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The Relative Influence of Faculty Mobility on NJ HSPA Scores

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THE RELATIVE INFLUENCE OF FACULTY MOBILITY

ON NJ HSPA SCORES

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Doctoral Candidate, **Dana Graziano,** has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ed.D.** during this **Fall Semester 2012**.

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ABSTRACT

In this study, the researcher examined the strength and direction of relationships between New Jersey School Report Card Variables, in particular Faculty Mobility, and 2009-2010 New Jersey High School Proficiency Assessment (HSPA) Math and Language Arts Literacy test scores. Variables found to have an influence on standardized test scores in the extant literature were evaluated and reported. Analyses of simultaneous multiple regressions involving New Jersey School Report Card Variables were conducted for both Math and Language Arts Literacy scores. Hierarchical regression models including only variables deemed significant by the multiple linear regressions were analyzed for both Math and Language Arts Literacy scores. The sample was selected purposefully to represent only New Jersey's public, comprehensive, and academic secondary schools.

An analysis of the correlation coefficients showed none of the variables in the study—Socioeconomic Status, Percentage of Limited English Proficiency Students, Percentage of Students with Disabilities, School Size, Faculty Mobility, Faculty Attendance, Percentage of Highly Qualified Teachers, Percentage of Teachers with a Master's Degree or Higher, Student Attendance, and Student Mobility—revealing a strong and significant correlation to HSPA Language Arts Literacy or Math performance. Faculty Mobility, the variable in question, was the weakest significant correlate of HSPA Language Arts Literacy performance. Also, it was reported as a weak, but significant, correlate of HSPA Math performance.

When all variables were run in a simultaneous regression model to account for the variance in HSPA Language Arts Literacy performance, Faculty Mobility was not significant. The high VIFs of Faculty Attendance and Percentage of Highly Qualified Teachers inspired Model 1A, assuming that a suppression of variables existed in the previous model. Neither

Faculty Mobility nor Percentage of Teachers with a Master's Degree or Higher was significant in Model 1A.

Regarding Math performance, Faculty Mobility was significant in predicting HSPA Math performance. The high VIFs of Faculty Attendance inspired Model 2A, assuming that a suppression of variables existed in the previous model. Faculty Mobility was, again, significant.

The third Model, Hierarchical Multiple Regression analysis, accounts for all significant variables used in the study that predicted Language Arts Literacy performance. They were School Size, Socioeconomic Status, Percentage of Limited English Proficiency Students, Percentage of Students with Disabilities, Student Attendance, Student Mobility, and Faculty Mobility. Only .3% of the variance changed when Faculty Mobility was added to the model.

The fourth Model, Hierarchical Regression analysis, accounts for all significant variables used in the study that predicted Math performance. They were Student Mobility, Student Attendance, School Size, Percentage of Students with Disabilities, Percentage of Limited English Proficiency Students (LEP), Socioeconomic Status (SES), Faculty Mobility, Percentage of Teachers with a Master's Degree or Higher. The R^2 change indicated that 1.3% of the change in variance was due to the inclusion of Faculty Mobility and Percentage of Teachers with a Master's Degree or Higher.

All of the findings of this study declare Faculty Mobility as a significant predictor of HSPA Math performance, but bearing no significance on HSPA Language Arts Literacy performance. Recommendations for policy, practice, and future research are inspired by this result and are explored in this study.

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DEDICATION

This study is dedicated to my lifelong partner, Susan. You bring so much joy to my life in ways of beauty, class, honesty, generosity, humor, perspective, intelligence, comfort, and poise. With you, I am my best self and strive to be a better person. Thank you for all that you are and all that you bring to our life together. “You are my beloved. You are my friend.”

This study is also dedicated to my very first teachers, my family. To my parents, Anna and Tom. Your wisdom is admirable and your love is unconditional. You paved the way for me, supported me throughout, and helped me to “make decisions that I could live with.” To my sister, Kerrie; my brothers, Tommy and Anthony; my siblings by law, Doug, Geneen, and Michele; my Grandparents here and beyond, Claire and Joe, Benji and Ree; my aunt and uncles, Laurie, Micheal, and Jimmy; and my cousins, Steven and Samantha. You were all instrumental in my journey. “Thank you, Jesus.”

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CHAPTER I

INTRODUCTION

Background

This study explores how much variance, if any, faculty mobility contributes to the aggregate student performance of New Jersey high schools on HSPA Mathematics and Language Arts.

A hallmark of the American educational system is to provide all students the educational opportunity which will prepare them to function politically, economically, and socially in a democratic society regardless of race, socioeconomic status, gender, creed, color, or disability. "Leave no child behind" became a mantra that echoed throughout the public school landscape since the reauthorization of the Elementary and Secondary Education Act (ESEA) in the year 2000. Yet, many students tend to be left behind, particularly those of low socioeconomic status (SES), when challenged by high-stakes standardized tests.

The Public School Education Act of 1975 was amended in 1976. The Act established standards for minimum achievement in reading, writing, and math skills. The amendment began the use of high-stakes exams as high school graduation requirements in New Jersey (New Jersey Department of Education, 2006).

Beginning in 1981–82, the Minimum Basic Skills Test (Reading and Mathematics) was administered to ninth-grade students. Students were required to pass the test before receiving their high school diploma. The New Jersey Department of Education (NJDOE) provided the opportunity to retest for students failing one or both parts (2006).

In 1983, with the publication of *A Nation at Risk*, testing gained momentum due to the incendiary wording of the document such as "the educational foundations of our country are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people" (*A Nation at Risk*, 1983, p. 1). Politicians became involved at the federal and state levels. Although inconsistent throughout the country, standardized test usage was on the rise. Defining goals and objectives for American students to meet became a national pastime.

Also in 1983, the Grade 9 High School Proficiency Test (HSPT9) was adopted (NJDOE, 2006). The test was administered to measure the basic skills achievements of ninth-grade students in reading, mathematics, and writing and was suspected to be more difficult than the Minimum Basic Skills Test (NJDOE, 2006).

In 1988, the New Jersey Legislature passed a law which moved the High School Proficiency Test from the ninth grade to the eleventh grade. According to the State of New Jersey, the Grade 11 High School Proficiency Test (HSPT11) was a thorough test of essential skills in Reading, Mathematics, and Writing (NJDOE, 2006). It served as a graduation requirement for all public school students in New Jersey who entered the ninth grade on or after September 1, 1991. Districts were granted three years of due-notice testing to allow time for modification of curricula and to prepare students for the graduation test (NJDOE, 2006).

In 1991, the US Secretary of Labor appointed the Secretary's Commission of Achieving Necessary Skills (SCANS) in an effort to identify skills students would need to be ready for the workplace. Fundamental skills and workplace competencies each graduating high school student should possess were identified (Secretary's Commission of Achieving Necessary Skills [SCANS], 1991). The terms have remained in the national testing and standards movement to this day.

In 1996, the New Jersey Department of Education adopted Core Curriculum Content Standards to delineate goals for students by the end of fourth grade, eighth grade, and upon completion of a New Jersey public school education (NJDOE, 2006). Upon its implementation, all New Jersey school districts were required to organize instruction and design curricula so that all students achieve the new content standards (NJDOE, 2006). “The Core Curriculum Content Standards ultimately define the state’s high school graduation requirements and its testing program to measure benchmark achievements toward those requirements in grades 4, 8, and 11” (Washington Township High School, 2006, p. 4).

In 2002, the High School Proficiency Assessment (HSPA), which is also aligned with the content standards, replaced the HSPT11 as the state’s graduation test. The HSPA was field tested for a three-year period and administered to eleventh-graders as a graduation test for the first time in March 2002 (NJDOE, 2006).

The No Child Left Behind Act (NCLB), signed by George W. Bush on January 8, 2002, requires every state to create assessments aligned to the state’s academic standards in Language Arts and Mathematics. Policymakers and some education leaders define successful schools as “those where students pass the standardized assessment” (Jones, 2008, p. 2). New Jersey administers the NJ Assessment of Skills and Knowledge (NJ ASK) for Grades 3 through 8 and the High School Proficiency Assessment (HSPA) for Grade 11 (NJDOE, 2010).

A primary goal of NCLB is for all students to reach grade level proficiency in Language Arts and Mathematics by the 2013-2014 school year (National Education Association, 2011). According to NCLB, every state is required to create assessments aligned to the state’s academic standards in Language Arts and Mathematics for Grades 3 through 8, as well as in Grade 11 (NJDOE, 2010). The NJ Assessment of Skills and Knowledge (NJ ASK) is used to test proficiency in Grades 3, 4, 5, 6, and 7, the Grade Eight Proficiency Assessment (GEPA), and the High School Proficiency Assessment (HSPA) for Grade 11 (NJDOE, 2010).

The HSPA is a state test given to students in the eleventh grade that measures whether students have gained the knowledge and skills identified in the Core Curriculum Content Standards (NJDOE, 2008). These standards, adopted by the State Board of Education, identify objectives students are expected to master at the end of various benchmark years (NJDOE, 2008). The highest score attainable on the NJ HSPA is a 300 for each section. Students are classified under three classifications for both Mathematics and Language Arts Literacy based on their scores: Partially Proficient (<200), Proficient (200-250), and Advanced Proficient (250-300). Students who score at the Partially Proficient level are considered to be below the state minimum proficiency. Those students may be most in need of instructional support (NJDOE, 2008, p. 3).

Current achievement gaps based on socioeconomic status between New Jersey schools create one hindrance for the NCLB triumph (Fuller, 2011). According to Bruce Fuller (2011), lead author of the American Educational Research Association (AERA), a narrowing of racial and income-based achievement gaps was seen in the 1990s. Fuller reports that the progress has faded since passage of No Child Left Behind. The AERA (2011) revealed a study among 12 states, including New Jersey, that are demographically diverse, geographically dispersed, and able to provide comparable test score data over time. Reading scores on the National Assessment of Educational Progress tests climbed during the 1990s and began declining after the authorization of NCLB among all 12 states. "The slowing of achievement gains, even declines in reading, since 2002 suggests that state-led accountability efforts—well underway by the mid-1990s—packed more of a punch in raising student performance, compared with the flattening-out of scores during the 'No Child' era" (Fuller, 2011, para. 5).

Supporters of the most recent reform (NCLB) allege that the state standardized tests provide a quantifiable, subjective comparison. However, evidence exists to indicate that NJ HSPA and similar tests may play a role in faculty mobility (Byrne, 1993; Costigan & Crocco, 2006; Tye & O'Brien, 2002). In 2006, Costigan and Crocco performed a qualitative study of the effects of high-stakes testing on teachers and students. Their research indicated that high-stakes testing mandated by New York State generated negative teacher and student outcomes. They conducted over two hundred interviews with student teachers and professional teachers and held twelve focus groups consisting of small groups of teachers over a course of four years. The statistical findings spoke to teachers' frustration in adhering to scripted lessons designed to maximize students' scores on high-stakes testing. Teachers expressed disappointment and annoyance regarding the demands by administrators for test success and the factory model of education they were pressured to embrace. Costigan and Crocco's (2006) study suggested that good teachers are leaving the profession because they no longer feel "a viable part of the education system, a system whereby students and teachers become hostages to the mandates of state testing" (p. 11). Ingersoll and Smith (2003) report three primary reasons for faculty mobility. The primary reason is low salary. The other two reasons provided by teachers leaving the field are student discipline problems and lack of administrative support. According to Ascher (1991), "Schools serving poor and minority children, often located in urban communities, have limited funds for teacher salaries, educational materials, and general maintenance of the educational environment, thereby creating conditions for faculty mobility" (para. 1). Such obstacles also contribute to burnout. Fine (2009) reports to the *Washington Post* her experience teaching in the District of Columbia:

> When people ask, I tend to cite the usual suspect--burnout. I just couldn't take it anymore, I explain. I describe what it was like to teach students such as Shawna, a 10th-grader who could barely read and had resolved that the best way to deal with me was to curse me out under her breath. More and more major decisions were made behind closed doors, and more and more teachers felt micromanaged rather than supported. One afternoon this spring, when my often apathetic 10th-graders were walking eagerly around the room as part of a writing assignment, an administrator came in and ordered me to get the class "seated and silent." It took everything I had to hold back my tears of frustration. We put our lives on hold to canvass for the causes we believe in. We volunteer like our hair is on fire. When it comes to teaching, however, this fire only burns for so long. I describe spending weeks revising a curriculum proposal with my fellow teachers, only to find out that the administration had made a unilateral decision without looking at it. I describe how it became impossible to imagine keeping it up and still having energy for, say, a family. The teaching itself was exhilarating but disheartening. There were triumphs: energetic seminar discussions, cross-class projects, a student-led poetry slam. This past year, my 10th-graders even knocked the DC-CAS reading test out of the water. Even so, I felt like a failure. Too many of my students showed only occasional signs of intellectual curiosity, despite my best efforts to engage them. Too many of them still would not or could not read. And far too many of them fell through the cracks. Of the 130 freshmen who entered the school in 2005, about 50 graduated this spring (para 7-11).

Students of low SES attend schools that are larger, more diverse, and contain higher concentrations of students with special needs. These schools, normally urban or rural, experience the greatest frequency of teacher shortages (Imazeki, 2001). Terry and Kritsonis

(2008) claim that faculty mobility is a problem that's been expanding in the United States and must be addressed if a quality education is to be provided for all children.

Statement of the Problem

One of the major goals of NCLB is to increase school- and district-level accountability for educational progress by communicating useful information to members of the public to be used in measuring how well their schools are doing (New Jersey School Report Card, 2010). For New Jersey, the NJ HSPA is the instrument by which achievement is quantified and the communication method is the New Jersey School Report Card. The NJ School Report Card presents 35 fields of information for each school in the following categories: school environment, students, student performance indicators, staff, and district finances (New Jersey School Report Card, 2010). Knowing which factors affect student performance allows educators and/or researchers to identify opportunities that encourage student achievement on high-stakes tests.

This study focuses specifically on faculty mobility, a staff variable, as defined by the New Jersey Department of Education. The State of New Jersey defines faculty mobility as "the rate at which faculty come and go during the school year" (New Jersey School Report Card, 2010, para. 44). New Jersey calculates faculty mobility by using the number of all faculty who entered or left employment in the school after October 15 divided by the total number of faculty reported as of that date (New Jersey School Report Card, 2010). New Jersey's definition does not differentiate between teachers, administrators, counselors, or other faculty members, nor does it differentiate between reasons for faculty departure—transfer to another school within the district, termination from the district, maternity/temporary leave, retirement, quitting the profession, leaving the district. Ingersoll (2001) reports that faculty departures impact the school organization whether those departing are moved to a similar job in another organization or leaving the occupation altogether. The definition used in this study is consistent with Ingersoll's reporting and, therefore, views all faculty mobility as equally important.

While no schools are immune to faculty mobility, the annual turnover in high-poverty schools is about twice that of high-poverty urban schools (Johnson et al., 2005). The National Commission on Teaching and America's Future (2011) reported that beginning teachers have a mobility rate of 14%. That is, 14% leave the profession after one year. The report cited the National Center for Education Statistics showing that about 33% of the country's new teachers leave teaching sometime during their first three years on the job, asserting that teaching has become "a revolving door occupation" (Terry & Kristonis, 2008, p. 3). The number of beginning teachers in urban schools who leave the teaching profession doubles that number, according to Smith & Smith (2006). According to the *New York Times*' April 30, 2011 report, "20% of teachers in urban districts quit. Nationwide, 46% of teachers quit before their fifth year. The effect within schools, especially those in urban communities where turnover is highest, is devastating" (para. 5). As a result, education suffers. More precisely, student achievement suffers (Aaronson, Barrow, & Sander, 2007; Boyd, Goldhaber, Lankford, & Wyckoff, 2007; Rivkin, Hanushek, & Kain, 2005). Darling-Hammond & Sykes (2003) claim that it is critical, therefore, for efforts to be concentrated on developing and retaining high-quality teachers to attain the national goal of providing an equitable education to children across the nation. Such efforts are discussed in detail in Chapter V.

Purpose of the Study

The purpose of this quantitative, non-experimental, correlation/explanatory design was to explore how much variance, if any, faculty mobility contributes to the aggregate student performance of New Jersey high schools, with a District Factor Group classification of A through J, on HSPA Mathematics and Language Arts. This study sought to determine if a high rate of faculty mobility, defined as a school average greater than the state's rate of faculty members who come and go during the school year (New Jersey School Report Card, 2007), significantly influences the HSPA performance of New Jersey High Schools. This study employed multiple regression analyses to examine the school, staff, and student mutable variables that potentially influence schoolwide performance on the NJ HSPA Language Arts and Math.

Though research has saturated educational literature since the inception of the No Child Left Behind Era in 2002, the existing literature on faculty mobility related to the results from statewide tests is limited (Boyd, Goldhaber, Lankford, & Wyckoff, 2007; Rivkin, Hanushek, & Kain, 2005; Terry & Kritsonis, 2008). This study provides an in-depth analysis of the relation and possible influence of school, staff, and student variables on student achievement with a focus on faculty mobility.

Research and Subsidiary Questions

Using data from local school district student databases and the New Jersey Department of Education, a series of multiple regression analyses were utilized to answer the following overarching research question: How much variance, if any, does faculty mobility contribute to the aggregate student performance of New Jersey high schools, with a District Factor Group classification of A through J, on HSPA Mathematics and Language Arts?

This study measured student achievement by schoolwide performance on the NJ HSPA and was guided by the following subsidiary research questions:

1. How much variance in HSPA LAL student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?
2. How much variance in HSPA Math student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?
3. When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA LAL student performance?
4. When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA Math student performance?

Hypotheses

Through multiple regression analysis, the researcher investigated the relationship and possible influence of faculty mobility on student achievement, measured by schoolwide performance on the NJ HSPA Mathematics and Language Arts, when controlling for other student, staff, and school demographic factors.

The null hypotheses are as follows:

H_o: There is no significant level of variability in HSPA Language Arts Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

H_o: There is no significant level of variability in HSPA Math Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

Tested against the alternatives:

H_1: There is a significant level of variability in HSPA Language Arts Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

H_1: There is a significant level of variability in HSPA Math Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

Conceptual Framework

The conceptual framework of this research is represented in Figure 1. Michel (2004) researched the relative influence of teacher educational attainment on student NJ ASK 4 scores. This study is an extension of Michel's, as it explains the influence of student, staff, and school variables on NJ HSPA scores. While the outcome variable differs, some predictor variables are the same, such as student attendance, student mobility, faculty attendance, teachers with advanced degrees, and DFG/SES. Other variables selected for this study were deemed influential by current research conducted by Gariss-Hardy et al., 2004; Johnson, 2000; Roby, 2003; Ingersoll and Smith, 2003; Imazeki, 2001; Aaronson, Barrow, & Sander, 2007; Boyd, Goldhaber, Lankford, and Wyckoff, 2007; Rivkin, Hanushek, & Kain, 2005; Nicholson et al, 2006; Bayard, 2003; Cantrell, 2005, Womble, 2001; Cabezas, 2006; Cotton, 1996; Howley & Howley, 2004; Lee, Smerdon, Alfeld-Liro, & Brown, 2000; Fowler, 1995; Boe, Bobbitt, & Cook, 1997; Eisler & Weise, 2009; Wright and Pu, 2005.

