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The Educational Case Against School District Consolidation: a Study of School District Structure

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THE EDUCATIONAL CASE AGAINST SCHOOL DISTRICT CONSOLIDATION: A STUDY OF SCHOOL DISTRICT STRUCTURE

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ABSTRACT

The consolidation of school districts in New Jersey has been discussed for the past 30 years. While most public school systems in the United States operate on a county or regional structure that serve grades kindergarten to Grade 12, New Jersey's school districts are formed mostly in conjunction with the large number of communities throughout the state. As a result, they vary in size, grade span, and per pupil spending. Since most consolidation studies have focused on gaining financial efficiencies, this study aimed to examine the more important context of student achievement. The researcher examined the strength and relationship between school district structure (defined as a high school from a K-12 district versus a high school from a non-K-12 district) with the 2011 NJ HSPA Math and Language Arts student performance percentages across the three categories, Partially Proficient, Proficient, and Advanced Proficient. Variables identified in extant literature that were found to influence standardized test scores were used for this study. Analysis was conducted in a two-tier approach. Tier 1 sought to understand the influence of school district structure on the NJ HSPA outcomes and Tier 2 examined how each of the independent variables affected NJ HSPA scores in schools from each type of structure. Consistent with other studies, socioeconomic status, as measured by DFG, was found to be significant in high schools from both district structure types.

The variables used for this study explained 49.5% of the variance in the percentage of students scoring in the Partially Proficient category in Language Arts, 56.6% of the variance in the percentage of students scoring in the Partially Proficient category in Math, and 36.6% of the variance in the percentage of students scoring in the Proficient category in Math in schools used for this study. The study also revealed

that median faculty experience and faculty mobility were not significant predictors in either LAL or Math. The results of this study imply that non-K-12 schools are able to provide more effective services for students that are in the most need. The data, when controlled for other variables, suggest that K-12 schools have a higher percentage of students scoring in the Partially Proficient category in both Language Arts and Math on the New Jersey High School Proficiency Assessment, while schools that are part of non-K-12 districts had higher percentages of students scoring in the Advanced Proficient category.

The concept of fewer (and larger) school districts equating to better efficiencies will probably be discussed and pressed further upon local school districts as economic conditions continue to worsen for taxpayers in the state of New Jersey. Indeed, some consolidations or mergers may result in financial efficiencies for those school districts; however, the results of this study suggest that it may not be as favorable in student performance outcomes.

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CHAPTER I

INTRODUCTION

Background

Barber (1992) points out that the goal and purpose of public education is to teach the general population the skills needed to live responsibly in a democratic society. Both John Dewey (1927, 1954) and Etzioni (1993), in their advocacy of democracy, also knew the importance of education to the success of a society. Even Thomas Jefferson validated this view with his linkage of education and democracy through his writings on Virginia to James Madison (1787) when he noted that in order to preserve liberty, we have to educate and inform the whole mass of people. Yet, the Constitution makes no mention of public education. The Tenth Amendment gave state governments their traditional power over schools when it declared that all powers not delegated to the federal government are reserved for the states (Kemerer & Hairston, 1990, p. 1). Though the importance of public education has been substantiated, the structure and format of how best to deliver it has been argued. In America, schools are structured at the local level and the configurations vary state to state. While most other industrialized countries have larger, national systems of education (Stigler & Hiebert, 1999), school districts in the United States vary widely. For example, the state of Hawaii operates just one school district, while Texas operates more than 1000 districts. The result has been public school districts that are structured in different ways in different states with no explanation of which is the best format. The wide variances in the different types of structure of school districts in the United States begs for the examination of the different types of structure to determine which is the best. This general lack of consistency presents a foundation for research

in regard to which school district structure is most effective, notably, in terms of student outcomes.

New Jersey and "Home Rule"

The political landscape in New Jersey is dominated by the belief that local governments are critical to each community. A report by the National Conference of State Legislatures (1997) found that public service responsibilities should be assigned to the lowest level of government to foster accountability and best meet local citizens' needs. According to Brunori (2003), this view has been broadly accepted by political leaders, academics, and the general public. There is also scholarly evidence that the public desires local government because of the democratic ideals that such government fosters (Haselhoff, 2002). Additionally, Bird (1993, 2011) asserted that there are clear efficiency gains from carrying out public sector activities in a decentralized fashion as much as possible.

While most public school systems in the United States operate on a county or regional structure that serve grades kindergarten to Grade 12, New Jersey school districts are aligned with the large number of cities, municipalities, townships, and villages throughout the state. As a result, they vary in size, grade span, and per pupil spending. Of the 590 school districts, 220 offer grades kindergarten to Grade 12, 209 offer grades kindergarten to Grade 6 or Grade 8, and 47 districts offer Grades 7-9 or Grades 9-12. Consolidating New Jersey districts has been discussed for the past 30 years. This statewide structure has resulted in a "home rule" type of government in which local residents take pride in their communities and have a hard time ceding control because it is directly related to their identity as a community. Although commonly believed that school district consolidation can lead to efficiencies, actual

consolidation of districts in New Jersey has been a political taboo because of its racial and class implications (Carr & Fuhrman, 1999). Most consolidation studies have focused on gaining financial efficiencies, while ignoring the larger, more important context of student achievement (Reock, 1995, 2002).

Government Interventions in Education

Government interventions in education have resulted in increased accountability and a narrowing definition of success (Murphy & Beck, 1994). The federal No Child Left Behind law, enacted in 2002 requires states to test their students and use the data to identify achievement gaps in demographic subgroups. Scores from these standardized tests are key factors in school decisions, as the penalty for schools that fail to attain certain proficiency rates are severe (Darling-Hammond, 2003). Governmental sanctions include implementing mandatory tutoring, the ability for students to change schools, removal of the governing body, and loss of federal funding (NCLB, 2002).

The State of New Jersey administers the High School Proficiency Assessment (HSPA) to 11th grade students in New Jersey public high schools. The HSPA is a "high stakes" test that also serves as a requirement for high school graduation. Results from the annual HSPA administration are published in the New Jersey School Report Card for each New Jersey high school. The Report Card was established in 1995 when the legislature mandated that public schools report data in one consistent format that allows for easy comparison. Schools termed "successful" are those that have the highest rates of advanced Proficient and Proficient on the HSPA.

Though standardized tests allow for analysis of student performance, there are other factors that go into how a student will perform on a given test. The foundation

of a student's public education in New Jersey begins in kindergarten and gets built upon each year until graduation at Grade 12. Each year, students move from one grade into the next, while the school district works to minimize the disruption between grades and schools. Schools help transition the students from one grade to the next by acclimating them to new surroundings, having them meet their new teacher, and providing general guidance on their grade level advancement. For students that attend districts offering grades kindergarten to Grade 12, these transitions tend to be consistent in terms of surroundings and environment. Students that go to districts offering kindergarten to Grade 6 or Grade 8 have an additional transition into an entirely new district with new leadership, policies, procedures, and environments at the conclusion of Grade 5 and Grade 7, which interrupts the education track for students and may impact student outcomes.

Configuring student populations in New Jersey to address the NCLB mandated testing process for student achievement, New Jersey school districts need to consider all aspects of the educational setting while taking advantage of economies of scale. Current research offers minimal empirical information about the relationship between grade span configuration and academic achievement (Anderman, 2002; Bickel, Howley, Williams, & Glascock, 2000; Coladarci & Hancock, 2002; Cox, 1996; DeJong & Craig, 2002; Hough, 2005; Howley, 2002; Paglin & Fager, 1997; Reeves, 2005; Renchler, 2000, 2002; Stevenson, 2006; Vaccaro, 2000; Wihry, Coladarci, & Meadow, 1992). The research available focused on case studies within specific schools or school districts (Coladarci & Hancock, 2002). Though a researcher can draw inferences from these studies, a deeper understanding of the problem calls for research and empirical data taken from larger samples. Additional

related research considers grade configurations and transitions (Alspaugh, 1999; Franklin & Glascock, 1996; Hopkins, 1997; Howley, 2002; Paglin & Fager, 1997; Reents, 2002; Simmons & Blyth, 1987) but leaves out the transition between schools that lie in the same educational track but are in different districts.

Purpose of the Study

This study examines one point in time with the intention of creating a foundation for the expansion of research into school district structure and student achievement. Given discussions on school district consolidation and the financial benefits thereof, little research has examined the structure of school districts in relation to grade-span offering and student performance outcomes. This lack of research supports the need for this study. The purpose therefore is to examine, in consideration of other explanatory variables, the influence of school district structure in relation to grade-span offering and student performance.

Statement of the Problem

The scale at which public education is provided varies across the United States. While some states have countywide or regional school districts, others have smaller, more localized, school districts. In New Jersey, public school districts are segregated along town and city lines and vary in size and grade-span configuration. The structure of local government makes New Jersey a prime target for school district consolidation that would change the organizational structure of its school districts. There are currently 267 regular public school districts that administer the New Jersey HSPA. Of those, 220 offer a comprehensive grade span of kindergarten to Grade 12. The remaining 47 districts span from Grades 7-12 or 9-12 and are fed from 209 districts that offer only grades kindergarten to Grade 6 or Grade 8. This creates a

situation where students in the 47 non-K-12 districts transition through multiple school districts during their K-12 education, while students in the 220 K-12 districts do not experience district transitions. Every school district in New Jersey has its own board of education, superintendent, curriculum, vision, mission, policies, procedures, climate, environment, facilities, and other variables. This begs the question of how do the varying school district structures in New Jersey impact student performance on the 2011 New Jersey High School Proficiency Assessment?

Research Questions

The purpose of this study is to explore the effect of school district structure on student achievement as measured by the New Jersey High School Proficiency Assessment. The overarching research questions that guide this study are as follows:

1. To what extent is school district structure an independent predictor of student outcomes relative to other structural factors that have been identified by previous research?
2. To what extent do the factors that affect student outcomes vary in K-12 districts versus districts that offer limited grades of 7-12 or 9-12?

The researcher sought to answer the following research questions as measured by the NJ HSPA:

1. Do students in K-12 school districts perform significantly different than students in non-K-12 districts on the NJ HSPA Language Arts?
    a. Which variables have a statistically significant influence on NJ HSPA LAL Partially Proficient scores? How do they differ in K-12 and non-K-12 districts?

b. Which variables have a statistically significant influence on NJ HSPA LAL Proficient scores? How do they differ in K-12 and non-K-12 districts?

c. Which variables have a statistically significant influence on NJ HSPA LAL Advanced Proficient scores? How do they differ in K-12 and non-K-12 districts?

2. Do students in K-12 school districts perform significantly different than students in non-K-12 districts on the NJ HSPA Math?

   a. Which variables have a statistically significant influence on NJ HSPA Math Partially Proficient scores? How do they differ in K-12 and non-K-12 districts?

   b. Which variables have a statistically significant influence on NJ HSPA Math Proficient scores? How do they differ in K-12 and non-K-12 districts?

   c. Which variables have a statistically significant influence on NJ HSPA Math Advanced Proficient scores? How do they differ in K-12 and non-K-12 districts?

To answer these questions, this quantitative study employed a hierarchical linear regression model to determine the relationship between the dependent and independent variables. Quantitative analysis will reveal the relationship between the factors presented on the NJ School Report Card and student outcomes on the New Jersey HSPA.

Significance of the Study

The intent of this study is to examine district grade span configuration in relation to student achievement and, more specifically, whether transitions between different school districts affect student outcomes.

Rising property taxes in New Jersey have resulted in budget caps and a general reduction of state financial aid to local school districts. As such, national trends show that many states have consolidated school districts into regional or county school districts for financial benefit, though few have examined the structure of school districts in relation to student outcomes. The state of New Jersey has been looking at consolidation of its school districts for the past 30 years. The implications of consolidating school districts affect the future of New Jersey and its citizens by the changes in how property taxes are calculated, who calculates them, and the loss of community schools within city and municipal lines. Changes to the structure of public education have the potential to change the network and scope of relationships forever and have a lasting effect on the future of our society, while smaller districts may not be able to offer a more diverse array of courses that can have an impact on future student outcomes. Community landscapes will be redefined if schools and school districts are consolidated. Arguments against consolidation have led to the assumption that there will always be a "winner" and a "loser." Communities may suffer significant trauma about losing control of their school district or be led to feel inferior when multiple communities of different wealth are combined (Peshkin, 1982). The large number of communities that believe their school districts are adequate and successful outnumber those that believe consolidation would improve student achievement and cut costs. This amplifies the issue of forced consolidation into a political hot button and reinforces the need for studies at the local level.

The most important factor to consider is the effect on student outcomes. The analysis of student outcomes between New Jersey high schools that are part of a K-12 district and New Jersey high schools that are part of non-K-12 school districts can aid in the discussion of school district consolidation in New Jersey. The value of this research is that while it cannot establish causal relationships with any degree of certainty between school district structure and student outcomes, it may provide taxpayers, educators, and lawmakers important information regarding the best way to structure public education in New Jersey.

Limitations of the Study

The limitations of this study center on the uniqueness of the operations of the different school districts in New Jersey. Although this research can identify the possible statistical effect school district structure may have on student achievement, it cannot conclude that school district structure alone will result in, lead to, or cause increased student outcomes. Like any organization, each district has its own culture, techniques, and processes.

The New Jersey Department of Education mandates uniform reporting among all of its school districts. The data behind those reports are derived in different manners. First, this study does not account for the mobility rates of students throughout their entire educational career. The New Jersey Department of Education does track mobility rates, though only on an annual basis. Second, teaching styles and methods vary among teachers. Sit in two second-grade classrooms, and you may experience different versions of the same lesson. Because they are difficult to measure, teaching styles are considered neutral for this study. Third, this study examines the results of the NJ HSPA only for the school year 2010-2011. This gives

data and results for one point in time. Fourth, this study does not include charter schools, county vocational schools, or county special education districts. Finally, this study is based solely on quantitative measures with little consideration for student ages, varying curricula, teaching methods, levels of technology, and condition of facilities. The data derived for this research are based on New Jersey measures of achievement, specifically the HSPA. Any design flaws or issues with HSPA testing are not considered in this proposal, nor are possible flaws in the public data provided by the New Jersey Department of Education.

This study relies on quantitative data. Historically, much of educational research is done with the use of surveys. Relationship generalizations are not optimal for analysis of data collected through surveys. A substantial amount of research in education is based on surveys to study relationships and make comparisons. One can assume that the survey instrument provides quantifiable data; however, it is subject to source error. Respondents may not remember information related to a previous time accurately. With the school cycle based on a 10-month year, the turnover of students makes it difficult for some to remember the general environment during the data collection time. Answers may be given with good intention, although the accuracy is difficult to check. This proposal relies on statistical data. There are no qualitative measures.

Theoretical Framework

The National Commission on Excellence in Education released *A Nation at Risk* in 1983. The recommendations of the report included higher salaries for teachers, increased educational time for students, increased expenditures for textbooks and instructional materials, and school district reorganization and consolidation. In

2002, No Child Left Behind was signed into law by then President George W. Bush. Known as NCLB, it required standardized testing for schools and instituted a process for tracking scores and grading schools. These standardized tests are known as "high stakes" tests. New Jersey's public education system is fragmented into many school districts varying in size and grade-span offering. Discussions on consolidating New Jersey school districts have been around for years.

In 1995, Ernest Reock from the Rutgers University Center for Government Services released *Occasional Paper Series #3*, outlining the cost impact of consolidating school districts in New Jersey. He followed it up with *Occasional Paper Series #4* (1995), detailing a plan for consolidation of school districts in New Jersey, reducing the number to 254 from 612 and making all districts kindergarten to Grade 12. His report shows that the major emphasis of school consolidation is financial and based on student enrollment and proximity. Discussions about consolidation usually surface during tough economic times when taxpayers and legislators are looking for ways to cut costs and save money. With the introduction of NCLB, school choice, vouchers, and charter schools, public school districts in New Jersey are under tremendous pressure to perform with limited resources. Budget "caps" have led to an environment in which school districts in New Jersey are continually seeking more efficient ways to provide services to their students.

To a school leader, there is theory that the sooner one gets the student, the sooner one can begin to educate him or her under the school district's domain. This is consistent with the theory of "early intervention." Addressing student needs early on should result in better student performance outcomes later, as well as less total costs to address those needs. For districts that are not full kindergarten to Grade 12

districts, getting students from other school districts may present challenges, as additional resources may be needed to level the playing field among all students in an effort to improve student outcomes. Although some reports have shown that an advantage to consolidation is enhanced curriculum, improved student achievement has yet to be studied.

Definition of Terms

AP - Advanced Proficient

ASSA - Application for State School Aid in which school districts report the number of students enrolled

AYP - Adequate Yearly Progress. An NCLB requirement that all students meet state determined proficiency levels. New Jersey's goal is 100% of students must score in the Proficient or Advanced Proficient level by 2014 (USDOE, 2012).

DFG - District Factor Group. An NJDOE composite statistical index that models the socioeconomic status of a district. It encompasses seven indices: percentage of population with no high school diploma, percentage with some college, occupation, population density, income, unemployment, and poverty (NJDOE, 2012).

Consolidation - The merging of two or more school districts to form one larger school district

Enrollment - The enrollment counts for the districts in this study are the actual number of students as reported on the ASSA of October 2011

Enrollment by Grade - Enrollment is the October 15 count as reported on the department's annual Fall Survey collected from each school. The enrollment is reported by grade level for regular and charter schools. For Special Services school

districts and Special Education schools, the enrollment is reported by class description.

Faculty Attendance Rate - The average daily attendance for the faculty of the school. It is calculated by dividing the total number of days present by the total number of days contracted for all faculty members.

Faculty Mobility Rate -The rate at which faculty members come and go during the school year. It is calculated by using the number of faculty who entered or left employment in the school after October 15 divided by the total number of faculty reported as of that same date.

LAL - Language Arts Literacy

MA - Mathematics

Non-operating districts - Districts that have a board of education but no operating schools. The students in the district attend neighboring schools.

NJDOE - Acronym for the New Jersey Department of Education

NJSRC - Acronym for the New Jersey School Report Card

Home Rule - Having local control of a school district

HSPA - High School Proficiency Assessment. A test given to all 11th grade students in the state of New Jersey.

Non-K-12 districts - School districts that do not offer full grade span of kindergarten to Grade 12

P - Proficient

PP - Partially Proficient

K-12 Districts - School districts that offer grades kindergarten to Grade 12 within the same district.

State Assessments - State administered standardized tests

Student Mobility Rate - The percentage of students who both entered and left during the school year. The calculation is derived from the sum of students entering and leaving after the October enrollment count divided by the total enrollment.

Taxpayer's Guide to Education Spending (formerly, the Comparative Spending Guide) - New Jersey's compilation of financial data of public school spending

State Aid - The portion of revenue in a local school district budget that comes directly from the state of New Jersey, not the local tax levy

Successful High School Districts - Schools that have the highest percentage of students scoring Advanced Proficient and Proficient on the NJ HSPA

Countywide Districts – School districts formed within the boundaries of county lines

NJ HSPA (High School Proficiency Assessment) - A New Jersey state-administered standardized test measuring proficiency at the high school level given to all students in Grade 11

Student Outcomes - Reporting of results on the New Jersey High School Proficiency Assessment reported as Advanced Proficient, Proficient, Partially Proficient

Chapter II

REVIEW OF THE LITERATURE

History and Evolution of School District Structure

In the 1700s, the establishment of township as the unit of local school administration was influenced by land grants originating in Ohio and neighboring states, while at the same time townships were formed as school districts and served as functions of the towns (Dawson, 1951). Further evidence of local control of schools can be traced back to 1789, when a Massachusetts law permitted the creation of school districts. In the early 1800's additional laws established funding for schools through local taxes and the creation of local boards of education with the power to tax and the responsibility to oversee the local school operations (Cubberly, 1919; Dawson, 1951; Morphet & Johns, 1967). In 1869, legislation for free public transportation further paved the way toward consolidation. Immediately, differences in socioeconomic status began to segregate the school systems. Some districts were able to raise taxes easily, while others had a more difficult time; the system created unequal resources and unequal interests to support education.

Local control is defined by Knezevich (1975) as the "placement of policy making authority, within legislatively defined limits, for the direct operation of education with the people or their designated representatives within a legally defined civil subdivision of the state known as the school district" (p. 277). A rationale for localism is that it promotes democratic values and practices (Frug, 1980). According to Wolman (1997), the basis of American democratic theory is to reflect the will of the people, and that direct individual participation in local government is the best

means to achieve this goal. This local control led to the quality of education varying greatly from one district to the next (Cubberly, 1919, Knezevich, 1975, Miller, 1972; Morphet & Johns, 1967). Since school districts began as a function of the town units of government, the demands for public schools were not uniform; as a result, the idea to permit neighborhoods within towns to set up separate districts for maintaining schools was born (Cubberly, 1919; Dawson, 1951; Morphet & Johns, 1967). Until the 1850s schools were operated with little or no control from outside agencies (Cubberly, 1919; Hinsdale, 1990; Steifel & Holman, 1992), when Horace Man pioneered a change to centralize schools. Mann's interest in politics and law, combined with his skills as a speaker, propelled him into the Massachusetts legislature, ultimately becoming Senate President. As Senate President, he became aggressively involved in the movement to cluster control of education in the hands of the state (Brouillette, 1999). Horace Mann and the education reformers' primary purpose was to bring local school districts under centralized town authority in order to achieve uniformity among the towns through a state agency.

Mann adopted the Prussian educational system as described by French philosopher Victor Cousin in his 1833 book *Report on the Condition of Public Instruction in Germany, and Particularly Prussia.* The Prussian education system is a model of mandatory education, in which all members of a country must attend school up to a certain level. Schools were established, supported, and administered by a central authority (Cousin, 1833). The state supervised the training of teachers, attendance was compulsory, parents were punished for withholding their children from school, and efforts were made to make curricula and instruction uniform. Cousin believed that this system was both efficient and effective and used it as "a prime

example of the superiority of centralized authority" (Brouillette, 1999, p. 9). Mann encountered resistance, as even then, the public did not favor centralized control of public schools. Therefore, Mann turned his focus from centralizing school control to dictating what would be taught in schools. In 1869, legislation was enacted in Massachusetts that abolished the district system entirely and led to a reorganization of the public school districts. The model for American schools called for a transfer of school control from familiar rule to one of civil- or state-based authority (Butts & Cremin, 1953). By 1890, the ideas of consolidation had spread to other states (Cubberly, 1919).

As towns and cities continued to develop through the years, school districts became consolidated and evolved into larger school districts. For many of the Southern states, the prevalent form of government control was at the county level; therefore, it seemed to make sense to consolidate school districts by county. In the states of Illinois, Michigan, Iowa, and Wisconsin, districts were merged into larger districts, though not specifically by county. Small school districts with small student populations were seen as having inadequate curricula and were associated with limited educational opportunity (EPC, 1938). The EPC (Educational Policies Commission) report noted that the current structure of schools failed to adapt curriculum to the varied abilities of the students. The EPC also noted that in order to provide for adequate educational opportunities, it would require larger student populations, which would require consolidation of those smaller school districts.

In 1915, secondary school enrollment was increasing the number and diversity of high school students. In 1918, the *Cardinal Principles of Secondary Education*, a national report by the Commission for the Reorganization of Secondary Education,

called for a new emphasis that would take into account individual differences, goals, attitudes, and abilities. The report stated that the comprehensive high school can provide for differentiated education to meet individual needs by means of curriculum variables (electives), while also providing for curriculum constants or core studies to meet the unifying functions of education for American democracy (p. 24). The report went further, warning of the consequences of special interest schools and limited comprehensiveness.

The foundation of the *Cardinal Principles of Secondary Education* was the concept of democracy as defined by Bagley (1918). In 1917, two weeks after Woodrow Wilson asked Congress to declare war, he formed the Committee for Public Information (CPI). President Wilson justified the war as a war for democracy and wanted to sell it to the American people. Bagley was one of the members of the CPI whose responsibility was to edit the *National School Service* (NSS), a bulletin designed to create favorable attitudes about nationalism and democratic citizenship among students in public schools. Bagley's definition of democracy centered on a new concept of morality and good character, which was eventually coined "social efficiency" with two major components: cooperation and equality of opportunity. In a speech to the Harvard Teachers Association in 1916, Bagley told his audience that the United States would be "preeminent in power and wealth." He argued that this would require educational policies in terms of national life rather than in terms of sectional, local, class, and individual demands and interests (Spring, 1992). Bagley believed that democracy was primarily defined as a form of social organization, and local control of educational policy was a major hindrance in adapting the public schools to the needs of the United States as a world leader (Spring 1992). In 1918, in a speech to

the National Education Association, he spoke against localism of education policy and favored the federal government stepping up to lead national educational policy, including federal financing of the public school system.

