiple staff member to handle the class. In schools with those types of classes, the actual classroom has a greater number of pupils per teacher than is reflected in the average pupil to teacher ratio.

Plus, what do standardized tests really test? Is it the ability of the teacher to make sure the teacher has spent the year “teaching the test” to the students, therefore, creating a sort of testing effect, or does it really test the students’ abilities to implement and apply certain skills? It is difficult to see what is really going on with the tests due to the increased pressure to pass them, as well as some of the restrictions when it comes to grade promotion due to failure of the same, regardless of academic performance throughout the school year. It is a possibility, too, that the reason some students do poorly on standardized testing could be related to test anxiety, illness, or other factors that could distract them from the task at hand. Is there a better way to really assess our students and their abilities?

Education is something that will be around forever. There is always going to be someone who needs to learn to read and write. There is always going to be someone who wants to learn more and is going to need guidance to find the answers to his or her questions. However, the current system does not work effectively or efficiently. There are too many students that are being “left behind,” but are the people put in place to lead them the solution, or the problem?

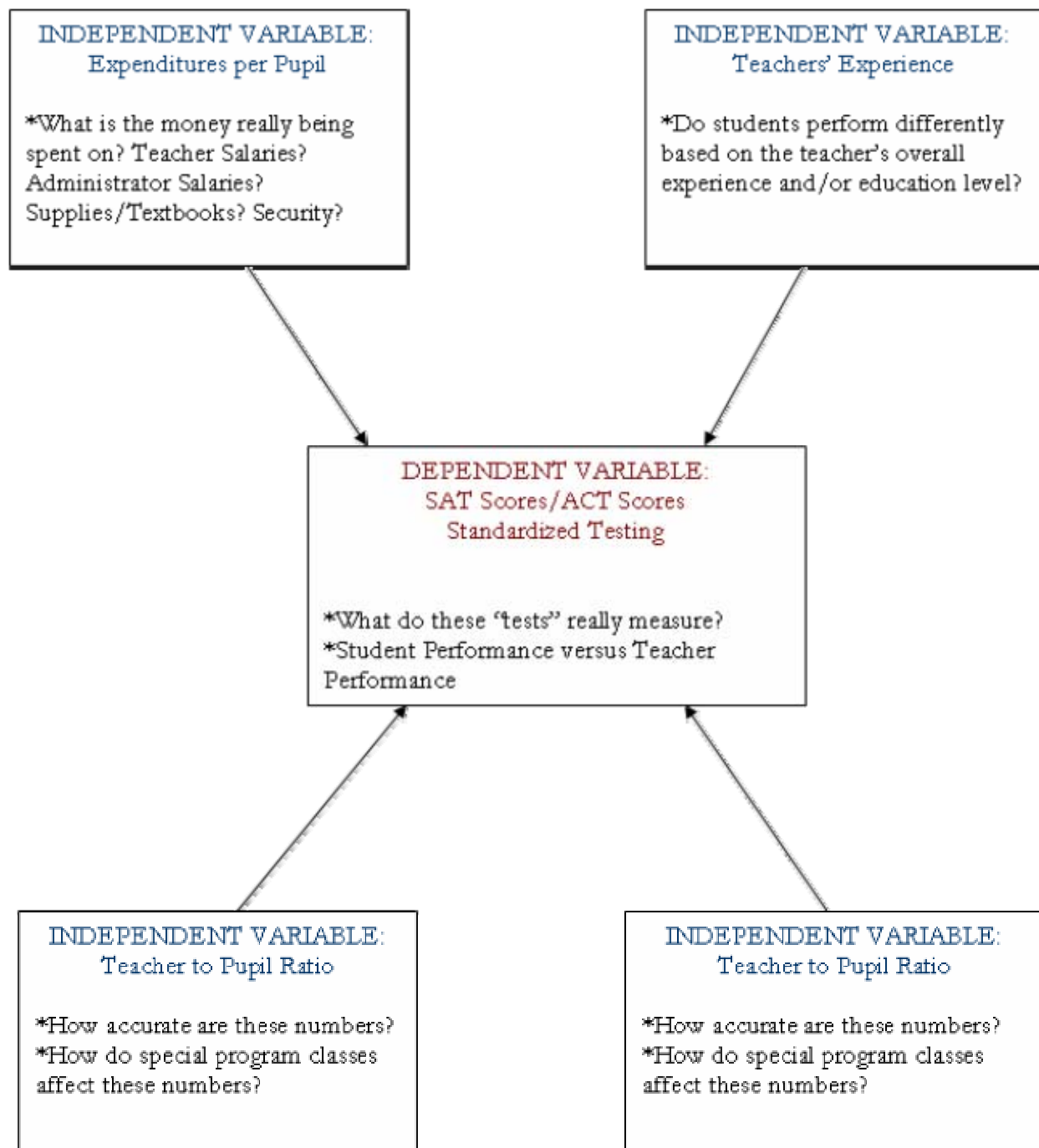


Figure 6: Plausible Alternative Explanations

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