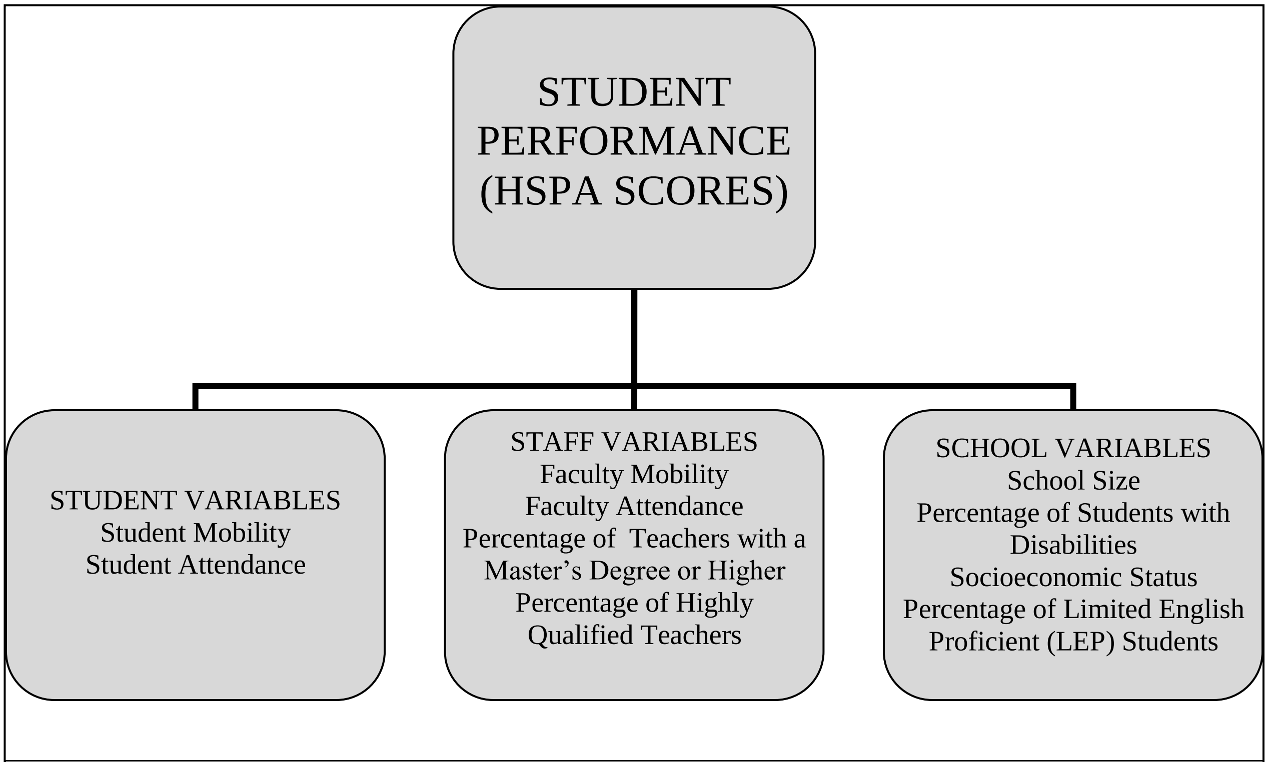


Figure 1: Dependent/Outcome Variable and Independent/Predictor Variables

Note: Figure 1 displays a conceptual framework for this study with HSPA identified as the dependent/outcome variable and respective student, faculty, and school factors as independent/predictor variables.

The models that were analyzed are shown in Table 1. They were selected so as to allow for a correlation among student, staff, and school variables to be made. The models also determined if very high correlations between x variables, or a near perfect linear relation known as collinearity, exist.

Table 1

Models Analyzed in the Study

Simultaneous Regression Models		
MODEL 1: LAL	All Variables	Student Mobility Rate Student Attendance Rate Faculty Mobility Faculty Attendance Percentage of Teachers with a Master's Degree or Higher

		Percentage of Highly Qualified Teachers School Size Percentage of Students with Disabilities Socioeconomic Status Percentage of Limited English Proficient (LEP) Students
MODEL 2: Math	All Variables	Student Mobility Rate Student Attendance Rate Faculty Mobility Faculty Attendance Percentage of Teachers with a Master's Degree or Higher Percentage of Highly Qualified Teachers School Size Percentage of Students with Disabilities Socioeconomic Status Percentage of Limited English Proficient (LEP) Students
Hierarchical Regression Models		
MODEL 3: LAL	Model 1	Student Mobility Rate Student Attendance Rate
	Model 2	Student Mobility Rate Student Attendance Rate Percentage of Limited English Proficient (LEP) Students Percentage of Students with Disabilities Socioeconomic Status School Size
	Model 3	Student Mobility Rate Student Attendance Rate Percentage of Limited English Proficient (LEP) Students Percentage of Students with Disabilities Socioeconomic Status School Size Faculty Mobility
MODEL 4: Math	Model 1	Student Mobility Rate Student Attendance Rate
	Model 2	Student Mobility Rate Student Attendance Rate Percentage of Students with Disabilities Percentage of Limited English Proficient (LEP) Students School Size Socioeconomic Status

	Model 3	Student Mobility Rate Student Attendance Rate Percentage of Students with Disabilities Percentage of Limited English Proficient (LEP) Students School Size Socioeconomic Status MA+ Faculty Mobility

Design and Methodology

Design, Method, and Sampling

This study represents a non-experimental, cross-sectional, correlation/explanatory design utilizing data collected from one point in time--the 2009-2010 school year.

For purposes of this study, the researcher utilized multiple regression analyses. All regression analyses explore either a “simultaneous” or “entry” method for each model’s variables along with possible hierarchical models dependent upon the “simultaneous” outcomes (Witte & Witte, 2007).

The sample for this study consisted of schools that reported all required information relating to school, staff, and student variables to the NJDOE. It included all district academic and comprehensive high schools in New Jersey containing a District Factor Grouping of A, B, CD, DE, FG, GH, I, or J. According to the NJDOE, the total was 336 public secondary schools (The State of New Jersey, 2012).

Independent/Predictor Variables

Research has not deemed all of the posited predictor variables as influential. However, the NJDOE considers these variables important and, as such, are listed on the school report card. The NJDOE organizes variables in the following categories: School Environment, Student Information, Student Performance Indicators, Staff Information, and District/Charter Financial

Data (See Table 2). For purposes of this study, selected variables were aggregated as Student, Staff, and School Variables (Pereira, 2011; Michel, 2004). The variable Free and Reduced Lunch Eligibility was also used since SES is a well-documented predictor variable on student and school achievement (Kurki, Boyle, & Aladjem, 2005). In order to be consistent with literature, several NJDOE variables were given different names. The meaning of the variables, however, was not altered. These variables are as follows:

Enrollment by Grade→School Size (Cotton; 1996; Fowler, 1995; Howley & Howley, 2004; Lee, Smerdon, Alfeld-Liro, & Brown, 2000)

Economically Disadvantaged Students → Socioeconomic Status (Cabezas, 2006; Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966; Eisler & Weise, 2009; Jones, 2008; Michel, 2004)

Limited English Proficient (LEP) Students→ Percentage of Limited English Proficient (LEP) Students **(**Wright and Pu, 2005)

Faculty and Administrator Credentials→Percentage of Teachers with a Master's Degree or Higher (Michel, 2004)

Highly Qualified Teacher Information→Percentage of Highly Qualified Teachers (Cabezas, 2006).

Table 2

All Factors Deemed Influential to Student Performance by the NJDOE

(Note: Variables in bold type are those pertaining to the study)

SCHOOL ENVIRONMENT

- Average Class Size
- Length of School Day

- Instructional Time
- Student/Computer Ratio
- Internet Connectivity
- Length of School Year (charter schools only)
- School Waiting List (charter schools only)
- School Classrooms (charter schools only)

STUDENT INFORMATION

- **Enrollment by Grade** (Cotton, 1996)
- **Students with Disabilities** (Boe, Bobbitt, & Cook, 1997)
- Language Diversity
- **Limited English Proficient (LEP) Students** (Wright & Pu, 2005)
- **Student Mobility Rate (**Gariss-Hardy et al., 2004)

STUDENT PERFORMANCE INDICATORS

- Assessments
- Graduation Type
- Scholastic Assessment Test (SAT)
- Advanced Placement (AP)
- Advanced Placement Results Summary
- Advanced Placement Participation Data
- National Occupational Competency Testing Institute (NOCTI) (vocational only)
- Certification/Licensure and Required Examination Results (vocational only)
- Other Performance Measures
- **Student Attendance Rate** (Johnson, 2000)

- Dropout Rate (secondary only)
- Graduation Rate (secondary only)
- Post-Graduation Plans (secondary only)
- Student Suspensions
- Student Expulsions
- Completion Data (vocational only)

STAFF INFORMATION

- Student/Administrator Ratio
- Student/Faculty Ratio
- **Faculty Attendance Rate** (Nicholson, et al., 2006)
- **Faculty Mobility Rate** (Ingersoll & Smith, 2003)
- **Faculty and Administrator Credentials** (Michel, 2004)
- National Board Certification
- **Highly Qualified Teacher Information** (Cabezas, 2006)

DISTRICT/CHARTER FINANCIAL DATA

- Administrative and Faculty Personnel
- Median Salary and Years of Experience of Administrative and Faculty Personnel
- Teacher Salaries and Benefits
- Administrative Salaries and Benefits
- Revenues
- Budgets and Per-pupil Expenditures

(NJDOE, 2010).

The student variables selected are Student Mobility and Student Attendance. A negative relationship between student mobility and school performance was reported by Gariss-Hardy & Vrooman (2004). The impact of student attendance on a school's achievement on high-stakes test scores was recorded by Johnson (2000) and Roby (2003).

The staff variables selected include Faculty Mobility, Faculty Attendance, Percentage of Teachers with a Master's Degree or Higher, and Percentage of Highly Qualified Teachers. The influence of faculty mobility on student achievement, the central focus of this research, is explored by research (Aaronson, Barrow, & Sander, 2007; Boyd, Goldhaber, Lankford, & Wyckoff, 2007; Imazeki, 2001; Ingersoll & Smith, 2003; Rivkin, Hanushek, & Kain, 2005). Other empirical findings suggest a substantial negative relationship between faculty attendance and student achievement (Bayard, 2003; Nicholson, Pauly, Polsky, Sharda, Szrek, & Berger, 2006; Womble, 2001). Michel (2004) identified the effect of a school's Percentage of Teachers with a Master's Degree or Higher on student NJ ASK 4 scores. The influence of Highly Qualified Teachers on student performance was examined by Cabezas (2006).

The school variables include School Size, Percentage of Students with Disabilities, Socioeconomic Status, and Percentage of Limited English Proficient (LEP) Students**.** Research reflects an influence on student achievement due to School Size (Cotton, 1996; Fowler, 1995; Howley & Howley, 2004; Lee, Smerdon, Alfeld-Liro, & Brown, 2000). The impact of a school's Percentage of Students with Disabilities on student achievement is shown by Boe, Bobbitt, & Cook (1997) and Jones (2008). Support for the influence of Socioeconomic Status on student performance is seen in Eisler and Weise's research (2009). Wright and Pu (2005) illustrated the impact of the Percentage of Limited English Proficient (LEP) Students on a school's standardized test performance in Arizona.

Dependent/Outcome Variables

The HSPA is a "high stakes" test serving as a high school graduation requirement for New Jersey's students. It is comprised of two sections--Mathematics and Language Arts. Each section of the test is scored separately with scores ranging from 100-300 (NJDOE, 2004). The NJDOE places students into one of three categories based on their scores: Partially Proficient (100-199), Proficient (200-259), and Advanced Proficient (260-300). Students must obtain a minimum passing score of 200 on each section in order to pass (NJDOE, 2004).

Significance of the Study

The nation's school communities are continually striving to determine what factors have the most impact on student performance in order to meet the demands of NCLB. A need for identifying which mutable school community factors can be identified and addressed to assist with student performance has emerged. Terry and Kritsonis (2008) report Murnane and Steele (2007) positing a high faculty mobility rate and low student academic performance as two urgent issues threatening education. "If the United States is to equip its young people with the problem-solving and communication skills that are essential in the new economy, it is more important than ever to recruit and retain high-quality teachers" (Murnane & Steele, 2007, para. 1). Schools, however, are losing teachers at an unwavering rate. These teachers may migrate to another school or to another profession. Following are statistics gathered by various researchers regarding the mobility of teachers. The following statistics are also relevant to the study:

- The proportion of new teachers who leave the profession has hovered around 50% for decades (Lambert, 2006).
- Within 5 years, 46% of new teachers leave the profession, says *Forbes Magazine* (Kain, 2011).

- During the 2003-2004 school year, 9% of the teacher workforce, or 333,000 teachers, left teaching (National Center for Educational Statistics, 2008).
- In the 2008-09 school year, 15.6% of teachers left their school of employment. Of these, 8% left the profession (National Center for Educational Statistics, 2008).

The following statistics, based on data from the 2008-2009 school year gathered by The National Center for Educational Statistics (2008), further illuminates the mobility crisis (See Appendix A):

- The percentage of male and female teachers that changed schools or left teaching differed by less than .5%.
- Most teachers who changed schools or left teaching were of Asian ethnicity.
- Most teachers who changed schools or left teaching were younger than 25 years of age.
- Most teachers who changed schools or left teaching had 2 years of experience or fewer.
- Most teachers who changed schools or left teaching were in schools populated with fewer than 150 students.
- Most teachers who changed schools or left teaching were working in city schools.
- The percentage of elementary and secondary teachers that changed schools or left teaching differed by .1%.

Results from this study will contribute to the body of research examining the relationship between the NJ School Report Card and NJ HSPA performance. Multiple regression analyses of data, by which the research was conducted, will provide statistics for decision making in education policy and practice. Targeting variables that can be influenced and that have the greatest effect on student achievement will benefit all stakeholders in public school education as well as community members. Study results are likely to offer education administrators the information needed to enhance their leadership and management decisions, especially in the areas of fund allocation, school practices, modifications of mutable variables, and student achievement.

Limitations of the Study

"Faculty mobility" is an aggregated term. Teacher turnover cannot be isolated from faculty mobility based on the information provided by the New Jersey Report Card. Whether teachers, counselors, or other staff members left the profession, school, or district cannot be determined. In this research, faculty mobility explored faculty members moving/migrating and leaving. The study, therefore, is limited by not distinguishing between individuals moving within a district or out of a district. Also, the researcher could not determine the subject area of teachers that left the school and/or district. Further, the results of this study do not differentiate between mobility resulting from death, termination of employment, resignation, retirement, maternity leave, or disability.

Each student must pass both sections of the HSPA in order to meet the graduation requirements for the state of New Jersey. The Report Card data did not identify individual students or identify what percentage of students passed both sections. The Department of Education placed students in each applicable category based on their gender, ethnic identity, and other qualities relating to the student's background. The Report Card did not link these groups and did not provide information on how a student's placement in multiple groups may have affected the passing rate. For example, a single student who is Asian, Male, has Limited English Proficiency, and who is Economically Disadvantaged would fall into four separate subgroups.

The design of the Report Card masks the identity of individual students so that it is impossible to ascertain the performance of a particular student on the HSPA using the NJ Report Card.

The Report Card separates results from the Mathematical and Language Arts sections on the test, which means that two separate analyses were required, each with its own dependent or outcome variable. Misrepresentations from self-reporting or data entry errors may have occurred prior to the publication of School Report Cards.

According to Johnson (2001), non-experimental research is an important and appropriate mode of research in education. This study is a non-experimental, cross-sectional, explanatory study. Under the auspices of Johnson (2001), an explanatory study must meet the following criteria: (a) Were the researchers trying to develop or test a theory about a phenomenon to explain “how” and “why” it operates? (b) Were the researchers trying to explain how the phenomenon operates by identifying the causal factors that produce change in it? (p. 9). As such, cause and effect conclusions cannot be drawn.

Delimitations of the Study

Data were retrieved for school HSPA scores in Language Arts and Mathematics across all high schools located in New Jersey. The results of the study reflect only HSPA scores of students in the 2009-2010 school year covering two subjects (Math and Language Arts). As a result, the study could not determine a baseline for student performance or the influence of faculty mobility on other subject areas. It is looking at the relationship between faculty mobility and student achievement in the aggregate and the amount of the variability, if any, that can be explained in HSPA performance as a result of this phenomenon.

Data were analyzed by school level, not aggregated to the district. Analysis developed via this study would benefit an array of both large and small New Jersey school districts as well as out of state school districts by supplying information regarding teacher recruitment and retention.

Other variables that may influence student achievement in this data collection (e.g., mandated instructional programs, instruction delivery strategies, professional development implications, and technology infusion) were impossible to account for and consequently analyze.

The data on schools are cross-sectional. Therefore, the study could not determine the level of impact of the faculty mobility rate on previous students.

Findings are not applicable to other states or to younger students. Also, results cannot be applied to private or independent schools, denominational schools, vocational schools, special services school districts/special education schools, jointures, and charter schools because they belong to different District Factor Groupings (DFGs).

Assumptions

This research follows the assumptions of named researchers and views teachers migrating among districts (movers) as equally important for analysis as teachers who leave the profession (leavers). The premise underlying this perspective is that teachers moving from School A to School B have an impact similar to individuals just leaving School A. In either case, the teacher must be replaced in School A. The focus is motivated by the judgment that faculty mobility is most likely to influence student achievement at the school level. Further, the researcher assumed that data recorded by schools on their Report Card were accurate.

Definition of Terms

Accountability: In accordance with NCLB, each state must devise and implement a plan that details how and under what timeframe adequate yearly progress targets will be set and eventually met to increase student achievement levels.

Achievement Gap: As defined in popular literature, this is the difference in student achievement between various groups of students (e.g., White and Black; rich and poor).

Adequate Yearly Progress (AYP): NCLB mandates that each state measure the progress made toward reaching the goal of one-hundred percent proficiency for all students in Language Arts and Mathematics. Each state implements targets, or benchmarks, to ensure this goal is achieved by the year 2014. Districts that fail to meet AYP targets are held accountable (NJDOE, 2010).

Administrators: This term includes the certified personnel such as the superintendent, assistant superintendents, school business administrator, principals, assistant principals, supervisors, non-supervisory coordinators, and directors (NJDOE, 2011).

Average Class Size: The term is based on the enrollment per grade divided by the total number of classrooms for that grade (NJDOE, 2010). For elementary, the state average is the statewide total enrollment for each grade divided by the statewide total number of classrooms in that grade (NJDOE, 2010). For secondary, the state average is the total enrollment for each grade divided by the total number of English classes for the same grade (NJDOE, 2010). For special services school districts and special education schools, average class size is calculated by dividing the total enrollment by the total number of classrooms (NJDOE, 2010).

Benchmark Assessments: These are tests administered throughout the school year to give teachers immediate, formative feedback on how their students are performing (Regional Education Laboratory Northeast and Islands, 2010).

District Factor Group (DFG): The state of New Jersey uses the District Factor Group system for ranking the socioeconomic status of school districts. (See Chapters II and III for more information regarding DFG).

District Financial Data (Administrative and Faculty Personnel) include the following:

- Median Salary and Years of Experience of Administrative and Faculty Personnel
- Teacher Salaries and Benefits
- Administrative Salaries and Benefits
- Revenues
- Per Pupil Expenditures

(NJDOE, 2010).

Faculty: In fields that refer to faculty, this term includes classroom teachers and educational support services personnel, such as guidance counselors and librarians (NJ DOE, 2011).

Faculty Attendance Rate: This is the average daily attendance for the faculty of the school calculated by dividing the total number of days present by the total number of days contracted for all faculty members (NJ DOE, 2011).

Faculty Mobility Rate: This represents the rate at which faculty members come and go during the school year 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 (NJDOE, 2010).

Teachers, Percentage Highly Qualified: The term describes teachers who have at least a bachelor's degree, have valid state certification, and demonstrate content expertise in the core academic subject(s) they teach (NJDOE, 2012).

Formative Assessment: For the purpose of this study, the definition formulated by Perie, Marion, and Gong is used. "Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes" (2007, p.1).

High-Poverty Schools: The term defines public schools where 76% or more students are eligible for Free/Reduced Lunch (National Center for Educational Statistics, 2012).

Low-Poverty Schools The term defines public schools where 25% or fewer students are eligible for Free/Reduced Lunch (National Center for Educational Statistics, 2012).

Migration: Individuals "migrating" to another school, known as migrants (Boe, Bobbit, & Cook, 1993).

New Jersey Core Curriculum Content Standards (NJCCCS): The NJCCCS, adopted in 1996, identify what students are expected to know and be capable of doing in nine different content areas at the conclusion of a thirteen-year public education.

No Child Left Behind (NCLB): NCLB refers to the education reform policy of 2001 that former President George W. Bush later signed into law January 8, 2002 (*Education Week*, 2004).

School Environment:

- Average Class Size
- Length of School Day
- Instructional Time
- Student to Computer Ratio
- Internet Connectivity
- School Classrooms (Charter Schools Only)
- School Waiting List (Charter Schools Only)

- Length of School Year (Charter Schools Only)

(NJDOE, 2010)

School, Percentage of Limited English Proficient (LEP) Students: This term indicates the percentage of LEP students in the school calculated by dividing the total number of students who are in limited English proficient programs by the total enrollment (NJ DOE, 2011).