As the twentieth century progressed, society endured many changes that transformed it into an industrial economy. Invention of machinery reduced the need for manual labor and created massive shifts in population. The result was increased demand for more complex educational programs and a more comprehensive curriculum (Miller, 1972). Additionally, vocational programs began to emerge as the demands of industry dominated the requirements of the workforce. The merging of school districts was seen as a way to improve the quality of education and reduce operational costs.

In 1939, a study by Alves and Morphet for the U.S. Office of Education, reviewed the principles and procedures desirable in the organization of local school districts. The report, titled *Principles and Procedures in the Organization of Satisfactory Local School Units*, noted that the only basis upon which a state should assume its major obligations in school district organization leadership is in the development of long term planning.

In 1945, *The Forty Fourth Yearbook of the National Society for the Study of Education*: *American Education in the Postwar Period, Part II, Structural Reorganization* noted the following on consolidation of school districts:

1. Consolidation of school districts is most easily accomplished when there is the central need for and incentive of a new and better school building. The frequently hasty and partial planning done by local school officials has in

some areas stopped progress toward reorganization of school districts for a generation or more.

2. It is essential that vocational-education opportunities be enlarged. Such enlargement will come in two ways. Some areas having no facilities will establish programs. Other areas will make arrangements to share in the benefits of existing programs, which will be brought within their reach. Rural people will obtain certain types of vocational education through further consolidation of school districts.
3. The state should plan its school program, including the provision of an adequate administrative structure, coordinately with plans for improving other aspects of the state program. In order to create an intelligent and sympathetic understanding of the problems and issues involved in consolidation, the state should take measures to provide the people with adequate information regarding both plans and procedures for reorganizing school units and anticipated outcomes.
4. Education is committed to the maintenance and improvement of American democracy. The people expect and have the right to demand efficiency in educational administration. Where it can be seen that net advantages may be secured in the consolidation or co-ordination of local administrative units without impairing the unique services of education, such consolidation or co-ordination should be effected. Since one of the major functions of education in a democracy is to seek and make known the truth, the responsible educational agency, be it state or local, should be protected from dominance by any partisan organization in power. While

the people should always retain the right to determine through constitutional and legislative provisions the broad purposes and minimum standards of education, the policy of giving school boards considerable independence in matters of detailed procedures, administrative policies, and finance should be continued. The procedure for reorganization of local school units must be democratic and based on a consideration of the rights and welfare of the people.

5. The second commonly recognized shortcoming of the public works program in relation to schools is that it involved direct dealings of the federal government with local school districts without the establishment of any significant relationship to state educational authorities. Not one of the 115,000 school districts, from those having one-room schools to large cities having hundreds of schools, was precluded from making its wants known directly to the federal government. It often happened, however, that project applications were made by local school districts without their having taken into account the needs of adjoining districts or the possibilities of joint planning.

New York State was one of the first to attempt consolidation of school districts (Morphet, 1941). In the early 1900s, superintendents in New York were authorized to abolish their school districts and annex them with contiguous districts in order to create larger units. Sayres (1960) investigated 100 communities where efforts to centralize had occurred during that time period and also studied the observations, documentation, and interview records of the New York State Education Department during the same time. He identified certain recurring reasons for

resistance to centralization in New York. They were concerns associated with increased cost, prospective loss of control, and pupil transportation.

Between 1920 and 1943, there was pressure for school district reorganization and legislation that led to the reduction of the number of school districts from 10,176 to 5,857 (Malik, 2007). Reorganization of small districts into larger ones accounted for a decrease in the number of districts by 98% (Wochner, 1948, p. 26). Wochner (1948) found that the goal of school district organization in most states was for a continuous elementary and secondary public school program in each district (Wochner, p. 26). In 1923, North Carolina established county and city districts; in 1933, West Virginia abolished all local school districts and set up county districts; in 1934, Kentucky required the county boards of education to abolish school districts with fewer than 250 students; and in 1941, New Mexico authorized the county board of education to consolidate school districts with a vote of the people (Dawson, 1951). Wochner (1948) reported that the state of New Jersey did engage in a program to reduce the number of local school districts but not through formal legislation (p. 25).

In 1921, T. E. Sedgwick released *York County, Nebraska, and Its People*. The text proposed a new law dealing with consolidation of school districts. The law proposed that where a high school district exists, a consolidated district can be created if 51% of those living outside the high school district file a petition and the high school district board consents. If the costs end up being more for the individual taxpayer, it is because he gets more for his money. It gives him a four-year high school course in addition to the eight grades. Sedgwick (1921) further defines the purpose of consolidation of rural schools as giving the country child educational advantages by providing well organized, well equipped, and properly conducted rural

schools, with enough children in the classes to make the work interesting and vital, enough territory to make the district efficient, financially well-trained and efficient teachers, a proper system of gradation and classification of pupils, longer recitation periods, and an enriched course of study.

In 1945, Greene and Meadows outlined the factors that stimulate school district reorganization and consolidation into more adequate school districts in *American Education in the Postwar Period.* First, successful school district consolidation depends on educational leaders clearly and accurately communicating the needs of schools. Also, they pointed to the challenge of financing small inefficient districts because of the fight for tax dollars. Greene and Meadows (1945) warned that students from these smaller districts would not be able to participate constructively in post-war American life (p. 138), and they warned that "strict adherence to local autonomy has been a definite obstacle to the attempt to provide a reasonably adequate program for every child" (p. 119). They believed that a satisfactory local school district should be large enough to provide an adequate educational program for all its citizens through the 12th grade. In their report, Greene and Meadows (1945) outlined the following conditions to stimulate a local community's interest in school district consolidation:

1. Recognition by the local community that it is unable to support effective schools
2. Increased competition from other educational facilities
3. Improved roads that make efficient pupil transportation possible
4. The possibility of enriching the educational program with a greater number of pupils

5. A human resource shortage and the demand for greater efficiency and economy on the part of schools
6. Increased demands for vocational and other courses
7. Competition with fellow Americans from areas that provide better schools.

Greene and Meadows (p. 126) also proposed that if a state organization was to be formed to centralize public education, it must include the following:

1. One central educational agency--There should be one central educational agency responsible for guiding the organization, administration, and supervision of all tax-supported education within the state. This agency should consist of a policy-forming board functioning through a chief state school officer and his professional staff, these constituting the state department of education.
2. Delegation of authority to local school units--The state should delegate responsibility for the direct administration and supervision of education onto local school administrative units but should provide easy methods for reorganizing small local units where needed.
3. State support--The state should establish adequate minimum foundation programs of education for every child, this program to be maintained either through state functions or, preferably, through state and local funds combined and should establish necessary standards for local participation in such a program.

Greene and Meadows (p. 149) further noted that "ineffective and cumbersome units of school organization constitute a threat to democracy in that such units not only fail to serve the educational objectives of the state but actually help to confuse

the people on important issues pertaining to the nature of a democratic school system. The procedure for reorganization of local school districts must be democratic and based on a consideration of the rights and welfare of the people."

School District Structure Post-World War II

During the 1940s, the state of Illinois had the largest number of school districts. Aided by legislation and completed with the help of local committees, from 1943 to 1950, over 6000 of the state's 12,000 school districts had been absorbed by and into larger school districts (Cooper, 1950, p. 19). Illinois lawmakers passed an education reform package in 1985 that required the consolidation of schools and school districts. The goal was no fewer than 1,500 students in any district with kindergarten through 12th grade. Immediately, there was a public outcry and months later the Legislature was forced to repeal the law. However, calls for consolidation in Illinois continue. On February 17, 2011, in his budget address to a joint session of the House and Senate, Illinois Governor Pat Quinn proposed school consolidation and eliminating regional education offices. Governor Quinn believes consolidation of Illinois' 868 school districts will lower administrative overhead, improve efficiency, and save taxpayers $100 million.

Carpenter (1948) suggested that care must be taken in regard to the reformation or reorganization of the school board. He stressed the importance of locating schools within community boundaries to preserve the local culture, community, and control. Wochner (1948) reported that New Jersey was one of 27 states interested in school district consolidation, but New Jersey never took legislative action to do so. Of those 27 states, many were looking to consolidate because of teacher shortages, small district financial problems, and inadequate curriculum

(Conant, 1959; Dawson, 1951). These same 27 states pursuing consolidation reported that most of their new school districts were not based on community boundaries. Meanwhile, in New Jersey, community boundaries had formed the school district boundaries for all except the regional high schools (Wochner, 1948). As such, between 1950 and 1983, the number of school districts in the United States declined from 83,718 to 15,747, with 3.8% of the remaining school districts located in New Jersey (U.S. Department of Education, 2005).

James B. Conant was a principal supporter of school district consolidation following World War II. When the Soviet Union successfully launched the Sputnik spacecraft in 1957, the American public school system came under scrutiny for not preparing American children for the future. The Soviet's launch was a direct blow to the lack of math, science and engineering programs in American schools. In his study for the Carnegie Corporation (1959), Conant presented data showing that comprehensive high schools can attain levels of achievement equal to levels achieved by specialized high schools (Tanner & Tanner, 1995). According to Conant, a comprehensive high school should have at least 100 students in each grade level in order to offer the best possible curriculum. He proposed that the elimination of small high schools would result in increased cost effectiveness and greater curriculum offerings (Conant, 1958). Just before Conant issued his report in 1958, the American Association of School Administrators, working in conjunction with the Educational Policies Commission (EPC), issued a report suggesting that small secondary schools may not be able to offer the wide range of math and science classes needed to keep the U.S. educational system competitive. Additionally, the report strongly suggested that progress in science is as important as the promotion of American democracy and

the preservation of peace (p. 5). The EPC held that education should be diverse enough to enable every American child to rise to his or her own best potential. The ECP (1958, p. 6) iterated its position in the following statement:

> When American education is reappraised, its unique connection with American democracy must be understood. The democratic faith created the American pattern of education. The American belief in free, public, universal education is rooted in two fundamental ideas: (1) that if popular government is to succeed, the people must be enlightened; and (2) that equal opportunity must be open to all. Application of these ideas has led to high school education open to all and advanced education for a larger percentage of the people than in any other nation.

The EPC further stated that the welfare of our nation demands the best possible education of all students for our country. The report explained that the quality of American schools is uneven and that there were differences in ability to pay for education and individual beliefs in what schools should accomplish. The EPC urged small, weak school districts to consolidate into larger, more effective units and that this was the only way to provide the diverse curriculum needed for the success of American democracy. In reference to the need for local control, the EPC (p. 8) stated "Excessive localism in state legislatures, the limitations of the traditional tax sources for education, and the age old propensity of local governments to delay have blurred the issues and prevented citizens from understanding the choices necessary to guarantee education in advance." One of the key findings of the EPC report noted that the design of America's schools is the result of decisions made by previous generations. By following that model, schools would never catch up to addressing the

needs of students for today and beyond. Additionally, the legislative process is slow and has impeded the necessity for change.

In *Brown v. Board of Education* (1954), the United States Supreme Court overturned *Plessy v. Ferguson* (1896) and legally ended segregation in schools. During that same year, the state of New Jersey sought to encourage greater efficiency in public education and more thorough services to all students and offered financial incentives for school district consolidation. But since it was done without mandates or sufficient incentives, while the total number of school districts nationwide declined from 83,642 to 15,387 between 1949 and 1990, New Jersey's school districts actually increased from 550 to 603 (Public Affairs Research Institute of New Jersey, 1996). A 1969 study by Ruth Mancuso, called the *Mancuso Report*, recommended that all school districts be organized on a kindergarten to Grade 12 basis, with a minimum student enrollment of 3,500 (Mancuso, 1969).

During the 1990s reports began to question the viability of consolidating schools. The New Jersey Assembly Republican Policy Committee Task Force (1990) wrote that school district consolidation must be approached cautiously, that anticipated savings might not materialize; and that, under prevailing law, district consolidation was irreversible. The task force recommended greater service sharing among existing school districts as an alternative to consolidation. Another state report by the Department of Education (1992) highlighted the obstacles of consolidation. They noted the following:

1. Current method of tax apportionment among constituents districts
2. Potential loss of state aid
3. Initial investment for start-up costs

4. Assumption of significant new debt or pre-existing debt
5. Possible increased transportation costs
6. Difficulty of withdrawal from regionalized districts
7. Costs of a regionalization study and difficulty getting support for district mergers

Source: New Jersey Department of Education, Division of Finance, Bureau of Planning Research, 1992.

In 1995, Ernest C. Reock, Jr., published *Occasional Paper Series #3*, examining the cost impact of the creation and consolidation of school districts over the past 40 years. He followed it up with *Occasional Paper Series #4*, suggesting a plan for consolidating existing districts and used conclusions from *Occasional Paper Series #3* to estimate possible cost savings. Reock did find that districts offering K-12 grades showed evidence of reduced costs. In 2002-2003, Reock updated his study with more recent data. Reock's proposal reduced the number of school districts from 574 to 264, with each district offering full K-12 grades. Neighboring state Pennsylvania has been successful consolidating school districts since after World War II. The legislature has accelerated consolidation with the passage of two statewide pro-consolidation laws in the 1960s, resulting in a decline from well over 2,000 districts pre-war to 742 by 1968 and a continual decline to 501 districts today (Pennsylvania Historical and Museum Commission, 2008; Post & Stambach, 1999).

The New Jersey Task Force on School District Regionalization (1999) concluded that school district regionalization does not automatically garner financial savings, nor does it improve education. The study noted that costs may actually increase, mainly in teacher salaries and transportation. Another significant finding

showed that small school districts can produce excellent results and should not be regionalized just because their enrollment falls below a certain number. The findings were consistent with an earlier study by the New Jersey Regionalization Advisory Panel led by Michael Bibb (1998). The panel noted that successful practices in one district will not necessarily work in all districts and therefore it may not make sense to apply them statewide. The study pointed to political consequences if consolidation was forced upon districts: "Mandates that require consolidation or shared services in all districts meeting specified criteria create the risk of political backlash (which) would create conditions that are potentially worse than the current system" (Bibb, 1998). In addition, any system that forces districts to consolidate has the potential to create antagonism between people and communities, which would undermine the transition. New Jersey voters have not supported consolidation in the past. In the last 30 years, there have been four consolidations completed by involved communities: Bordentown Regional, School District of the Chathams, Great Meadows Regional, and the Somerset Hills School District.

Recent research on district size and achievement suggests that bigger is not necessarily better or more cost effective. A 1994 study of 38 states by Walberg and Walberg found that district size was inversely related to achievement on the National Assessment of Educational Progress (NAEP). Furthermore, their data revealed that large districts do worse (p. 22). Fowler and Walberg (1987) found that when SES was taken into account, smaller districts in New Jersey achieved at higher levels than larger school districts. Freidkin and Necochea (1988) also found that when SES is accounted for, smaller school systems in California had a positive influence on student achievement.

Financial Issues

In 1947, New Jersey public education was being financed almost exclusively from local revenues. Many school districts lacked a sufficient property tax base to fund a "thorough and efficient" education. Over the next 40 years, the state increased its financial support to local school districts in order to meet its constitutional requirement of a "thorough and efficient" education for all children. Feeling the strain, both at the state and local levels, in the mid 1970s, the state introduced budget caps and enacted the Public School Education Act, dedicating proceeds of an income tax to fund public education. In the 1990s the Quality of Education Act again increased the state's share of educational funding and also tightened school budget caps (Cannon, 1998). In 2004, the legislature passed S-1701, with the objectives being short-term property tax relief and increased accountability to local taxpayers. Further attempts to control rising property tax rates were instituted by Governor Jon Corzine in 2007, when he signed legislation putting a 4% cap on a school districts tax levy. Governor Chris Christie further reduced the cap to 2% in 2010 and eliminated many of the exemptions from Corzine's legislation.

Public education's dependence on property tax shields it from cyclical economic downturns. If home values go down, the tax rate goes up; the net dollars do not change. In 2005, the Lincoln Institute of Land Policy Partnership Project outlined five proposals to "level the playing field" of property taxes associated with public education. Proposal number three was worded, "To collect all school taxes at a county rate and consolidate school districts at the county level" (Jones & Perrotta, 2006). Specifically, the proposal entailed replacing local school property tax with a county tax and consolidation of all New Jersey school districts into 21 countywide

districts, essentially sharing the tax. Under the proposal, the county would set both the budgets and tax rates for the schools within its county. The county would have the power to realize administrative expenses, encourage shared services, eliminate duplicative services, and take advantage of economies of scale.

Jones and Perrotta's (2006) proposal looked at the educational equity by making such a move. Of the 103 poorest municipalities, 52 would see a decrease in property taxes, while 51 would see an increase. Of the 107 wealthiest municipalities, 49 would experience decreases, while 58 would see an increase in property tax. The remaining municipalities would experience a net decrease in property tax (Jones & Perotta, 2006). Countywide districts would not create inequity in the poorest and wealthiest districts; however, it would result in a property tax increase for nearly all of the poorest (formerly known as Abbott) districts (Jones & Perotta, 2006).

NCLB

Over the past 30 years, the federal government has expanded their role in education in public education policy (Firestone, Fuhrman & Kirst, 1989). In 1965, the federal government laid the foundation for public education policy with the Elementary and Secondary Education Act (ESEA), which was updated in 2001 to No Child Left Behind (NCLB). Each state was now required to conduct yearly assessments of their students in order to evaluate school performance (Cuban, 1993). The law increased accountability for student outcomes, though it fell short of dictating how these outcomes are measured and interpreted. Each state designs its own curriculum, writes its own tests, and determines its own cutoff for proficiency. This appearance that a student in Texas may be "succeeding" but that same student would not be "succeeding" in Florida may be misleading. Different criteria measuring

student outcomes has created an uneven picture of national education. It also increased the focus on the economic achievement gap and the financial burden on schools with low-income families.

The National Education Policy Center Study on Consolidation 2011

A February 2011 study by the National Education Policy Center recommends that decisions to consolidate or deconsolidate should be made on a case-by-case basis, as in times of crisis, they may serve a public relations purpose; but they are unlikely to be a reliable way to obtain substantive fiscal or educational improvement (Howley, Johnson, & Petrie, 2011). The study defines consolidation as a strategy used by business management to reduce costs and increase uniformity (Howley, Johnson, & Petrie, 2011). For a school district this would mean either combining school districts, closing schools, and/or building larger schools. James Conant, in his book titled *The American High School Today* (1959) argued that high schools needed at least 400 students to offer a comprehensive curriculum. Howley, Johnson, and Petrie (2011) point out that statewide mandates that dictate school district size are arbitrary and unworkable. There are other ways to improve fiscal efficiency or educational services. Howley, Johnson, and Petrie (2011) provide examples of cooperative purchasing agreements, combined fiscal services, enhanced roles for educational services agencies, state regulations that account for the needs of small districts and schools, recruitment and retention of experienced teachers for low-wealth districts, distance learning options for advanced studies, smaller class sizes for young students, and effective professional development programs. Additionally, their study recommends investigating deconsolidation as a means of improving fiscal efficiency and improving learning outcomes (Howley, Johnson, & Petrie, 2011).

The "home rule" practice allows for social development, a sense a community and identity, and democracy. The consolidation of a school district would surely have an effect on the community and its pride. Howley, Johnson, and Petrie (2011) make mention of how consolidation issues are not just educational, they are intertwined with racism, economic inequality, and environmental degradation. Specifically, the New Jersey public education system exemplifies the uneven distribution of educational opportunities and resources among rich and poor sectors of our society (Carr & Furman, 1999). Since the U.S. Supreme court overturned the Plessy doctrine of "separate but equal" in 1953 *(Brown v. Board of Education),* New Jersey has not improved equal educational opportunity.

Many of New Jersey's suburbs are predominantly White with smaller, locally run school districts, while the large cities are predominantly Black and Latino and have larger state-run school districts. High dropout rates, low student achievement, and less parental involvement are commonly found in these larger urban school districts. For the 2009-2010 school year, data from the National Center for Education Statistics show that 66% of either Whites or Blacks in New Jersey would have to move to another district in order to achieve racial balance in schools. That figure drops to 64% for racial balance between Latinos and Whites, according to statistics. The same statistics also show that the average black or Latino student in New Jersey attends a school that is 28% White. As a result of those figures, New Jersey ranks in the top 10 of most segregated states when looking at all U.S. states and the District of Columbia. The use of property tax as the funding for public education in combination with the structure of school districts in New Jersey has kept education far too separate and unequal.

Howley, Johnson, and Petrie (2011) also noted that many schools and districts are already too large for fiscal efficiency or educational quality, and deconsolidation would yield better results. Large districts employ only one superintendent, but they employ more middle managers. Therefore, reduction of administrator salaries is arguable, at best. Also uncertain is how larger urban school districts would benefit from smaller schools.

Grade-Span Configuration

As one-room ungraded schools merged to larger schools, the graded school system was introduced in the mid-1800s. By 1900, the predominant configuration was still eight years of primary school and four years of high school, as 80% of the 1920 high school graduates had attended an elementary school that contained grades 1-8, followed by a four-year high school (Juvonen, Le, Kaganoff, Augustine, & Constant, 2004; Paglin & Fager, 1997). As the United States moved into an industrial economy, education needs changed to reflect employment needs. At the same time, elementary enrollments were increasing while secondary enrollments were on the decline (Juvonen et al., 2004). This population shift pushed the seventh and eighth graders into junior high schools. The junior high school was born as a way to serve as a transition to high school. This remained popular through the 1950s and1960s (Craig, 2006). In 1950, the first middle school was created in Bay City, Michigan (Banks, 2004). During the 1950s and 1960s, the predominant grade-span configurations were K-6, 7-9, and 10-12. As more schools were built in the 1970s and 1980s, the grade-span configurations shifted to K-5, 6-8, and 9-12 (Craig, 2006). Research has demonstrated an improved rate of student performance on standardized tests in K-8 schools; and in an effort to reduce transitions between schools and

improve academic achievement, many school districts changed their grade-span configurations back to a K-8 model (Hough, 2005; Vaccarro, 2000; Yecke, 2005).

Alspaugh and Harting (1995) found that there is consistent student achievement loss associated with transition from elementary schools to intermediate level schools in reading, mathematics, science and social studies. Although this loss tends to recover in the following year, it demonstrates that transitions between schools have an impact on student achievement.

In 1998, Alspaugh conducted a study that investigated achievement loss associated with transitions between schools. In his study, he noted that students involved in what he called a "pyramid transition" of multiple elementary schools into a single middle school experienced greater achievement loss than did students in a linear transition of school to school. Additionally, students attending a middle school as opposed to a K-8 school experienced greater achievement loss (Alspaugh, 1998). The study also showed that students attending larger schools tended to experience more transitions than students in smaller schools, which led to higher dropout rates. In his summation, Alspaugh noted that students assigned to small cohorts for long spans are inclined to experience more desirable results.

Eccles et al. (1991) found that students had a greater locus of control, which is associated with depression when locus of control is external, when in a K-8 school than students in 6-8, 7-8, or 7-9 configurations. These effects remained while controlling for SES and setting (urban versus suburban). Several studies have also shown that students have higher self-esteem in schools with fewer transitions and before they enter a new school when compared with their self-esteem after they enter the new school. Eighth graders in K-8 schools have been found to have higher self-

esteem than eighth graders in middle school (Weiss & Kipnes, 2006). Seidman and colleagues (1994) found that self-esteem was lowered following transition in sixth and seventh grade using pre- and post-tests on the same students. This indicates that transition from one school to another decreased self-esteem in students. Additionally, extra-curricular participation decreased following transition to a new school ((Seidman et al., 1994; Simmons & Blyth, 1987). Also, students have a more positive self image in districts with fewer transitions (Simmons & Blyth, 1987).

Brown (2004) indicated that with each new school, students encounter a new building, new teachers and administrators, new rules for conduct, and new classmates. There is some research that has examined these effects (Andeman, 2002; Coladarci & Hancock, 2002; Howley, 2002; Renchler, 2002) and its negative impact on student achievement (Akos, 2004; Alspaugh, 1998, Anderman, 2002; Mizelle, 1999; National Middle School Association & National Association of Elementary School Principals, 2002; Pardini, 2002; Renchler, 2002). Much of this research is limited by grade span within a district and has not examined transitions between schools and districts.