School, Percentage of Students Eligible for Free/Reduced Lunch: The term refers to the percentage of students eligible for the free or reduced-price lunch (FRPL) program and provides a proxy measure for the concentration of low-income students within a school (National Center for Educational Statistics, 2012).

School, Percentage of Students with Disabilities: This term indicates the percentage of students with an Individualized Education Program (IEP), including speech, that is calculated by dividing the total number of students with IEPs by the total enrollment (NJ DOE, 2011).

Staff Information:

- Student/Administrator Ratio
- Student/Faculty Ratio
- Faculty Attendance Rate
- Faculty Mobility Rate
- Faculty and Administrator Credentials
- National Board Certification
- Highly Qualified Teacher Information

(NJDOE, 2010).

State Average: The term refers to the four school types: vocational schools, special services school districts/special education schools, all elementary schools (regular and charter), and all secondary schools (regular and charter) (NJDOE).

Student Achievement: For the purpose of this study, student achievement occurs at the point in which a student's scaled score falls in the Proficient range on the HSPA assessment.

Student Attendance Rate: The term refers to the grade-level percentages of students on average who are present at school each day calculated by dividing the sum of days present in each grade level by the sum of possible days for all students in each grade (NJDOE, 2010).

Student Information:

- Enrollment by Grade
- Percentage of Students with Disabilities
- Language Diversity
- Limited English Proficient (LEP)
- Student Mobility Rate

(NJDOE, 2010)

Student Mobility Rate: This is the percentage of students who both entered and left during the school year derived from the sum of students entering and leaving after the October enrollment count divided by the total enrollment (NJ DOE, 2011).

Student Performance Indicators (NJDOE, 2010):

- Assessments

  Performance on State Tests

  Graduation Type

  Scholastic Assessment Tests (SAT)

Advanced Placement Information (AP)

Advanced Placement Results Summary

Advanced Placement Participation for Grades 11 and 12

Occupational Program Assessment Results (NOCTI)

Vocational Certification/Licensure Examination Results

- Other Performance Measures

Student Attendance Rate by Grade Level

Dropout Rate

Graduation Rate

Post-Graduation Plans

Student Suspensions

Student Expulsions

Completion Rates for Vocational Programs

(NJDOE, 2010).

Turnover (see also Faculty Mobility Rate): The term refers to changes in faculty status from year to year due to migration and/or attrition (Boe, Bobbit, & Cook, 1993; Croasmun, Hampton, Herrmann, 1999).

Organization of the Study

In Chapter 1, the researcher presented an overview of the problem related to faculty mobility and its relationship with variables on the NJ School Report Card. Although research regarding teacher recruitment and retention is overwhelming, the data regarding its influence on HSPA scores are limited. In addition, schools are "graded" by their performance on the NJ

HSPA. For these reasons, this assessment tool warrants further investigation. The extent of the predictive value of faculty mobility on HSPA scores was determined by statistical analyses.

Chapter II consists of a review of literature pertaining to the conceptual framework for this study and the identified school, staff, and student mutable variables.

Chapter III, in tandem with Chapter 1, explicates design methods and procedures for this study. Data were collected from the 2009-10 NJ School Report Card.

In Chapter IV, data and statistical findings are presented.

Chapter V provides a statistical summary and data implications for the administrative and education practices and policies. Conclusions are drawn based on the research question: How much variance, if any, does faculty mobility contribute to the aggregate student performance of New Jersey high schools, with a District Factor Group classification of A through J, on HSPA Mathematics and Language Arts. Also offered are suggestions for future research.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The purpose of the review is to inform education leaders, researchers, and policymakers about the present evidence regarding student achievement predictors, particularly faculty mobility. The review of literature was organized around the following topics:

- NCLB, HSPA, AHSA, AYP, and SINI
- NJ School Report Card
- School Variables
- Staff Variables
- Student Variables

(NJDOE, 2010).

No Child Left Behind requires every state to create assessments aligned to the academic standards in Language Arts and Mathematics for Grades 3-8, as well as in Grades 10-12 (NJDOE, 2010). New Jersey administers the New Jersey Assessment of Skills and Knowledge (NJ ASK) for Grades 3, 4, 5, 6, and 7, the Grade Eight Proficiency Assessment (GEPA), and the High School Proficiency Assessment (HSPA) for Grade 11 (NJDOE, 2010). Students are scored on the HSPA in one of three categories: Partially Proficient (failing), Proficient (passing), and Advanced Proficient (above average). Students are required to pass this test with a minimum score of 200 in order to be eligible for graduation.

Regarding accountability protocol, Paulson and Marchant (2009) recount how standardized testing "has been heralded as *the* universal tool" (p. 3) for measuring it. In order for the standardized test results to suffice as the major measure of accountability Paulson and Marchant (2009) emphasized the following assumptions:

- that the tests reflect important standards of learning that are being taught in the schools
- that students who do not reach Proficiency are inadequate in their knowledge and skills, regardless of their performance on other forms of assessment
- that these tests are better indicators of students' ability than the judgment of teachers
- that the collective scores of students reflect the quality of their instruction and that the collective scores of schools and districts reflect the quality of their educational programs;
- that the collective scores of test-takers from a state represent the quality of education and educational policies of the state (p. 3).

Although the statewide tests administered in New Jersey schools might not meet all of the above criteria, the NJDOE has determined that the NJ HSPA standardized statewide test is the primary measure used for accountability purposes.

The NJ School Report Card, although a separate entity, has been used in school comparisons, both in conjunction with the NJ HSPA and on its own. The annual Report Card is required under a pre-NCLB state law of 1995. It presents 35 fields of information for each school in the following categories: school environment, students, student performance indicators, staff, and district finances (NJDOE, 2010). The NJDOE personnel, through the use of the New Jersey School Report and various other mandates, developed a set of input variables that they claim influence student achievement. In essence, they created a theoretical framework that supports their use and mandate of specific input variables as a method to raise achievement on their primary output variable, the NJ HSPA.

Determining which school, staff, and student variables have a statistically significant influence on HSPA Language Arts and Mathematics scores depends upon the particular research results one consults. Some researchers reported that schools have very little influence on student achievement when socioeconomic status is held constant (Coleman et al., 1966; Jencks et al., 1972) whereas others disagreed, citing that schools and their teachers greatly influence student academic achievement (Darling-Hammond, 2000; Ferguson, 1991).

Researchers concur that the quality of students' teachers is an important factor in determining his/her performance (Alliance for Excellent Education, 2005; Ingersoll, 2003). Therefore, it is critical that efforts be concentrated on developing *and retaining* high-quality teachers in every community and at every grade level if the national goal of providing an equitable education to children across the nation is to be met (Alliance for Excellent Education, 2005). "No teacher supply strategy will ever keep our schools staffed with quality teachers unless we reverse the debilitating mobility rates" (Colgan, 2004, p. 23). NCLB required that all teachers be highly qualified in the subjects they teach by 2006 (U.S. Department of Education, 2008). Excessive faculty mobility in low-income urban communities appears to have an impact on student achievement (Darling-Hammond & Sykes, 2003). The high mobility rate results in a low teacher commitment rate where many urban high school teachers are poor adult role models and choose not to engage with students. The unequal distribution of effective teachers is the most urgent problem facing American education (Murnane & Steel, 2007). Although schools' racial compositions and proportions of low-income students predict faculty mobility, salaries and working conditions—including large class sizes, facilities problems, multi-track schools, and lack of text-books—are strong and significant factors in predicting high rates of mobility. When these conditions are taken into account, the influence of student characteristic on mobility is substantially reduced (Loeb, Darling-Hammond, & Luczak, 2005). Even more than students' socioeconomic statuses, good working conditions are associated with better teacher attendance, more effort, higher morale, and a greater sense of efficacy in the classroom (Ascher, 1991). According to Corcoran, Walker, and White (1988), these conditions include (1) strong, supportive principal leadership, (2) good physical working conditions, (3) high levels of staff collegiality, (4) high levels of teacher influence on school decisions, and (5) high levels of teacher control over curriculum and instruction.

The purpose of research is to examine the existing research and data that address the extent to which faculty mobility influences NJ HSPA Math and Language Arts Literacy (LAL) test scores. Faculty mobility has important policy implications and, by examining these issues within a single state system (a school), we may be able to identify the problem(s) and think toward resolution. The intended outcome is to generate dialogue about policy and practice that will lead to viable remedies and encourage ongoing research of this issue.

Literature Search Procedures

Following the framework for scholarly literature reviews set by Boote & Biele (2005), online academic databases were used for accessing the literature reviewed for this chapter, including ERIC, ProQuest, and Google Scholar. Each variable was entered into the database with keywords such as “student achievement” or “HSPA scores.” In some instances, keywords deviated from the New Jersey phrasing if exiting research was minimal. “Teacher” or “Faculty Turnover” substituted “Faculty Mobility,” for example. Another, “School Size” substituted “Enrollment by Grade.”

Literature included in this chapter was published in a peer-reviewed source, dissertation, or government report. Types of reviewed studies were experimental, quasi-experimental, non-experimental with control groups, or another design that would be considered causal-comparative. True experimental research was lacking for most of the variables explored, which created methodological and design issues. The frequency of quasi-experimental data and meta-analysis resulted in a large dependence on correlational studies. The inclusion of non-experimental research was deliberate in this chapter due to the nature of education research and the presence of unalterable independent variables (Johnson, 2001). In order to effectively and systemically "present results of similar studies, to relate the present study to the ongoing dialogue in the literature, and to provide framework for comparing the results with other studies" (Cresewell, 1994, p. 37), the researcher followed the framework for scholarly literature reviews developed by Boote and Beile (2005).

Methodological Issues

When reviewing the literature, several issues were encountered regarding the three main variables--school, staff, and student--associated with predicting student achievement on state standardized tests. The research related to each of the variables suffered from various methodological issues: (a) the lack of experimental studies, thus placing a heavy reliance on correlational designs; (b) the absence of the reporting of experimental effect sizes; (c) the reporting of varying, mixed results that were gathered using the same data; and (d) the lack of clarify on terms used. In an attempt to confront the aforementioned issues, numerous experimental studies were included and also non-experimental and quasi-experimental research to fuel the literature review. Johnson (2001) affirmed that "non-experimental research is frequently an important and appropriate mode of research in education" (p. 3), and therefore it was effectively incorporated in my literature review.

To overcome the frequent lack of efficient effect size reporting within the literature reviewed, effect sizes were calculated and reported when the data and required information were made available by the researcher(s). By calculating effect size and using Cohen's (1977) level of significance (0.00-0.25 = small, up to 0.50 = moderate, 1.00+ is large), weaknesses and flaws were identifiable in the researcher(s) results as to the accuracy of the level of significance purported.

In many studies, the same terms were used with different definitions. Whenever the possibility existed that there was confusion regarding the usage of a term, a synthesized definition from the literature was provided.

Generalizing studies in education has proven uncertain since SES factors have a strong predictive value on student achievement. However, the studies that dealt with a particular population are noted and discussed under each variable. The data analyzed were limited to time periods relevant to this research. Any study that met the aforementioned criteria between 2002-present was included. In 2002, New Jersey set forth the high-stakes HSPA. Notable exceptions to the time frame include historical data for background and information purposes and seminal studies. Adhering to the literature review framework proposed by Boote and Beile (2005), this scholarly work will provide much needed research on variables, especially faculty mobility and its possible influence on NJ HSPA student performance.

NCLB, HSPA, AHSA, AYP, and SINI

NCLB

In 1983, the national report, *A Nation At Risk*, delivered a wake-up call for our education system. It described stark realities, such as a significant number of functionally illiterate high schoolers, plummeting student performance, and international competitors breathing down our necks. It was a warning, a reproach. It inspired some state-level pioneers to begin thinking about standards and accountability in education and put them into practice (U.S. Department of Education, 2008).

The nation responded by reauthorizing the Elementary and Secondary Education Act of 1965 (ESEA), which was administered in response to the War on Poverty (U.S. Department of Education, 2008), and called it the No Child Left Behind Act (NCLB). Passed by Congress in January, 2002, and signed into law by George W. Bush with support of Ted Kennedy, NCLB changed the educational discourse in the United States. Accountability for student performance moved to the forefront of the nation's consciousness as a result. Terms barely mentioned a decade ago, like "accountability," "adequate yearly progress," and "highly qualified," have become more prevalent in the national vernacular.

The Act contains the President's four basic education reform principles: stronger accountability for results, increased flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work (NJDOE, 2010). At the core of the No Child Left Behind Act are measures designed to stimulate gains in student achievement by increasing accountability for student progress on states and schools (NJDOE, 2010). The measures bore significant changes to the education landscape (U.S. Department of Education, 2001). Following are examples of the stipulations set forth by NCLB:

- Annual Testing: Every state was required to create assessments aligned to the academic standards in Language Arts and Mathematics. New Jersey administers the NJ Assessment of Skills and Knowledge (NJ ASK) for Grades 3 through 8 and the High School Proficiency Assessment (HSPA) for Grade 11 (NJDOE, 2011).

- Academic Progress: States were required to bring all students up to the Proficient level on state tests by the 2013-2014 school year. Individual schools had to meet state "adequate yearly progress" targets toward this goal for both their whole student population and for certain demographic subgroups. If a school receiving federal Title I funding failed to meet the target two years in a row, it would be provided assistance and its students would be offered a choice of other public schools to attend. Students in schools that failed to make adequate progress three years in a row also were offered supplemental educational services, including private tutoring. For continued failures, a school would be subject to outside corrective measures, including possible administrative changes (*Education Week*, 2004).
- Report Cards: States and districts were required to furnish annual report cards showing a range of information, including student-achievement data broken down by subgroup and information on the performance of school districts starting with the 2002-03 school year (*Education Week*, 2004).
- Teacher Qualifications: By the end of the 2005-06 school year, every teacher in core content areas working in a public school had to be "highly qualified" in each subject he or she taught. Under the law, "highly qualified" generally meant that a teacher was certified and demonstrably proficient in his or her subject matter. Beginning with the 2002-03 school year, all new teachers hired with federal Title I money had to be highly qualified. By the end of the 2005-06 school year, all school paraprofessionals hired with Title I money must have completed at least two years of college, obtained an associate's degree or higher, or passed an evaluation to demonstrate knowledge and teaching ability (*Education Week*, 2004).

- Reading First: A new competitive-grant program called Reading First was enacted by NCLB to help states and districts set up "scientific, research-based" reading programs for children in grades K-3 (with priority given to high-poverty areas). A smaller early-reading program sought to help states better prepare 3- to 5-year-olds in disadvantaged areas to read. The program's funding was later cut drastically by Congress amid budget crises (*Education Week*, 2004).

Funding Changes: Through an alteration in the Title I funding formula, NCLB was expected to target resources to high-poverty school districts. The law also included provisions intended to give states and districts greater flexibility in how they spent a portion of their Title 1 federal allotments (*Education Week*, 2004). Title I funds are the largest federal assistance program for our nation's schools. It was initiated in 1968 as part of the ESEA and has a goal to provide a high-quality education for every child. To receive funds, each state must submit a plan describing what all children are expected to know and be able to do, the high-quality standards of performance that all children are expected to meet, and ways to measure progress (Grady County Schools, 2012).

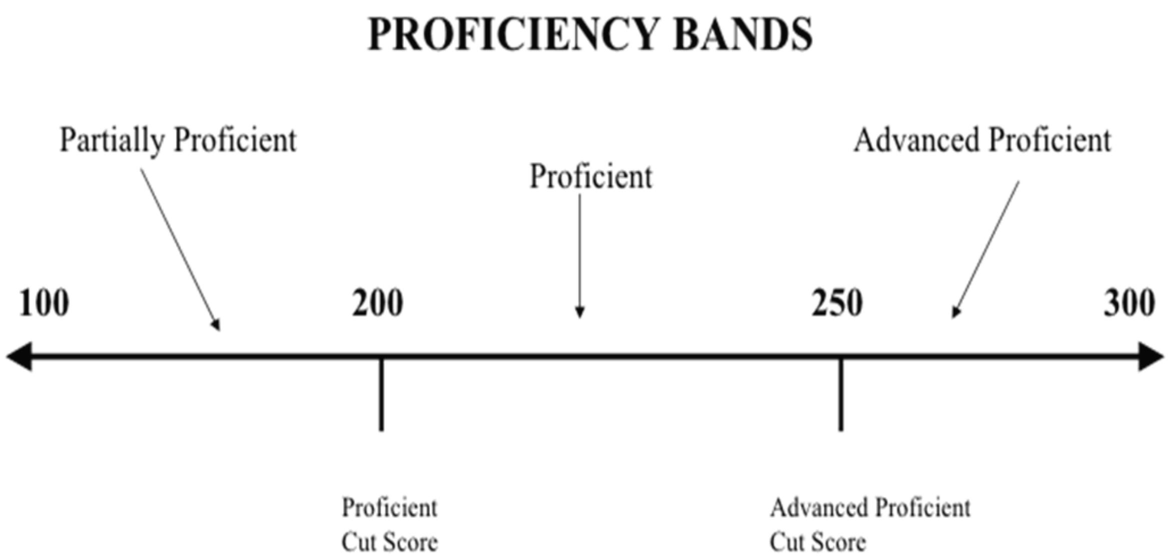
The No Child Left Behind Act was the source of considerable controversy among parents, students, administrators, politicians, teachers, and communities (*Education Week*, 2004). As the law's effects began to be felt, some educators and policymakers questioned the feasibility and fairness of its goals and time frames (*Education Week,* 2004). As President Reagan reported to the *New York Times* (Hechinger, 1983), "The greatest public school system the world had ever seen began to deteriorate when the federal government started interfering" (para. 5).

An opinion poll released in December 2003 by Policy Analysis for California Education found that nearly half of school principals and superintendents view the federal legislation as either politically motivated or aimed at undermining public schools (*Education Week*, 2004). Concerns about the law's rules surrounding adequate yearly progress and the goal of 100% Proficiency by 2013-2014 grew. According to *Education Week* (2011), high-performing schools made headlines as they began failing to meet their set rates of improvement; and 38% of schools were failing to make adequate yearly progress, up from 29% in 2006 (*Education Week*, 2004). The Harvard Civil Rights Project (Meier et al., 2004) has warned that "the law threatens to increase the growing dropout and pushout rates for students of color, ultimately reducing access to education for these students, rather than enhancing it." Further, Darling-Hammond (Meier et al., 2004) criticizes NCLB for creating "unmeetable test score targets that disproportionately penalize schools serving the neediest students, while creating strong incentives for schools to keep out or push out those students who are low achieving in order to raise school average test scores." Since the onset of NCLB, 15% more teachers interviewed by the American Federation of Teachers (2008) felt that students were being tested too frequently. Further, 26% thought the school systems too heavily stressed preparing students for state tests (AFT, 2008). As compared to 2003, the 2008 report showed an increase of 25% among teachers who said NCLB has had a negative effect on public education (AFT, 2008). "While worthy standardized tests do provide teachers with much good data, they hardly provide either enough information or the balance of information necessary to assess accurately either a student's mastery or a district's or school's effort" (Meier et al., 2004). Based on his 2011 State of the Union message, President Barack Obama believed that the NCLB act was too rigid and strict. He planned on replacing it with the Race to the Top Act. "We will use the best data available to determine whether a state can meet a few key benchmarks for reform--and states that outperform the rest will be rewarded with a grant. The two acts are similar but have different beliefs at the core. The NCLBA may have been necessary, but is it now outdated" (Obama, 2011).

Education Week (2011) identifies the advocates of the No Child Left Behind Act. Some education leaders were reported expressing support for the law's stringent accountability mandates, characterizing them as vital levers of change, inclusiveness, and transparency of results (*Education Week*, 2004). According to supporters of the Act, the law's ultimate effectiveness depends on how closely states and schools conform to the principles of accountability (West & Peterson, 2003). Senator John McCain (2008) was reported saying, "The principles underneath No Child Left Behind--standards, accountability, transparency, and choice--are a major step in the right direction, taking away power from education bureaucrats and returning it to those on the front lines of education--the local schools, the local teachers and the local parents" (p. 2).

HSPA

New Jersey administers the NJ Assessment of Skills and Knowledge (NJ ASK) for Grades 3, 4, 5, 6, and 7, the Grade Eight Proficiency Assessment (GEPA), and the High School Proficiency Assessment (HSPA) for Grade 11 (NJ DOE, 2008) to comply with state testing requirements (NJDOE, 2010). The HSPA replaced the Grade 11 High School Proficiency Test (HSPT11), which was administered from 1993 to 2001. It is a high-stakes graduation requirement aiming to measure whether students have gained the knowledge and skills identified in the Core Curriculum Content Standards (NJDOE, 2004). The highest score attainable is a 300 for each section. Students are classified under three classifications for both Mathematics and Language Arts Literacy based on their scores: Partially Proficient (<200), Proficient (200-250), and Advanced Proficient (250-300) (See Figure 2). Students who score at the Partially Proficient level are considered to be below the state minimum proficiency. Those students may be most in need of instructional support (NJDOE, 2008, p. 3).



Source: NJ Department of Education (2009)

Figure 2. NJ HSPA: Proficiency Bands

AHSA

A student who scores below 200 (Partially Proficient) in any content area of the HSPA is eligible for the Alternative High School Assessment (AHSA), formerly the Special Review Assessment (SRA) (NJDOE, 2011). The AHSA allows students an alternative method of demonstrating their mastery of the required skills on the HSPA. Students who have fulfilled all of the course requirements for graduation but fail to pass the HSPA or AHSA will not receive a high school diploma. A student in this situation has the option to (1) continue the AHSA process, (2) return to the school at the time of testing the following year and take the HSPA, or (3) pass the Tests of General Educational Development (GED) (NJDOE, 2011).

AYP and SINI

The state assessment data are analyzed to determine Adequate Yearly Progress (AYP). The states are required to apply interventions for Title I schools that are not making AYP based on the number of consecutive years that a school did not meet the proficiency levels (NJDOE, 2010). The interventions are listed on the School Improvement Continuum Chart (See Figure 3). If a school does not make AYP for two or more consecutive years in the same content area, it is identified as a School in Need of Improvement (SINI). If a school makes AYP in the content area in need of improvement, the school may go into "hold" status for a year. If the school then makes AYP for two consecutive years in that content area, it is then considered no longer in need of improvement (NJDOE, 2010). However, if the school on "hold" does not make AYP the next year in that content area, then it reverts to the step it was on and proceeds along the continuum. Each content area is measured separately to determine improvement status. That is, a school can come out of improvement status in Language Arts Literacy and go into improvement status for Mathematics (NJDOE, 2010).

Year	Status	Interventions for Title I Schools
Year 1	**Early Warning** – Did not make AYP for one year	None
Year 2	First year of **school in need of improvement** status. Did not make AYP for two consecutive years in the same content area.	Parent notification, public school choice (or supplemental educational services), school improvement plan, technical assistance from district.
Year 3	Second year of **school in need of improvement** status. Did not make AYP for three consecutive years in the same content area.	Parent notification, public school choice, supplemental educational services, school improvement plan, technical assistance from district.
Year 4	Third year of school in need of improvement status – **corrective action**. Did not make AYP for four	Parent notification, public school choice, supplemental educational services, school improvement plan, technical assistance

	consecutive years in the same content area.	from district and state, corrective action, participation in CAPA.
Year 5	Fourth year of school in need of improvement status – **school restructuring** plan. Did not make AYP for five consecutive years in the same content area.	Parent notification, public school choice, supplemental educational services, school improvement plan, technical assistance from district and state, development of restructuring plan (governance).
Year 6 and above	Fifth year of school in need of improvement status – **implementation of restructuring plan**. Did not make AYP for six consecutive years in the same content area.	Parent notification, public school choice, supplemental educational services, school improvement plan, technical assistance from district and state, implementation of restructuring plan.

http://education.state.nj.us/rc/nclb/ayp.html#school

Figure 3: NCLB/Title I School Improvement Continuum Chart

New Jersey School Report Card

According to the NJ Department of Education (2011, para. 1), the function of the NJ School Report Card is "to increase school- and district-level accountability for educational progress by communicating useful information to members of the public to be used in measuring how well their schools are doing." The intricate Report Card has its foundation in the seminal Coleman Report of 1966. The Coleman study was born out of the 1964 Civil Rights Act and aimed at explicating the disparity between Black and White educational outcomes. Then the second largest social science research project in history, it encompassed 600,000 children in 4,000 U.S. schools. The final product of this research was The Equality of Educational Opportunity Report (known widely as the Coleman Report). The findings shocked many, as the disparity in funding between schools was not as large as anticipated. Researchers found that funding was not closely associated with achievement; more predictive was family SES status. Additionally, school peers mattered. Attending school with middle-class peers was an advantage;

attending school with lower-class peers, a disadvantage. The report states, “Schools bring little influence to bear upon a child's achievement that is independent of his background and general social context” (Coleman et al., p. 325). The NJ School Report Card attempts to encompass the findings of the Coleman Report with its “District Factor Group” ratings and measures of minority, ESL, and divergent student groups. Additionally, the NJ School Report Card adds further variables, some of which have been shown to have an effect on student outcomes.

School Variables

School size.

According to Walberg (1992) and Howley (1994), the total number of elementary and secondary public schools declined 69% between 1940 and 1990--from approximately 200,000 to 62,037--despite a 70% increase in the U.S. population. The consolidation was due to administrators’ desires to be efficient, a notion borrowed from the private sector (*McCook Daily Gazette*, 1998). The average school enrollment rose more than five times, consequently--from 127 to 653. Henderson and Raywid (1994) report high school enrollments of 2,000 and 3,000 as commonplace in today's urban and suburban settings, especially in New York City, where schools may have enrollments nearing 5,000.

With the advent of the Elementary and Secondary Education Act of 1965, researchers began to document the relationship between school and district size and student outputs. A landmark study was conducted by Barker and Gump (1964). The researchers found that in small high schools in Kansas, students had greater opportunities to partake in extra-curricular activities and participate in leadership roles. Further, the researchers documented the positive influences that these opportunities had on variables such as a sense of belonging and achievement. Smaller schools allowed teachers and administration to maximize student contact each day, which yielded constructive situations for student learning which might not be afforded in larger high schools, where many times students became just a number or were left behind (Tramaglini, 2000).

In many cases, these size increases occur incrementally as schools fill and are repeatedly replaced by new ones with slightly larger capacity. In other cases, the increases are the result of school consolidation, often a devastating experience in those cases where "the local school may be a focal point of the community's identity" (Ornstein, 1993). Garbarino (1997) argues that contemporary schools are large because the focus on "cognitive academic curricula" has caused decision makers to ignore social dynamics. Large schools contribute to depersonalization, negativism, alienation, and ultimately truancy and dropouts. "School size affects student participation and satisfaction independent of the effects of SES and academic ability" (Lindsay, 1982).

Popular belief favors small schools. It is assumed that small schools yield increases in student achievement (particularly for minority and low-income students), improvement in student attendance, rises in graduation rates, increases in college-going rates, increases in students' engagement in their studies, and more student participation in extracurricular activities (Lawrence et al., 2002). Further, smaller high school leadership has the ability to control what happens at the proximal level to student learning, whereas more distal controls have less of an impact on student learning (Wang, Haertal, & Walberg, 1993). One example is personalization. Leaders in smaller high schools can design more personalized learning environments, which can build astudents' sense of belonging and reduce alienation, positive factors toward higher student achievement (Cotton, 1996). Such enhancements are commonly part of size reduction plans in larger environments, such as schools-within-schools, or small learning communities, academies, and houses.

Considerable research has been devoted to studying the relative effects of large and small schools on student attitudes toward school in general and toward particular school subjects. The research on student attitudes overwhelmingly favors small schools over large ones (Aptekar, 1983; Bates, 1993; Edington & Gardner, 1984; Fowler, 1995; Fowler & Walberg, 1991; Gregory 1992; Gregory & Smith, 1983, 1987; Howley, 1994; Kershaw & Blank, 1993; Miller, Ellsworth, & Howell, 1986; Rutter, 1988; Smith & DeYoung, 1988; Smith, Gregory, & Pugh 1981; Walberg, 1992). In 1997, Lee and Smith utilized hierarchical linear modeling (HLM) to conclude that learning is more equitable in smaller high schools (600-900 students), as size "acts as a facilitating or debilitating factor for other organizational forms or practices that, in turn, promote student learning" such as social relations, cognitive development, students' engagement in learning, extracurricular activities, and leadership roles (p. 218). Lee, Smerdon, Alfeld-Liro, and Brown (2000) found that smaller schools yielded increased social capital with staff, lowered anonymity, improved social relations among students, and provided better mindfulness of targeted learning to specific student groups via curriculum focus. Cotton's (1996b, 2001) review of school size and the aforementioned variables (also attendance, dropout rates, sense of belonging/alienation, student behavior, and faculty attitudes, interpersonal relations, self concept) and their association to student achievement yielded that student achievement in smaller schools often was superior to larger schools. The common thread of the research on school size, as in district size, is the benefit that smaller enrollment sizes yields to schools in poorer areas.

Researchers have been particularly interested in social class as a mediating variable (Barker & Gump, 1964; Caldas, 1993; Cotton, 1996; Franklin & Crone, 1992; Freidkin &

Necochea, 1988; Howley, 1995; Lee & Smith, 1997; Lee, Smerdon, Alfeld-Liro, & Brown, 2000; Walberg & Walberg, 1994). Howley (1995) argued that the association between school size and academic achievement is governed entirely by SES. His findings, based on national student-level data, are consistent with those previously reported in state studies with schools and districts as the units of analysis: "(1) smaller school size confers an achievement advantage on all but the highest-SES students, (2) smaller size mediates the powerful association between SES and achievement, (3) the relationship between school size and achievement is predominantly linear, and (4) size effects are at least as robust in rural schools as compared with schools overall" (Howley & Howley, 2004, p. 26).

Franklin and Crone (1992) found that large schools benefit affluent students, whereas small schools benefit economically deprived students. Caldas (1993) found that achievement was not related to school size when all schools in Louisiana were analyzed. When only central city schools (i.e., predominantly low SES schools) were analyzed, however, larger size was linked to lower achievement. Tramaglini's (2010) study verified a relationship between New Jersey high school size and student achievement. The researcher, however, found no relationship between high school enrollment size and student achievement on the HSPA in Mathematics and Language Arts Literacy among affluent students (low SES sig = .045 and .009; high SES .378 and .481). Significance represents the likelihood of the correlation's direction remaining the same in a new analysis with similar data. It is determined by a *p* value from a test statistic, where *p* is the probability of getting something more extreme than your result. In the social sciences, significance is indicated when $p<0.05$ (Witte & Witte, 2007). This value indicates the probability that the result is not true or due to chance is 5% or less. Therefore, Tramaglini found that between 37.8% and 48.1% of the time, student achievement in high SES schools was determined by something other than school size. Conversely, between only 0.9% and 4.5% of the time, student achievement in low SES schools was determined by something other than school size.

The effects of small schools on the achievement of ethnic minority students, students of high poverty, and low socioeconomic status are the most positive of all (Berlin & Cienkus, 1989; Eberts, Kehoe, & Stone, 1982; Fowler, 1995; Friedkin & Necochea, 1988; Howley, 1994; Huang & Howley, 1993; Jewell, 1989; Miller, Ellsworth, & Howell, 1986; Rutter, 1988; Stockard & Mayberry, 1992). That is, research illuminates that large schools have a more negative influence on minority and low-SES students than on students in general.

The New Jersey Report of the Commission of Business Efficiency on Public Schools (2003) admits that past examinations of size as it relates to New Jersey have focused primarily on district size and class size. School size has not received significant attention from policy makers. Fifty percent of research finds no difference between the achievement levels of students in large and small schools, including small alternative schools (Burke, 1987; Caldas, 1993; Edington & Gardner, 1984; Fowler, 1995; Gregory, 1992; Haller, Monk, & Tien, 1993; Howley, 1996; Huang & Howley, 1993; McGuire, 1989; Smith & DeYoung, 1988; Stockard & Mayberry, 1992; Walberg, 1992; Way, 1985). The other 50% of research finds student achievement in small schools to be superior to that in large schools (Bates, 1993; Eberts, Kehoe, & Stone, 1982; Eichenstein, 1994; Fowler & Walberg, 1991; Kershaw & Blank, 1993; Miller, Ellsworth, & Howell, 1986; Walberg, 1992). Accordingly, research safely assumes that student achievement in small schools is at least equal—and often superior—to student achievement in large schools. The preponderance of the evidence indicates that students' academic achievement is better in small schools, but there is sufficient evidence in favor of large schools to suggest that mediating variables play a role in the relationship between school size and achievement.

Percentage of students with disabilities.

The percentage of Students with Disabilities portrays the percentage of students with an Individualized Education Program (IEP), including speech, regardless of placement and programs. This is calculated by dividing the total number of students with IEPs by the total enrollment (NJ DOE, 2011).

It is estimated that eight million children in the United States have some sort of disability (Mamlin and Harris, 1998). Congress stated that of these eight million disabled children, three million are underserved and one million are not being served at all by the public education system. Of students found eligible for special education classes in elementary schools, 65% are males (Skarbrevik, 2002). Another study estimated that boys outnumber girls in a ratio of 2:1 (Wehmeyer and Schwartz, 2001).

Students with disabilities must participate in the general statewide assessments (NJ ASK, GEPA, and HSPA/HSPT11/SRA) or the Alternative High School Assessment (AHSA), which was designed to measure the progress of students with severe disabilities who cannot participate in the prior assessments listed. The AHSA is a collection of student work demonstrating what each student can do in relation to the standards and the student's IEP (NJDOE, 2010).

In 1990, the Americans with Disabilities Act (ADA) was enacted to prohibit discrimination against individuals with disabilities and mandated equal access to public services and facilities. The ADA also placed responsibility on the test administrator for ensuring that test scores accurately reflect the construct being measured and not the test taker's disability, unless the skills affected by the disability are those being assessed. The legislation referred to an accommodation as any variation in the specified assessment environment or process that does not alter in any significant way what the test measures or the comparability of scores. Accommodations include variations in test scheduling, setting, response, and presentation format without which the assessment may not accurately measure the test taker's knowledge or skills (Cahalan-Laitusis, 2004).

Jones (2008) analyzed the percentage of Students with Disabilities who took and passed the HSPA in a New Jersey school. The analysis indicated that 4 of the 49 New Jersey factors (District Factor Grouping, Average score on verbal section of SAT, Percentage of budget for teacher salaries/benefits, and Percent of Graduates at 4 year college/university) were significant in predicting the percentage of Students with Disabilities who took and passed the Literacy Arts section of the HSPA. The mean percentage of Students with Disabilities per school passing the Literacy Arts section of the HSPA exam is 45.15 and the standard deviation is 21.84. Almost 75% of the variability in the passing rate of the Language Arts section of the HSPA can be explained by the four variables identified by Jones: $R^2 = 0.745$, $F(4, 264) = 193.092$, $p <. 001$.

Faculty mobility poses an ongoing challenge for educational leaders, especially in the area of special education. Special educators leave the profession at higher rates than general educators (Bobbitt, Faupel, & Burns, 1991; *Journal of Special Education*, 1997). As a growing state, Florida has identified special education as a critical faculty shortage area. While general education experiences 13% annual mobility, special education presents an annual mobility rate of 20% (Boe, Bobbitt, & Cook, 1997). For reasons that include excessive paperwork responsibilities, concerns about student performance evaluations, problems related to student discipline, low salary, poor administrative support (Certo & Fox, 2002; Kaufman et al., 2002), and workplace conditions, general education loses up to 30% of its public school teachers within the first five years (Whitener, 1997).

Socioeconomic status (SES).

Student socioeconomic status is determined in schools by the number of free-or reduced-price lunches. A student's lunch status is only indicative of the current school year and does not take into account the duration or the severity of a student's poverty.

According to Tienken (2012), the number of children living in poverty is increasing. During the 2009/2010 school year, 47.5% of all K-12 public school students in the United States were eligible for free or reduced-price lunches compared to 38.3% during the 2000-2001 school year (National Center for Education Statistics, 2011). More than half of all students in southern states qualify for free or reduced lunch and are considered economically disadvantaged.

Nearly 20 million children received free- or reduced-price lunches in the nation's schools during 2009. Federal data show that this is an all-time high and many school districts are struggling to cover their share of the meals' rising costs.

Through February of 2009, nationwide enrollment in free school lunch programs was up 6.3% over the same time last year, to 16.5 million students, based on data from the U.S. Food and Nutrition Service (FNS), which subsidizes the programs. U.S. Food and Nutrition Service (*USA Today*, 2009) reported that participation in reduced-price lunch programs rose to 3.2 million students between February 2008 and February 2009.

Demand in some states climbed at an even greater rate: Enrollment in free lunch programs jumped almost 17% in California, and several states--Arizona, New Jersey, Utah and Vermont--also saw more than 10% growth (Eisler & Weise, 2009).

Almost 417,000 New Jersey students are getting free or reduced-price lunches as parents find themselves unemployed during the recession. *The Record* of Bergen County found 20,061 Bergen County students got free- and reduced-price lunches last year. That was a 17% rise in three years. Some 41,176 students in Passaic County received them, a 15% increase over the same period. The program has grown in traditionally middle-class towns such as Clifton, Bergenfield, and Teaneck, where about one-third of the children get subsidized lunch. Clifton saw one of the biggest increases in requests. In 2009, 37% of Clifton students got lunch benefits, up from 21% from four years ago (*The Associated Press of NJ*, 2009).

A family of four must have an income less than $28,665 to qualify for free lunches. For reduced-price lunch, that household must make less than $40,793. Experts cited various reasons for the increase. The U.S. Food and Nutrition Service recently pushed states so that children who get food stamps are automatically entitled to free lunch. In addition, New Jersey's new school funding formula uses the number of children on free lunch as a trigger for school aid tied to disadvantaged students. The federal government paid $169 million to New Jersey school districts, and the state contributed $8.3 million (The Associated Press of NJ, 2009).

The landmark study Equality of Educational Opportunity, (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966), more commonly known as the Coleman Report, issued under President Lyndon B. Johnson's administration in 1966, is one of the most cited publications in academic journal articles to date with the number exceeding 2,700 (Gamoran & Long, 2006). In an attempt to uncover what many believed was common knowledge in the late sixties, that poor and minority students were performing badly in school due to a lack of resources, Coleman and his colleagues conducted the large study for the U.S. Department of Education. Instead, the researchers discovered that schools had a small effect on student achievement when other factors, such as student socioeconomic status, were taken into account. Coleman and his colleagues reported that the level of success achieved by students on test scores correlated not primarily with school resources and teacher characteristics, but directly with a student's SES and family background. The 749 page Coleman Report (1966) contained an array of information detailing school environment (school facilities, services, curriculum, staff, and fellow students), pupil achievement and motivation (outcomes of schooling, integration and achievement), future teachers of minority groups, higher education, non-enrollment records, case studies of school integration, and special studies, among other various findings. However, the most controversial was the discovery that once SES was controlled for, school resources had very little influence on academic performance (Gamoran & Long, 2006). Coleman et al. (as cited in Gamoran & Long, 2006) conducted an analysis "by measuring the proportions of variance in student achievement that could be attributed to school facilities, school curriculum, teacher qualities, teacher attitudes, and student body characteristics" (p. 7). Through questionnaires and surveys and by aggregating data from 60,000 teachers and 570,000 students, Coleman found that socioeconomic status explained a greater proportion of student test scores than other measures of school resources, such as class size and teacher characteristics. Student background explained 49% of student test scores, while approximately 42% of test scores were explained by teacher quality. Class size accounted for 8% of the variance in test scores. The report showed that a school's average student characteristics, such as poverty and attitudes toward school, often had a greater impact on student achievement than teachers and schools and that the average teacher characteristics at a school had a small impact on a school's mean achievement. (p. 29).

Thirty-six years after the Coleman Report, Goldhaber (2002) reported that 60% of the variance in student achievement was directly associated with student SES and family background, followed by 8.5% of the variation due in part to teacher characteristics.

Research has confirmed the effect of the longevity of poverty upon student achievement. Sutton & Soderstrom (1999) sought to identify a relationship between achievement and student demographic variables on the Illinois Goal Assessment Program (IGAP), a state achievement test, for over 3,000 schools in Illinois. A multiple regression analysis revealed that free- and reduced-lunch status and being White were the most statistically significant factors affecting student achievement. In this study, poverty had a much larger effect on test scores than all other factors combined.