There were a few areas in which research showed no significant differences in grade configurations. Simmons and Blyth (1987) found no significant differences between students in sixth through tenth grade, K-8 grades, and junior high school in the areas of planning for the future or feeling independent. Weiss and Kipnes (2006) found no significant differences between eighth grade students in K-8 and middle schools in liking school or feeling safe. Gunter and Bakken (2010) found no difference in sixth graders' self-reports in K-6 versus 6-8 in substance use or violent behavior.

More research is needed on the differences in culture, relationships, leadership, teaching practices, school size, grade size, demographic differences, and student populations in K-8 schools versus middle and junior high schools. Several researchers suggest that some of the differences found in academic achievement in the K-8 models may be due to differences in these other factors rather than on grade configuration per se. Byrnes and Ruby (2007) hypothesized that the differences found in achievement may lie in the differences in the populations that middle schools and K-8 schools generally serve (Byrnes & Ruby, 2007). Lee and Smith (1993) point out that grade size has been associated with decreased academic engagement and more stratification in achievement by SES. Consequently, because middle and junior high schools have higher enrollments per grade than K-8 schools, some of the academic disadvantages may be due to grade size rather than grade configuration. There is also some evidence showing that lower SES students tend to have a harder time academically in larger rather than smaller schools (Alspaugh, 1998, Lee & Loeb, 1998; Rockoff & Lockwood, 2010).

Rockoff and Lockwood (2010b) measured the impact of different grade configurations using data on enrollment, academic achievement, and demographics of New York City students, following the same cohort from Grade 3 through Grade 8. They sought to analyze whether differences in grade configuration, rather than differences across student groups, led to different educational outcomes. Earlier studies (Alspaugh, 1998a, 1998b; Byrnes & Ruby, 2007; Weiss & Kipnes, 2006) suggested that the transition to middle school was associated with a drop in academic achievement, increases in suspension rates, and lower self-esteem. Those studies,

however, used cross-sectional data rather than longitudinal data. Thus, the effect of school organization was unclear.

New Jersey High School Proficiency Assessment (HSPA)

New Jersey began high stakes testing in 1978 as a result of the Public School Education Act (PSEA) of 1975 (P.L. 1975, c212). The act created basic skills requirements and allowed for the use of testing as a graduation requirement. New Jersey students were initially tested through the Minimum Basic Skills Test (MBS) in 1978 and in 1981 it became a requirement for graduation. In 1983, the Grade 9 High School Proficiency Test (HSPT) became the graduation requirement; and in 1988, the Legislature moved the HSPT from Grade 9 to Grade 11. It was not until 2001 that the High School Proficiency Assessment (HSPA) replaced the HSPT.

Federal mandates demand that all states design and implement a standardized test at least once during a student's high school years (No Child Left Behind, 2002). Since 2001, this assessment has been given in Grade 11 and is also required for graduation. The High School Proficiency Assessment is used to determine student achievement in reading, writing, and mathematics as specified in the New Jersey Core Curriculum Content Standards. The HSPA is a traditional paper and pencil standardized exam that uses multiple-choice questions, open-ended/short-answer questions, and a writing sample to assess student skills in Math and Language Arts. It is administered in a formal testing environment under timed, secure conditions on dates specified by the state. The HSPA is created and scored at the state level by a commercial vendor hired by the New Jersey Department of Education.

First-time eleventh grade students who fail the HSPA in March of their junior year have an opportunity to retest in October and March of their senior year. Failure

of this assessment could mean grade retention and not being able to graduate (Heubert, 1999). Arguably, schools have been defined as giving a better education based on the results of the HSPA.

AHSA (Alternative High School Assessment)

As of 2010, 25 states required an exit test for high school graduation, and 17 of them provide some sort of alternative to the traditional test (Lee, Edwards, Menson, & Rawls, 2011). ASHA is the New Jersey alternative. Since students learn in different ways, students should be able to demonstrate their comprehension and proficiencies in different ways. Experts in educational performance measurements agree that multiple measures of student learning are the most reliable indicator of achievement and that no single high-stakes test should be used to make important decisions about a student's future (Heubert, 1999).

One such assessment, the Special Review Assessment, or SRA, is an alternative performance assessment that provides students with the opportunity to exhibit their understanding and mastery of the HSPA skills in contexts that are familiar and related to their experiences (NJDOE, 2012). The SRA content is linked to the HSPA test specifications in order to ensure that students who are certified through the SRA process have demonstrated the same skills and competencies at comparable levels as students who passed the written HSPA test (NJDOE, 2012). Typically, students take the SRA if they have failed to pass one or more sections of the HSPA.

The SRA requires students to successfully complete a series of performance tasks that are aligned with state standards and created by the same commercial vendor who creates the HSPA. However, the SRA is administered locally on a flexible

schedule in less formal, untimed settings; and students may be given multiple opportunities to complete the tasks. The assessment is then scored by local educators who have been trained in the use of scoring rubrics provided by the state. The SRA is also given in Spanish, Portuguese, and Gujarati, while the HSPA is given only in English (NJDOE, 2012).

Charter Schools

According to the New Jersey Department of Education, charter schools are public schools that operate under a charter granted by the Commissioner of Education. The school is independent of the local school district and is managed by a board of trustees. In accordance with charter school law, the school district of residence must pay directly to the charter school for each student enrolled in the charter school who resides in the district an amount equal to 90% of the sum of the budget year equalization aid per pupil and the pre-budget year general fund tax levy per pupil inflated by the Consumer Price Index (CPI) rate in effect at the time of the calculation. Additionally, the school district of residence must pay directly to the charter school the security categorical aid attributable to the student and a percentage of the district's special education categorical aid equal to the percentage of the district's special education students enrolled in the charter school and, if applicable, 100% of preschool education aid. Though charter high schools are not considered in this study, it is important to display the most recent charter school results of the New Jersey HSPA in comparison to their home district and state averages (See Table 1).

Table 1

Charter School HSPA Comparison

Math 2010 HSPA Comparison						
School	District	Charter	District	Difference	State	Differen
Academy Charter HS	Asbury Park	35.0	19.0	16.0	74.1	-39.1
Camden Academy	Camden	44.8	16.1	28.7	74.1	-29.3
LEAP Academy University	Camden	41.4	16.1	25.3	74.1	-32.7
Hoboken	Hoboken	42.9	36.2	6.7	74.1	-31.2
C.R.E.A.T.E.	Jersey City	28.8	50.9	-22.1	74.1	-45.3
University Academy	Jersey City	47.0	50.9	-3.9	74.1	-27.1
North Star Academy	Newark	96.0	46.4	49.6	74.1	21.9
TEAM Academy	Newark	78.9	46.4	32.5	74.1	4.8
Central Jersey College Prep	Regional Distric	47.3	-	-	74.1	-
Paterson CS for Science & Tech	Paterson	43.4	33.0	10.4	74.1	-30.7
chARTer-Tech	Regional Distric	55.0	-	-	74.1	-
Capital Prep	Trenton	23.6	24.9	-1.3	74.1	-50.5
Emily Fisher	Trenton	13.2	24.9	-11.7	74.1	-60.9

LA 2010 HSPA Comparison						
School	District	Charter	District	Difference	State	Differen
Academy Charter HS	Asbury Park	65.0	47.6	17.4	87.1	-22.1
Camden Academy	Camden	77.9	41.4	36.5	87.1	-9.2
LEAP Academy University	Camden	67.8	41.4	26.4	87.1	-19.3
Hoboken	Hoboken	90.5	75.4	15.1	87.1	3.4
C.R.E.A.T.E.	Jersey City	52.9	69.3	-16.4	87.1	-34.2
University Academy	Jersey City	75.0	69.3	5.7	87.1	-12.1
North Star Academy	Newark	88.0	57.4	30.6	87.1	0.9
TEAM Academy	Newark	98.2	57.4	40.8	87.1	11.1
Central Jersey College Prep	Regional Distric	78.1	-	-	87.1	-
Paterson CS for Science & Tech	Paterson	71.0	51.7	19.3	87.1	-16.1
chARTer-Tech	Regional Distric	91.2	-	-	87.1	-
Capital Prep	Trenton	60.3	52.0	8.3	87.1	-26.8
Emily Fisher	Trenton	51.3	52.0	-0.7	87.1	-35.8

Leadership

The configuration of a school district is important because it is a social system. A social system refers to activities and interactions of group members brought together for a common purpose (Homans, 1950). As a social system, its environment is determined by the structure and leadership of the organization, highlighting the influence of leadership in its formation and operation.

A study by Gifford (2009) showed that leadership decisions impact student achievement through school districts constructs, policies, and structures. Although the study was conducted in only one district, it shows the influence that the district has an on individual school and student achievement. The study (Giford, 2009) found the following constructs had an impact on student achievement:

1. System-wide choice
2. Relationships and familiarity that is facilitated by the small size of the school district
3. Focus provided by district goals and initiatives
4. School support teams that provide monitoring and support functions
5. Structured criteria that are tight

Gifford (2009) noted that though these constructs had an impact in this case study, it is unknown if they would be effective in any other school district. The study also showed that district support helps a school to increase student achievement. What this signals to us, and is relevant in this study, is that Gifford's findings that school districts and how they are led have an impact on student achievement; therefore, different school districts may have varying impacts on student achievement.

Leadership is important in any organization. Peter Drucker in his book *Drucker on Leadership* (Cohen, 2010) detailed five lessons of leadership:

1. Strategic planning is the first priority of the leader--It is the leader's job to create the desired future of the organization.
2. Ethics and integrity are critical for leader effectiveness--Character and ethical behavior are of central importance for leaders.
3. Model the military--Emphasize commitment and taking care of your people.
4. Motivation--Move from transactional motivation to transformational motivation
5. Leaders should be marketers--Leaders should be focused on the customer. They must set the tone for how the organization is viewed.

The large number of school districts in New Jersey creates a high number of district leadership positions that may influence student achievement. According to the New Jersey School Board Association, there are 4,800 school board members for the 590 public school districts in New Jersey, with most school boards comprised of five, seven, or nine members. Each has a president and vice-president working with a superintendent or chief school administrator.

The policies that are created by board members vary greatly from school district to school district. Boards face traditional challenges such as securing finances, recruiting talented staff, dealing with more diverse population, and competition among school districts (Carol et al., 1986; Olson & Bradley, 1992). School boards are valued as "providing the crucial link between public values and professional expertise" (Resnick, 1999, p. 6). The personalities, experiences, and leadership styles of board members influence the policies of how their districts operate. Policymaking is widely described as

a school board's principal function (Carver, 1997; Clemmer, 1991; Danzberger et al., 1992, 1993; Nelson & Crum, 1983). Since New Jersey does not have a consistent set of policies for its schools, local boards have tremendous influence on how school districts operate. According to New Jersey School Boards Association, the legislatively mandated arm of local school board control, the main responsibilities of a board member are as follows:

> The board of education adopts policies under which the school district operates; oversees the budget; approves the curriculum; hires and evaluates the superintendent; represents the public during contract negotiations; and serves as a communications link between the community and the school system. School board members must remember that they have no authority except that which results from participation in decisions of the board during an official meeting. Actions, promises or commitments made by individual board members are without legal basis and have no binding commitment upon the district. Board members should be aware that they are elected to represent the entire district in all matters pertaining to education, and not any one segment.

The role that boards play in how schools operate can have an impact on student achievement.

When students go through multiple districts, they are exposed to the varying policies that come from the board and administration. Although there is limited research on these effects, the research that is available suggests that transitions create a negative impact on achievement (Akos, 2004; Alspaugh, 1998; Anderman, 2002; Brown, 2004; Cook et al., 2007; Coladarci & Hancock, 2002b; Grolnick, Kurowski, Dunlap, & Hevey,

2000; Howley 2002; Johnson, 2002; Mizelle, 1999; Pardini, 2002; Renchler, 2002). A Louisiana research team (Franklin and Glascock, 2002) found students that attended high schools in K-12 districts had better rates of attendance and lower rates of expulsions, suspensions, and drop out rates.

Anderson (1974) notes that there are three important reasons to study the nature of school structure and administration. First, administrative structure is an ever-changing variable, and understanding it enables us to better serve students and teachers. Second, there has been a general increase in the school as an organization. Third, school structure may be related to student achievement.

Hoy (2004) believed that structure can either hinder or enable the effective operation of schools. In his 2004 study, Hoy cited two contrasting sets of findings related to the bureaucratic structure of schools (Adler, 1999; Adler & Borys, 1996; Hoy & Sweetland, 2000, 2001). One finding noted the negative side, showing that bureaucracy can alienate, breed dissatisfaction, hinder creativity, and/or demotivate employees. The contrasting view showed that organizational structure guides behavior, clarifies responsibility, reduces stress, and enables individuals to feel and be more effective (Adler, 1999; Adler & Borys, 1996; Hoy & Sweetland, 2000, 2001). Hoy (2004) found variables that would be different among the varying school districts in New Jersey. Since each district would have its own leader, these variables could be assumed to have an impact on students that go through each system. Additionally, these leadership decisions create different social systems in different school districts.

District Factor Group (DFG) and Socioeconomic Status (SES)

According to Maslow (Hoy & Miskel, 1992) and LeVine (Shaffer, 1993), in order for individuals to intrinsically seek personal achievement, they must have their basic needs met first. Food, security, and a sense of belonging must be satisfied prior to attempting to satisfy the need for achievement. Therefore, student motivation in relation to their socioeconomic status plays a significant role in a student's effort for achievement. Socioeconomic status has always played a role in achievement (Coleman et al., 1966). In an effort to control SES when comparing district achievement, the New Jersey Department of Education introduced the District Factor Grouping system (DFG) in 1975 and based it on the data from the 1970 census. It was based on research conducted in the late 1960s and early 1970s that showed a strong relationship between socioeconomic status and educational outcomes. The creators of the DFG were concerned that educational policymakers, after reviewing the educational outcomes obtained in different circumstances, would make unjustified inferences about the importance of various school-based inputs to the educational process (NJDOE). Because the research showed that students (i.e., what students bring to school, including socialization that takes place before they step inside the school building) are the most important determinant of educational outcomes; the effectiveness of school systems cannot be sensibly judged without reference to the socioeconomic background of their students (NJDOE).

At the same time as the DFG was being developed for use in the reporting of test scores, New Jersey's debate over how schools could be funded fairly had already gone to the State Supreme Court (*Robinson v. Cahill*). Arguments made before the courts in *Robinson v. Cahill* and later in *Abbott* took explicit account of the DFG classification and

the measure of socioeconomic status by how it calculated spending differences between districts. Because the Supreme Court used the DFG classification as a means of identifying which districts would receive special funding provisions as well as those districts whose spending levels are to be the target, the DFG classification became the center of attention. Due to this significance, the school districts in this study will be segregated by similar DFG.

Out-of-school variables related to socioeconomic status were shown to be a key factor on 2009 NJ ASK scores for Math and Language Arts (Turnamian, 2012). He found that lone-parent households, percentage of economically disadvantaged families, and percentage of households without a bachelor's degree combined to produce the most accurate predictive formula for the 2009 NJ ASK scores in both reading and math. Turnamian (2012) also found that 228 of 438 New Jersey school district NJ ASK 3 LAL scores could be predicted within 10 points, simply by out-of-school variables, and 262 of 439 could predict Math scores. Michel (2004) found DFG was a significant, and by far the strongest, predictor of NJ ASK 4 scores. Maylone (2002) found 56% of variance in test scores could be explained by three out-of-school social and demographic variables: percentage of students eligible for free or reduced lunch, percentage of lone-parent households, and mean annual district income. There is evidence to support the notion that students receiving services such as free and reduced lunch will on average perform lower academically than those students not receiving government support services (McKenzie, Ogle, Stegman, & Mulvenon, 2005). An Educational Research Service study showed that 56% of the variance among state average test scores in the NAEP-92 Trial State Assessment in Math, and 89% of the variations in LAL were due to poverty; i.e.,

number of parents living at home, parents' education, and community type (Educational Research Service, 1994; Maylone 2002). Maylone (2002) also demonstrated how out-of-school variables explained more than 50% of Michigan school district high school achievement scores. Lower socioeconomic schools have higher teacher absenteeism, teacher turnover rates, greater number of uncertified teachers, and more inexperienced teachers (Darling-Hammond, 1998).

A 2009 study by Novio titled *Analysis of Factors Affecting New Jersey High School Proficiency Assessment Scores in Middlesex County* found that the only reported variables on the New Jersey School Report Card that had an effect on HSPA scores were percentage of students that were LEP (Limited English Proficient) and DFG (District Factor Group). The study was limited in its population and sample, as it included only schools in Middlesex County, New Jersey.

Keegan (2009) found that grade-span configuration does factor into student achievement on the NJ ASK 8 when controlled for socioeconomic status, school size, and class size for eighth graders who attended K-8 schools than eighth graders that attended middle schools. His findings also revealed that students in Grades 6-8 in K-8 schools have significantly higher rates of attendance and significantly lower discipline problems than those in middle schools. He noted that sixth graders may have transition problems in districts with middle schools. Asplaugh (1998), Kavrell and Peterson (1984), Simmons and Blythe (1987), and Wren (2004) all noted the challenges students have to face making school-to-school transitions, although Paglin and Fager (1997) point out that "research has not provided definitive answers to the myriad possible questions about grade span, but the questions have never gone away. They are questions which arise

whenever school reform, increasing or declining enrollment, or financial considerations bring about a reorganization of existing schools, the building of new schools, or consolidation of districts" (p. 2).

A 1998 study by Noulas and Ketkar of Seton Hall University Stillman School of Business found that the higher the percentage of people living in poverty, the higher the crime rate and the higher the percentage of minority students, the lower the efficiency rate for the school district. Bidwell and Kasarda (1975) note that fiscal resources had significant total effect on student achievement in both math and reading. Without specifying the difference between effective and ineffective use, Machtinger (2007) suggested that two suburban districts receiving additional state aid (Paterson and Newark) did not put the resources to good use, whereas Trenton and Union did make good use of resources. In Bao et al. (2010), the results of the study suggest a strong relationship between performance on the HSPA and socioeconomic classification.

School Size and Attendance

In understanding the influence of size and school district, Fouts (2002) found that large district size was detrimental to student achievement in Washington in Grades 4 and 7. Additionally, a negative relationship gets stronger between school poverty and student achievement. Though Fouts (2002) found that district affluence did not have a significant impact over the relationship between school size and student achievement, he did note however, that independent influences related to school size is a more complex matter that needs to be viewed in the context of variables associated with size. Bidwell and Kasarda (1975) studied school district organization and student achievement. They found that

school district size was associated with well-qualified staff and low administrative intensity.

Student mobility has also been shown to affect student performance. Barak (2004) concluded that highly mobile students tend to fall through the cracks. Brown (2008) found student mobility rates and student attendance to have a significant effect on passing rates of the NJ HSPA on both LAL and Math. Gemellaro (2012) found student mobility to have a negative influence on NJ ASK5 scores in both Math and Language Arts. Gemellaro (2012) also found the length of the school day to be statistically significant on NJ ASK 5 scores in both Math and Language Arts. Roth et al. (2003) found the typical school day to be 6 hours and 35 minutes).

A study by Howley, Howley, and Johnson (2002) concluded that small schools are more effective against the negative effects of poverty; when they were part of small districts, by eighth grade poverty disappeared as a factor in student performance in smaller schools. A study by the Manhattan Institute (Greene and Winters, 2005) found that decreasing the size of school districts has a considerable and statistically significant positive influence on graduation rates. Gemellaro (2012) found student-to-faculty ratio had a significant, but weak relationship to NJ ASK 5 scores in both Math and Language Arts Literacy. The same study found that faculty holding advanced degrees, as well as Grade 5 attendance rates, had a positive influence on NJ ASK5 scores. Caldas (1993), Chang and Romero (2008), and Gottfried (2010) demonstrated that student attendance has a statistically significant effect on student achievement on standardized tests. Michel (2008) sampled 888 public schools in New Jersey and found, after controlling for SES,

that teachers holding a master's degree or higher was the greatest predictor variable on NJ ASK 4 scores.

Faculty and Administrator Attributes

Hoy (2006) demonstrates that academic emphasis, faculty trust, and collective efficacy forms what he calls "academic optimism" and the positive effects on student achievement. Collective efficacy provides teachers with confidence that they can be effective (Hoy, 2006). This motivates teachers to seek challenging goals and persist until they are successful (Goddard, Hoy, & Woolfolk Hoy, 2000; Hoy, Smith, & Sweetland, 2002). Coleman et al. (1966) reported that the greatest influence on student academic performance was socioeconomic status, followed by teacher characteristics and class size. Much of the current research continues to support the original findings of the 1969 Coleman Report (Lee & Wong, 2004; Pereira, 2011). Many educators agree that experienced and effective teachers provide the most important foundation for improving student performance, and have a positive impact on student learning (Rebell, 2004). Michel (2008) sampled 888 New Jersey public schools and conducted a study to determine which variables were the greatest predictors of NJ ASK 4 scores. Michel found the greatest predictor in both LAL and Math on the NJ ASK 4 was teachers holding a master's degree or higher (after controlling for SES). Guarino, Santibanez, and Daley (2006) assert that salaries are positively associated with teacher retention and that raising salaries may increase teacher quality. Gemellaro (2012) found faculty mobility, student/faculty ratio, and teachers holding advanced degrees to have a significant influence on NJ ASK 5 Math and LAL scores. Brown (2008) found

student/administrator ratio, median faculty experience, and median administrator salary to have an effect on NJ HSPA scores.

Shortcomings of Previous Studies

Investigating possible links between school district structure and student achievement provides additional complexities. There are problems in trying to match teaching methods, student abilities, and school district structure while conducting research.

Although there is a wide range of grade span configuration among public schools in the United States, there are only a few empirical studies (Alspaugh, 1995; Becker, 1987; Bickel et al., 2000; Franklin & Glascock, 1996; Tucker, 1997; Wihry et al.,1992) that have studied the influence of grade span and district structure on student achievement. Their studies have been limited to specific locales and/or used relatively small sample sizes. The 1992 study by Wihry and Associates sampled 163 rural Maine schools. They conducted a statistical analysis of 8th grade students' performance on Maine's annual standardized test. Comparisons were made based on type of school (elementary, middle, or junior/senior high school). The study found that 8th grade students performed better in the elementary setting than in either of the other two. Although hardly definitive in its findings, the study does suggest that grade span configuration may have an influence on student achievement.

Another small body of research (Alspaugh & Harting, 1995; Simmons & Blyth, 1987) suggests there may be a link between the number of transitions a student goes through and student performance. Simmons and Blyth (1987) argued that school-to-school transitions are detrimental to a student's performance because they come at a time

when the students are going through emotional and physical changes related to puberty. They argued that broader grade spans would be more beneficial because of the stability and comfort they provide during stressful developmental stages.

Chapter III

METHODOLOGY

Introduction

New Jersey has 590 school districts that vary in size and grade level configuration. In 2011, 389 high schools administered the NJ HSPA. Those high schools vary in terms of the structure of the districts to which they belong; 65 high schools are part of 47 school districts that offer limited grades ranging from Grades 7-12 or 9-12, 270 high schools are part of 219 districts offering Grades K-12, 12 are charter high schools, and 41 are County vocational and technical high schools (NJDOE). The remaining districts serve students only in kindergarten to Grade 6 or Grade 8. Discussions on consolidating school districts in New Jersey have been ongoing for years and have primarily focused on financial benefits. Additionally, the inconsistency of school district structure creates wide differences in the number of transitions for New Jersey students who go from district to district and school to school. Few studies have examined the variations in student achievement among the different structures of school districts or whether or not full K-12 districts produce higher achieving students when compared to non-K-12 districts. This study aims to provide an analysis of any possible benefits or gains in student achievement throughout high schools in New Jersey based on their district grade-span configuration. It is expected to "open the door" to further longitudinal studies examining student outcomes in relation to school district structure and the variables that are associated with the different structures. The expected finding from this research study is that there will be a significant difference in student

performance between students from K-12 school districts and those from non-K-12 districts.

Research Design

This study employed a non-experimental group comparison design using existing data. The steps included (a) selection and definition of problem, (b) selection of population and sample, (c) measuring instruments, selection of a research plan, (d) execution of the plan, (e) analysis of the plan, (f) analysis of data, and (g) formation of conclusion (Gay, Mills, & Airasian, 2009).

The study involved an analysis of data collected by the New Jersey Department of Education. Therefore, its design most closely resembled that of a post-hoc correlational study. This type of design was appropriate because the variables under consideration could not be manipulated experimentally (Campbell & Stanley, 1966).