Children that come from poverty have little to no access to valuable resources that children from affluent homes have. The homes of poor children provide little access to the books, writing materials, computers, and other supports for education that are normally present in middle-class or affluent homes in America (Payne & Biddle, 1999). Children from poverty often lack the basic human needs to do well in school.

According to Tienken (2012), the achievement differences, based on results from state-mandated high school tests of language arts and mathematics, between economically disadvantaged and middle class and wealthy students ranged from 12 to 36 percentile points (Tienken, 2012). The influence of poverty on student learning appears to have the greatest influence on students at the highest and lowest achievement levels, especially during the summer months, says Tienken, reporting Borman and Dowling's research (2006).

Findings of Chow (2007) concluded that when children of all races learn the same amount of information, economically disadvantaged children start out behind and continue to lag behind. Chow (2007) studied approximately 9,000 fourth-grade students in North Carolina who were administered the North Carolina Assessment Program exam in reading and mathematics. Students who received free lunches were compared to students who were not economically disadvantaged. It was concluded that low socioeconomic status students are most likely learning basic skills while students identified as not economically disadvantaged are learning problem solving strategies and higher order thinking skills. Chow (2007) determined that little variance in growth rates is present among socioeconomic status groups for reading or mathematics. Each group increases or decreases in achievement at the same rate, keeping the gaps at relatively the same amounts.

Socioeconomic status (SES) creates disparity between student performance as compared to students with higher SES, who are exposed to advanced courses. Using student high school transcript data, Attewell and Domina (2008) examined inequality in access to an advanced curriculum in high school and assessed the consequences of curricular intensity on test scores and college entry. Findings suggested inequalities in curricular intensity are primarily explained by student socioeconomic status. They found significant positive effects of taking a more intense curriculum on 12th-grade test scores and in probabilities of entry to and completion of college. The effect sizes of curricular intensity were generally more modest than advocates of policies of intensifying school rigor have implied. Taken together, academic performance and effort through eighth grade played an important role in gaining access to a high intensity curriculum during high school.

Results of another study (Crosnoe & Huston, 2007) provided an estimation of trajectories of personal control and parental consultation, which was pursued with latent growth curve modeling. Random selections of 24,599 students from 1,052 schools were chosen for a longitudinal study from 1988 through 1994. The study began when all sample members were in eighth grade and tracked students through two years beyond high school. NCES administered diagnostic tests and interviewed parents, teachers, school administrators, and students. Results of the study indicated that the most disadvantaged youth face many stressors in life, less access to networks of mentoring and information, and parents with less understanding of and power in school. These academic risks are found to be difficult to eradicate even with ample school-based resources or involved parents. Alternatively, the most advantaged youth had less stress, more opportunities, and parents who know how to work the educational system, all of which outweigh any one developmental risk. The result is that patterns of achievement were stable across family SES quartiles over time (Crosnoe & Huston, 2007).

Uekawa, Borman, and Lee, (2007) investigated the relationship between classroom context and students' levels of engagement. During the course of the three-year research project investigating 10-14 participating schools aiming to provide an understanding of students' learning processes and patterns of classroom instruction, the 2,360 observations across all participants with a final analytical sample of 1936 cases showed that levels of engagement among students with low SES are mostly insensitive to classroom context, saying that higher SES students more frequently participate than their lower SES counterparts. Results suggest that there is variation between group members' reactions to classroom activities.

Similarly, another study found that schools with a high population of low SES students have a lower standard of curriculum than their counterparts (Adelman, 2006). Its principal data are drawn from the National Education Longitudinal Study, which followed a national sample of over 12,000 students from the time they were in the eighth grade in 1988 to roughly age 26 or 27 in December 2000. It was concluded that acquisition of academic resources made a difference in the curriculum when it came to math performance of students in their study.

Research suggests that SES may impact enrollment patterns, student engagement, and parental and student expectations of enrollment and achievement in high level foreign language courses. The research confirms that low socioeconomic students may have less academic potential because they do not possess the opportunities and support given to affluent students. Alexander, Entwisle, and Bedinger (1994) found that parents of moderate to high income and educational background held beliefs and expectations that were closer to the actual performance of their children than those of low-income families.

Percentage of Limited English Proficient (LEP) sudents.

By most measures, students whose first language is not English do not perform as well in school as those who are proficient in English (Abedi & Dietel, 2004; Flannery, 2009; Strickland & Alvermann, 2004).

The New Jersey Department of Education defines language diversity as the percentage of students in the school by first language spoken at home. The list includes up to seven languages in descending order of frequency. The percentage of Limited English Proficient (LEP) students is calculated by dividing the total number of students who are in Limited English Proficient programs by the total enrollment (NJDOE, 2011).

LEP students are the fastest growing segment of the student population in public schools in the United States, including New Jersey. The New Jersey Department of Education (2008) defines LEP students as “students from pre-kindergarten through Grade 12 whose native language is other than English and who have sufficient difficulty speaking, reading, writing, or understanding the English language, as measured by an English language proficiency test, so as to be denied the opportunity to learn successfully in the classrooms where the language of instruction is English" (O'Conner, Abedi, & Tung, 2012). According to the National Clearinghouse for English Language Acquisition and Language Instruction Educational Programs (2011), approximately 5.3 million LEP students were enrolled in preK–12 in 2008/09, accounting for about 10.8% of public school students in the United States. National enrollment of LEP students in public schools grew 57% between 1995 and 2009 (Flannery, 2009)--almost six times the 10% growth rate in the general education population (students not enrolled in a language assistance program or a special education program). Similarly, the number of LEP students in New Jersey has been growing, in conjunction with a rise in foreign-born residents in the state. In 2009, people born in other countries accounted for over 20% of New Jersey's population (Migration Policy Institute, 2010b). Nationally, an achievement gap exists between LEP students and non-LEP students in all subject areas, particularly those with high language demands (Strickland & Alvermann, 2004). On statewide assessments across the country, the percentage of LEP students who achieve Proficiency (as defined by each state) is 20-30 percentage points lower than the percentage of non-LEP students who do (Abedi & Dietel, 2004).

The No Child Left Behind (NCLB) Act of 2001 requires states to implement accountability systems to assess the education of all students, including students from traditionally underserved populations such as LEP students. The goal of the NCLB Act is to have all students reach Proficiency (as defined by each state) and to close the achievement gap by 2014 (NCLB, 2001). Closing the achievement gap between subgroups such as LEP students and non-LEP students is a critical step toward achieving the No Child Left Behind Act (NCLB). As part of this goal, the law requires states to implement accountability systems to assess the education of all students, including traditionally underserved populations such as LEP students. Under Title I of NCLB, all students, including LEP students, must be tested annually in Grades 3–8 and once in high school, and states must provide LEP students with appropriate accommodations, including modifications of the assessment language and format, until the students achieve English language proficiency. Because LEP students are in the process of developing English language skills, state assessments in a student's non-native language may introduce language that is too complex for them to understand. In such cases, accommodations may be made for these students during the assessment to minimize the impact of such complex language without giving LEP students an unfair advantage over students who do not receive accommodations (Abedi, 2004).

The Regional Educational Laboratory conducted a study examining a descriptive analysis of enrollment and achievement among Limited English Proficient students in New Jersey (2012). According to their findings, overall performance on the Grade 11 Language Arts Literacy assessment fluctuated from 2002/03 to 2008/09. LEP students' performance increased 6.2 percentage points from 2002/03 to 2008/09, and general education students' performance increased 1.7 percentage points (p. 12). As a result, the achievement gap in Grade 11 Language Arts Literacy between LEP and general education students narrowed 4.5 percentage points, from 71.7 percentage points to 67.2 (p. 12). The average achievement gap in Language Arts Literacy between LEP and general education students for 2002/03–2008/09 was wider in Grade 11 (68.6 percentage points) than in Grade 3 (37.3 percentage points), grade 4 (43.5 percentage points), and grade 8 (66.1 percentage points) (p. 12). As with the Language Arts Literacy assessments in Grades 3, 4, and 8, for all years studied, FLEP (Formerly Limited English Proficient) students' performance on the Grade 11 Language Arts Literacy assessment was higher than that of LEP students, and general education students' performance was higher than that of FLEP students. From 2005/06 to 2008/09, FLEP students' performance decreased 2.2 percentage points, whereas LEP students' performance increased 2.5 percentage points, and general education students' performance increased 4.0 percentage points (p. 12). During the period studied, FLEP students' performance was closer to that of general education students than to that of LEP students. By 2008/09, the difference in performance between FLEP and general education students was 30.6 percentage points, whereas the difference between FLEP and LEP students was 36.6 percentage points (p. 12). From 2005/06 to 2008/09, the difference in performance on the Grade 11 Language Arts Literacy assessment between FLEP and LEP students decreased 4.7 percentage points, from 41.3 percentage points to 36.6, whereas the difference between FLEP and general education students increased 6.2 percentage points, from 24.4 percentage points to 30.6 (p. 12).

From 2002/03 to 2008/09, general education students' performance on the Grade 11 Math Assessment increased more than that of LEP students (7.2 percentage points compared with 3.9 percentage points) (p. 12). As a result, the achievement gap in Grade 11 Math between LEP and general education students increased 3.3 percentage points, from 52.2 percentage points to 55.5 (p. 12). During the period studied, the average achievement gap in Math between LEP and general education students was wider in Grade 11 (51.6 percentage points) than in Grade 3 (26.0 percentage points), Grade 4 (34.5 percentage points), and Grade 8 (49.1 percentage points). However, the average achievement gap in Grade 11 between LEP and general education students was narrower in Math (51.6 percentage points) than in Language Arts Literacy (68.6 percentage points) (p. 12). From 2005/06 to 2008/09, FLEP students' performance on the Grade 11 Math Assessment decreased 1.2 percentage points, and LEP students' performance decreased 6.2 percentage points, whereas general education students' performance increased less than 1 percentage point (p. 13). From 2005/06 to 2007/08, FLEP students' performance was closer to that of LEP students than to that of general education students, but by 2008/09, their performance was closer to that of general education students than to that of LEP students. By 2008/09, the difference in performance between FLEP and general education students was 27.5 percentage points, whereas the difference between FLEP and LEP students was 28.0 percentage points (p. 13). From 2005/06 to 2008/09, the difference in performance on the Grade 11 Math assessment between FLEP and LEP students increased 5.0 percentage points, from 23.0 percentage points to 28.0, whereas the difference between FLEP and general education students increased 2.1 percentage points, from 25.4 percentage points to 27.5 (p. 13).

Robinson, Rivers, and Brecht (2006) showed a result of income differences among the respondents to a qualitative survey study. Results from nearly three thousand respondents did not indicate a statistically significant relationship between foreign language attainment and income. Foreign-speaking respondents in this study may have been more likely to learn the foreign language at home. A stepwise regression analysis revealed that after six months of foreign language instruction, weak foreign language word readers were characterized by their lower SES background, first language vocabulary knowledge, and poorer foreign language letter knowledge. These findings support research that suggests that literacy ability may be influenced by social conditions and parental educational priorities (Kahn-Horwitz, Shimron, & Sparks, 2006). Orr (2003) analyzed family wealth as it is related to student achievement and found that while Blacks have come closer to parity with Whites in income, education, and occupation, the substantial racial differences in wealth continue to affect educational and social opportunities. Studies have shown that there is an evident difference between the student scores of Asian, Black, Hispanic, and White students (Barton, 2004; Rothstein, 2004). In the United States, race/ethnicity is so highly correlated with socioeconomic status that though the gap in achievement may look as though scores differ by race/ethnicity, they may actually differ by the student's socioeconomic background (McLoyd, 1998).

Staff Variables

Faculty mobility.

Background.

Faculty mobility is not a new problem (Croasmun, Hampton, & Herrmann, 1999). Since the 1970s, research shows teacher turnover to be a problem. Croasmun et al. (1999) reported that 25% of all people with teaching certificates never begin teaching or leave teaching within a few years (Mark & Anderson, 1978; Murnane, 1981). Findings from Murnane posited that in the early l970s there was .33 probability that a first year teacher would leave, whereas in the late 1960s the rate of leaving in the first three years was predicted at a .16 probability. Mark and Anderson (1985) noted that proportions of entering cohorts of teachers in St. Louis decrease over time. Heyns' report of the National Longitudinal Study of 1972 revealed that 25.2% completed teacher training programs but never entered teaching in elementary or secondary schools (1988).

In the mid-1980s, a series of highly publicized reports began to focus national attention on the coming possibility of severe teacher shortages in elementary and secondary schools (National Academy of Sciences, 1987; National Commission on Excellence in Education, 1983). These reports predicted a dramatic increase in the demand for new teachers, resulting primarily from two converging demographic trends—increasing student enrollments and increasing faculty mobility due to a graying teaching force. Subsequent shortfalls of teachers forced many school systems to resort to lowering standards to fill teacher openings, the net effect of which would inevitably be high numbers of under-qualified teachers and lower school performance. These reports also stressed that shortages would affect some teaching fields more than others. Special education, math, and science teachers in particular have usually been targeted as fields with especially high mobility and those predicted most likely to suffer shortages (Boe, Bobbitt, & Cook 1997; Grissmer & Kirby 1992).

The Schools and Staffing Survey (1987/1988) and the Teacher Follow-up Survey (1988/1989) claimed the attrition rate for the teaching profession was 5.6% in the public schools and 12.7% in private schools. According to the data from the same surveys, more teachers in special education exited the teaching profession (7.9%) than general education teachers (5.8%) (Boe et al., 1993).

Data collected during the early 1990s from the Schools and Staffing Survey and the 1992 Teacher Follow-up Survey estimated that 6.3% of teachers in special education and 5.6% of teachers in general education in public schools left the profession nationally (Boe, Cook, Bobbitt, & Weber, 1995). No substantial change in turnover between the 1980s and early 1990s occurred.

In 2004/2005, the last school year for which data are available, 270,050, or 8.4% of public school teachers left the teaching profession, and 260,400, or 8.1% moved to a different school (USDOE, 2011). These turnover rates are higher than in previous years.

The limitations of current studies.

Though current studies exemplify faculty mobility as a problem (Clotfelter, Ladd, Vigdor, Wheeler, 2007; Haggstrom, Darling-Hammond, Ingersoll, 2001), research tended to focus solely on those teachers who left the profession altogether—termed "leavers" (Grissmer & Kirby, 1992). As long as an individual remained in teaching, that individual was not included in studies. Thus, the traditional approach does not differentiate between a teacher who worked in multiple schools over multiple years and a teacher who has worked in the same school for those years. Any form of mobility results in a school having to replace a teacher, whether he or she is a mover or a leaver. Therefore, these two career paths have vastly different impacts on local school programs.

Faculty mobility and student achievement.

When amalgamated with teacher absence, mobility demonstrates an influence on student achievement. One Harvard study found that for every 10 days of teacher absence (inclusive of mobile teachers who left prior to the end of the school year), student math achievement was reduced 3.3% of a standard deviation (Miller, Murnane, & Willett, 2007). The New York City Board of Education (1992) looked quantitatively at teacher mobility for correlation to student performance (above the set student reference point for passing) on the state's Regents Testing. It was determined that teacher mobility was weakly but significantly related to student outcomes. On the elementary level, Grade 3 reading demonstrated the greatest negative influence of high teacher mobility ($r = -.27$). Contemporary educational theory holds that one of the pivotal causes of inadequate school performance is the inability of schools to adequately staff classrooms with qualified teachers. A case study of a representative sample of 15 elementary schools selected was conducted by one researcher based on their geographic location, demographic characteristics, and seven-year average rate of mobility. Of the 15 schools selected, only five participated in the study, representing five of seven geographic clusters in the district with variation in their student demographics and faculty mobility rates. The study found correlations between student performance and mobility rates were also significant, but negative (Guin, 2004). "Schools with higher mobility rates had fewer students meeting standards on statewide assessments in both reading ($n = 418$; $r = -.306$; $p < .001$) and math ($r = -.282$; $p < .001$) (Guin, 2004, p. 7).

The focus of this research was the NJ HSPA administered during March 2, 3, and 4, 2010. In Language Arts Literacy, 85,230 students of the 96,852 students that tested scored Proficient or Advanced Proficient (88%). In LAL, 67,118 students (69%) scored at the Proficient level and 18,111 students scored in Advanced Proficiency (19%). 11,622 students (12%) scored Partially Proficient (NJDOE, 2010).

In Mathematics, 96,761 New Jersey were students tested. Of these, 72,571 students (75%) scored Proficient or Advanced Proficient and 49,058 students (51%) scored Proficient, while 23,513 (26%) scored at the Advanced Proficient distribution and 24,190 students (25%) scored Partially Proficient (NJDOE, 2010).

In Camden High School, one of New Jersey's urban schools, 161 students were tested. Of these, 31 students (19.3%) passed the LAL section of the 2009-10 HSPA, 31 students scored Proficient (19.3%), and 0 students (0%) scored Advanced Proficient. Of the students tested, 130 students (80.7%) scored Partially Proficient. No data were provided for the Mathematics section. Prior year data indicates the likelihood that Partially Proficient scores far exceeded proficiency. During the year in review (2009-10), Camden High School experienced a faculty mobility rate of 15.4%, as compared to the New Jersey state average of 4.3% (NJDOE, 2010).

Implications of faculty mobility.

Contemporary educational theory holds that one of the pivotal causes of inadequate school performance is the staffing of under-qualified or inexperienced teachers. Research suggests that high-mobility schools are populated with students who may be more likely to be assigned to inexperienced teachers (Kane, Rockoff, & Staiger, 2006; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). Mobility of high quality teachers occurs most in low-achieving schools, suggesting that teacher mobility leaves low achieving schools with the least qualified teachers

(Haycock, 1998). Urban schools suffer from far greater faculty mobility as well as higher teacher absenteeism and a higher percentage of substitute teachers than suburban or rural districts (Ascher, 1991; Darling-Hammond, 1988). As a result, these schools function with greater rates of new and uncertified teachers. The disproportionate exposure to less trained and experienced teachers is the single greatest source of educational inequality between urban and suburban schools (Ascher, 1991; Darling-Hammond, 1988). Studies reveal disturbing indications for efforts to achieve educational equity, including indications that African American students are nearly twice as likely to be assigned to the most ineffective teachers and half as likely to be assigned to the most effective teachers (Darling-Hammond & Berry, 1999). The unequal distribution of effective teachers is the most urgent problem facing American education (Murnane & Steel, 2007). Schools' racial compositions and proportions of low-income students predict faculty mobility; salaries and working conditions--including large class sizes, facilities problems, multi-track schools, and lack of text-books--are strong and significant factors in predicting high rates of mobility. When these conditions are taken into account, the influence of student characteristics on mobility is substantially reduced (Loeb, Darling-Hammond, & Luczak, 2005). Ascher (1991) points to Webster's (1988) research to confirm that student learning is affected by teachers' qualifications and experience. Yet, the very schools where students most need excellent teachers often have the greatest difficulty hiring and retaining the best. This is because schools that serve poor and minority children experience debacles unfamiliar to many suburban schools. According to Ascher (1991), they include the following:

- Limited funds for teacher salaries, educational materials, and general maintenance of the educational environment
- Working under greater bureaucratic constraints than do suburban or rural teachers

- Tending to teach more students a day and do so while lacking basic materials such as books, desks, blackboards, and paper (Council of Great City Schools, 1987).
- Their students often bring into the classroom the social problems that plague their inner-city communities.

The issue of faculty mobility in urban high-poverty schools has implications for cost effectiveness as well as educational quality. A conservative national estimate of the cost of teacher turnover in New Jersey is over $1.5 billion a year (See Figure 4). The total reaches $4.9 billion every year when the cost of replacing public school teachers who transfer schools is added (Alliance for Excellent Education, 2005). For individual states, cost estimates range. The average estimated cost of turnover in North Dakota is $8.5 million. In a large state like Texas, the cost is estimated at half a billion dollars (Alliance for Excellent Education, 2005). Separation costs, hiring costs, vacancy costs, and training costs burden a district's annual budget by utilizing funds that could be spent on student's education (The National Commission on Teaching and America's Future, 2011). The Department of Labor estimates that teacher attrition costs districts about 30% of the leaving employee's salary, which in turn costs taxpayers over $2.2 billion a year (Alliance for Excellent Education, 2005). According to Darling-Hammond (1988), money spent on attractive, well-stocked classrooms, private and accessible telephones, and good copying machines may be a wise investment when compared with the cost of continually replacing disgruntled teachers.