Typically, in this type of study, we would consider the type of school district as the independent variable, while student performance outcomes would be the dependent variable. However, we must consider other variables that may have direct or distinct effects on student performance outcomes, or they might temper the effect of school district structure. There are seven independent variables that have been found to have an impact on student performance outcomes on New Jersey standardized tests. With seven independent variables, a regression analysis was best suited for this study. The multiple linear regression analyses permitted the researcher to learn more about the relationship between the large number of independent variables and dependent criteria (Ravid, 2000). The model allowed the researcher to answer the following question: To what extent does

district configuration most influence NJ HSPA scores for K-12 districts and non-K-12 districts in Language Arts and Mathematics?

Population and Sample

In most studies, the chosen population is generally the most realistic choice (Gay, Mills, Airasian, 2009). Given the challenge in obtaining comparative information from various states and the assorted testing instruments administered by different states and schools, this study is limited to the state of New Jersey. There are currently 389 high schools that are part of 549 school districts in New Jersey that administer the NJ HSPA and are ranked by socioeconomic status or DFG. This study examined 100% of the high schools (total 65 schools) that are part of districts that do not offer grades kindergarten to Grade 12. To compare data with these 65 schools, 65 additional high schools that are part of K-12 districts were chosen at random, stratified by DFG. Therefore, the total number of schools used for this study was 130 (65 non-K-12 and 65 K-12) as detailed in Appendix A and Appendix B. The sample size represents 33.4% of all high schools in New Jersey that administer the NJ HSPA. Other New Jersey high schools, private schools, county vocational high schools, and special educational service districts and commissions were not included in this study. The following is a breakdown of the sample size that was utilized for this study:

- 65 high schools from 47 school districts that offer Grades 7-12 or 9-12
- 65 high schools from 324 total schools that offer Grades K-12, chosen by stratified (DFG) random sample.
- Total sample size is 130 schools across 7 classifications of DFG

Note: There are no high schools in New Jersey that are classified in DFG A (lowest socioeconomic classification) which are part of non-K-12 districts.

Stratifying the sample is a way to guarantee desired representation of relevant subgroups within the sample (Gay, Mills, Airasian, 2009). Classifying the schools by DFG provided equal representation of both K-12 and non-K-12 schools within the appropriate socioeconomic status as defined by the state of New Jersey and was consistent with what prior research has identified as a significant predictor of student achievement. The sample size for this study is generalizable to school districts in New Jersey but not necessarily to all school districts in the United States. The intent of this study is to generalize enough detail so that other school districts can determine how applicable the findings are to their own situation (Gay, Mills, Airasian, 2009).

Research Questions

The purpose of this study is to explore the effect of school district structure on student achievement as measured by the New Jersey High School Proficiency Assessment. The overarching research questions that guide this study are as follows:

1. To what extent is school district structure an independent predictor of student outcomes relative to other structural factors that have been identified by previous research?
2. To what extent do the factors that affect student outcomes vary in K-12 districts versus districts that offer limited Grades of 7-12 or 9-12?

The researcher sought to answer the following research questions as measured by the NJ HSPA:

1. Do students in K-12 school districts perform significantly different than students in non-K-12 districts on the NJ HSPA Language Arts?
    a. Which variables have a statistically significant influence on NJ HSPA LAL Partially Proficient scores? How do they differ in K-12 and non-K-12 districts?
    b. Which variables have a statistically significant influence on NJ HSPA LAL Proficient scores? How do they differ in K-12 and non-K-12 districts?
    c. Which variables have a statistically significant influence on NJ HSPA LAL Advanced Proficient scores? How do they differ in K-12 and non-K-12 districts?
2. Do students in K-12 school districts perform significantly different than students in non-K-12 districts on NJ HSPA Math?
    a. Which variables have a statistically significant influence on NJ HSPA Math Partially Proficient scores? How do they differ in K-12 and non-K-12 districts?
    b. Which variables have a statistically significant influence on NJ HSPA Math Proficient scores? How do they differ in K-12 and non-K-12 districts?
    c. Which variables have a statistically significant influence on NJ HSPA Math Advanced Proficient scores? How do they differ in K-12 and non-K-12 districts?

Dependent Variables

The dependent variables for this study are the Math and Language Arts results of the New Jersey High School Proficiency Assessment (HSPA). The HSPA is the statewide assessment that measures student performance at the high school level in New Jersey. All first time 11th grade students take the HSPA and all students must pass the HSPA to graduate from high school. In 2011, 98,218 New Jersey students were enrolled in 11th grade New Jersey public high schools that took the HSPA with 96,783 valid scale scores in Math and 96,887 valid scale scores in Language Arts. The scoring breakdown is depicted in Table 2.

Table 2

Statewide NJ HSPA Data for 2011 (Source: NJDOE*)*

	Valid Scale Scores	% Partially Proficient	% Proficient	%Advanced Proficient	Scale Score Mean
Math	96,783	24.8	49.9	25.3	222.8
Language Arts	96,887	10.5	68.8	20.8	229.9

The dependent variable is the percentage of all student tests deemed to be valid scale scores that rated as Partially Proficient, Proficient, and Advanced Proficient on the Language Arts and Math sections of the NJ HSPA. The HSPA has a scoring range of 100 to a maximum of 300 for each section, Language Arts and Mathematics. Students that received a score equal to or less than 199 receive a rating of Partially Proficient. This indicates failure to meet the minimum level of proficiency required by the state. Students who earn scores in the range of 200 to 249 are Proficient, and scores of 250 and above

are Advanced Proficient. The data were readily available through the annual publication of the New Jersey Report Card. The data were downloaded directly from the New Jersey Department of Education website into an excel spreadsheet, where it could be more easily analyzed alongside the data for the independent variables.

Instrumentation

The instrument for this study was the New Jersey High School Proficiency Assessment. The HSPA is a traditional paper and pencil standardized exam that uses multiple-choice questions, open-ended, short-answer questions, and a writing sample to assess student skills in Math and Language Arts. It is administered in a formal testing environment under timed, secure conditions on dates specified by the state. The HSPA is created and scored at the state level by a commercial vendor hired by the New Jersey Department of Education. The High School Proficiency Assessment is used to determine student achievement in reading, writing, and mathematics as specified in the New Jersey Core Curriculum Content Standards. The stakes on the NJ HSPA are high. Failure of this assessment could mean grade retention and not being able to graduate (Heubert, 1999). First-time eleventh grade students who fail the HSPA in March of their junior year have an opportunity to retest in October and March of their senior year. Data in this study may not reflect the results of the retests that are completed after the normally scheduled test date. Results of the assessment are reported through the New Jersey Report card. The New Jersey School Report Card provides data for all public and charter schools in the state of New Jersey. Data in the school report cards are reported at the school, district, and state level. Data are based on information from all grades within the schools and include all state administered standardized tests, including the NJ HSPA.

Data Collection

This study analyzed one point in time, the 2011 NJ HSPA administration. The 2011 assessment was administered in 389 New Jersey high schools; however, for this study a sample of 130 high schools was used. The data were collected from publicly reported statistics by the New Jersey Department of Education, specifically the NJ School Report Card. Though the NJ Report Card reports on 49 variables, only variables found in previous research to have an impact on student performance were used in this study. Data were downloaded for all 389 high schools that administered the NJ HSPA in 2011 and put into a spreadsheet. After collecting the data, the 65 high schools that are part of districts offering only Grades 7-12 and 9-12 were removed, input into a separate spreadsheet, and organized by DFG to determine the sample size for each DFG classification. After those data were removed, the remaining 324 high schools that are part of K--12 districts were organized by DFG. The spreadsheet randomizing function selected the appropriate number of high schools aggregated by corresponding DFG classifications similar to the 65 non-K-12 schools. Randomization is the best way to control for many extraneous variables simultaneously (Gay, Mills, & Airasian, 2009). Stratified random sampling is superior to simple random sampling because the population is first divided into strata that are believed to be relevant to the outcome variable(s) (Pyrczak, 2010). If subjects are assigned at random to groups, there is no reason to believe that the groups will be greatly different in any systematic way (Gay, Mills, & Airasian, 2009). The data on the 130 schools were input into SPSS and a regression analysis was run in two tiers for each of the outcome variables. Collinearity diagnostics checked for serious problems with multi-collinearity to identify whether the predictors

were highly inter-correlated, resulting in small changes in the data values that might lead to large changes in the estimates of the coefficients (Gay, Mills, & Airasian, 2009).

The units of measurement for the outcome variable are the percentage of students scoring Partially Proficient, Proficient, and Advanced Proficient in Language Arts and Mathematics on the 2011 NJ HSPA test administration. These data were collected via download from the NJ DOE website, input into a spreadsheet, and used in the analysis in SPSS as the dependent variables in order to answer the research questions.

Independent Variables

The data for the independent variables for this study were gathered from the New Jersey Department of Education website; specifically, the annual school report card. For this study, eight independent variables, identified in extant research as significant in student performance, were used. It was important to identify variables other than school district structure in order to complete this study. Education outcomes are rarely ever explained by one variable. The more independent variables there are, the more likely we are to explain the outcomes of the dependent variables (Gay, Mills, Airasian, 2009). The following variables have been identified in previous studies to impact standardized test scores in New Jersey:

1. Student mobility rate - This is the percentage of students who both entered and left during the school year. The calculation is derived from the sum of students entering and leaving after the October enrollment count divided by the total enrollment.
2. Grade 11 attendance rate - These are the grade-level percentages of students on average who are present at school each day. They are

calculated by dividing the sum of days present in each grade level by the sum of possible days present for all students in each grade. The school and state totals are calculated by the sum of days present in all applicable grade levels divided by the total possible days present for all students.

3. Student/faculty ratio - This is the number of students per administrator in the school. It is calculated by dividing the total school enrollment in October by the number of administrators reported in full-time equivalents (FTEs). Where a single administrator has responsibility for more than one school, the FTE may represent the administrator as less than one.
4. Median faculty experience - This contains the median years of experience based on total number of years in public education.
5. Faculty mobility rate - This represents the rate at which faculty members come and go during the school year. It is calculated by using the number of faculty who entered or left employment in the school after October 15 divided by the total number of faculty reported as of that same date.
6. Total per pupil cost -Total dollars spent by each district divided by the total enrollment.
7. DFG (District Factor Group) - The DFG is an index of socioeconomic status that is created using data for several "indicators" available in the decennial Census of Population.

Socioeconomic status cannot be measured directly. Rather, the literature holds that it is a function of other, measurable quantities (traditionally, the basic three are income, occupation, and education). Therefore, the DFG is a composite statistical index created using statistical procedures, a "model" of socioeconomic status and input data for various socioeconomic traits. Seven indices were developed from the census data as follows:

1. Percentage of population with no high school diploma
2. Percentage with some college
3. Occupation
4. Population density
5. Income
6. Unemployment
7. Poverty

Source: NJ DOE

Statistical Analysis

The dependent variable data were obtained from the New Jersey School Report Card for NJ HSPA student performance in both Language Arts and Mathematics at all proficiency levels. The independent variables--student mobility rate, Grade 11 attendance rate, student-to-faculty ratio, district factor group, total cost per pupil, percentage of teachers with advanced degrees, median faculty experience in years, and faculty mobility rate--were also obtained from the New Jersey School Report Card. The data for this study were collected from one school year, 2010-2011.

After collecting the data and organizing it into the appropriate groups, the data were run in a two-tiered approach through a hierarchical linear regression analysis. The regression analysis was chosen because it allowed for multiple runs with a high number of variables, allowing for the elimination of variables that are not statistically significant. The multivariate statistical analysis indicated how much of the variance found in the outcome variable is attributed to the independent variables (Gay, Mills, Airasian, 2009). A multiple regression is an extremely valuable procedure for analyzing the results of a variety of experimental, causal-comparative, and correlational studies because it determines not only whether variables are related but also the degree to which they are related (Gay, Mills, Airasian, 2009). Understanding how variables are related is beneficial both for researchers and for groups needing to make data-based decisions (Gay, Mills, Airasian, 2009). Grade span for each type of school district was made operational by using a dummy variable that was assigned a 0 if the school was part of a K-12 district and 1 if it was not. Thus, this variable was expected to capture the effect of grade span configuration by comparing the level of the dependent variable between the two school district types. New Jersey classifies DFG by a letter code from A (poorest districts) to J (wealthiest districts). Since DFG is a nominal variable, it was coded using 0 for all schools in the DFG range of B to GH (lower SES), and 1 for all schools in the I and J (higher SES) classifications. This allowed the researcher to determine the effect of wealth on the dependent variable.

Tier 1 sought to identify how district structure affects student performance on the NJ HSPA to answer Research Question 1. It was done through a hierarchical linear regression model for each of the performance levels--Advanced Proficient, Proficient,

and Partially Proficient--for both LAL and Math by using district structure as an additional independent variable (See Figure 1). District structure was added as a variable to each of the models and then compared to the original model to determine the effect of structure on student performance. The nature of the data, and the interconnectedness of the various student performance levels necessitated the need to examine school district structure at all levels. The advantage of running a regression model for each was to determine the impact on those students needing the most services (Partially Proficient) and those students that have excelled (Advanced Proficient). Therefore, in total, there were six models run in Tier 1, three for LAL and three for Math. Tier 1 analyses are outlined in Figure 1.

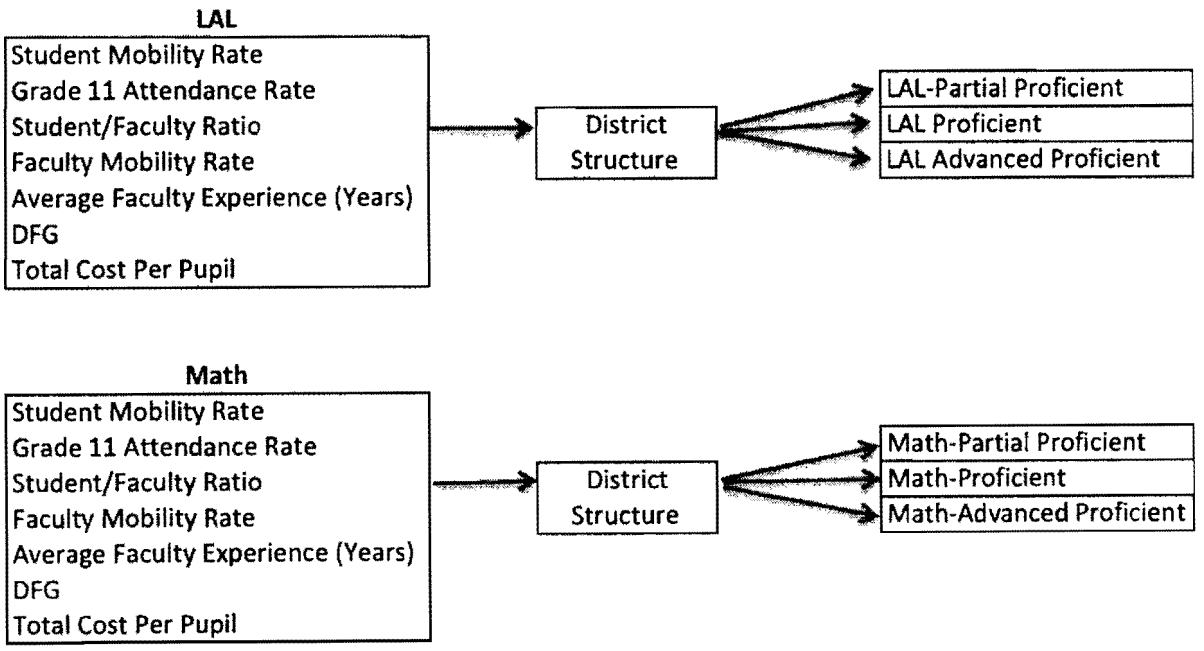

Figure 1. Tier 1 Analyses

Tier 2 analyses sought to identify which variables most affect student performance in K-12 and non-K-12 districts separately, to answer Research Question 2.

A regression analysis compared each of the two district structures, K-12 and non-K-12. The analysis sought to find which of the independent variables significantly affect student performance in K-12 and non-K-12 schools in both LAL and Math (See Figure 2). Due to the format of the data, it is important to examine the effect of all variables on each of the three levels of performance, Partially Proficient, Proficient, and Advanced Proficient. In total, six models were run in Tier 2. The analyses are outlined in Figure 2.

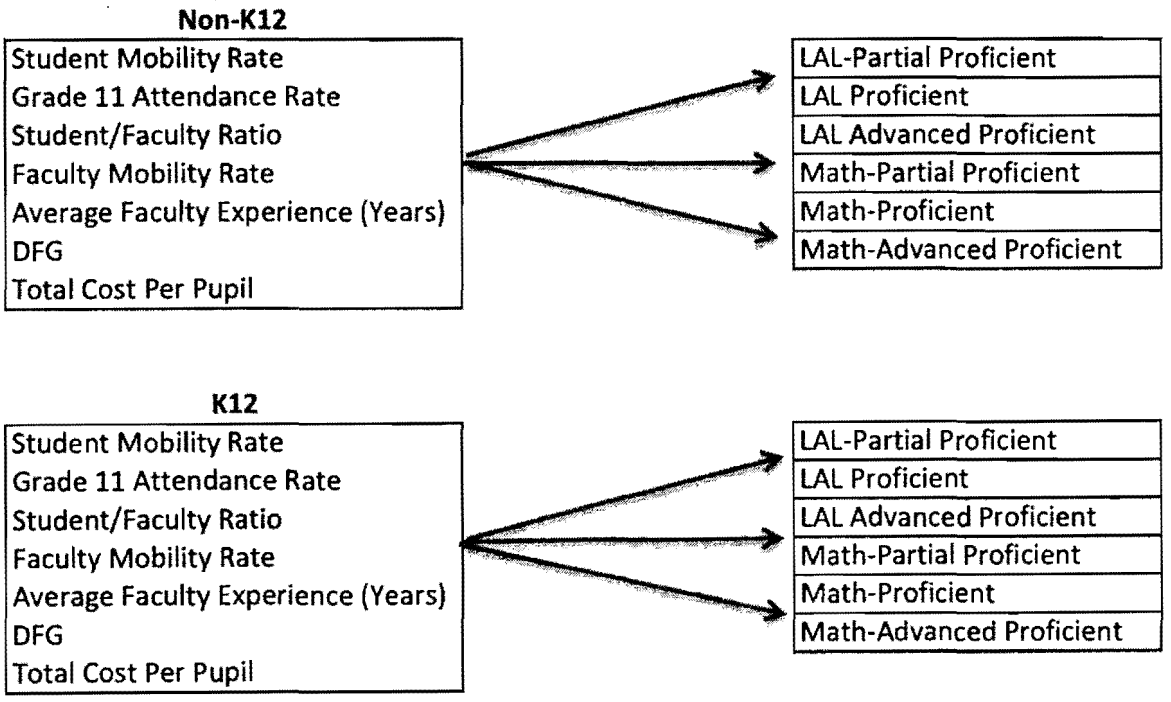

Figure 2. Tier 2 Analyses

The regression models generated in this research highlighted the variation in the dependent variable (NJ HSPA LAL and Math) between the two forms of school structure (K-12 and non-K-12). The multiple hierarchical regression analysis allowed the

researcher to answer the question "Which of the report card variables have an impact on NJ HSPA student performance relative to the structure of the district?"

Collinearity

The New Jersey School Report Card includes variables that may show strong correlations to one another. A significant threat to reliability and validity of the linear regression model is the impact of multicollinearity on the independent variables. Multicollinearity occurs when two or more variables contribute too much to the model. Although multicollinearity will not impact the overall predictive power of a regression model, it may cause individual coefficient estimates to change erratically and inflate variances, which causes problems estimating correlation coefficients. The researcher may then generate inaccurate conclusions about relationships. Given the size of the sample population and the number of variables identified in prior research to have a statistically significant effect, a correlation analysis was run to determine multicollinearity between the independent or predictor variables.

The researcher employed collinearity diagnostics in SPSS to examine the Variance Inflation Factor (VIF) and Tolerance. The multicolllinearity statistics were interpreted as follows:

- VIF > 10 indicates multicollinearity
- Tolerance Value< .10 indicates multicollinearity

In the case of multicollinearity, variables were either combined or removed, depending on the nature of the information.

Internal Validity

Internal validity refers to the extent to which the findings of a study accurately represent the causal relationship between an intervention and an outcome in particular circumstances of the study (Gay, Mills, & Airasian, 2009). In this study, reliability of the data results depended upon the accuracy of the state-recorded data. There may be threats or rival explanations for the reported outcomes that are not accounted for. In order to maximize internal validity, this study would require rigid controls over an extended period of time, which might negate its ability to be generalized. This study is quantitative in nature and involved the use of existing data collected from the New Jersey School Report Card. The New Jersey School Report Card is provided for public schools in New Jersey and reported by the New Jersey Department of Education via their website (www.njdoe.gov). The assessments administered by the State of New Jersey are given with the assistance of external contractors that collect and tally the student-level data. The results are disseminated to the local districts which, upon receipt, have an opportunity to correct any errors. The New Jersey Department of Education's Office of Assessment conducts the final quality control of all test data and is the source of the assessment results for all state reports (NJDOE, 2012).

External Validity

External validity refers to the extent to which the findings obtained from an investigation conducted under particular circumstances can be generalized to other circumstances (Gay, Mills, & Airasian, 2009). To the extent that circumstances of a particular investigation differ from the circumstances of interest, the external validity of the findings of the investigation may be questioned. For the purposes of this study, 130

New Jersey schools were studied. The intent of this study is to generalize which school district structure showed a significant difference in academic achievement as measured by the NJ HSPA Language Arts and Mathematics scores. The random sample of school districts combined with the use of public data allow for reasonable generalization. More narrowed sub-group generalizations might not be reasonable in this study without additional control factors or breakdown of the data.

The data for this study were collected and aggregated into groups by the researcher. The summarized data created an exposure. Specifically, the raw data were not in hand and may have been subjected to many transformations. The transformations by their nature contain (1) inclusion and exclusion of data records in accordance with the application of categorical definitions applied, (2) removal of incomplete (or partial) records that otherwise do not meet the level of acceptability for database integrity, and (3) statistical summarization with associated statistical parameters of fit that cannot be verified. Furthermore, all data and information used are considered public information; therefore, they are subject to any flaws and issues associated with the collection and posting of that data.

Chapter Summary

New Jersey has 590 school districts that vary in size and grade level configuration. The inconsistency of school district structure creates wide differences in the number of transitions for New Jersey students that go from district to district and school to school. Variations in leadership, policies, climate, and administrative structures pose the question as to which type of structure most benefits students. This study aims to provide an analysis of any possible benefits or gains in student achievement throughout

high schools in New Jersey based on their district grade span configuration. It is expected to "open the door" to further longitudinal studies examining student outcomes in relation to school district structure and the variables that are associated with the different structures. The expected finding from this research study is that there will be a significant difference in student performance between students from K-12 school districts and those from non-K-12 districts.

This study used a non-experimental causal-comparative research design with quantitative methods. In educational research, experimental research is challenging due to the high number of variables involved and the inability to control the background of those in the experiment and the fact that only existing conditions and settings are manipulable and, therefore, are limited at best. The basic causal-comparative study is simple and the control procedures allow for improved interpretation of results, even though the grouping variable is not manipulated (Gay, Mills, & Airasian, 2008). Causal-comparative studies involve a wider and larger variety of statistical techniques than other types of research.

This study employed a hierarchical linear regression analysis of the data, run on two tiers, in order to answer the research questions. Tier 1 entailed a regression analysis with seven independent variables in one model and then district structure was added as another independent variable in a second model to determine the effect. The results were analyzed and compared to determine the significance of school district structure on student performance. The regression analysis measured the outcomes on three levels, Partially Proficient, Proficient, and Advanced Proficient, in both Language Arts and Math.

The Tier 2 analyses separated the high schools into two groups (K-12 and non-K-12) to answer Research Question 2. The seven variables identified in previous research to impact student performance were input as the independent variables with student performance outcomes as the dependent variables. The analyses were run for each of the groups in both Language Arts and Math on the three levels of student performance, Partially Proficient, Proficient, and Advanced Proficient. The data were then analyzed and compared.