State	Total Number of Teachers*	Teachers Leaving the Profession**	Cost Related to Teachers Who Leave the Profession***	Teachers Transferring to Other Schools**	Cost Related to Teachers Who Transfer to Other Schools***	Total Teacher Turnover Cost (Not Including Retirements)

NJ	98,310	4,655	$ 72,633,486	4,994	$ 77,928,873	$ 150,562,359

http://www.all4ed.org/files/archive/publications/TeacherAttrition.pdf

*U.S. Department of Education, National Center for Education, Statistics Schools and Staffing Survey, 1999–2000 ("Public School Teacher Questionnaire," "Private School Teacher Questionnaire," and "Public Charter School Teacher Questionnaire"), and 2000–01 Teacher Follow-up Survey ("Questionnaire for Current Teachers" and "Questionnaire for Former Teachers," Table 1.01). Washington, DC.

**State estimations based on analysis by Richard Ingersoll, Professor of Education and Sociology, University of Pennsylvania, from the National Center for Education Statistics Student and Staffing Survey, and therefore include a slight margin of error. Additional data available at http://www.gse.upenn.edu/faculty_research/Shortage-RMI-09-2003.pdf.

***The Department of Labor conservatively estimates that attrition costs an employer 30 percent of the leaving employee's salary. Teacher salary data was taken from the National Education Association's Estimates of School Statistics, 1969–70 through 2002–03, and prepared August 2003. Available online at http://nces.ed.gov//programs/digest/d03/tables/dt078.asp.

Figure 4: The Cost of Teacher Turnover in NJ in 1999-2000

More than six million national middle and high school students are at significant risk of dropping out of school (Alliance for Excellent Education, 2005). A third of entering ninth-grade students are expected to drop out of high school before attaining a diploma, and another third will graduate unprepared for college or a good job (Alliance for Excellent Education, 2005). About half of the high schools in the nation's thirty-five largest cities have severe dropout rates--often as high as 50%. According the to NJDOE (2010), 23.1% of students at Camden High School dropped out during the 2009-10 school year, the same year that Camden High School underwent a 15.4% loss of faculty. Urban and/or at-risk students may not identify with teachers and the school community when they do not perceive genuine support from teachers (Noguera, 2003). Noguera (2003) suggests that building trusting relationships that foster achievement requires time.

Finally, high mobility creates instability in schools, making it more difficult to have coherent instruction. This instability may be particularly problematic when schools are trying to implement reforms, as the new teachers coming in each year are likely to repeat mistakes rather than improve upon implementation of reform.

Why teachers leave.

The National Center for Educational Statistics (2010) surveyed the 2008-09 teacher leavers. They were asked to rate various aspects of their current occupation as better in teaching, better in current position, or not better or worse (National Center for Educational Statistics, 2010; Alliance for Excellent Education, 2005). Some results of the survey are summarized below:

- 47.3% report the salary in their new position is better than in teaching
- 47.0% report that opportunities for advancement are better in their new position than in teaching
- 40.8% report that learning from colleagues is better in their new position
- 49.9% report that recognition and support from administrators is better in their new position
- 52.9% report that autonomy and control over their own work is better in their new position
- 56.3% report that their ability to balance their personal life and work is better in their new position
- 44.6% report that their sense of accomplishment is better in their new position.

According to Croasmun et al. (1999), some teachers leave the profession because they are dissatisfied with their salaries. The Teacher Follow-up Survey of 1987-88 demonstrates 4.5% of public school teachers stated salary as a main reason for leaving the profession. In the private schools, 9.1% of private school teachers stated salary as a main reason for leaving the profession (Bobbitt et al., 1991). Theobald (1990) notes that salary is positively related to teachers' decisions to continue teaching in the same district. Teachers in affluent suburban districts, typically, earn more than those in cities or rural communities. These variations contribute to a surplus of qualified teachers in some locations and a shortage in others (Croasmun et al., 1999). Such variations in pay influence teacher retention, especially new teachers, according to Fineman-Nemser (1996). Better paid teachers tend to stay in teaching longer than those with lower salaries (Fineman-Nemser, 1996).

Studies show that faculty mobility differs both by teacher and student characteristics (Boyd, Lankford, Loeb, & Wyckoff, 2005; Hanushek, Kain & Rivkin, 2004; Ingersoll, 2001; Ingersoll & Kralik, 2004; Ingersoll & Smith, 2003, 2004; Johnson, 2004; Loeb, Darling-Hammond, & Luczak, 2005). Teachers are more likely to stay in schools in which student achievement is higher, and teachers--especially White teachers--are more likely to stay in schools with higher proportions of White students. Teachers who score higher on tests of academic achievement are more likely to leave, as are teachers whose hometown is farther from the school in which they teach. Attributes of teachers and the students they teach appear to interact. In particular, teachers having stronger qualifications (as measured by scores on a general knowledge certification exam) are more likely to quit or transfer than are less-qualified teachers, especially if they teach in low-achieving schools (Boyd et al., 2005). Nearly half of all teachers who enter the field leave it within a mere five years, and the best and brightest teachers are often the first to leave (Henke, Chen, Geis, & Knepper, 2000; NJDOE, 2006).

The aging workforce creates a high rate of retirement. Retirement, nevertheless, is a weak factor in teachers' decisions for mobility, especially in urban high-poverty schools (Ingersoll, 2004). In Ingersoll's analysis (2004), teachers reported job dissatisfaction as a reason for leaving more often than retirement. "Retirement was listed by only about 14% of all those who departed from urban, high-poverty schools and a quarter of those departing from rural high-poverty schools" (p. 10). Accounting for a far larger proportion of turnover than did retirement in urban districts were school staffing cutbacks—defined as departures due to lay-offs—terminations, school closings, involuntary reassignments, and reorganizations (Ingersoll, 2004).

Teachers cite a lack of support and poor working conditions among the primary factors for leaving the profession (Alliance for Excellent Education, 2005). Smollin (2011) reported the results of the Gates foundation poll. Forty-thousand teachers were polled regarding their job satisfaction. The majority agreed that supportive leadership, time for collaboration, access to high quality curriculum and resources, clean and safe buildings, and relevant professional development were even more important than higher salaries (Smollin, 2011).

In the 2004–05 MetLife Survey of the American Teacher, new teachers reported discontent caused by administrative duties, classroom management challenges, testing responsibilities, and their sparse relationships with parents. Beginning teachers are particularly vulnerable because they are more likely than their more experienced colleagues to be assigned low-performing students (Alliance for Excellent Education, 2005). Most new teachers are given little professional support, feedback, or demonstration of what it takes to help their students succeed. According to Henke, Chen, and Geis, (2000), the lack of administrative support is compounded by the added challenges that come with teaching children and adolescents with higher needs. Teachers cited the common sources of dissatisfaction in the National Center for Education Statistics Schools and Staffing Survey for the year 1999/2000 (2001). Reasons included lack of planning time (65%), too heavy a workload (60%), problematic student behavior (53%), and a lack of influence over school policy (52%). Teachers of all ages and in all types of schools leave the profession each year; albeit, the rate of attrition is roughly 50% higher in poor schools than in wealthier schools (Alliance for Excellent Education, 2005). The decision to leave the profession ignites teachers who see no hope for change (Alliance for Excellent Education, 2005).

While the bureaucratic constraints of large, impersonal, urban schools can protect less able teachers, good teachers often leave these schools because such “red tape” hinders their individual authority (Haberman, 1987). However, unless teachers are given the training and support to manage their new responsibilities, the empowering possibilities of decision making will not be realized. Career ladders for master teachers, according to Ascher (1991), allow creative and experienced teachers the power, prestige, and money within the school where they have made their reputation. The opportunity enables both students and neophyte teachers to benefit from their expertise (Ascher, 1991). At the same time, master teachers can work with new teachers in professional learning teams, breaking down the isolation of the classroom (Darling-Hammond, 1988).

Are our best teachers leaving?

Mobility can reduce student learning if more effective teachers are more likely to leave, but some mobility is desirable. (Kane, Rockoff, & Staiger, 2006; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). How faculty mobility influences the quality of the school depends upon the gains in effectiveness teachers encompass from additional years of experience and whether those teachers who leave teaching are more or less effective than their peers who remain.

An analysis from Hanushek, Kain, O’Brien, and Rivkin (2005) found that teachers leaving schools in an urban Texas district have lower student achievement gains than do the teachers who remain in the same school. Results from Aaronson, Barrow, and Sander (2007) and Goldhaber, Gross, and Player (2007) confirm the result reporting that teachers who transfer and leave teaching are less effective than those who remain.

Generally speaking, teachers who have high academic credentials, such as graduating from a highly selective college or having high undergraduate grade point averages, are most likely to leave the teaching profession for reasons other than retirement (Alliance for Excellent Education, 2008). Those with strong credentials, such as certification and an undergraduate degree in education, are more likely to move between schools but most likely to stay in the profession (DeAngelis & Presley, 2007; Goldhaber, Gross, & Player, 2007). Women who obtained their National Board certification, for example, are 90% less likely to leave the school system, according to Goldhaber, Gross, and Player (2007).

Another study reported by the Alliance for Excellent Education (2008) found that, on average, teachers who have increased their students' academic performance exhibit increased retention and are less apt to leave lower-performing schools. Though challenging environments generally increase the likelihood of teacher attrition, those teachers who are deemed more effective are also likely to stay in the lower-performing schools (Goldhaber, Gross, & Player, 2007). These results do not apply to retention in the most challenging schools. As teachers become more effective, they are more likely to move away from the most challenging schools to schools with relatively lower concentrations of poverty and higher performance levels (Goldhaber, Gross & Player 2007). Teachers who work in high poverty schools have an annual turnover rate of 20%, while those in low poverty schools have a rate of 12.9%, as reported by the Alliance for Excellent Education (2008).

Faculty attendance.

Public school teachers in the United States are absent 5% to 6% of the days schools are in session (Ballou, 1996; Podgursky, 2003). This rate of absence is low relative to those in the developing world, where faculty absence rates of 20% are common (Chaudhury, Hammer, Kremer, Muralidharan, & Rogers, 2006). In comparison with managerial and professional employees, however, U.S. faculty absence rates are nearly three times as frequent (Ballou, 1996; Podgursky, 2003). Reasons for absences may be attributed to teachers' daily exposure to large numbers of children, some of whom are carriers of infectious diseases, according to Miller, Murnane, and Willet (2007). Also, the proportion of teachers who are female is much higher than the proportion of managerial and professional employees who are female. Female employees, on average, have documented higher rates of absence than male employees (Educational Research Service, 1980).

Allen (1983) hypothesized that loss of productivity from absences will depend on the extent to which managers can reassign workers from other positions. Whether the temporary replacements can be as productive as the absentees is another consideration. In a 2006 paper, Nicholson found that absences had larger negative effects on productivity. This pattern of findings suggests that the negative impact of the absences of teachers from urban schools, especially, may be substantial. Good substitutes are notoriously difficult to find in urban districts, per Miller et al. (2007).

There are several mechanisms through which faculty absences may reduce student achievement. Note that these mechanisms are applicable also to faculty mobility.

- The district's response to NCLB accountability pressures teachers to align their instruction with state curriculum standards and the content of state tests will be interrupted (Allen, 1983).
- The creation of discontinuities of instruction is likely to offset the regular routines and procedures of the classroom (Rundall, 1986; Turbeville, 1987).

- Districts are investing in professional development, including Professional Learning Communities and Common Planning Time, which involves teachers working in teams to improve instruction and make it more consistent (Allen, 1983). Absent teachers are not participants. A teacher's absence, therefore, not only impacts negatively on her students, but also on the students taught by the teacher's colleagues (Rundall, 1986; Turbeville, 1987).
- Instructional intensity may be radically reduced when a regularly assigned faculty member is absent (Capitan et al., 1980; Gagne, 1977; Varlas, 2001). Even if substitutes deliver brilliant isolated lessons, they may not be able to implement a regular teacher's long-term instructional strategies (Miller et al., 2007). In contrast to policies of similarly industrialized countries (e.g., Canada, Australia), 19 states do not require that substitutes hold a bachelor's degree (Henderson, Protheroe, & Porch, 2002), but rather much less licensure status. Furthermore, NCLB specifically exempts substitutes from its otherwise ambitious requirements for faculty quality (U.S. Department of Education, 2004).
- Students may have difficulty forming meaningful relationships with multiple, mobile substitutes (Miller et al., 2007).
- Substitutes' lack of detailed knowledge of students' skill levels makes it difficult for them to provide differentiated instruction that addresses the needs of individual students (Miller, et al, 2007).
- Faculty absences may inhibit attempts by school faculties to implement consistent instructional practices across classrooms and grades (Miller, et al, 2007).

Though many studies have found a negative relationship between faculty absences and student achievement (Bayard, 2003; Beavers, 1981; Boswell, 1993; Cantrell, 2003; Lewis, 1981; Madden & et al., 1991; Smith, 1984; Summers & Raivetz, 1982; Womble, 2001; Woods, 1990), these studies do not provide compelling evidence of a causal link between faculty absences and student achievement because they do not explicitly examine the potential correlation between measures of faculty absences and unobserved levels of faculty effectiveness. Thus, the research challenge is to develop an analysis that allows an unbiased estimation of the "causal" impact of faculty absence on student achievement (Miller et al., 2007).

Percentage of teachers with a master's degree or higher.

Regarding elementary teachers, Clotfelter, Ladd, and Vigdor (2007a) found that teachers who earned their master's degrees were no more or no less effective than others at raising student achievement. Elementary teachers with master's degrees appeared to be less effective, however, than those without advanced degrees if they earned the degrees more than five years after they started teaching. Five studies reviewed by Rice (2003) examined student achievement in a wide variety of grades and subject areas. It was discovered that teachers who completed an advanced degree had no significant effect on student performance (Harnisch, 1987; Link & Ratledge, 1979; Monk, 1994; Murnane & Phillips, 1981; Summers & Wolfe, 1977).

Michel (2008) conducted a study using elementary NJ ASK4 Mathematics and Language Arts scores to determine what variables (student, staff, and school) were the strongest predictors of student performance. Using a vast sample of 888 New Jersey public schools and various student specific variables (mobility rate, attendance rate, suspension rate, and expulsion rate), staff variables (percentage with National Board of Standards certificate, percentage with a master's degree, percentage with doctorate degree, and faculty attendance rate) and school variables (DFG, class size, length of school day, and faculty attendance rate), obtained from the NJDOE website, Michel ran multiple regression analyses. Michel reported that a significant predictor of student performance at the Partially Proficient and Advanced Proficient level in Math and at all levels in Language Arts was the percentage of teachers holding a master's degree. Also reported was a weak positive relationship between student performance on the NJ ASK 4 and increases in school percentages of teachers with a master's degree.

At the secondary level, holding some types of advanced degrees may have a positive effect on student achievement (Clotfelter, Ladd, & Vigdor, 2007b). Clotfelter et al. (2007b) found that high school teachers who completed a master's degree were more effective at increasing student achievement than those without advanced degrees. Goldhaber & Brewer's (2000) analyses of the 1988 National Educational Longitudinal Study also revealed that high school students assigned to teachers who held master's degrees in Mathematics made greater gains in mathematics achievement than students whose teachers did not have advanced degrees or who held advanced degrees in other subjects. Similarly, high school teachers with bachelor's degrees in science were also more effective at increasing student achievement in science than teachers who taught science but either had no degree or a bachelor's degree in a non-science subject. Subject-specific degrees had no effect on student achievement in English or history.

Research supports that teachers become more skilled with experience (Aos, Miller, & Pennucci, 2007; Clotfelter, Ladd, & Vigdor, 2006, 2007a; Hanushek & Rivkin, 2004; Hanushek, Kain, O'Brien, & Rivkin, 2005; Harris & Sass, 2007; Kane, Rockoff, & Staiger, 2006; Rice, 2003; Rivers & Sanders, 2002; Rowan et al., 2002; Wayne & Youngs, 2003). The preponderance of evidence suggests, however, that teacher experience matters most during the first several years of a teacher's career, points at which mobility is highest (Boyd et al., 2005; Hanushek, Kain, & Rivkin, 2007; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004).

Percentage of highly qualified teachers.

According to New Jersey legislation, the definition of a highly qualified teacher in Section 9101(23) of the Elementary and Secondary Education Act (ESEA), now known as NCLB, is very specific about the way in which teachers can demonstrate skills and knowledge. In order to meet the federal definition and mandate of "highly qualified teacher," teachers must demonstrate the required subject competency and skill by passing a rigorous subject-matter competency test in each core subject they will teach or by demonstrating competencies in each core academic subject on a basis of "a high, objective, uniform, state standard of evaluation" (U.S. Department of Education, 2009, para. 6). A designation of "highly qualified" also refers to those possessing substantial knowledge about education (the art) and a strong disciplinary knowledge (the science) (Darling-Hammond, 2000b).

During the 1990s and into the twenty-first century, the need for teachers appeared to have outstripped the available supply of highly qualified teachers, and this fact has given rise to an increase of alternative routes into the teaching profession (Darling-Hammond, 2000a). As these proposals gain support, many people have begun to question the relevance and importance of certification in ensuring that those wishing to enter the teaching profession succeed as teachers.

Research conducted by the ACSI has shown that the three aspects of "highly qualified" teachers relate directly to improvements in student achievement. When partial correlations were reviewed in studies conducted to focus on student achievement, it was found that the most consistent highly significant predictor of student achievement in reading and mathematics in each year tested was a state's proportion of well-qualified teachers (certified and educated, having a major in the subject they taught). The strongest consistently negative predictor of student achievement, also significant in almost all cases, was the proportion of new teachers who were not certified and the proportion of teachers who held less than a minor in the field in which they taught (Darling-Hammond, 2000a).

Research conducted by Stronge (2002) showed that the number of highly qualified—that is, certified—teachers in a state is a strong and consistent indicator of higher student achievement gains. Any type of certification, and especially when it is in the field being taught, has a positive relationship to student achievement (Stronge, 2002).

Ildiko, Laczko-Kerr, and David Berliner (2003) found that the advantage of having a certified teacher in the classroom is worth about two months on a grade-equivalent scale. They concluded, "In other words, students pay a 20% penalty in academic growth for each year of placement with under-certified teachers" (p. 38).

The first scientifically based investigation that considered the influence of highly qualified teachers was conducted by P.W. Tuerk (2005). Tuerk's investigation included 1,450 secondary schools in Virginia with cross-populations of demographics and SES. Tuerk established an inverse relationship between increased level of poverty and both student achievement and access to instruction by highly qualified teachers. Basing his conclusion on a typical school in Virginia with 400 students, Tuerk demonstrated a 1% increase in highly qualified teachers influencing a passing score for 9 to 20 students on the state assessment.

Student Variables

Student mobility.

School Stability and School Performance: A Review of the Literature, written by Gariss-

Hardy & Vrooman (2004), reports a relationship between mobility and academic achievement as highly mobile students tend to perform at a level below that of their stable counterparts (Alexander et al., 1996; Temple & Reynolds, 1999).

While there exists an apparent relationship between student mobility and academic achievement, Kerbow, Azcoitia, and Buell (2003) suggest that students who move once during their school career rarely suffer any lasting effects. After analyzing six years of mathematics achievement data from Chicago Public Schools, the researchers reported that students moving once during a school year may achieve academically 10% less than expected. If, however, the students remain in their new schools for the remainder of their education, they are likely to overcome losses. The story is not the same for students who move more frequently. Kerbow et al. (2003) suggest that the recovery time increases as the student continues to move (Garris-Hardy & Vrooman, 2004)

Raudenbush (2010) reported, “Some kinds of mobility are more harmful than others. Moves made within districts are most likely to be harmful, as are moves made during the school year, rather than between grades. However, the reasons people move vary, as do their destinations. Mobility could have positive effects in some situations and negative ones in others. For this reason, the effects tend to average out in the context of large data sets, suggesting that mobility has little effect when averaged over heterogeneous populations. However, the impact may be quite significant for subgroups, even though these effects can be difficult to capture” (p. 53).

Rhodes study/resource, *Kids on the Move: The Effects of Student Mobility on NCLB School Accountability Ratings* (n.d.), imparts data on student mobility in urban schools and its impact on academic achievement and school accountability. The study concluded that mobility is a significant factor in predicting school success under the NCLB accountability system. Accounting for the conservative nature of the mobility figures used in the study, the significance may be even higher. The findings were consistent with previous research in Ohio linking student mobility to achievement (Ohio Department of Education, 1998), as well as being consistent with other research in urban districts (Ingersoll, Scamman, & Eckerling, 1989; Kerbow, 1996; Rumberger, 2003). According to Rhodes (date unknown), ethnicity, socioeconomic status, and school enrollment size also have a significant impact on school success, though not as great as that of mobility (p. 19).

In discussing the connection between student mobility and achievement, Beatty (2010) suggests that “the mobility research is ‘middling’” (p. 2). The number of studies is low, and although they are fairly consistent in finding effects and in the magnitude of the effects, the mechanisms are not fully described, and they do not provide a coherent picture of how mobility affects outcomes for children in the long term. “Few reviewed studies examined school performance prior to mobility, thus precluding examination of a possible relationship between the two variables (Temple & Reynolds, 1999, p. 3).

Student attendance.

The positive impact of good school attendance on academic achievement may be greater than historically thought (Balfanz & Byrnes, 2006; Johnston, 2000; Lamdin, 1996; Nichols, 2003). A study conducted by the Public Policy Institute of California (2003) concluded that the “number of days a student was absent was a strong, negative predictor of each student’s gain in achievement in math and reading” (p. 12).

Dekalb (1999) notes that student achievement is affected in a negative way by absenteeism. One study of African-American males concluded that, of the students truant from elementary and high school, 75% did not graduate (Robins & Ratcliff, 1978). Poor attendance averages were determined to be one of the factors leading to student test scores much lower than classmates.

Roby (2003) used the Ohio Proficiency Test to study the correlation between student attendance and student achievement. The results of Roby's (2003) study indicate significant differences when comparing student attendance averages and student achievement within large urban districts. The correlation coefficients for the fourth, sixth, and twelfth grade comparisons show moderate positive relationships between student achievement and student attendance. With the sample size (N) substantial, the correlations are considered significant at the .01 confidence level. The ninth grade r was 0.78, the strongest positive relationship of all comparisons. Results of the correlation coefficient, r^2, indicated that student attendance accounts for 32% of the variance held in common with student achievement at the fourth grade level. In other words, 32% of the variance is related to the same factors. Sixth and twelfth grade results indicate slightly lower variances (29%). Analysis of the ninth grade calculations reveals a substantial common variance (60%) between student attendance and student achievement. The correlation of student attendance and student achievement is moderate to strong, with the most significant relationship occurring at the ninth grade level, when comparing attendance and achievement rates. There could be several reasons for this greater correlation at the ninth grade level. However, the academic standards and expectations at this grade level are high, and attending school on a regular basis is certainly a factor in this.

Gottfried (2009) evaluated the hypothesis that the number of days a student was present in school positively affected learning outcomes. To assess this, a unique empirical approach was taken in order to evaluate a comprehensive dataset of elementary and middle school students in the Philadelphia School District. Employing a fixed effects framework and instrumental variables strategy, this study provides evidence from a quasi-experimental design geared at estimating the causal impact of attendance on multiple measures of achievement, including GPA and standardized reading and math test performance. The results consistently indicate positive and statistically significant relationships between student attendance and academic achievement for both elementary and middle school students.

There are also sociological and economic concerns associated with students having low attendance rates. Sociologically, decreased attendance is associated with increased alienation from classmates, teachers, and schools (Johnson, 2005). Economically, students who do not attend school as frequently have a greater chance of dropping out and tend to face greater financial hardship, such as unemployment (Broadhurst, Patron, & May-Chahal, 2005; Kane, 2006).

Research suggested that sociological and economic factors related to student attendance are heightened for youth in urban school systems (Balfanz & Legters, 2004; Orfield & Kornhaber, 2001) and that decreased attendance is correlated with exacerbated issues for urban, minority youth, especially when compared to their counterparts (Orfield, Losen, Wald, & Swanson, 2004). Such research indicates that, within an urban school, student absences were negatively correlated with reading achievement and this relationship became even stronger as students entered Grades 7 and 8. Balfanz & Byrnes (2006) revealed that increased attendance in math classes has been attributed with reducing the severity of the math achievement gap for urban students. Thus, the importance of attending school in the early years appears to be crucial for urban youth because it is, particularly, these minority and high-poverty students who fall behind in math achievement beginning as early as fourth grade (Balfanz & Byrnes, 2006). The

NJ ASK is the first high-stakes test for students, which begins just as the achievement gap ensues (NJDOE, 2010).

Conclusion

Numerous studies correlating the NJ Report Card variables and student achievement exist (Amato, 2010; Cabezas, 2006; Jones, 2008; Marrone-Gemellaro, 2012; Michel, 2004; Pereira, 2004). However, very few studies, if any, examine the relationship between faculty mobility and student achievement. The absence of research related to this growing delinquency in education solidifies the need for an in-depth exploration of it.

According to the National Center for Educational Statistics (2010), 3,380,300 total full-time-equivalent elementary and secondary public school teachers were teaching in the United States during the 2008-09 school year.

Of those individuals, 525,500 (15.6%) moved to a different school after the base year or left the teaching profession by the start of the next school year (National Center for Educational Statistics, 2010, p. 6). This factor is comparable to the rate of turnover a decade before (15.9%), indicating the absence of improvement in the area of mobility.

Of the movers and leavers, 225,630 (18.5%) departed from schools with more than 75% of the student population approved for free/reduced price lunches (National Center for Educational Statistics, 2010, p. 8). This data aligns with Planty's (2008) estimate that about 20% of teachers at high-poverty schools leave their schools annually, compared to 14% in low-poverty settings.

Of the movers and leavers, 140,840 (26.8%) had 0-3 years of full-time teaching experience (National Center for Educational Statistics, 2010, p. 7). This statistic coincides with the research claiming that half of all teachers who enter the field leave it within the first five years (Alliance for Excellent Education, 2005).

In fall 2010, a projected 3.6 million full-time-equivalent elementary and secondary school teachers were engaged in classroom instruction in the United States (U.S. Department of Education, 2012). Of the teachers, 359,000 were new hires (U.S. Department of Education, 2012). If history repeats itself, the United States can expect to lose 179,500 teachers by the year 2015 (Alliance For Excellent Education, 2005; Croasmun, Hampton, & Herrmann, 1999). Concurrently, the student population in the United States (ages 5-17) is projected by the U.S. Census to be 56,030,000 youngsters in 2015—an increase of 1,913,000 students (3.4%) since 2010 (United States Census Bureau, 2010).

A survey conducted by *Education Week* (2011) provided insight into why some teachers decided to leave teaching. When asked to select the most influential factor in their decision to leave teaching, the top reasons selected were the following:

- To pursue a position other than K-12 teacher (34.93%)
- To take courses to improve career opportunities in education (11.79%)
- To take courses to improve career opportunities outside of education (10.26%)
- Poor administrative leadership at their school (9.83%)
- Lack of collaboration (2.11%)
- Inadequate discipline (2.98%)
- General dissatisfaction with their job description and responsibilities (2.84%).

In examining the reasons for teachers' departures, it is shown that nearly 18% of those who left teaching cited school-based factors as the primary reason for their departure (Donaldson & Jonson, 2004).

Teacher retention is critical, particularly in high-poverty schools. The “revolving-door” effect (Ingersoll, 2003) leaves the schools that most need stability in a constant search for new teachers to replace those who leave. Substantial school and district costs are incurred when teachers leave their schools after only a few years. Most importantly, disservices are done to students. Novices typically fill vacancies. As a result, students are taught by a stream of first-year teachers who are, on average, less effective than their more experienced counterparts (Murnane & Phillips, 1981; Rockoff, 2004). When effective teachers leave, schools also lose their investment in formal and informal professional development (National Commission on Teaching and America’s Future, 2003). Schools’ efforts to coordinate curriculum, to track and share important information about students as they move from grade to grade, and to maintain productive relationships with parents and the local community are impeded. Given such consequences, knowing more about faculty mobility in high-poverty schools and in the profession is essential.

CHAPTER III

DESIGN AND METHODS

The objective of this empirical research was to conduct a quantitative, non-experimental relational study to explore how much variance, if any, faculty mobility contributes to the aggregate student performance of New Jersey high schools, with a District Factor Group classification of A through J, on HSPA Mathematics and Language Arts.

The researcher utilized a multiple regression model (Witte & Witte, 2007) to identify the influence of several independent or predictor variables on a dependent variable or outcome variable. The regression model was used to analyze factors that are usually associated with student achievement as discussed in Chapter II: (a) School Size, (b) Socioeconomic Status, (c) Percentage of Students with Disabilities (SPED), (d) Percentage of Limited English Proficient (LEP) Students, (e) Faculty Mobility, (f) Faculty Attendance, (g) Percentage of Teachers with a Master's Degree or Higher, (h) Percentage of Highly Qualified Teachers, (i) Student Mobility, and (j) Student Attendance. The dependent variable is aggregate student achievement, as defined and measured by a student's HSPA score in Mathematics and Language Arts. For the purpose of this study, the primary predictor variable, or predictor variable of primary interest, is faculty mobility, defined by the NJDOE as a representation of "the rate at which faculty members come and go during the school year [calculated 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]" (NJDOE, 2010).

Research Design

For purposes of this study, the researcher utilized multiple regression analyses. All regression analyses explore either a "simultaneous" or "entry" method for each model's variables along with hierarchical models dependent upon the "simultaneous" outcomes (Witte & Witte, 2007). A simple regression was not used to avoid two or more variables having separate effects that cannot be isolated. It would be difficult to tell whether differences in test scores were influenced by either or both predictor variables if a simple regression was used (Witte & Witte, 2007). Therefore, multiple linear regression was the model used to explore the linear relationship between the outcome variable (HSPA Math and LAL scores), several predictor variables (staff, school, and student), and the nature of that linear relationship.

Data Collection

The NJDOE makes results of the state assessments available to the public via area newspapers and online School Report Cards (NJDOE, 2010), which allows for immediate comparisons of schools and districts. Additionally, all the data were entered and matched by school into an excel spreadsheet. This data sheet accounted for all of the public schools listed in New Jersey, their NJ HSPA 2009-2010 results, NJ School Report Card variables, and the Free- and Reduced-Lunch eligibility variables.

Data Sampling Method

To facilitate comparisons of districts, the NJDOE Division of Finance arranges districts into District Factor Groups (DFGs). In 1975, DFGs were developed based on the relative wealth of the community in which each school district is located to satisfy the need for similar districts to be compared in terms of their performance on statewide assessments across demographics (NJDOE, 2010). Analysis of district-to-district test scores and equitable spending provisions are based on the DFG system. The NJDOE updated the DFG designations in 1992 using demographic variables adopted from the U.S. Census: (a) percentage of population with no high school diploma, (b) percentage with some college, (c) occupation, (d) population density, (e) income, (f) unemployment, and (g) poverty. Districts were ranked according to their score and divided into eight groups created by the U.S. Census--A, B, CD, DE, FG, GH, I, and J (NJDOE, 2010)--where A is of the lowest SES. It should be noted, however, that NCLB does not account for SES as an influential factor for student achievement and requires 100% proficiency by the year 2014 for all students. Refer to Table 3 to observe the allocations of DFG in New Jersey districts and schools.

Table 3

District Factor Groups in New Jersey, 2010 (excluding DFG N, R, S and V)

Code	DFG	Total Number of Districts in NJ	Total Number of Schools in NJ	Number of Secondary Schools in NJ
1	A	38	404	57
2	B	66	256	37
3	CD	64	226	30
4	DE	81	302	52
5	FG	89	306	45
6	GH	75	326	57
7	I	100	393	48
8	J	24	86	12
		537	**2299**	**338**

The researcher employed purposeful sampling in selecting the schools to include in the study. For this study, vocational schools, special services school districts/special education schools, jointures, and charter schools (DFGs O, R, and V) were excluded from the study to ensure all results obtained from the analysis could be attributed to a typical district or regional New Jersey public high school. Vocational schools, special services school districts/special education schools, jointures, and charter schools draw students from widespread areas, which in turn influence their DFG. They have specialized DFG rankings (O, R, and V) separate and different from DFG A-J (NJDOE, 2010). A report for DFG O includes students in the Department of Corrections, Department of Human Services, and the Juvenile Justice Commission. Charter schools are grouped together in DFG R rather than in the DFG of the school district in which they are physically located. Vocational school districts have a DFG of V (NJDOE, 2011).

All of the aforementioned schools report student test data to the NJDOE. Report Cards for each of these school types are available (NJDOE, 2010). Test results for students in alternative schools, however, are reported to the student's district school. Therefore, scores from students who are not attending the district school and who are not experiencing the flux of faculty mobility are included in this data. This is a limitation of the study.

The sample for this study consisted of schools that reported all required information relating to school, staff, and student variables to the NJDOE. It included all district academic and comprehensive high schools in New Jersey containing a District Factor Grouping of A, B, CD, DE, FG, GH, I, or J. According to the NJDOE, the total was 336 public secondary schools (NJDOE, 2012). Table 4 lists the schools used in the study's sample as listed on the NJ DOE website.

Table 4

Schools in Sample

A. Hamilton Prep Academy	Adm. W. F. Halsey Ldrshp	Arts
A. J. Demarest Alt School	Allentown High	Asbury Park High
Abraham Clark High	Alternative HS	Atlantic City High
Absegami HS	American History High	Audubon High
Academy HS	Arthur L. Johnson HS	Barnegat HS
Academy Of Voc Careers	Arthur P Schalick HS	Barringer

Bayonne High
Belleville Sr. High
Belvidere High
Bergenfield High
Bernards High
Bloomfield High
Barack Obama Academy
Bogota Jr./Sr. HS
Boonton High
Bordentown Reg HS
Bound Brook High
Brdgwtr-Raritn HS
Brick Twp High
Brick Twp Memorial High
Bridgeton High
Brimm Medical Arts High
Buena Regional High
Burl Co Alternate High
Burlington City High
Burlington Twp High
Butler High
Camden High
Carteret High
Cedar Grove High
Central
Central High
Central Regional High
Chatham High
Cherokee HS
Cherry Hill High - East
Cherry Hill High - West
Cicely Tyson Com MS/HS
Cinnaminson HS
Clayton High
Clearview Reg HS
Cliffside Park High
Clifton High
Collingswood Sr High
Colonia High
Colts Neck HS
Columbia Sr High
Cranford Sr High
Creative & Prfrmg Arts HS
Cresskill HS
Cumberland Reg HS
Cunningham
David Brearley HS
Daylight/Twilight HS
Delaware Valley Reg High
Delran High
Delsea Regional HS
Deptford Twp High
Dover High
Dr Ronald Mc Nair Acad HS
Dumont High
Dunellen High
Dwight Morrow High
East Brunswick High
East Orange Campus HS
East Side
Eastern High
Eastside High
Edison High
Egg Harbor Twp HS
Elizabeth High
Emerson Jr/Sr High
Ewing High
Fair Lawn High
Florence Twp Mem High
Fort Lee High
Franklin Twp High
Freehold Borough High
Freehold Twp High
Garfield High
Gateway Reg HS
Glassboro High
Glen Ridge High
Glen Rock High
Gloucester City Jr/Sr H
Governor Livingston HS
Hackensack High
Hackettstown High
Haddon Heights Jr/Sr HS
Haddon Twp High
Haddonfield Memorial High
Hamilton East-Steinert
Hamilton North-Nottingham
Hamilton West-Watson
Hammonton High
Hanover Park High
Harrison High
Hasbrouck Heights High
Hawthorne High
Henry Hudson Reg School
Henry P Becton Reg HS
Henry Snyder
High Point Regional HS
Highland High
Highland Park High
Hightstown High
Hillsborough High
Hillside High
Hoboken High
Holmdel HS
Hopatcong High
Howell High
Hunterdon Central High
Indian Hills High
International High
Irvington HS
J P Stevens High
Jackson Liberty High
Jackson Memorial High
James Caldwell HS
James J Ferris
Jefferson Twp H
John E. Dwyer Tech Acad
John F Kennedy Mem H
John F. Kennedy High
Jonathan Dayton HS
Keansburg HS
Kearny High
Keyport High

Kingsway Reg High
Kinnelon High
Kittatinny Reg High
Lacey Twp High
Lakeland Reg H
Lawrence HS
Lenape HS
Lenape Val Regional High
Leonia High
Liberty HS
Lincoln
Linden High
Lindenwold HS
Livingston Sr. High
Lodi High
Long Branch High
Lower Cape May Reg High
Lyndhurst High
Madison High
Mahwah HS
Mainland Reg HS
Malcolm X Shabazz High
Manalapan High
Manasquan High
Manchester High
Manchester Reg H
Manville High
Maple Shade High
Marlboro High
Matawan Reg High
Memorial High
Memorial Sr. High
Met East High School
Metuchen High
Middle Twp High
Middlesex High
Middletown HS North
Middletown HS South
Midland Park High
Millburn Sr High
Millville Senior High
Monmouth Reg High
Monroe Twp High
Montclair High
Montgomery High
Montville High
Moorestown High
Morris Hills High
Morris Knolls High
Morristown High
Mountain Lakes High
Mt. Olive High
N Burl Co Reg HS
N Valley Reg H Demarest
N Valley Reg H Old Tappan
N Warren Reg HS
Neptune High School
New Brunswick High
New Egypt HS
New Milford High
New Providence High
Newark Vocational HS
Newton High
North Arlington High
North Bergen High
North Brunswick Twp High
North Hunterdon Reg High
North Plainfield H
Northern Highlands Reg H
Nutley High
Oakcrest HS
Ocean City High
Ocean Twp High
Old Bridge High
Orange High
Overbrook HS
Palisades Park Jr-Sr High
Palmyra High
Paramus High
Park Ridge High
Parsippany High
Parsippany Hills High
Pascack Hills High
Pascack Valley High
Passaic High
Passaic Valley HS
Paulsboro High
Pemberton Twp High
Penns Grove High
Pennsauken High
Pennsville Memorial H
Pequannock Twp High
Perth Amboy High
Phillipsburg High
Pinelands Reg High
Piscataway Twp High
Pitman High
Plainfield High
Pleasantville HS
Point Pleasant Bch High
Point Pleasant High
Pompton Lakes High
Princeton High
Rahway High
Ramapo High
Ramsey High
Rancocas Valley Reg H
Randolph High
Raritan HS
Red Bank Reg High
Renaissance Academy
Ridge High
Ridgefield Memorial High
Ridgefield Park Jr Sr HS
Ridgewood High
River Dell Regional HS
Riverside High
Robbinsville HS
Rosa Parks Arts HS
Roselle Park High
Roxbury High
Rumson Fair Haven Reg H
Rutherford High

S Hunterdon Reg High
Saddle Brook MS/HS
Salem High
Science Park High
Scotch Plains Fanwood HS
Secaucus High
Seneca HS
Shawnee HS
Shore Reg High
Somerville High
South Amboy High
South Brunswick High
South Plainfield High
South River High
Southern Reg High
Sparta HS
Spotswood High
Sterling HS
Summit Sr High
T. Jefferson Arts Acad
T.A. Edison Career/Tech
Teaneck Sr High
Technology High
Tenafly High
Timber Creek High
Toms River High East
Toms River High North
Toms River High South
Trenton Central High
Trenton Central High West
Triton High
Union City HS
Union Senior High
University High
Vernon Twp High
Verona High
Vineland HS
Voorhees High
W Windsor-Plainsboro North
W Windsor-Plainsboro South
Waldwick High
Wall High
Wallington Jr Sr HS
Wallkill Valley Reg HS
War Memorial High
Warren Hills Reg HS
Washington Twp HS
Watchung Hills Reg H
Wayne Hills High
Wayne Valley High
Weehawken High
Weequahic
West Deptford High
West Essex High
West Milford High
West Morris Central High
West Morris Mendham High
West Orange High
West Side High
Westfield Senior High
Westwood Junior/Senior HS
Whippany Park High
Wildwood High
William L Dickinson
Williamstown High
Willingboro High
Winslow Twp HS
Woodbridge High
Woodbury Jr/Sr High
Wood-Ridge High
Woodrow Wilson High
Woodstown High

Data Analysis

The General Linear Model (GLM) underlies most of the statistical analyses that are used in applied and social research. It is the foundation for the t-test, Analysis of Variance (ANOVA), Analysis of Covariance (ANCOVA), regression analysis, and many of the multivariate methods (Trochim, 2006). According to the GLM equation**,** the Y variable can be expressed as a function of a constant (b_0) and a slope (b_1) times the X variable (Statsoft, 2012). It is written as $Y = b_0 + b_1X$, where

Y= a set of outcome variables

X= a set of pre-program variables or covariates

b_0 = the intercepts (value of each y when each x=0)

b_1 = regression coefficient, a set of coefficients, one each for each x (Trochim, 2006).