As an ex post facto study, this study examines the effect of school district structure in retrospect. Causal comparative studies help to identify variables worthy of experimental investigation (Gay, Mills, & Airasian, 2008). The consolidation of school districts in New Jersey requires more than just an examination of the financial effects; it demands the investigation of academic achievement outcomes and the variables that contribute to those outcomes. Despite the advantages, causal comparative research does have some limitations. This study has limited or no control over the variables and the students taking the assessments. The schools chosen will be chosen at random based on DFG classification. Interpretation of the results must be used with caution. The data could show a relation to the outcome, though not necessarily a cause. The data and analysis of this study involved descriptive and inferential statistics.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this quantitative study was to investigate the influence of school district structure in New Jersey on student performance as measured by NJ HSPA proficiency levels. Since 1995, the New Jersey Department of Education has published, annually, the NJ School Report Card, which is also available in Microsoft Excel format on the NJDOE website. This study examined 65 high schools in non-K-12 districts and 65 high schools from K-12 districts selected through a stratified, proportional random sample. By using select control variables found in extant literature, this study produced research-based evidence that the concept of structure, relative to other factors in shaping student achievement, could assist stakeholders in discussions of consolidating school districts in New Jersey that will benefit both students and taxpayers.

Sample Characteristics

New Jersey has a total of 389 high schools in 549 school districts classified through eight groups of socioeconomic measures, ranging from A, being the poorest, to J, as the wealthiest communities in the state (See Table 3). The base group of the study involved 65 high schools that are not part of districts that offer Grades K-12. These schools represent 16.7% of the total population (See Table 4). The other 65 high schools were selected at random stratified by the corresponding DFG composition of the 65 non-K-12 schools, bringing the total sample size to 130, or 33.4%, of the total population (See Table 5).

Table 3

Distribution of New Jersey Regular School Districts by DFG (excluding charter schools, county vocational, and special service commissions)

DFG	TOTAL DISTRICTS	% OF TOTAL
A	39	7.1
B	67	*12.2*
CD	67	*12.2*
DE	83	*15.1*
FG	89	*16.2*
GH	76	*13.8*
I	103	*18.8*
J	25	*4.6*
TOTAL	549	*100*

Table 4

Distribution of New Jersey High Schools in Districts that Do Not Offer Grades K-12

DFG	NUMBER of HIGH SCHOOLS	% OF TOTAL (389)
A	0	0.00
B	5	1.3
CD	5	1.3
DE	12	3.1
FG	7	1.8
GH	20	5.1
I	14	3.6
J	2	0.5
TOTAL	65	16.7

Table 5

Distribution of New Jersey High Schools by DFG for This Study

DFG	Non-K-12 High Schools	K-12 High Schools
A	0	0
B	5	5
CD	5	5
DE	12	12
FG	7	7
GH	20	20
I	14	14
J	2	2
TOTAL	65	65

Results and Findings

Basic Descriptive Data

Dependent variable. Because the goal of this study is to provide policymakers and educators with the knowledge of how school district structure affects student performance, it is important to illustrate the range of student performance for each of the dependent variables.

Depicted in Table 6 is the performance of high school students in Language Arts across the schools. In the category Partially Proficient, the range in percentage of students falling into this category was 1% and 28%. The average across the schools was 5.56%. The percent of students falling in the Proficient category across the schools was 41% to 87% with an average of 69.5%. The percentage of students falling into the Advanced Proficient category across the schools was 2% to 64% with an average of 25.06%.

The performance of high school students not meeting proficiency in Math across the schools was 4% to 67% with an average of 17.3%. The percentage of students falling into the Proficient category in Math was 25% to 70% with an average of 53.2%. The percentage of students across the schools in the Advanced Proficient category in Math was 1% to 69% with an average of 12.9%.

Table 6

Distribution of Sample High Schools by Proficiency Level on NJ ASK Language Arts, 2011 (in percentage).

	N	Minimum	Maximum	Mean	Std. Deviation
Language Arts					
Partially Proficient	130	1	28	5.56	4.034
Proficient	130	41	87	69.49	8.979
Advanced Proficient	130	2	64	25.06	11.602
Math					
Partially Proficient	130	4	67	17.32	9.130
Proficient	130	25	70	53.17	7.905
Advanced Proficient	130	1	69	29.28	12.861
Valid N (listwise)	130				

Independent variables. The New Jersey School Report Card variables found to have a significant impact on student performance were outlined in Chapter II. For SPSS editor purposes, the variable names were shortened as detailed in Table 7.

Table 7

Abbreviated Variable Names

Variable	Short Form/Abbreviation
Student Mobility Rate	mobilityrate
Grade 11 Student Attendance Rate	gr11attend
Ratio of Students to Faculty	stu_faculty
Faculty Mobility Rate	facmobility
Average Years of Faculty Experience	fac_exp
District Factor Group	DFG
Average Per Pupil Costs	totalperpupilcost

Table 8

Distribution of Sample High Schools by Independent Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Mobility Rate	130	0	29	5.75	4.462
Gr. 11 Attendance Rate	130	87	99	94.37	1.819
Student/Faculty Ratio	130	7	15	11.15	1.566
Faculty Mobility Rate	130	0	46	3.77	5.336
Average Faculty Experience in Years	130	7	18	10.39	1.849
District Factor Group	130	0	1	.2462	.43244
Total Per Pupil Cost	130	$13,046	$29,921	$17,986.32	$2,772.57
Valid N (listwise)	130				

Using the descriptive statistical data in Table 8, we can generate a composite picture of all the independent variables combined. The student mobility rate from the schools in the sample ranged from 0% to 29%. The 11th grade attendance rate ranged from 87% to 99%. With respect to the student/faculty ratio, the range was from 7

students for every faculty member to 15 students for every faculty member, with a mean of 11.15 (S.D.=1.566). The rate of faculty mobility for the sample size ranged from a low of 0% to a high of 46% with a mean of 3.77% (S.D.=5.336%). The average years of experience for the faculty of the sample size ranged from 7 to 18 years with a mean of 10.39 (S.D.=1.849). New Jersey has eight DFG classifications ranging from "A" (poorest) to "J" (wealthiest). For this study, the schools were broken into two groups for statistical coding. The schools in DFG "A" to "GH" were coded 0 and schools from "I" and "J" were coded 1. Finally, the total costs per pupil for the sample size ranged from $13,046 spent per student to a high of $29,921 spent per student with a mean of $17,986.32 (S.D.=2772.57).

Regression Results

A regression analysis was chosen for this study. The data were used to answer the research questions identified. To answer Research Question 1, a statistical analysis was completed through a series of linear regression models. Grade span for each type of school district was made operational by using a dummy variable that was assigned a 0 if the school was part of a K-12 district and 1 if it was not.

Tier 1 Analyses: School District Structure as a Predictor

Tier 1 analyses sought to identify how district structure affects student performance on the NJ HSPA to answer Research Question 1: "To what extent is school district structure an independent predictor of student outcomes relative to other structural factors that have been identified by previous research?" Each student performance level was examined separately for Language Arts and Math. Tier 1 analyses were structured as outlined in Table 9.

Table 9

Tier 1 Analyses Structure

Analysis Number	Subject	Student Performance Level
1	Language Arts	Partially Proficient
2	Language Arts	Proficient
3	Language Arts	Advanced Proficient
4	Math	Partially Proficient
5	Math	Proficient
6	Math	Advanced Proficient

Analysis 1: Language Arts Partially Proficient

Table 10 reports the results of the regression analysis for the Partially Proficient outcome category in Language Arts.

In this hierarchical linear regression model, the dependent variable, percentage of students scoring in the Partially Proficient category on the LAL section of the NJ HSPA, was regressed on eight school predictors:

1. Overall Grade 11 attendance rate
2. Overall student mobility rate
3. Student-to-faculty ratio
4. Faculty mobility
5. Median faculty experience
6. DFG

7. Total cost per pupil
8. District structure

Table 10

Model Summary of Multiple Linear Regression Model for Language Arts Partially Proficient Rates

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate %	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.614[a]	.377	.341	3.275	.377	10.535	7	122	.000
2	.651[b]	.423	.385	3.163	.047	9.796	1	121	.002

[a] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend, DistStructure

In the first model, each of the variables (overall student mobility rate, overall Grade 11 attendance rate, student/faculty ratio, faculty mobility, median faculty experience, DFG, and total cost per pupil) had predictive value and influenced the outcome variable (LAL Partially Proficient). These variables taken together explained 37.7% of the variance in LAL Partially Proficient percentage in schools used for this study, and the model was significant $F(7,122) = 10.535$, $p \leq .001$. In the second model, district structure is introduced as an additional predictor variable, and the model was significant $F(8,121)=11.107$, $p \leq .001$. The $R^2 = .423$ with an R^2 change between Model 1 and Model 2 of .047, or 4.7%, which means 4.7% is added to the explained variance by introducing district structure as a predictor. This R^2 change was significant ($p=.002$).

Table 11

ANOVA Model for Language Arts Partially Proficient Rates

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	790.738	7	112.963	10.535	.000[b]
	Residual	1308.199	122	10.723		
	Total	2098.937	129			
2	Regression	888.716	8	111.089	11.107	.000[c]
	Residual	1210.221	121	10.002		
	Total	2098.937	129			

[a] Dependent Variable: LAPP

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend, DistStructure

With respect to the first model, student mobility rate (beta=.263, t=3.172, p=.002) was significant. The positive beta suggests that schools with higher student mobility rates will tend to have a higher percentage of students scoring in the Partially Proficient category in LAL. The Grade 11 attendance rate (beta= -.290, t=3.35, p≤.001) was also significant. The negative beta suggests schools with lower attendance rates are inclined to have a higher percentage of students scoring in the Partially Proficient category. Also significant was DFG (beta=-.193, t=-2.375, p=.019). The negative beta suggests that schools located in less wealthy communities may experience a higher percentage of students in the Partially Proficient category on the LAL. The predictors of faculty mobility, student/faculty ratio, median faculty experience, and total per pupil cost were

not significant. In Model 2, district structure is introduced, and the predictor is significant (beta=-.282, t=-3.130, p=.002). The negative beta suggests that K-12 schools have a greater percentage of students failing to master the state assessment than non-K-12 schools. The same factors in Model 1 remain significant while total per pupil cost becomes significant (beta=.329, t=3.237, p=.002). The beta suggests higher total per pupil cost is associated with greater number of students falling in the Partially Proficient category in LAL. In other words, schools that are spending more money are not getting better results in LAL proficiency. Faculty mobility, student/faculty ratio, and median faculty experience are not significant in Model 2.

Table 12

Standardized Coefficient Betas and Tolerance for Multiple Linear Regression Model for Language Arts Partially Proficient Rates

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	67.315	17.807		3.780	.000
	mobilityrate	.238	.075	.263	3.172	.002
	gr11attend	-.642	.192	-.290	-3.352	.001
	stu_faculty	-.241	.212	-.094	-1.136	.258
	facmobility	-.027	.056	-.035	-.476	.635
	fac_exp	-.277	.160	-.127	-1.728	.086
	DFG	-1.800	.758	-.193	-2.375	.019
	totalperpupilcost	.000	.000	.138	1.637	.104
2	(Constant)	62.806	17.258		3.639	.000
	mobilityrate	.228	.072	.252	3.148	.002
	gr11attend	-.683	.186	-.308	-3.683	.000
	stu_faculty	.128	.237	.050	.543	.588
	facmobility	-.047	.055	-.062	-.857	.393
	fac_exp	-.224	.156	-.103	-1.440	.152
	DFG	-1.910	.733	-.205	-2.606	.010
	totalperpupilcost	.000	.000	.329	3.237	.002
	DistStructure	-2.270	.725	-.282	-3.130	.002

[a] Dependent Variable: LAPP

Analysis 2: Language Arts Proficient

Table 13 reports the results of the regression analysis for the Proficient outcome category in Language Arts.

Table 13

Model Summary of Multiple Linear Regression Model for Language Arts Proficient Rates

Model	*R*	R Square	Adjusted R Square	Std. Error of the Estimate %	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.708[a]	.501	.472	6.522	.501	17.505	7	122	.000
2	.713[b]	.508	.475	6.504	.007	1.667	1	121	.199

[a] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend, DistStructure

The percentage of students scoring in the Proficient category in LAL is the major outcome of this analysis. The same predictors are included in this model as in Analysis 1. With respect to the first model, the variables taken together account for 50.1% of the variance in LAL Proficient percentage in schools used for this study, and the model was significant $F(7,122)=17.505$, $p\leq.001$. In the second model, district structure is introduced as an additional predictor, and the model is significant $F(8,121)=15.609$, $p\leq.001$. The R^2 is .508 with an R^2 change of .007 or .7%. The R^2 change is not significant, suggesting school district structure does not add to the variance in the predictor model.

Table 14

ANOVA Model for Language Arts Proficient Rates

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	5211.659	7	744.523	17.505	.000[b]
1	Residual	5188.934	122	42.532		
	Total	10400.593	129			
	Regression	5282.171	8	660.271	15.609	.000[c]
2	Residual	5118.422	121	42.301		
	Total	10400.593	129			

[a].Dependent Variable: LAP

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend, DistStructure

In Model 1 the overall Grade 11 attendance rate is significant (beta=-.211, t=-2.729, p=.007). The negative beta suggests that high absentee rates are associated with lower school rates of scoring at the Proficient level in LAL. DFG is also significant (beta=-.585, t=-8.044, p≤.001). The beta is negative and suggests that schools in wealthier districts have a smaller percentage of students in the Proficient category. It is important to keep in mind that lower percentages of schools scoring at the Proficient level is inconclusive, as the balance of the levels, Partially Proficient, Advanced Proficient, or both, would absorb the variation. In other words, lower Proficient rates may mean higher Partially Proficient rates, higher Advanced Proficient rates, or a combination of the two.

The predictors of mobility rate, faculty mobility, student/faculty ratio, median faculty experience, and total cost per pupil are not significant in this model. In Model 2, district structure is introduced and it is not significant. Only Grade 11 attendance rate remains significant (beta=-204, t=2.638, p=.009), while overall student mobility rate, faculty mobility rate, student faculty ratio, faculty experience, and total cost per pupil are not significant. The results suggest that school district structure has no significant influence on average school student performance in the Proficient category in LAL on the NJ HSPA.

Table 15

Standardized Coefficient Betas and Tolerance for Multiple Linear Regression Model for Language Arts Proficient Rates

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	176.159	35.464		4.967	.000
	mobilityrate	.008	.149	.004	.054	.957
	gr11attend	-1.041	.382	-.211	-2.729	.007
	stu_faculty	-.234	.423	-.041	-.554	.580
	facmobility	.075	.112	.045	.672	.503
	fac_exp	-.095	.319	-.020	-.298	.766
	DFG	-12.141	1.509	-.585	-8.044	.000
	totalperpupilcost	.000	.000	-.036	-.485	.629
2	(Constant)	179.984	35.491		5.071	.000
	mobilityrate	.016	.149	.008	.109	.913
	gr11attend	-1.007	.382	-.204	-2.638	.009
	stu_faculty	-.548	.486	-.096	-1.126	.262
	facmobility	.092	.112	.055	.821	.413
	fac_exp	-.140	.320	-.029	-.437	.663
	DFG	-12.048	1.507	-.580	-7.995	.000
	totalperpupilcost	.000	.000	-.109	-1.165	.246
	DistStructure	1.925	1.491	.108	1.291	.199

[a] Dependent Variable: LAP

Analysis 3: Language Arts Advanced Proficient

Table 16 reports the results of the regression analysis for the Advanced Proficient outcome category for Language Arts.

Table 16

Model Summary of Multiple Linear Regression Model for Language Arts Advanced Proficient Rates

Model	*R*	R Square	Adjusted R Square	Std. Error of the Estimate %	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.758[a]	.575	.550	7.780	.575	23.550	7	122	.000
2	.760[b]	.577	.549	7.792	.002	.634	1	121	.427

[a] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend, DistStructure

The percentage of students scoring in the Advanced Proficient range in LAL is the major outcome of this analysis. The same predictors are included in this model as in the prior analyses. With respect to model 1, the variables taken together explained 57.5% of the variance in LAL Advanced Proficient percentage in schools used for this study, and the model was significant $F(7,122)=23.550$, $p\leq.001$. In the second model, district structure is introduced as an additional predictor variable and the model is significant $F(8,121)=20.624$, $p\leq.001$. The $R^2 = .577$ with an R^2 change from Model 1 to Model 2 of .002, or 0.2%. This R^2 change is not statistically significant. This suggests that district structure does not add to the variance in the predictor model.

Table 17

ANOVA Model for Language Arts Advanced Proficient Rates

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9979.329	7	1425.618	23.550	.000[b]
	Residual	7385.408	122	60.536		
	Total	17364.737	129			
2	Regression	10017.820	8	1252.227	20.624	.000[c]
	Residual	7346.917	121	60.718		
	Total	17364.737	129			

[a] Dependent Variable: LAAP

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend, DistStructure

In Model 1, the following predictors are significant: overall Grade 11 attendance rate (beta=.308, t=4.312, p≤.001) and DFG (beta=.538, t=8.021, p≤.001). The predictors of mobility rate, faculty mobility, student/faculty ratio, faculty experience, and total cost per pupil are not significant. This suggests that schools with lower overall absentee rates tend to have a higher percentage of students scoring in the Advanced Proficient category in LAL. Also, the data suggests that schools located in wealthier communities tend to have a higher percentage of students in the Advanced Proficient category in LAL. In the second model, district structure is introduced; however, it is not significant (p=.427). Grade 11 attendance rate remains significant (beta=.312, t=4.351, p≤.001, and DFG also remains significant (beta=.541, t=8.038, p=.000). Student mobility rate, faculty mobility, student/faculty ratio, faculty experience and total cost per pupil are not significant.

Table 18

Standardized Coefficient Betas and Tolerance for Multiple Linear Regression Model for Language Arts Advanced Proficient Rates

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-168.276	42.309		-3.977	.000
	mobilityrate	-.173	.178	-.067	-.972	.333
	gr11attend	1.963	.455	.308	4.312	.000
	stu_faculty	.276	.504	.037	.547	.585
	facmobility	-.067	.134	-.031	-.501	.617
	fac_exp	.450	.380	.072	1.183	.239
	DFG	14.444	1.801	.538	8.021	.000
	totalperpupilcost	.000	.000	-.027	-.387	.700
2	(Constant)	-165.450	42.521		-3.891	.000
	mobilityrate	-.167	.179	-.064	-.936	.351
	gr11attend	1.989	.457	.312	4.351	.000
	stu_faculty	.044	.583	.006	.076	.940
	facmobility	-.054	.135	-.025	-.403	.688
	fac_exp	.417	.383	.066	1.088	.279
	DFG	14.513	1.806	.541	8.038	.000
	totalperpupilcost	.000	.000	-.069	-.788	.432
	DistStructure	1.423	1.787	.062	.796	.427

[a] Dependent Variable: LAAP

Analysis 4: Math Partially Proficient

Table 19 reports the results of the regression analysis for the Partially Proficient outcome category in Math.

Table 19

Model Summary of Multiple Linear Regression Model for Math Partially Proficient Rates

Model	*R*	R Square	Adjusted R Square	Std. Error of the Estimate %	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.649[a]	.421	.388	7.142	.421	12.692	7	122	.000
2	.668[b]	.446	.410	7.016	.025	5.414	1	121	.022

[a] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend, DistStructure

The percentage of students scoring in the Partially Proficient category in Math is the major outcome of this analysis. The same predictors are included in this model as in the prior analyses. In Model 1, the variables taken together explained 42.1% of the variance in Math Partially Proficient percentage in schools used for this study and the model was significant $F(7,122)= 12.692$, $p \leq .001$. In the second model, district structure is introduced as an additional predictor variable, and the model is significant $F(8,121)=12.184$, $p \leq .001$. The $R^2=.446$ with an R^2 change from Model 1 to Model 2 of .025 or 2.5%. This R^2 change is significant ($p=.022$). This indicates 2.5% of the explained variance is added by introducing district structure as a predictor.

Table 20

ANOVA Model for Math Partially Proficient Rates

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4531.147	7	647.307	12.692	.000[b]
	Residual	6222.304	122	51.002		
	Total	10753.451	129			
2	Regression	4797.654	8	599.707	12.184	.000[c]
	Residual	5955.797	121	49.221		
	Total	10753.451	129			

[a] Dependent Variable: MAPP

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend, DistStructure

With respect to the first model, the following predictors are significant: student mobility rate (beta=.293, t=3.663, p≤.001, the school's Grade 11 attendance rate (beta=-.269, t=-3.231, p=.002), DFG (beta=-.254, t=-3.249, p≤.001), and total cost per pupil (beta=.185, t=2.286, p=.024). Faculty experience (p=.081), faculty mobility rate (p=.967), and student/faculty ratio (p=.462) are not significant. The model suggests that schools with higher student mobility rates tend to have a greater percentage of students scoring in the Partially Proficient category in Math. Additionally, the model suggests schools with lower attendance rates tend to have a greater percentage of students scoring the Partially Proficient category in Math. Furthermore, the model suggests that schools

located in poorer communities tend to have a greater percentage of students scoring in the Partially Proficient category in Math. Finally, the model further suggests increased total costs per pupil are associated with a higher percentage of students scoring in the Partially Proficient category in Math.

In Model 2, district structure is introduced as an additional predictor, and it is significant (beta=-.206, t=-2.327, p=.022). Mobility rate (beta=.285, t=3.626, $p \leq .001$), Grade 11 attendance (beta=-.282, t=-3.445, $p \leq .001$), and DFG (beta=-263, t=3.416, $p \leq .001$) are also significant. Faculty mobility, student/faculty ratio, and faculty experience are not significant. The model suggests that, when controlled for other variables, schools from non-K-12 districts tend to have a lower percentage of students scoring in the Partially Proficient range on the Math section of the HSPA. This implies that non-K-12 schools have a greater percentage of students performing at higher levels than schools from K-12 districts. In other words, schools from K-12 districts have a higher percentage of students not mastering the Math portion of the HSPA.

Table 21

Standardized Coefficient Betas and Tolerance for Multiple Linear Regression Model for Math Partially Proficient Rates

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	140.505	38.835		3.618	.000
	mobilityrate	.599	.163	.293	3.663	.000
	gr11attend	-1.350	.418	-.269	-3.231	.002
	stu_faculty	-.222	.463	-.038	-.480	.632
	facmobility	.005	.123	.003	.041	.967
	fac_exp	-.614	.349	-.124	-1.759	.081
	DFG	-5.371	1.653	-.254	-3.249	.001
	totalperpupilcost	.001	.000	.185	2.286	.024
2	(Constant)	133.068	38.284		3.476	.001
	mobilityrate	.583	.161	.285	3.626	.000
	gr11attend	-1.418	.412	-.282	-3.445	.001
	stu_faculty	.387	.525	.066	.738	.462
	facmobility	-.028	.121	-.016	-.232	.817
	fac_exp	-.527	.345	-.107	-1.528	.129
	DFG	-5.552	1.626	-.263	-3.416	.001
	totalperpupilcost	.001	.000	.324	3.258	.001
	DistStructure	-3.743	1.609	-.206	-2.327	.022

[a] Dependent Variable: MAPP

Analysis 5: Math Proficient

Table 22 reports the results of the regression analysis for the Proficient outcome category in Math.

Table 22

Model Summary of Multiple Linear Regression Model for Math Proficient Rates

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate %*	*Change Statistics*			
					R Square Change	*F Change*	*df1*	*df2*	*Sig. F Change*
1	.580[a]	.336	.298	6.622	.336	8.830	7	122	.000
2	.608[b]	.370	.328	6.480	.033	6.414	1	121	.013

[a] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend, DistStructure

The percentage of students scoring in the Proficient category in Math is the major outcome of this analysis. The same predictors are used in this model as in the prior analyses. In the first model, the variables taken together explain 33.6% of the variance in Math Proficient percentage in schools used for this study. The model is significant $F(7,122)=8.830$, $p\leq.001$. In the second model, district structure is introduced as an additional predictor variable, and the model is significant $F(8,121)=8.871$, $p\leq.001$ with $R^2=.370$. The R^2 change from Model 1 to Model 2 when district structure is introduced is .033 or 3.3% which means 3.3% is added to the explained variance by introducing district structure as a predictor. This R^2 change is significant at $p=.013$.

Table 23

ANOVA Model for Math Proficient Rates

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2710.677	7	387.240	8.830	.000[b]
1	Residual	5350.467	122	43.856		
	Total	8061.144	129			
	Regression	2980.018	8	372.502	8.871	.000[c]
2	Residual	5081.127	121	41.993		
	Total	8061.144	129			

[a] Dependent Variable: MAP

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend, DistStructure

With respect to Model 1, the only predictor that was significant was DFG (beta=-.602 t=-7.184, p≤.001). The negative beta suggests that schools located in poorer communities tend to have a higher percentage of students scoring in the Proficient category. The predictors of student mobility rate, the Grade 11 attendance rate, faculty mobility, student faculty/ratio, faculty experience and total cost per pupil are not significant. In Model 2, district structure is introduced, and it is significant (beta=.239, t=2.533, p=.013). The positive beta suggests that schools part of K--12 districts tend to have a higher percent of students scoring in the Proficient range on the Math portion of the HSPA. Also significant are the student/faculty ratio (beta=-.262, t=-2.728, p=.007), the faculty mobility rate (beta=.165, t=2.178, p=.031), DFG (beta=-.592, t=-7.212,

p≤.001), and total cost per pupil (beta=-.233, t=-2.198, p=.030). Student mobility rate, the Grade 11 attendance rate, and median faculty experience are not significant. This model suggests when controlled for other factors, K-12 schools have a greater number of students in the Proficient category on the Math section of the NJ HSPA. It is important to keep in mind that when examining percentages in the Proficient range, the results may be inconclusive, as the balance of the levels, Partially Proficient, Advanced Proficient, or both, would absorb the variation. In other words, lower Proficient rates may mean higher Partially Proficient rates, higher Advanced Proficient rates, or a combination of the two.

Table 24

Standardized Coefficient Betas and Tolerance for Multiple Linear Regression Model for Math Proficient Rates

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	34.720	36.011		.964	.337
	mobilityrate	-.116	.152	-.065	-.765	.446
	gr11attend	.321	.388	.074	.828	.409
	stu_faculty	-.709	.429	-.141	-1.653	.101
	facmobility	.211	.114	.142	1.852	.066
	fac_exp	.225	.324	.053	.694	.489
	DFG	-11.011	1.533	-.602	-7.184	.000
	totalperpupilcost	.000	.000	-.072	-.826	.411
2	(Constant)	42.196	35.362		1.193	.235
	mobilityrate	-.100	.148	-.056	-.673	.502
	gr11attend	.389	.380	.089	1.023	.308
	stu_faculty	-1.322	.485	-.262	-2.728	.007
	facmobility	.244	.112	.165	2.178	.031
	fac_exp	.137	.319	.032	.431	.667
	DFG	-10.828	1.502	-.592	-7.212	.000
	totalperpupilcost	-.001	.000	-.233	-2.198	.030
	DistStructure	3.763	1.486	.239	2.533	.013

[a] Dependent Variable: MAP

Analysis 6: Math Advanced Proficient

Table 25 reports the results of the regression analysis for the Advanced Proficient outcome category in Math.

Table 25

Model Summary of Multiple Linear Regression Model for Math Advanced Proficient Rates

Model	*R*	R Square	Adjusted R Square	Std. Error of the Estimate %	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.741[a]	.548	.522	8.888	.548	21.160	7	122	.000
2	.741[b]	.548	.519	8.923	.000	.033	1	121	.856

[a] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, grl1attend, DistStructure

The percentage of students who scored in the Advanced Proficient range in Math is the major outcome of this analysis. The same predictors are included in this model as in the prior analyses. With respect to Model 1, the variables taken together explained 54.8% of the variance in Math Advanced Proficient percentages in schools used for this study. The model is significant $F(7,122)=21.160$, $p\leq.001$. In the second model, district structure is introduced as an additional predictor variable, and the model is significant $F(8,121)=8.327$, $p\leq.001$. The $R^2 = .548$ with an R^2 change from Model 1 to Model 2 of .000. This R^2 is not statistically significant, suggesting district structure does not contribute to this predictor model.

Table 26

ANOVA Model for Math Advanced Proficient Rates

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	11700.197	7	1671.457	21.160	.000[b]
1	Residual	9637.023	122	78.992		
	Total	21337.220	129			
	Regression	11702.846	8	1462.856	18.372	.000[c]
2	Residual	9634.374	121	79.623		
	Total	21337.220	129			

[a] Dependent Variable: MAAP

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, stu_faculty, gr11attend, DistStructure

With respect to Model 1, the following predictors were significant, student mobility rate (beta=-.150, t=-2.131, p=.035). The negative beta suggests that schools with lower student mobility rates tend to have a higher percentage of students scoring in the Advanced Proficient range in Math; the Grade 11 attendance rate (beta=.172, t=2.333, p=.021). The positive beta suggests that schools with higher attendance rates tend to have a higher percent of students scoring in the Advanced Proficient range in Math; and DFG (beta=.556, t=8.038, p≤.001). The positive beta suggests that schools from wealthier communities tend to have a higher percentage of students scoring in the Advanced Proficient range in Math on the HSPA. The student/faculty ratio, faculty mobility rate, median faculty experience, and total per pupil cost were not significant. The second

model introduces district structure as a predictor, and it is not significant. This model suggests that district structure does not influence student percentages in the Advanced Proficient category for Math on the NJ HSPA in schools used for this study.

Table 27

Standardized Coefficient Betas and Tolerance for Multiple Linear Regression Model for Math Advanced Proficient Rates

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-94.119	48.330		-1.947	.054
	mobilityrate	-.434	.203	-.150	-2.131	.035
	gr11attend	1.213	.520	.172	2.333	.021
	stu_faculty	.985	.576	.120	1.711	.090
	facmobility	-.237	.153	-.098	-1.552	.123
	fac_exp	.280	.435	.040	.645	.520
	DFG	16.534	2.057	.556	8.038	.000
	totalperpupilcost	.000	.000	-.068	-.955	.342
2	(Constant)	-93.377	48.693		-1.918	.058
	mobilityrate	-.432	.204	-.150	-2.113	.037
	gr11attend	1.220	.523	.173	2.331	.021
	stu_faculty	.924	.667	.113	1.385	.169
	facmobility	-.233	.154	-.097	-1.513	.133
	fac_exp	.272	.439	.039	.619	.537
	DFG	16.552	2.068	.557	8.005	.000
	totalperpupilcost	.000	.000	-.078	-.869	.386
	DistStructure	.373	2.046	.015	.182	.856

[a] Dependent Variable: MAAP

Tier 1 Summary

Tier 1 analyses sought to identify how district structure affects student performance on the NJ HSPA in order to answer Research Question 1. Using each level of student performance--Partially Proficient, Proficient, and Advanced Proficient--in both Language Arts and Math as the outcome variable, a regression model was run with all of the independent variables identified in Chapter II. Within each analysis, a separate model was run in which district structure was introduced as another independent variable, and the two models were compared to determine the level of variance and the significance.

The nature of the data, and the interconnectedness of the various student performance levels, necessitated the need to examine school district structure at all levels. The advantage of running a regression model for each is to determine the impact on those students needing the most services (Partially Proficient) and those students that have excelled (Advanced Proficient). A summary of the results are presented in Table 28.

Table 28

Summary of Tier 1 Regression Models' Effect of Structure on Achievement

Analysis	Subject	Proficiency	R^2 without district structure (%)	R^2 with district structure (%)	R^2 change (adding district structure) (%)	Sig level (P)	Sig (Y or N)	Beta: District Structure
1	LAL	PP	37.7%	42.3%	4.7%	0.002	Y	-0.282
2	LAL	P	50.1%	50.8%	0.7%	0.199	N	0.108
3	LAL	AP	57.5%	57.7%	0.2%	0.427	N	0.062
4	Math	PP	42.1%	44.6%	2.5%	0.022	Y	-0.206
5	Math	P	33.6%	37.0%	3.3%	0.013	Y	0.239
6	Math	AP	54.8%	54.8%	0.0%	0.856	N	0.015

Tier 2 Analyses: Variables That Affect Student Performance in Non-K-12 vs. K-12 Schools

To answer Research Question 2, "To what extent do the factors that affect student outcomes vary in K-12 districts versus districts that offer limited grades of 7-12 or 9-12?" Tier 2 analyses sought to identify which variables most affect student performance in K-12 and non-K-12 districts, separately. The analyses were run comparing both K-12 and non-K-12 schools in each of the proficiency levels for both Language Arts and Math.

Due to the format of the data, it is important to examine the effect of all variables on each of the three levels of performance: Partially Proficient, Proficient, and Advanced Proficient. In total, six models were run, one for each of the outcomes (Advanced

Proficient, Proficient, Partially Proficient) in both LAL and Math. The analysis is outlined in Table 29.

Table 29

Outline of Tier 2 Analyses

Analysis Number	Subject	Proficiency Level
7	Language Arts	Partially Proficient
8	Language Arts	Proficient
9	Language Arts	Advanced Proficient
10	Math	Partially Proficient
11	Math	Proficient
12	Math	Advanced Proficient

Analysis 7: Factors that Affect LAL Partially Proficient Rates in K-12 and Non-K-12 Schools

Table 30 reports the results of the regression analysis for the Partially Proficient outcome category in Language Arts.

In this multiple linear regression model run for two groups (K-12 and non-K-12), the dependent variable, percentage of students scoring in the Partially Proficient category on the LAL section of the NJ HSPA, was refined on seven school level predictors:

1. Student mobility rate
2. Grade 11 attendance rate
3. Student/faculty ratio
4. Faculty mobility rate

5. Median faculty experience
6. DFG
7. Total per pupil cost

Table 30

Model Summary of Factors Affecting LAL Partially Proficient Scores

DistStructure	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate (%)
K-12 District	1	.671[a]	.450	.383	3.815
Non-12-District	1	.633[b]	.400	.327	2.279

[a] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

In the first model, each of the variables (student mobility rate, overall Grade 11 attendance rate, student/faculty ratio, median faculty experience, DFG, and total cost per pupil) had predictive value and influenced the outcome variable, LAL Partially Proficient percentages. These variables taken together explained 45% of the variance in LAL Partially Proficient percentage in schools from K-12 districts. The model was significant $F(7,57)=6.671$ $p\leq.001$. In the second model for the non-K-12 schools, the same variables explained 40% of the variance in LAL Partially Proficient percentages. The non-K-12 model was significant $f(7,57)=28.252$ $p\leq.001$. In comparing the two models, the same predictor variables explain 5% more of the variance in LAL Partially Proficient percentages in K-12 schools versus non-K-12 schools used for this study.

Table 31

ANOVA Table of Factors Affecting LAL Partiallyl Proficient Scores

DistStructure	Model		Sum of Squares	df	Mean Square	F	Sig.
K-12 District	1	Regression	679.543	7	97.078	6.671	.000[b]
		Residual	829.508	57	14.553		
		Total	1509.051	64			
Non-K-12 District	1	Regression	197.766	7	28.252	5.438	.000[c]
		Residual	296.144	57	5.196		
		Total	493.910	64			

[a] Dependent Variable: LAPP

[b] Predictors: (Constant), totalperpupilcost, grl1attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, grl1attend, stu_faculty

With respect to K-12 districts, the following predictors were significant: mobility rate (b=.256, t=2.141 p=.037) and total costs per pupil (b=.303 t=2.811 p=.007). The other coefficients for K-12 schools are not statistically significant. The results of the model suggest that K-12 schools with high mobility rates tend to have higher percentages of students scoring in the Partially Proficient category in LAL. Additionally, K-12 schools that spend more per pupil tend to have higher percentages of students scoring in the Partially Proficient category in LAL. In the non-K-12 schools group, the Grade 11

attendance rate is significant (b=-.418 t=-3.362 p≤.001); also, DFG is significant with (b=-.250 t=-2.130 and p=.037). The other coefficients are not statistically significant. This suggests that non-K-12 schools with lower attendance rates tend to have lower percentages of students in the Partially Proficient category in LAL. Also, non-K-12 schools that are located in wealthier communities tend to have lower percentages of students in the Partially Proficient category in LAL.

Table 32

Coefficients Table of Factors Affecting LAL Partially Proficient Scores

DistStructure	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
K-12 District	1	(Constant)	55.287	29.443		1.878	.066
		mobilityrate	.234	.109	.256	2.141	.037
		gr11attend	-.613	.313	-.243	-1.961	.055
		stu_faculty	.049	.399	.014	.123	.903
		facmobility	-.087	.123	-.074	-.709	.481
		fac_exp	-.535	.277	-.196	-1.934	.058
		DFG	-2.090	1.275	-.187	-1.639	.107
		totalperpupilcost	.001	.000	.303	2.811	.007
Non-K-12 District	1	(Constant)	63.425	18.790		3.375	.001
		mobilityrate	.165	.094	.199	1.750	.086
		gr11attend	-.688	.204	-.418	-3.362	.001
		stu_faculty	.030	.259	.018	.114	.909
		facmobility	7.371E-005	.051	.000	.001	.999
		fac_exp	.025	.156	.017	.162	.872
		DFG	-1.599	.750	-.250	-2.130	.037
		totalperpupilcost	.000	.000	.294	1.742	.087

[a] Dependent Variable: LAPP

Analysis 8: Factors that Affect LAL Proficient Rates in K-12 and Non-K-12 Schools

Table 33 reports the results of the regression analysis for the Proficient outcome category for Language Arts in K-12 and non-K-12 schools.

Table 33

Model Summary of Factors Affecting LAL Proficient Scores

DistStructure	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate (%)
K-12 District	1	.732[a]	.535	.478	6.388
Non-K-12 District	1	.746[b]	.557	.502	6.477

[a] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

The same predictor variables used in the prior analyses were used for this multiple linear regression model run for two groups (K-12 and non-K-12) with the dependent variable of percentage of students scoring in the Proficient category on the LAL section of the NJ HSPA. In the model for K-12 schools, each of the variables had predictive value and influenced the outcome variables. These variables taken together explained 53.5% of the variance in LAL Proficient rates in the K-12 schools used for this study. The K-12 model was significant $F(7,57)=9.375$, $p\leq.001$. With respect to the non-K-12 model, the variables taken together explained 55.7% of the variance in LAL Proficient percentages in non-K-12 schools used for this study. The non-K-12 model was significant $f(7,57)=10.232$, $p\leq.001$.

Table 34

ANOVA Table of Factors Affecting LAL Proficient Scores

DistStructure	Model		Sum of Squares	df	Mean Square	F	Sig.
K-12 District	1	Regression	2677.541	7	382.506	9.375	.000[b]
		Residual	2325.707	57	40.802		
		Total	5003.249	64			
Non-K-12 District	1	Regression	3005.046	7	429.292	10.232	.000[c]
		Residual	2391.384	57	41.954		
		Total	5396.430	64			

[a] Dependent Variable: LAP

[b] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

In the K-12 model, the following predictors were significant: the Grade 11 attendance rate (b=-.230 t=-2.019 p=.048), DFG (b=-.552 t=-5.265 p≤.001), and total costs per pupil (b=-.233 t=-2.351 p=.022). The other coefficients for K-12 schools were not statistically significant. This suggests that K-12 schools with lower attendance rates have a higher percentage of students scoring in the Proficient range in LAL. The model also suggests that K-12 schools located in poorer districts have a higher percentage of students scoring in the Proficient range in LAL. Furthermore, K-12 schools with higher percentages of students scoring in the Proficient range tend to spend less per pupil. In non-K-12 schools, DFG is the only significant coefficient (b=-.576 t=-5.711 and p≤.001). The negative beta suggests non-K-12 schools that are in wealthier communities tend to have a higher percentage of students scoring in the Proficient range on the LAL portion of the HSPA. The other coefficients are not statistically significant. Once again, we must be cautious in these findings. When examining percentages in the Proficient range, the

results may be inconclusive, as the balance of the levels Partially Proficient and Advanced Proficient, or both, would absorb the variation. In other words, lower Proficient rates may mean higher Partially Proficient rates, higher Advanced Proficient rates, or a combination of the two.

Table 35

Coefficients Table of Factors Affecting LAL Proficient Scores

DistStructure	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
K-12 District	1	(Constant)	203.767	49.300		4.133	.000
		mobilityrate	-.128	.183	-.077	-.698	.488
		gr11attend	-1.058	.524	-.230	-2.019	.048
		stu_faculty	-1.306	.668	-.204	-1.954	.056
		facmobility	.080	.206	.037	.389	.699
		fac_exp	.102	.463	.020	.219	.827
		DFG	-11.242	2.135	-.552	-5.265	.000
		totalperpupilcost	-.001	.000	-.233	-2.351	.022
Non-K-12 District	1	(Constant)	165.221	53.396		3.094	.003
		mobilityrate	.414	.268	.151	1.546	.128
		gr11attend	-1.145	.581	-.211	-1.971	.054
		stu_faculty	.589	.735	.108	.801	.427
		facmobility	-.043	.144	-.030	-.298	.767
		fac_exp	-.241	.445	-.050	-.542	.590
		DFG	-12.178	2.132	-.576	-5.711	.000

	totalperpupilcost	.000	.000	.161	1.113	.270

[a] Dependent Variable: LAP

Analysis 9: Factors that Affect LAL Advanced Proficient Scores in K-12 and Non-k-12 schools.

Table 36 reports the results of the regression analysis for the Advanced Proficient outcome category for Language Arts in K-12 and non-K-12 schools.

Table 36

Model Summary Affecting LAL Advanced Proficient Scores

DistStructure	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate (%)
K-12 District	1	.742[a]	.551	.496	8.099
Non-K-12 District	1	.805[b]	.648	.605	7.415

[a] Predictors: (Constant), totalperpupilcost, grl1attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, grl1attend, stu_faculty

The same predictor variables used in the prior analyses were used for this multiple linear regression model that was run for two groups (K-12 and non-K-12), using the dependent variable percentage of students scoring in the Advanced Proficient category on the LAL section of the NJ HSPA. In the K-12 model, the predictive variables taken together explain 55.1% of the variance in LAL Advanced Proficient percentages in K-12 schools used for this study. The model is significant $F(7.57)=9.991$, $p\leq.001$). With respect to the non-K-12 model, 64.8% of the variance in LAL Advanced Proficient percentages can be explained by the same predictor variables. This model is also

significant F(7,57)=14.986), p≤.001. In comparing the two models, the same predictor variables can explain an additional 13.7% of the variance of LAL Advanced Proficient percentages in non-K-12 versus K-12 schools used for this study.

Table 37

ANOVA Table of Factors Affecting LAL Advanced Proficient Scores

DistStructure	Model		Sum of Squares	df	Mean Square	F	Sig.
		Regression	4586.991	7	655.284	9.991	.000[b]
K-12 District	1	Residual	3738.391	57	65.586		
		Total	8325.382	64			
		Regression	5768.309	7	824.044	14.986	.000[c]
Non-K-12 District	1	Residual	3134.362	57	54.989		
		Total	8902.671	64			

[a] Dependent Variable: LAAP

[b] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

With respect to the K-12 districts, the following predictors were significant: the Grade 11 attendance rate (b=.286, t=2.554 p=.013) and DFG (b=.479 t=4.651 p≤.001). The other coefficients for K-12 schools are not statistically significant. This indicates that K-12 schools that have higher rates of attendance tend to have higher percentages of students scoring in the Advanced Proficient category in LAL. These same schools that are located in wealthier communities also tend to have higher percentages of students scoring in the Advanced Proficient category in LAL. In regard to the non-K-12 model, the following predictors are significant: the Grade 11 attendance rate (b=.343 t=3.601 p≤.001), DFG (b=.564 t=6.280 and p≤.001), and total per pupil costs (b=-.198 t=-2.306

p=.025). The other coefficients are not statistically significant for non-K-12 schools. This suggests that non-K-12 schools with higher attendance rates tend to have higher percentages of students scoring in the Advanced Proficient category in LAL. Additionally, non-K-12 schools used in this study that are located in wealthier communities tend to have higher percentages of students scoring in the Advanced Proficient category in LAL.

Table 38

Coefficients Table of Factors Affecting LAL Advanced Proficient Scores

DistStructure	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
K-12 District	1	(Constant)	-162.299	62.505		-2.597	.012
		mobilityrate	-.107	.232	-.050	-.462	.646
		gr11attend	1.696	.664	.286	2.554	.013
		stu_faculty	1.287	.847	.156	1.519	.134
		facmobility	.030	.262	.011	.116	.908
		fac_exp	.444	.587	.069	.756	.453
		DFG	12.591	2.707	.479	4.651	.000
		totalperpupilcost	.000	.001	.056	.572	.569
Non-K-12 District	1	(Constant)	-166.714	61.131		-2.727	.008
		mobilityrate	-.421	.306	-.119	-1.374	.175
		gr11attend	2.396	.665	.343	3.601	.001
		stu_faculty	-1.377	.842	-.196	-1.635	.108
		facmobility	.065	.165	.035	.391	.697
		fac_exp	.256	.509	.041	.504	.616
		DFG	15.331	2.441	.564	6.280	.000
		totalperpupilcost	-.001	.001	-.298	-2.306	.025

[a] Dependent Variable: LAAP

Analysis 10: Factors that Affect Math Partially Proficient Rates in K-12 and Non-K-12 Schools

Table 39 reports the results of the regression analysis for the Partially Proficient outcome category for Math in K-12 and non-K-12 schools.

Table 39

Model Summary of Factors Affecting Math Partially Proficient Scores

DistStructure	Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate (%)*
K-12 District	1	.655[a]	.429	.359	8.419
Non-K-12 District	1	.761[b]	.579	.527	5.070

[a] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

The same predictor variables used in the prior analyses were used for this multiple linear regression model that was run for two groups (K-12 and non-K-12) using the dependent variable of percentage of students scoring in the Partially Proficient category on the Math section of the NJ HSPA. In the model for K-12 schools, each of the variables had predictive value and influenced the outcome variables. These variables together explained 42.9% of the variance in Partially Proficient rates in Math in K-12 schools used for this study. The K-12 model was significant $F(7,57)=6.112$, $p\leq.001$. With respect to the non-K-12 model, 57.9% of the variance is explained by those same variables. The non-K-12 model was significant $f(7,57)=11.183$, $p\leq.001$. In comparing the two models, we find that the same predictor variables provide an additional 15% of the variance in explaining Partially Proficient percentages in non-K-12 schools versus K-

12 schools. This implies a stronger model based on the predictors in regard to Partially Proficient percentages on the Math portion of the HSPA.

Table 40

Model Summary of Factors Affecting Math Partially Proficient Scores

DistStructure	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate (%)
K-12 District	1	.655[a]	.429	.359	8.419
Non-K-12 District	1	.761[b]	.579	.527	5.070

[a] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

Table 41

ANOVA Table of Factors Affecting Math Partially Proficient Scores

DistStructure	Model		Sum of Squares	df	Mean Square	F	Sig.
K-12 District	1	Regression	3033.065	7	433.295	6.112	.000[b]
		Residual	4040.589	57	70.888		
		Total	7073.654	64			
Non-K-12 District	1	Regression	2012.249	7	287.464	11.183	.000[c]
		Residual	1465.172	57	25.705		
		Total	3477.421	64			

[a] Dependent Variable: MAPP

[b] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

With respect to K-12 districts, the following predictors were significant: Grade 11 attendance rate (b=-.280, t=-2.213 p=.031), DFG (b=-.239 t=-2.060 p=.044), and total costs per pupil (b=.296 t=2.691 p=.009). The other coefficients for K-12 schools were not statistically significant. The model suggests that K-12 schools with higher student mobility rates have a higher percentage of students scoring in the Partially Proficient category in Math. Also, K-12 schools located in poorer communities have a higher percentage of students scoring in the Partially Proficient category in Math. Furthermore, K-12 schools with higher percentages of students scoring in the Partially Proficient range spend more per pupil. In the non-K-12 model, the following predictors are significant: student mobility rate (b=.476 t=5.007 p≤.001), Grade 11 attendance rate (b=-.299 t=-2.866 p=.006), DFG (b=-.277 t=-2.823 and p=.007), and total per pupil costs (b=.388 t=2.741 p=.008). The other coefficients are not statistically significant. This model suggests that non-K-12 schools that have lower student mobility rates tend to have lower percentages of students scoring in the Partially Proficient range. Also, non-K-12 schools with higher attendance rates tend to have a lower percentage of students scoring in the Partially Proficient range in Math. Furthermore, non-K-12 schools located in wealthier communities tend to have lower percentages of students scoring in the Partially Proficient category. Finally, non-K-12 schools that spend more per pupil tend to have higher percentages of students scoring in the Partially Proficient category on the Math portion of the HSPA. This is consistent with the K-12 schools.

Table 42

Coefficients Table of Factors Affecting Math Partially Proficient Scores

DistStructure	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
K-12 District	1	(Constant)	145.802	64.982		2.244	.029
		mobilityrate	.333	.241	.168	1.382	.172
		gr11attend	-1.528	.690	-.280	-2.213	.031
		stu_faculty	-.125	.881	-.016	-.142	.887
		facmobility	-.035	.272	-.014	-.130	.897
		fac_exp	-1.015	.610	-.172	-1.664	.102
		DFG	-5.797	2.814	-.239	-2.060	.044
		totalperpupilcost	.002	.001	.296	2.691	.009
NonK-12 District	1	(Constant)	111.769	41.796		2.674	.010
		mobilityrate	1.049	.210	.476	5.007	.000
		gr11attend	-1.304	.455	-.299	-2.866	.006
		stu_faculty	.585	.576	.133	1.016	.314
		facmobility	-.036	.113	-.031	-.321	.750
		fac_exp	-.145	.348	-.037	-.416	.679
		DFG	-4.711	1.669	-.277	-2.823	.007
		totalperpupilcost	.001	.000	.388	2.741	.008

[a] Dependent Variable: MAPP

Analysis 11: Factors that Affect Math Proficient Rates in K-12 and Non-K-12 Schools

Table 43 reports the results of the regression analysis for the Proficient outcome category for Math in K-12 and non-K-12 schools.

Table 43

Model Summary of Factors Affecting Math Proficient Scores

DistStructure	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate (%)
K-12 District	1	.620[a]	.384	.309	7.236
Non-K-12 District	1	.702[b]	.493	.431	5.273

[a] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

The same predictor variables used in the prior analyses were used for this multiple linear regression model that was run for two groups (K-12 and non-K-12), using the dependent variable of percentage of students scoring in the Proficient category on the Math section of the NJ HSPA. In the model for K-12 schools, each of the variables had predictive value and influenced the outcome variables. These variables together explained 38.4% of the variance in Math Proficien rates in K-12 schools used for this study. The K-12 model was significant $F(7,57)=5.080$, $p\leq.001$. With respect to the non-K-12 model, 49.3% of the variance is explained by those same variables, and that model was significant $f(7,57)=7.912$, $p\leq.001$. In comparing the models, the same predictor variables provided 10.9% more in the variance to explain the percentage of students in

the Math Proficient category in non-K-12 versus K-12 schools.

Table 44

ANOVA Table of Factors Affecting Math Proficient Scores

DistStructure	Model		Sum of Squares	df	Mean Square	F	Sig.
		Regression	1862.322	7	266.046	5.080	.000[b]
K-12 District	1	Residual	2984.876	57	52.366		
		Total	4847.198	64			
		Regression	1540.179	7	220.026	7.912	.000[c]
Non-K-12 District	1	Residual	1585.039	57	27.808		
		Total	3125.218	64			

[a] Dependent Variable: MAP

[b] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

In the K-12 district model, the following predictors were significant: student mobility rate (b=.256, t=2.141 p=.037), and total costs per pupil (b=.303 t=2.811 p=.007). The other coefficients for K-12 schools were not statistically significant. This model suggests that K-12 schools with lower student to faculty ratios (smaller class size) have a higher percentage of students scoring in the Proficient category. Also, K-12 schools located in poorer communities have higher percentage of students scoring in the Proficient category. Those same schools tend to see lower rates of students scoring in the Proficient category, as they spend less per pupil, or higher rates in Advanced Proficient or Partially Proficient categories. In the non-K-12 model, only DFG was found to be significant (b=-.250 t=-2.130 and p=.037). The other coefficients are not statistically

significant. The model suggests that non-K-12 schools from poorer communities tend to have a higher percentage of students scoring in the Proficient category in Math. Once again, caution is urged in interpreting this data, as fluctuations in Proficient percentage affect the percentage of Partially Proficient, Advanced Proficient, or both.

Table 45

Coefficients Table of Factors Affecting Math Proficient Scores

DistStructure	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
K-12 District	1	(Constant)	.292	55.852		.005	.996
		mobilityrate	.050	.207	.030	.240	.812
		gr11attend	1.030	.593	.228	1.736	.088
		stu_faculty	-2.031	.757	-.323	-2.682	.010
		facmobility	.330	.234	.156	1.412	.163
		fac_exp	.442	.525	.091	.842	.403
		DFG	-10.330	2.419	-.515	-4.270	.000
		totalperpupilcost	-.002	.001	-.341	-2.983	.004
Non-K-12 District	1	(Constant)	99.775	43.472		2.295	.025
		mobilityrate	-.180	.218	-.086	-.828	.411
		gr11attend	-.496	.473	-.120	-1.048	.299
		stu_faculty	-.193	.599	-.046	-.322	.749
		facmobility	.060	.117	.054	.508	.614
		fac_exp	.086	.362	.023	.237	.813
		DFG	-10.906	1.736	-.678	-6.282	.000
		totalperpupilcost	.000	.000	.129	.830	.410

[a] Dependent Variable: MAP

Analysis 12: Factors that Affect Math Advanced Proficient Rates in K-12 and Non-K-12 Schools

Table 46 reports the results of the regression analysis for the Advanced Proficient outcome category for Math in K-12 and non-K-12 schools.

Table 46

Model Summary of Factors Affecting Math Advanced Proficient Scores

DistStructure	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate (%)
K-12 District	1	.737[a]	.542	.486	9.541
Non-K-12 District	1	.774[b]	.599	.550	8.363

[a] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[b] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

The same predictor variables used in the prior analyses were used for this multiple linear regression model that was run for two groups (K-12 and non-K-12), using the dependent variable of percentage of students scoring in the Advanced Proficient category on the LAL section of the NJ HSPA. In the model for K-12 schools, each of the variables had predictive value and influenced the outcome variables. These variables taken together explained 54.2% of the variance in Math Advanced Proficient rates in K-12 schools used for this study. The K-12 model was significant, $F=(7,57)9.655$, $p\leq.001$. With respect to the non-K-12 model, 59.9% of the variance is explained by those same variables. The non-K-12 model was also significant $F(7,57)=12.164$, $p\leq.001$. In comparing the models, the same predictor variables explain 5.7% more variance of Math

Advanced Proficient percentages in non-K-12 schools versus K-12 schools.

Table 47

ANOVA Table of Factors that Affect Math Advanced Proficient Scores

DistStructure	Model		Sum of Squares	df	Mean Square	F	Sig.
K-12 District	1	Regression	6153.019	7	879.003	9.655	.000[b]
		Residual	5189.127	57	91.037		
		Total	11342.146	64			
Non-K-12 District	1	Regression	5954.718	7	850.674	12.164	.000[c]
		Residual	3986.337	57	69.936		
		Total	9941.055	64			

[a] Dependent Variable: MAAP

[b] Predictors: (Constant), totalperpupilcost, gr11attend, fac_exp, facmobility, DFG, stu_faculty, mobilityrate

[c] Predictors: (Constant), totalperpupilcost, fac_exp, DFG, facmobility, mobilityrate, gr11attend, stu_faculty

For the K-12 model, the only predictor found to be significant was DFG (b=.545 t=5.237 p≤.001). The positive beta suggests that K-12 schools used for this study that are from higher wealth communities tend to have a higher percentage of students scoring in the Advanced Proficient category in Math on the HSPA. The other coefficients for K-12 schools are not statistically significant. In the non-K-12 school model, the following predictors were significant: student mobility (b=-.234 t=-2.516 p=.015), Grade 11 attendance rate (b=-.244 t=2.394 p=.020), DFG (b=.544 t=5.670 p≤.001), and total cost per pupil (b=-.301 t=-2.184 p=.033). The model suggests that non-K-12 schools with

lower student mobility rates have a higher percentage of students scoring in the Math Advanced Proficient category. Also, non-K-12 schools with higher student attendance rates tend to have greater percentages of students scoring in the Advanced Proficient category in Math. The non-K-12 schools located in wealthier communities tend to have a higher percentage of students scoring in the Advanced Proficient category in Math. Furthermore, the negative beta for total cost per pupil suggests that higher performing non-K-12 schools tend to spend less per pupil. The other coefficients were not statistically significant.

Table 48

Coefficients Table of Factors that Affect Math Advanced Proficient Scores

DistStructure	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
K-12 District	1	(Constant)	-83.940	73.641		-1.140	.259
		mobilityrate	-.293	.273	-.117	-1.074	.287
		gr11attend	.908	.782	.131	1.161	.251
		stu_faculty	1.980	.998	.206	1.984	.052
		facmobility	-.364	.308	-.112	-1.180	.243
		fac_exp	.350	.692	.047	.506	.615
		DFG	16.703	3.189	.545	5.237	.000
		totalperpupilcost	7.082E-005	.001	.010	.102	.919
Non-K-12 District	1	(Constant)	-111.230	68.940		-1.613	.112
		mobilityrate	-.869	.346	-.234	-2.516	.015
		gr11attend	1.796	.750	.244	2.394	.020
		stu_faculty	-.394	.950	-.053	-.415	.679
		facmobility	-.024	.186	-.012	-.130	.897
		fac_exp	.057	.574	.009	.099	.922
		DFG	15.609	2.753	.544	5.670	.000
		totalperpupilcost	-.001	.001	-.301	-2.184	.033

[a] Dependent Variable: MAAP

Tier 2 Summary

The multivariate statistical analysis was used to determine how much variance found in the outcome variable is attributed to the independent variables (Gay, Mills, Airasian, 2009). The Tier 2 analyses sought to identify which variables most affect student performance in K-12 and non-K-12 districts, separately, in order to answer Research Question 2, "To what extent do the factors that affect student outcomes vary in K-12 districts versus districts that offer limited grades of 7-12 or 9-12?"

The schools from each district type were divided into two groups for the purpose of this analysis. In Group 1, we sought to find which of the independent variables have a significant effect on student performance in non-K-12 schools in both LAL and Math, across all student performance levels: Partially Proficient, Proficient, and Advanced Proficient. For Group 2, we sought to find which of the independent variables have a significant effect on schools that are part of K-12 districts in both LAL and Math, across all of the student performance levels. Due to the format of the data, it was important to examine the effect of all variables on each of the three levels of performance: Partially Proficient, Proficient and Advanced Proficient. A summary of Tier 2 results is detailed in Table 49.

Table 49

Summary of Tier 2 Predictors in K-12 and Non-K-12 Schools (X denotes Significance)

Proficiency Level			Stu Mobility	Gr 11 Att	Stu/Fac Ratio	Fac Mobility	Fac. Exp	D F G	Cost PP
PARTIALLY PROFICIENT	LAL	NON-K-12		X				X	
	LAL	K-12	X						X
	MA	NON-K-12	X	X				X	X
	MA	K-12		X				X	X
PROFICIENT	LAL	NON-K-12						X	
	LAL	K-12		X				X	X
	MA	NON-K-12						X	
	MA	K-12			X			X	X
ADVANCED PROFICIENT	LAL	NON-K-12		X				X	X
	LAL	K-12		X				X	
	MA	NON-K-12	X	X				X	X
	MA	K-12						X	

Summary of Analyses

Language Arts

Data results from the models in this study show that school district structure has a significant influence on both LAL and Math scores on the NJ HSPA. The analyses showed a significant association with the percentage of students scoring in the Partially Proficient category in Language Arts. When controlled for other factors, the model predicted 42.3% of the variance in Partially Proficient percentages with district structure contributing 4.7% of the variance explained. The negative beta (-.282) suggests that schools from non-K-12 districts have lower percentages of students in the Partially Proficient category in LAL of the NJ HSPA. In other words, K-12 schools do not do as well as non-K-12 schools in the LAL section of the NJ HSPA. This is a significant finding that would be counter to the argument that full K-12 schools have greater resources that position them to service students more effectively for better outcomes and would be an argument against school district consolidation. This also suggests that students with the most needs are being serviced more effectively in non-K-12 schools. District structure was not significant in the Proficient and Advanced Proficient categories.

In accord with previous research, socioeconomic status, as measured by DFG for this study, was a significant predictor for the percentage of students scoring in all of the student performance categories in non-K-12 schools on the LAL section of the 2011 NJ HSPA. In K-12 schools, DFG was significant in the Proficient and Advanced Proficient categories and not significant in the Partially Proficient category. The student mobility rate was significant only in Language Arts in K-12 schools in the Partially Proficient category, suggesting lower attendance rates have an impact on Partially Proficient

percentages in schools used for this study. The Grade 11attendance rate was significant in LAL in the Partially Proficient and Advanced Proficient levels for schools that are part of non-K-12 districts, while in K-12 districts, the Grade 11attendance rate was significant in the Proficient and Advanced Proficient categories. These results are inconclusive as, when comparing three categories of student performance, variations in the Proficient level would be absorbed by Partially Proficient, Advanced Proficient, or a combination of both.

Total cost per pupil was significant in non-K-12 schools in LAL only at the Advanced Proficient category, suggesting non-K-12 schools with higher percentages of students in the Advanced Proficient category tend to spend less per pupil. In the K-12 schools, total cost per pupil was significant in the Partially Proficient and Proficient levels, suggesting that K-12 schools, although they spent more money per student, continued to have higher percentages of students in the Partially Proficient category. Median faculty experience, the student to faculty ratio and faculty experience did not show any significant influence in either K-12 or non-K-12 schools.

Math

District structure had a significant association with 2011 NJ HSPA Math scores at both the Partially Proficient and Proficient categories. The model explained 44.6% of the variance of the percentage of students scoring in the Partially Proficient category on the Math section of the 2011 NJ HSPA with district structure contributing 2.5% of the explained variance. The negative beta (-.206) suggests that schools from non-K-12 districts tend to have fewer students falling in the Partially Proficient category in Math on the NJ HSPA. This is a surprise finding that is contrary to the belief of K-12 districts

having the size and scope that comes with the broad grade span configuration to be able to serve all students more effectively. Similarly, district structure was significant at the Proficient category of Math on the NJ HSPA, explaining 37% of the variance with district structure contributing 3.3% of the explained variance; however, the positive beta (.239) suggests that K-12 schools have higher percentages of students in the Proficient category in Math on the NJ HSPA. This is not a surprise finding, as schools from K-12 districts had a lower overall mean (28.63% vs. 29.92% in non-K-12 schools) of students in the Advanced Proficient category, indicating that non-K-12 schools tend to have greater percentages of students in the Advanced Proficient category in Math on the NJ HSPA. When interpreting data related to the percentage of students scoring in the Proficient category, it is important to keep in mind that the results may be inconclusive as the balance of the categories, Partially Proficient, Advanced Proficient, or both, would absorb the variation. In other words, lower Proficient rates may mean higher Partially Proficient rates, higher Advanced Proficient rates, or a combination of the two.

Consistent with the results in LAL for this study and prior research, socioeconomic status (DFG) was a significant factor across all Math proficiency levels in both K-12 and non-K-12 schools used in this study. Student mobility rate was significant in non-K-12 schools in the Math Partially Proficient and Advanced Proficient categories, suggesting non-K-12 schools with lower student mobility rates tend to have higher percentages of students in the Partially Proficient category and lower percentages in the Advanced Proficient category. This is not an unexpected finding. What was surprising, though, in K-12 schools the student mobility rate was not significant in any of the student performance categories. Similar to student mobility, Grade 11 attendance rate was a

significant factor in the Partially Proficient and Advanced Proficient categories in non-K-12 schools, suggesting that better attendance rates in non-K-12 schools tend to result in lower percentages of students in the Partially Proficient category in Math and higher percentages in the Advanced Proficient category. In K-12 schools, the Grade 11 attendance rate was significant only in the Partially Proficient category, suggesting that better attendance rates in K-12 schools tend to result in a lower percentage of students in the Partially Proficient category. The student/faculty ratio was significant only in Math Proficient levels in K-12 schools, suggesting that K-12 schools with a higher percentage of students in the Proficient category tend to have lower student/faculty ratios. The student/faculty ratio did not show significance in any other part of this study. Faculty mobility and faculty experience were also not significant in any of the Math Proficient levels.

In summary, faculty mobility and median faculty experience were not significant predictors in LAL or Math across any of the performance categories in either type of school. DFG was a significant predictor across all student performance categories in both types of schools except in the LAL Partially Proficient category in K-12 schools. Student mobility was found to have an impact on the percentages at each end of the spectrum, Partially Proficient and Advanced Proficient. After DFG, the Grade 11 attendance rate was tied with total per pupil cost, appearing in 7 of the 12 performance categories in both Math and LAL. This is consistent with extant research on the importance of student attendance and its impact on student performance. Total cost per pupil was significant in non-K-12 schools for both LAL and Math in the Advanced Proficient category, as well as LAL Partially Proficient. For the K-12 schools, it was not significant in the Advanced

Proficient category, suggesting that K-12 schools that spend more per pupil tend to have a lower percentage of students in the Proficient category in both Language Arts and Math, and a higher percentage of students in the Partially Proficient category in both Language Arts and Math.

Table 50

Summary of Data: Predictors for Non-K-12 Schools

Significant Factors Non-k12 Schools	*LAL PP*			*LAL P*			*LAL AP*		
	Beta	*T*	*Sig*	*Beta*	*T*	*Sig*	*Beta*	*T*	*Sig*
Grade 11 Attendance	-0.418	3.362	0.001				0.343	3.601	0.001
DFG	-0.250	-2.130	0.037	-0.576	-5.711	0.000	0.564	6.280	0.000
Total Per Pupil Cost							-0.298	-2.306	0.025
	Math PP			*Math P*			*Math AP*		
	Beta	*T*	*Sig*	*Beta*	*T*	*Sig*	*Beta*	*T*	*Sig*
Student Mobility Rate	0.476	5.007	0.000				-0.234	-2.516	0.015
Grade 11 Attendance	-0.299	-2.866	0.006				0.244	2.394	0.020
DFG	-0.277	-2.823	0.007	-0.678	-6.282	0.000	0.544	5.670	0.000
Total Per Pupil Cost	0.388	2.741	0.008				-0.301	-2.184	0.033

Table 51

Summary of Data: Predictors for K-12 Schools

Significant Factors K12 Schools	*LAL PP*			*LAL P*			*LAL AP*		
	Beta	*T*	*Sig*	*Beta*	*T*	*Sig*	*Beta*	*T*	*Sig*
Student Mobility Rate	0.256	2.141	0.037						
Total Per Pupil Cost	0.303	2.811	0.007	-0.233	-2.351	0.022			
Grade 11 Attendance Rate				-0.230	-2.019	0.048	0.286	2.554	0.013
DFG				-0.552	-5.265	0.000	0.479	4.651	0.000
	Math PP			*Math P*			*Math AP*		
	Beta	*T*	*Sig*	*Beta*	*T*	*Sig*	*Beta*	*T*	*Sig*
Grade 11 Attendance Rate	-0.280	-2.213	0.031						
DFG	-0.239	-2.060	0.044	-0.515	-4.270	0.000	0.545	5.237	0.000
Total Per Pupil Cost	0.296	2.691	0.009	-0.341	-2.983	0.004			
Student/Faculty Ratio				-0.323	-2.682	0.010			

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

Introduction

The purpose of this quantitative study was to examine the effect of school district structure on student achievement. Since 1969, the New Jersey Department of Education has been calling for the merger of smaller school districts into larger school districts that offer the full span of kindergarten to Grade 12 (Mancuso, 1969). Data have shown that 40% of successfully merged districts identified cost effectiveness as their primary motivation, while financial reasons tied for second place as one of the most frequently cited reasons to consolidate (Beauchea, 1993). With the high number of school districts in the state of New Jersey, talks of consolidating school districts to achieve efficiencies has largely ignored the more important context of student achievement. The goal of this study was to provide an analysis of the impact of district structure on student performance that will inform policymakers, both inside and outside of education as well as local school boards and district leadership teams, as they discuss the possibilities on consolidating school districts.

This study employed a two-tiered multiple linear regression analysis using three levels of student performance (Partially Proficient, Proficient, Advanced Proficient) on the 2011 NJ HSPA as the dependent variable. Prior related research found seven variables that had a statistically significant impact on student performance on standardized tests. These variables were identified and used as the independent variables for this study. The researcher began with the identification of 389 high schools in New Jersey. Of the 389 high schools, only 65 high schools were not part of school districts

that offer a full grade span of kindergarten to Grade 12. Those 65 schools became the base of this study, resulting in a sample size of 100% of the population meeting these criteria. These became the "non-K-12" schools. An additional 65 high schools were chosen at random stratified by district factor group classification (consistent with the 65 non-K-12 schools). Therefore, the total sample used for this study was 130 New Jersey high schools. Data were collected from publicly reported statistics by the New Jersey Department of Education, input into a spreadsheet, organized, and then entered into SPSS for statistical analysis.

Tier 1 sought to identify how school district structure affects student performance on the 2011 NJ HSPA. Using student performance outcomes in both Math and Language Arts (Partially Proficient, Proficient and Advanced Proficient levels) as the dependent variables, the seven independent variables identified were entered for analysis into SPSS. A separate analysis was then run, adding district structure as the eighth variable to determine its contribution to the model. The two models were then analyzed and compared. Tier 2 sought to identify which of the independent variables most affect student performance in K-12 and non-K-12 schools separately. Using the 2011 NJ HSPA Language Arts and Math Proficient percentages for the schools in this study as the dependent variables, the seven independent variables were entered as separate models for K-12 and non-K-12 into SPSS and analyzed. The results were then interpreted to determine which of the variables had a statistically significant impact on student achievement on the 2011 NJ HSPA in K-12 schools and non-K-12 schools.

Limitations

The limitations of this study centered on the uniqueness of the operations of different school districts in New Jersey. Although this research has identified the effects of district structure on student achievement on the 2011 NJ HSPA, it cannot conclude that district structure alone results in, leads to, or causes better outcomes. Like any organization, each school in this study has its own culture, policies, climate, techniques, leadership, and processes that were not considered. Furthermore, the data used in this study involved a number of outside variables, such as SES and rates of student mobility, which are arguably out of the control of school leaders.

Data for the schools that were retrieved from the New Jersey Department of Education is consistent in its format; however, it may be subject to reporting errors. This study does not account for the mobility rates of students throughout their entire educational life. The data collected from the New Jersey Department of Education report student mobility rates; however, only on an annual basis for each reporting year. This study also acknowledges that teaching styles and methods vary among teachers. Difficult to measure, teaching styles are considered neutral for purposes of this study. With the exception of measuring years of seniority, no physical observations of teaching styles in the sample schools were performed. The 130 schools for this study do not include all public high schools in New Jersey, nor does the study include charter schools, county vocational schools, or any public special education districts. The results of this study are based solely on quantitative measures with little consideration for student ages, varying curricula, teaching methods, levels of technology, and condition of facilities. The data are from one year and did not examine any trends or long-term outcomes. Since the data

derived for this research were based on New Jersey measures of achievement, specifically the NJ HSPA, any design flaws or issues with HSPA testing are not considered in this study. The employment of summarized data in itself creates a limitation. Specifically, the raw data were not in hand and may have been subject to many transformations. The transformations by their nature contain (1) inclusion and exclusion of data records in accordance with the application of categorical definitions applied (i.e., classification variables such as handicapped versus non-handicapped), (2) removal of incomplete (or partial) records that otherwise do not meet the level of acceptability for database integrity, and (3) statistical summarization with associated statistical parameters of fit that cannot be verified. All data reported from the NJ DOE are assumed to be correct and do not account for any possible flaws in the public data or the reporting mechanism.

Another limitation of the study is that the data were not disaggregated down to the subgroups of gender, race, or students with IEP's (individualized education plans). Research that would examine any differences in the achievement between those subgroups was not considered.

Factors that Affect Schools in K-12 and Non-K-12 Districts

Student Mobility Rate

Mobility is defined as students coming in and out of a school in a given year. These data are tracked in local school student information databases and reported to the State of New Jersey. More detailed information as to where the student comes from and where he or she goes is not publicly available, although it would be helpful to know of any patterns associated with student mobility in order to determine how it impacts student

achievement. This study found that student mobility rates had a significant impact in non-K-12 districts on Partially Proficient and Advanced Proficient levels in Mathematics on the 2011 NJ HSPA. In K-12 schools, the student mobility rate was found to be significant in Language Arts Partially Proficient levels. Both K-12 and non-K-12 schools need to address student mobility issues. In both K-12 and non-K-12 schools, higher student mobility rates resulted in a higher percentage of students in the Partially Proficient category, while in the non-K-12 schools it had an additional significant impact for those students in the Advanced Proficient category in Math in which non-K-12 schools with higher student mobility rates tend to have lower percentages of high achieving students. Regardless of the type of school district, a school needs better resources to deal with student mobility issues. Consistent with Barak (2004), the results of this study suggest that both types of schools are falling short when it comes to students with the most needs.

Policy and Practice for Student Mobility Rate

The fact that this study showed the significance of student mobility on Partially Proficient levels in both K-12 and non-K-12 schools suggests that student mobility is a problem that affects students with the most needs or that as a result of high mobility, students fall behind and eventually end up in the Partially Proficient category and need additional services. This is a significant finding that warrants attention in both types of schools. Administrators must make supplementary resources available to new students who enroll into their school that will better acclimate them into the school community. How a school reacts in familiarizing students to a new environment appears to have an impact on how they perform academically. Effective communication with parents

becomes vital, and involving them in the school community may be a good idea. Parent nights and after school resources for both students and parents may lessen the negative impact on highly mobile students and involve the parents at the same time. Early parental involvement in their child's education during school-to-school transitions may lessen the time it takes to integrate a student into a new school environment and result in better student outcomes. Though the State does not track student mobility data in terms of origin and destination, this would prove to be a useful tool that may better explain the details behind the data. Administrators are encouraged to put systems in place that allow for the immediate receipt of student records in order to determine the best placement for new students. Early interventions can prove valuable, since it may take a full school year or longer to fully understand the knowledge and skill level of a student.

Grade 11 Attendance Rate

Consistent with Brown (2008), the findings of this study suggest that student attendance is a contributing factor in high schools from both K-12 and non-K-12 districts. The variable is calculated by dividing the sum of days present in each grade level by the sum of possible days present for all students in each grade. It does not make distinction between types of absences, nor does it account for dropout rates or suspensions for discipline. This study found a significant effect on Partially Proficient and Advanced Proficient rates in Language Arts in non-K-12 schools. As the attendance rates went higher, the results suggest a lower percentage of students in the Partially Proficient category and a higher percentage of students in the Advanced Proficient category. In other words, better attendance resulted in better student performance. The Grade 11 attendance rate in K-12 schools affected Language Arts in both the Proficient and

Advanced Proficient category, yet in Math only for the Partially Proficient category. The relationships were similar to the non-K-12 schools in which higher attendance rates resulted in a lower percentage of students Partially Proficient in Math and a higher percentage of students Advanced Proficient in Language Arts. Schools with students that excelled on both the Language Arts and Math sections tended to have lower absentee rates or, conversely, lower absentee rates led to better performance on the 2011 NJ HSPA. This is not a surprise finding. It is logical to accept the idea that the more a student misses school, the larger impact it will have on his or her performance. Moreover, research on school attendance consistently shows that lower absentee rates are correlated to better educational outcomes (Lamdin, 1996; Roby, 2004) and statistically significant relationships between attendance and student performance (Caldas, 1993; Chang & Romero, 2008; Gottfried 2010; Johnson, 2000; Lamdin, 1996).

Policy and Practice for Grade 11 Attendance Rate

Keeping students engaged in and attending school can be a challenge, especially for vulnerable students. School leaders should take a proactive approach to student absenteeism. Some possibilities may be through a reward system for perfect attendance or increased education of parents on the importance of attending school and an awareness of the lost opportunities for students. It is also important to minimize school absences for discipline reasons, specifically, suspensions. Alternative penalties that do not result in lost class time must be explored. Duckwork and DeJung (1989) found that students are more apt to miss school if they believe there are no consequences or the consequences are not severe enough. Further study should examine the causes of student absentee rates to identify the causes and assist administrators in making more effective decisions.

Policymakers should recognize that school actions and programs minimizing student absences may have a positive effect on student outcomes, regardless of the type of district. The data show that attention to these types of programs may improve student performance in the general student population, specifically those who score in the Proficient and Advanced Proficient categories. Follow up research should include a longitudinal study of student attendance correlated to student performance, using a larger sample size to determine any relevant patterns.

Student-to-Teacher Ratio

Students spend most of the school day with a teacher. The results of this study found that the number of students in a class may have an impact on Math Proficient levels in K-12 schools. Although it did not appear in any other model in this study, it may be considered an outlier based on the given data and time frame used for this study. Since this finding is in the Proficient category, we cannot generalize that the student/ faculty ratio has an impact because when using three categories of performance, the other two categories will absorb the fluctuations in the percentage of students. K-12 schools used for this study could have lower math class sizes that may better address students' needs. Though class size was not examined for this study, future research should examine the correlation between class size and school district structure.

Policy and Practice for Student-To-Teacher Ratio

Further research could provide insight as to what specifically affects those students scoring in the Proficient level in Math. Policymakers should recognize that prior to consolidation, an in-depth analysis of the teaching staff should be conducted to determine the best placement for teachers in the newly formed district that will ensure

optimal class size. Generally, due to their size and flexibility to utilize staff across more grades, k-12 districts may have greater flexibility to reduce class sizes. A longitudinal study on changes to class size would expose this assumption. Non-K-12 districts should employ efforts to balance class sizes and ensure an optimal class load for teachers. Administrators should recognize that discussions on consolidation must include an analysis of student populations and the possible outcomes in regard to class size.

Total Cost Per Pupil

One of the main goals of consolidating school districts always seems to be the financial efficiencies that may be gained from the merger of two or more districts. The results of this study found that total cost per pupil had a significant impact in non-K-12 schools in Partially Proficient levels in Math. It was also significant in Advanced Proficient levels for both Language Arts and Math in schools that are not part of K-12 districts. Non-K-12 schools with a higher percentage of students scoring in the Partially Proficient category in Math tend to spend more per pupil. Furthermore, non-K-12 schools with a higher percentage of students in the Advanced Proficient category spend less per pupil. In K-12 schools, cost per pupil was not significant in the Advanced Proficient category in either Language Arts or Math. This study found non-K-12 schools spend less per pupil and achieve better results, specifically a higher percentage of students in the Advanced Proficient category. In K-12 schools, cost per pupil was found to be significant in both the Partially Proficient and Proficient levels in both Language Arts and Mathematics. For the Partially Proficient category, as Partially Proficient rates went higher, cost per pupil went higher. This is a phenomenon that needs to be explored further, as K-12 schools spend more money but do not get more favorable results,

especially because cost per pupil was not found to be significant in K-12 schools in regard to students scoring in the Advanced Proficient category.

Seemingly a common theme in this study, students with the greatest needs are most impacted. Since the results of this study showed significant differences in student performance in Language Arts and Math between K-12 and non-K-12 schools, there may be a disconnect in how schools in the two types of structures differ in their financing and use of resources for the services they offer.

Policy and Practice for Total Cost Per Pupil

Further research should explore the cost per pupil calculation methods and formula. The breakdown of data may show some differences in reporting between the two types of structures. Policymakers should also examine the population of students requiring the most services and make plans to address those needs prior to merging or consolidating school district operations. Because non-K-12 schools with higher performing students in both Language Arts and Math spent less per pupil, a more in-depth study on those schools and how those schools use their financial resources should be investigated. Additionally, variations in student populations should be explored to gain more insight as to the differences between the K-12 and non-K-12 schools. Districts with high levels of Partially Proficient rates may find it more challenging to achieve better results in student outcomes when merging with a school district that has a similar or higher population that performs in the Partially Proficient range. The findings from this study demonstrate the divide between K-12 and non-K-12 schools on how they spend their financial resources and the results that each of them gets. Consolidation without further investigation may compromise the outcome.

Socioeconomic Status

In a study referred to as the "Coleman Report," Coleman et al. (1966) reported that the greatest influence on student academic performance was socioeconomic status (SES). Maylone (2002) and Jones (2008) found that state standardized test scores at the high school level in Michigan and New Jersey can be accounted for at the district level by knowing three to five external community demographic variables. Turnamian and Tienken (2012) researched community wealth demographics to predict standardized test results in third grade, and their result was consistent with most other extant literature on the subject over the last 50 years (Bernstein, 1971; Coleman, et al., 1966; Jencks, et al., 1972, McDonough, 2005; Phelan et al., 2007; Sirin, 2005; White, 1982). The results of this study validated that DFG, as a measure of SES, is a significant factor in determining student achievement in both Language Arts and mathematics across all student performance levels from Partially Proficient to Advanced Proficient. Both K-12 and non-K-12 schools from wealthier communities were more inclined to have a higher percent of students performing better. Although an important finding of this study, the results are not a surprise. Most extent research is supportive and consistent with the outcomes of this study. Socioeconomic status as measured by DFG influenced both types of schools, K-12 and non-K-12, used for this study in the same way.

Policy and Practice for Socioeconomic Status

The findings of this study corroborate existing research on the strong relationship between SES and student performance. In an effort to address SES in schools, in 2001 the Bill and Melinda Gates Foundation funded the experiment of Manual High School in Denver. The high school was divided into three separate and smaller

schools with a goal to promote positive relationships and higher expectations for students. By 2006, the Denver Board of Education closed the schools, as the experiment failed to provide any improvement in student performance (Padgette, Cross, & Joftus, 2009).

Socioeconomic factors have existed and are created outside of the school environment. Based on the research, one would accept the idea that money should be focused on poverty issues outside of the school environment before being directed at educational reforms within the public education system. Directing additional financial resources to, and instituting mandates aimed at, public schools while ignoring the larger context of the social issues involved has proven to be a flawed strategy resulting in little improvement to the public education system. The philosophy of using the public education system to improve and carry on democracy is the foundation of the public education system (Dewey, 1927, 1954; Barber, 1992; Etzioni, 1993); however, it was not created specifically to fix social issues.

The results of this study make an argument against consolidation of school districts in New Jersey. The large number of school districts combined with the varying socioeconomics of districts that border one another prohibits the effective consolidation or merger of school districts based on location. Since DFG is a significant factor in student performance outcomes, merger or consolidation of school districts with different DFG classifications is dangerous to the public's confidence in the overall success of the public education system. Districts that are in different DFG classifications could expect to see wide fluctuations in student outcomes on standardized tests. Post-merger student achievement results may paint a negative picture for the district with the higher DFG

classification and a dangerously inaccurate depiction of improved student performance for the lower DFG classified district. Additionally, the nature and sensitivity of "home rule" in New Jersey commands that district leadership should expect objections during discussions of consolidation as well as scrutiny post-merger/consolidation. All future student performance outcomes will be criticized if they do not reflect an improvement.

This intensifies the necessity to make merger or consolidation decisions on a local level, and more importantly, on a voluntary basis. Forced consolidation may result in failure if districts from different DFG classifications are merged. If consolidation were to be forced upon school districts, policymakers must assess the additional resources required to address student needs and allocate resources to address them. It would be imperative for policymakers not only to recognize but to publicly state that the goal of consolidation is to create a more favorable financial situation for the communities and not for the purpose of improving student performance.

It is important to note that since the last DFG classifications were completed in 2000 and have not been updated since, future research should include the updated and most recent DFG classifications for New Jersey school districts.

Summary of Implications for Policy and Practice

School leaders in non-K-12 schools have a narrower grade span and may have the ability to focus on each grade level to be able to more effectively service each student. This researcher has worked in both types of districts, K-12 and non-K-12. While in a K-6 district, the researcher saw the logical merger of four K-6 districts with the 7-12 district that receives all the students, creating one large K-12 school district. In this specific situation, each district has a superintendent, a business administrator, and a board of

education, each with their own leadership style, belief, philosophy, and salary guide. On the face of it, merging the districts would easily save administrative costs if the five districts became one. With all things being constant, just the savings in the superintendent and business administrator positions would save the four communities almost one million dollars per year.

But what about student performance post-merger? As this study demonstrated, students in K-12 districts do not necessarily perform better. As a matter of fact, students from non-K-12 districts seemed to outperform students from K-12 districts consistently across both Language Arts and Math on the NJ HSPA. The results of this study found that schools that are part of K-12 districts had a higher percentage of students in the Partially Proficient category when compared to schools from non-K-12 districts. Though K-12 districts may be thought to be larger in student population and resources, it would seem that these are not factors that will improve student performance. We could infer that schools from K-12 districts are too big and may not be able to service their student populations more efficiently, leading to inferior results. Additional layers of management or a larger bureaucracy may hinder a district's ability to service those students in the most need of additional help, specifically those scoring in the Partially Proficient range in both Language Arts and Mathematics.

Policymakers must consider the possibility that perhaps a broad grade span limits a school leader's ability to focus on individual students and grade levels and inhibits student performance. Communities with schools in non-K-12 districts may desire to keep their school systems smaller and locally controlled. The evidence in this study demonstrates that this would be more beneficial for students. Additionally, the outcomes

of this study demonstrated that spending more per pupil does not lead to improved student performance. This finding should encourage policymakers to rethink the strategy of increased funding for school districts for the purpose of improving student performance; in other words "throwing money at the problem." Instead, policymakers should consider breaking K-12 districts apart in order to allow better focus on individual student needs through a more narrow grade span. Educational leaders would have the opportunity to focus curriculum and educational supports more effectively through a district with a narrower grade span. Although some contend that larger school districts employ more administrators that would assume this responsibility, the chief school administrator gets further away from the student as enrollment and grade span increase.

In the 1996 movie *Jerry Maguire*, a similar philosophy was explored in an entertainment venue that reflected the current environment of business at the time. Although most would recall the movie for the line "show me the money," the real message was "the key to business is personal relationships." Similarly, effective school leaders recognize that problems and challenges in an organization are not solved by one person working individually; rather, it often takes a team coming together to achieve "success." Therefore, the importance of leadership in an organization becomes paramount. Conceivably, non-K-12 schools are more successful because the school leaders have more of a personal relationship with the faculty and staff. This personal relationship could be the component to achieving success for our students. Is it possible that less is more? Shorter grade spans may mean more engagement with the students; specifically, knowing them, catering to their individual needs, and captivating them with a personal touch. Many smaller non-K-12 school districts house their administrative

offices inside of schools, as opposed to separate buildings. This gives school leaders the proximity essential for more personal and friendly relationships with both faculty and students that may transcend to stronger communication, clearer vision, more effective management, and higher morale.

Should we be arguing for fewer grade levels per district that result in higher levels of student outcomes? This study demonstrates the effect of narrow grade spans on student outcomes, and they are positive. Organizations such as the Ritz Carlton and the Four Seasons, among other service-oriented organizations, rely on highly complex customer relation management (CRM) technologies that help them build relationships. Schools have their customers (students) as a captive audience, and yet they may not be addressing their individual needs effectively. As a non-K-12 school administrator, I have seen how the superintendent, the chief school administrator, knew the names of most of the students in the district schools. In contrast, while an administrator in a K-12 district, I have seen how the superintendent is far removed from the schools and knows relatively few student names, let alone their specific needs. The mission in *Jerry Maguire* was "greater personal relationships over profits." Since public schools are not profit driven, perhaps they must start to focus on personal relationships and how best to develop them with faculty and students.

Conclusion and Recommendations for Future Study

There are other factors to consider when discussing consolidation or merger of school districts in New Jersey, specifically "home rule." "Home Rule" equates to emotions stemming from community ties and pride of residency in a particular municipality or district. Further understanding of the psychological impact of

consolidation needs be studied through future research. Successful consolidation should be on a voluntary basis that originates from within a community and not from the legislature or at the State level. It must be based on individual circumstances and, as the results of this study have shown, not with the expectation of improving student performance.

The results of this study make data available that can be used in opposition to merger discussions of two or more school districts. Moreover, this study may be used as local municipalities discuss their own consolidation options, suggesting that a more in-depth study of other variables and outcomes is necessary. A body of empirical evidence exists regarding the predictive power of variables on student achievement; therefore, this study also added empirical results to that body of existing literature on the predictors of student academic performance.

The findings, as well as the limitations, generate many important questions and provide clear pathways for further research and study. In addition to the aforementioned suggestions, there are a number of pragmatic approaches as well that can add to the body of research:

1. Conduct a similar study using only Partially Proficient rates to obtain a more narrowly defined outcome.
2. Conduct a study that will identify which variables affect students that perform at the Partially Proficient level in Language Arts and Mathematics in K-12 schools versus non-K-12 schools.
3. Conduct a qualitative study on "home rule" and local attitudes in local school districts.

4. Repeat this study over a longitudinal period to determine any patterns of achievement that may be associated with each type of school.
5. Conduct a similar study in another state using the state's respective standardized measure.
6. Examine student performance in the lower grades and correlate the results with student performance on the NJ HSPA in both K-12 and non-K-12 schools.
7. Conduct an in-depth study of how student mobility rates and programs that are in place address the needs of those students.
8. Measure student attendance rates over a longer period in K-12 and non-K-12 schools and their impact on student performance.
9. Examine the programs in place in K-12 and non-K-12 schools that are in place to address students with the greatest needs.
10. Study the teacher turnover rates in k-12 versus non-K-12 schools and their impact on student achievement.
11. Conduct a study to examine budget and spending practices in K-12 vs. non-K-12 schools.
12. Conduct a study examining local school boards from K-12 and non-K-12 districts and their attitudes, expectations, and responsibilities.

The concept of fewer (and larger) school districts equating to better efficiencies will probably be discussed and pressed further upon local school districts as economic conditions continue to worsen for taxpayers in the state of New Jersey. Indeed, some consolidations or mergers may result in financial efficiencies for those school districts;

however, it may not be as favorable in student performance outcomes. The results of this study suggest that consolidation of school districts may not be what is best for students. Although consolidating or merging two or more districts is thought to save taxpayers money through the efficiencies that may be gained, the results of this study suggest that actual student performance in high schools from K-12 districts were inferior to schools from non-K-12 districts.

In summary, discussions on consolidating school districts must involve educators in the affected districts, members of the public, teachers, students, parents, and other stakeholders. Mandating consolidation without examining the characteristics of each district may jeopardize the successful merger(s). Without it, there is a risk of shaping the future of public education through legislative mandates that lack input from educational leaders who have the day-to-day knowledge and experience of running a school district, interacting within its community and, most importantly, have the intimate knowledge of student performance levels and how best to address student needs.

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APPENDIX A

LIST OF NON-K-12 SCHOOLS FOR THIS STUDY

NON-K-12 HIGH SCHOOL	COUNTY	DFG
PASSAIC CO MANCHESTER REG	PASSAIC	B
CUMBERLAND REGIONAL	CUMBERLAND	B
CENTRAL REGIONAL	OCEAN	B
PINELANDS REGIONAL	OCEAN	B
LOWER CAPE MAY REGIONAL	CAPE MAY	B
HENRY BECTON HS	BERGEN	CD
ABSEGAMI HS	ATLANTIC	CD
OAKCREST HS	ATLANTIC	CD
DELSEA REGIONAL HS	GLOUCESTER	CD
GATEWAY REGIONAL	GLOUCESTER	CD
WALLKILL VALLEY REGIONAL	SUSSEX	DE
STERLING HIGH SCHOOL	CAMDEN	DE
HIGH POINT REGIONAL	SUSSEX	DE
PASSAIC VALLEY REGIONAL	PASSAIC	DE
MAINLAND REGIONAL	ATLANTIC	DE
RANCOCAS VALLEY REGIONAL	BURLINGTON	DE
HIGHLAND HS	CAMDEN	DE
TIMBER CREEK HS	CAMDEN	DE
TRITON HS	CAMDEN	DE
SOUTHERN REGIONAL	OCEAN	DE
NORTHERN BURLINGTON REG	BURLINGTON	DE
HENRY HUDSON REGIONAL	MONMOUTH	DE
RED BANK REGIONAL	MONMOUTH	FG
LAKELAND REGIONAL	PASSAIC	FG
CLEARVIEW REGIONAL	GLOUCESTER	FG
KINGSWAY REGIONAL	GLOUCESTER	FG
WARREN HILLS REGIONAL	WARREN	FG
KITTATINNY REGIONAL	SUSSEX	FG
NORTH WARREN REGIONAL	WARREN	FG
SHORE REGIONAL	MONMOUTH	GH
LENAPE VALLEY REGIONAL	SUSSEX	GH
DELAWARE VALLEY REGIONAL	HUNTERDON	GH
MONMOUTH REGIONAL	MONMOUTH	GH
HANOVERPARK HS	MORRIS	GH
WHIPPANY PARK HIGH	MORRIS	GH
EASTERN HIGH SCHOOL (11-12)	CAMDEN	GH
MORRIS HILLS HS	MORRIS	GH

MORRIS KNOLLS HS	MORRIS	GH
CHEROKEE HS	BURLINGTON	GH
LENAPE HS	BURLINGTON	GH
SENECA HS	BURLINGTON	GH
SHAWNEE HS	BURLINGTON	GH
COLTS NECK HS	MONMOUTH	GH
FREEHOLD BOROUGH HS	MONMOUTH	GH
FREEHOLD TWP HS	MONMOUTH	GH
HOWELL HS	MONMOUTH	GH
MANALAPAN HS	MONMOUTH	GH
MARLBORO HS	MONMOUTH	GH
SOUTH HUNTERDON REGIONAL	HUNTERDON	GH
WATCHUNG HILLS REGIONAL	SOMERSET	I
PASCACK HILLS HS	BERGEN	I
PASCACK VALLEY HS	BERGEN	I
RAMAPO HS	BERGEN	I
INDIAN HILLS HS	BERGEN	I
WEST MORRIS CENTRAL HS	MORRIS	I
WEST MORRIS MENDHAM HS	MORRIS	I
NV REGIONAL DEMAREST	BERGEN	I
NV REGIONAL OLD TAPPAN	BERGEN	I
NORTH HUNTERDON HS	HUNTERDON	I
VOORHEES HS	HUNTERDON	I
HUNTERDON CENTRAL REG	HUNTERDON	I
WEST ESSEX REGIONAL	ESSEX	I
RIVER DELL REGIONAL	BERGEN	I
RUMSON-FAIR HAVEN REG	MONMOUTH	J
NORTHERN HIGHLANDS REG	BERGEN	J

APPENDIX B

LIST OF K-12 SCHOOLS FOR THIS STUDY

K-12 HIGH SCHOOL	COUNTY	DFG
GLASSBORO HS	GLOUCESTER	B
HAMMONTON HS	ATLANTIC	B
LIBERTY HS	HUDSON	B
MANCHESTER TWP HS	OCEAN	B
MIDDLE TWP HIGH	CAPE MAY	B
BELLEVILLE HS	ESSEX	CD
MANVILLE HS	SOMERSET	CD
MONROE TWP HS	GLOUCESTER	CD
PALISADES PARK HS	BERGEN	CD
PENNSVILLE MEM HS	SALEM	CD
AUDUBON HS	CAMDEN	DE
PALMRYA HS	BURLINGTON	DE
WEST DEPTFORD HS	GLOUCESTER	DE
TOMS RIVER EAST HS	OCEAN	DE
EWING HS	MERCER	DE
NORTH ARLINGTON HS	BERGEN	DE
BLOOMFIELD HS	ESSEX	DE
RIDGEFIELD MEM HS	BERGEN	DE
HAWTHORNE HS	PASSAIC	DE
SPOTSWOOD HS	MIDDLESEX	DE
RARITAN HS	MONMOUTH	DE
BUTLER HS	MORRIS	DE
HOBOKEN HS	HUDSON	FG
WASHINGTON TWP HS	GLOUCESTER	FG
VERNON HS	SUSSEX	FG
POINT PLEASANT BEACH HS	OCEAN	FG
WEST MILFORD HS	PASSAIC	FG
BURLINGTON TWP HS	BURLINGTON	FG
DELRAN HS	BURLINGTON	FG
LEONIA HS	BERGEN	GH
EMERSON HS	BERGEN	GH
PEQUANNOCK HS	MORRIS	GH
WALL HS	MONMOUTH	GH
MIDDLETOWN HS NORTH	MONMOUTH	GH
PISCATAWAY HS	MIDDLESEX	GH
MANASQUAN HS	MONMOUTH	GH

PARAMUS HS	BERGEN	GH
FAIRLAWN HS	BERGEN	GH
MT. OLIVE HS	MORRIS	GH
ALLENTOWN HS	MONMOUTH	GH
WALDWICK HS	BERGEN	GH
MORRISTOWN HS	MORRIS	GH
CHERRY HILL HS EAST	CAMDEN	GH
WAYNE VALLEY HS	PASSAIC	GH
RUTHERFORD HS	BERGEN	GH
HADDON HEIGHTS HS	CAMDEN	GH
HIGHLAND PARK HS	MIDDLESEX	GH
WESTWOOD HS	BERGEN	GH
PARSIPPANNY HIGH	MORRIS	GH
LIVINGSTON HS	ESSEX	I
MONTCLAIR HS	ESSEX	I
COLUMBIA	ESSEX	I
SCOTCH PLAINS-FANWOOD HS	UNION	I
BERNARDS HS.	SOMERSET	I
WESTFIELD HS	UNION	I
KINNELON HS	MORRIS	I
EAST BRUNSWICK HS	MIDDLESEX	I
ROBBINSVILLE HS	MERCER	I
CRESKILL HS	BERGEN	I
CEDAR GROVE HS	ESSEX	I
HILLSBOROUGH HS	SOMERSET	I
MADISON HS	MORRIS	I
MAHWAH HS	BERGEN	I
GLEN ROCK HS	BERGEN	J
MILLBURN HS	ESSEX	J