The researcher implemented a regression analysis, a particular predictive design, to answer the research questions. The multiple regression equation reveals a correlation between the predictor variable (independent {x}; student, staff, and school variables) with the criterion variable (dependent {y}; HSPA scores) (Witte & Witte, 2007). Regression is limited by its ability to show only a relationship; notwithstanding, the regression model explains the amount of variance in the outcome variable (HSPA scores) that can be explained by the predictor variable(s) if all statistical assumptions are accurate.

In multiple correlation/regression, one has two or more predictor variables but only one criterion variable (Statsoft, 2012). In general, multiple regression procedures will estimate a linear equation, or least squared regression, of the form: $Y = b_0 + b_1X_1 + b_2X_2 + ... + b_kX_k$ where *k* is the number of predictors. Note that in this equation, the regression coefficients (or $b_1 \ldots b_k$ coefficients) represent the independent contributions of each predictor variable to the prediction of the outcome variable (Statsoft, 2012; Witte & Witte, 2007). In order to test the null hypothesis for the individual regression coefficients (b_i), the standard error of estimate for multiple regression must be computed. According to Hinkle, Wiersma, and Jurs (2003), the standard error of estimate is calculated by the following equation: $S_{YX} = \sqrt{SS_Y}\,(1\text{-}R^2)/n\text{-}k\text{-}1$.

R-square, (R^2), also known as the Coefficient of Determination, is a commonly used statistic to evaluate the model's overall influence. R-square is 1 minus the ratio of residual variability. For example, if there is an R-square of 0.4, then the variability of the Y values around the regression line is 1-0.4 times the original variance. In other words, 40% of the original variability is explained and 60% residual variability remains.

The degree to which two or more predictors (predictor or x variables) are related to the outcome (y) variable is expressed in the Correlation Coefficient R, which is the square root of R-square. In multiple regressions, R can assume values between 0 and 1. The direction of the relationship between variables is indicated by the signs (plus or minus) of the regression or Beta (β) coefficients. If a Beta (β) coefficient is positive, then the relationship of this variable with the outcome variable is positive; if the Beta (β) coefficient is negative, then the relationship is negative. Of course, if the Beta (β) coefficient is equal to 0, then there is no relationship between the variables (Statsoft, 2012; Wuensch, 2007).

Beta (β) coefficients are called partial coefficients to emphasize that they reflect the contribution of a single X in predicting Y in the context of the other predictor variables in the model. That is, how much predicted Y changes per unit change in X when we hold constant the effects of all the other predictor variables. The weight applied to X can change dramatically if we add one or more additional X variables or delete one or more of the X variables currently in the model (Trochim, 2006). Table 5 shows the predictor variables per regression model. Figure 5 reveals the conceptual design.

Table 5

Models Analyzed in the Study

Simultaneous Regression Models		
MODEL 1: LAL	All Variables	Student Mobility Rate Student Attendance Rate Faculty Mobility Faculty Attendance Percentage of Teachers with a Master's Degree or Higher Percentage of Highly Qualified Teachers School Size Percentage of Students with Disabilities Socioeconomic Status Percentage of Limited English Proficient (LEP) Students
MODEL 2: Math	All Variables	Student Mobility Rate Student Attendance Rate Faculty Mobility Faculty Attendance Percentage of Teachers with a Master's Degree or Higher Percentage of Highly Qualified Teachers School Size Percentage of Students with Disabilities Socioeconomic Status Percentage of Limited English Proficient (LEP) Students
Hierarchical Regression Models		
MODEL 3: LAL	Model 1	Student Mobility Rate Student Attendance Rate
	Model 2	Student Mobility Rate Student Attendance Rate Percentage of Limited English Proficient (LEP) Students Percentage of Students with Disabilities Socioeconomic Status School Size
	Model 3	Student Mobility Rate Student Attendance Rate

		Percentage of Limited English Proficient (LEP) Students Percentage of Students with Disabilities Socioeconomic Status School Size Faculty Mobility
MODEL 4: Math	Model 1	Student Mobility Rate Student Attendance Rate
	Model 2	Student Mobility Rate Student Attendance Rate Percentage of Students with Disabilities Percentage of Limited English Proficient (LEP) Students School Size Socioeconomic Status
	Model 3	Student Mobility Rate Student Attendance Rate Percentage of Students with Disabilities Percentage of Limited English Proficient (LEP) Students School Size Socioeconomic Status MA+ Faculty Mobility

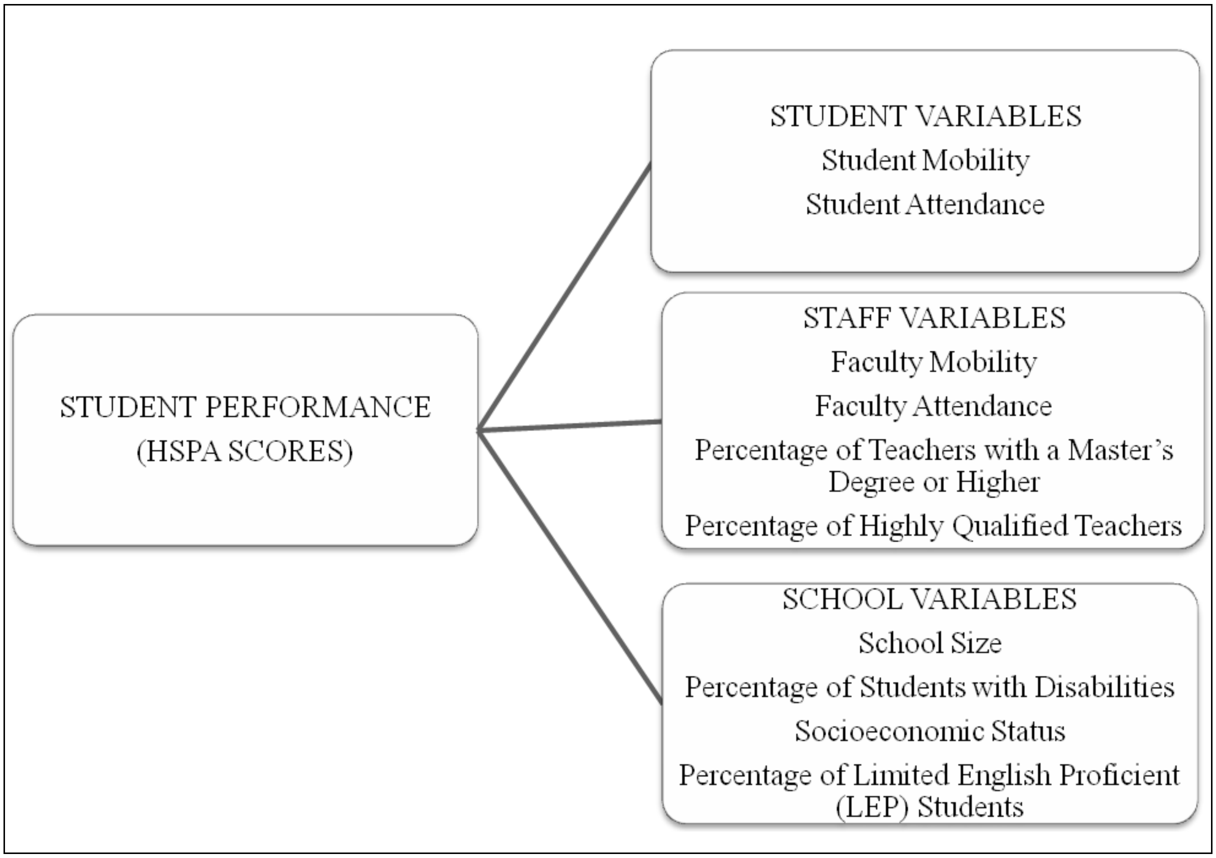


Figure 5: Conceptual Design of the Study

The following table shows the 10 variables and their associated labels (Table 4). The labels were derived from the NJDOE Report Card data. The variables are all continuous predictors as they are quantified by percentages on the School Report Card. For purposes of accommodating both categorical and continuous variables, multiple regression is a preferred method of analysis.

Table 6

Abbreviated Variable Names

Variable	**Label**
Student Mobility Rate	Student Mobility
Student Attendance Rate	Student Attendance

Faculty Mobility	Faculty Mobility
Faculty Attendance	Faculty Attendance
Teachers with a Master's Degree or Higher	MA+
Highly Qualified Teachers	HQ
School Size	School Size
Students with Disabilities	SPED
Socioeconomic Status	SES
Limited English Proficient (LEP) Students	LEP

Research Questions

The study was guided by the overarching question, How much variance, if any, does faculty mobility contribute to the aggregate student performance of New Jersey high schools, with a District Factor Group classification of A through J, on HSPA Mathematics and Language Arts? Aligned with Pearson's report of answerable questions from multiple regression analyses, the following subsidiary questions were posited:

1. How much variance in HSPA LAL student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?
2. How much variance in HSPA Math student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?

3. When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA LAL student performance?
4. When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA Math student performance?

Hypotheses

The researcher devised these null hypotheses:

H_o: There is no significant level of variability in HSPA Language Arts performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

H_o: There is no significant level of variability in HSPA Math performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

Tested against the alternatives:

H_1: There is a significant level of variability in HSPA Language Arts Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

H_1: There is a significant level of variability in HSPA Math Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables.

The Dependent/Outcome Variable: Instrumentation, Validity, and Reliability

The HSPA is administered during March to all New Jersey public school students enrolled in 11th grade and to the 12th grade students who did not pass in their 11th year. It is a criterion-referenced, standards-based assessment that measures proficiency in Mathematics and Language Arts. Since it is a criterion assessment, and not a norm-referenced assessment, the assessment is not based on comparisons between students. It is designed to measure the student's progress in mastering the NJ Core Curriculum Content Standards (NJCCCS) in Math and Language Arts. Test passages and items for the HSPA are developed and then rigorously reviewed by state-level committees for Mathematics, Language Arts, and sensitivity before and after they are included in the test (NJ Department of Education, 2011). New Jersey teachers and other educators participate in the committee review process. NJDOE works closely with the State's Technical Advisory Committee for Assessment. This group of national assessment experts closely monitors and guides NJDOE's efforts to develop a model assessment system. The State utilizes data to constantly review and modify the system as appropriate to ensure all data points are reported and recorded accurately and valid decisions are made. The accountability system was also developed with the full recognition that decisions about schools and districts making AYP must ensure full validity and reliability. In order to construct a system that is both valid and reliable, the state incorporated the following elements:

1. Alignment of assessments with existing state content standards that are valid and reliable
2. Assessments designed with valid and reliable controls built in, including highly trained readers for all open-ended items with quality controls such as read-behinds and, in

most cases, double scoring: two cycles of reporting, as well as a mechanism for rescoring of tests when results are in question

3. Districts have the ability to ensure the accuracy of demographic data on all students through a record change process
4. The scoring process now entails an automatic adjudication of scoring on open-ended items for students whose scores are close to, but not over, the proficiency level on each assessment. Districts may also ask for such adjudications at the time they receive Cycle I score reports
5. A 95% confidence interval calculated around the school's or district's proficiency for all subgroups
6. "Safe harbor" calculations applied to all students, as well as subgroup results, incorporating a 75% confidence interval in the determination
7. An appeal process implemented to guard against an error in our data or calculations at any step in the process (U.S. Department of Education, 2010).

The Mathematics section tests students' abilities to solve problems of basic mathematics, algebra, and geometry. It contains two types of questions—multiple choice and open-ended. Open-ended questions are scored by highly trained raters. Students are required to write their answers or to explain or illustrate how they solve mathematical problems. The Mathematics Section tests student knowledge of the following skills:

A. Number and Numerical Operations

B. Geometry and Measurement

C. Patterns and Algebra

D. Data Analysis, Probability, Statistics, and Discrete Mathematics (NJDOE, 2006).

The Language Arts Literacy section tests students' abilities to read passages and to answer related questions about each passage. Most of the test questions are multiple-choice; however, some questions require students to provide written responses using their own words, usually in the form of written paragraphs. These questions are referred to as "open-ended" questions and are scored by highly trained raters. Reading passages test comprehension, both literal and inferential. Literal comprehension is the ability to understand the actual meaning of written words. Inferential comprehension is the ability to use careful reasoning to extend understanding of the communication beyond the literal meaning of the words themselves. Questions are based on those skills that critical readers use to understand, analyze, and evaluate text:

A. Expository Writing

B. Persuasive Writing

C. Narrative Reading

D. Persuasive Reading

(NJDOE, 2006; Parsippany High School, 2009).

Proficiency levels for the Language Arts Literacy and Mathematics sections of the HSPA were established after the benchmark was created at the March 2002 administration of the test. Each section of the test is scored separately. In order to pass the entire HSPA, a student must obtain a passing score of at or above 200 on each section out of a possible 300 points. Students' scores on the HSPA fall into one of three categories:

Advanced Proficient--a score achieved by the student at or above the score of 250 that demarks a comprehensive and in-depth understanding of the knowledge and skills measured by a content-area component of any State assessment.

Proficient--a score achieved by the student between 200 and 249 that demarks a solid understanding of content measured by an individual section of any State assessment.

Partially proficient--a score achieved by the student below the cutoff score of 199 that demarks a partial understanding of the content measured by an individual section of any State assessment (NJDOE, 2006).

According to the NJDOE (2011), students who have fulfilled all of the course requirements for graduation but fail to pass the HSPA or its alternative will not receive a high school diploma. A student in this situation has the following options:

1. Continue an alternative process

   The Alternative High School Assessment, AHSA, (formerly SRA or Special Review Assessment) is an alternative 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. The AHSA content is linked to the HSPA test specifications in order to ensure that students who are certified through the AHSA process have demonstrated the skills and competencies at levels comparable to students who passed the HSPA test (NJDOE, 2010).
2. Return to the school at the time of testing the following year and take the HSPA
3. Pass the General Educational Development (GED) test.

The results displayed on NCLB Reports are based on the state assessment data with the NCLB conditions applied. Additionally, the NCLB data incorporate the data appeals submitted by districts/schools that have been granted by the NJDOE. Therefore, the data in the NCLB Reports are different from the data displayed on the NJ School Report Cards (NJDOE, 2010).

CHAPTER IV

RESULTS

Introduction

The primary purpose of this chapter is to discuss the results of an associational statistical analysis in an effort to determine those factors, in particular faculty mobility, that most influence student performance on the NJ HSPA using a purposeful sample of New Jersey public high schools. In 2009/2010, New Jersey housed 2,452 elementary and secondary schools (NJDOE, 2011). Included in that number are all comprehensive schools, special service schools, special education schools, charter schools, and vocational schools. The total included 1,944 comprehensive elementary schools, 346 comprehensive high schools, 42 special education schools, 66 charter elementary and secondary schools, and 54 vocational schools. The sample consisted of New Jersey high schools that house an 11th grade and report annually to the NJDOE all required information related to school, staff, and student variables. It included all district academic and comprehensive high schools in New Jersey containing a District Factor Grouping of A, B, CD, DE, FG, GH, I, or J. According to the NJDOE data, this total was 336 public secondary schools statewide (NJDOE, 2012). Vocational Schools, special services school districts/special education schools, and charter schools were excluded from the study to ensure all results obtained from the analysis could be attributed to a typical district or regional New Jersey public high school.

Descriptive Statistics

One of the major goals of the NJDOE is to increase school- and district-level accountability for educational progress by communicating useful information to members of the public to be used in measuring how well their schools are doing. The New Jersey School Report

Card has provided the public with information about every school in New Jersey since 1995, when the legislature mandated the annual accountability report (NJDOE, 2010). Public domain access to the NJ School Report Card is provided in a Microsoft Excel format on the NJDOE web site. Organized into the four headings of School Variables, Student Variables, Staff Variables, and Test Information, a descriptive statistics profile of the variables including Minimum, Maximum, Mean, and Standard Deviation (N = number of schools in sample) is listed in Table 7.

Table 7

Descriptive Statistics on the Composite Data for the 2009-2010 NJ Report Card Variables

	N	Minimum	Maximum	Mean	Std. Deviation
School Variables					
School Size	336	26.0	3335.5	1150.124	598.5363
SES	336	.0	949.8	30.830	59.1144
LEP	336	.0	98.5	3.618	7.8319
SPED	336	.0	177.0	15.730	12.3784
Student Variables					
Student Attendance	336	67.7	99.3	93.292	3.7366
Student Mobility	336	.0	47.9	8.564	7.7930
Staff Variables					
Faculty Attendance	336	.0	100.0	94.863	10.6295
Faculty Mobility	336	.0	35.2	4.282	5.5843
MA+	336	.0	100.0	50.285	14.9882
HQ	336	.0	100.0	98.677	10.8580
Test Information					
TotalLALP	336	.0	100.0	85.680	16.4142
TotalMathP	336	.0	97.2	71.642	20.9197
TotalGenEdLALP	336	.0	100.0	91.801	14.8249
TotalGenEdMathP	336	.0	100.0	78.855	20.8226
Valid N (listwise)	336				

School Size indicates an aggregate value.
Values of all other variables are percentages.

Using the total sample means, a composite picture of the data can be generated for the 2009-2010 school year. The average school size in the sample was approximately 1150 students. The average percentage of SES students was 31%. The average percentage of LEP students was 3.7%, while the average of SPED students was 16%. The average student attendance rate was 93%, as student mobility approached 9%. The average faculty attendance rate was 95%, as faculty mobility exceeded 4%. Approximately half of faculty (50%) earned a master's degree or higher and 99% were deemed highly qualified by New Jersey. Faculty attendance was 95% with 4.31% faculty mobility. The mean percentage of students who scored Proficient in HSPA LAL across New Jersey was 86%, with a standard deviation of 16%. In Math, the mean of students who scored Proficient across New Jersey was 72%, with a standard deviation of 21%. The mean percentage of General Education students who scored Proficient in HSPA LAL across New Jersey was 92%, with a standard deviation of 15%. In Math, the mean of General Education students who scored Proficient across New Jersey was 79%, with a standard deviation of 21%.

The District Factor Groups (DFGs) are updated every ten years when the Census Bureau releases the latest Decennial Census data. Table 8 shows the frequency and percentage of each DFG in the state of New Jersey. The DFGs were first developed in 1975 for the purpose of comparing students' performance on statewide assessments across demographically similar school districts and also played a role in determining the initial group of districts that were classified as Abbott districts. Abbott Districts are the product of approximately thirty years of extensive and controversial dialogue, litigation, and thirteen decisions of the New Jersey Supreme Court. The decision of New Jersey Supreme Court in *Abbott vs. Burke* on May 21, 1998, required thirty of the poorest school districts to implement a Whole School Reform (WSR) model. The purposes are consistent; therefore most Abbott schools also have a schoolwide status under Title I. Title I is a federally funded education initiative for students that are economically and educationally disadvantaged. It is designed to provide assistance to improve the academic performance of low-performing students in the areas of Language Arts Literacy and Mathematics. The state then provides Title I funds to districts through a statutory formula based primarily on the number of children ages 5 through 17 from low-income families, foster homes, or institutions for neglected or delinquent children. Districts then must determine which schools are eligible. A school is considered Title I eligible if the school attendance area has a defined poverty rate that is at least equal to the district average rate, or is 35% or higher (NJDOE, 2010).

Table 8

Frequency and Percent of DFG in NJ

DFG		Frequency	Percent
Valid	A	56	16.7
	B	37	11.0
	CD	30	8.9
	DE	52	15.5
	FG	45	13.4
	GH	56	16.7
	I	48	14.3
	J	12	3.6
	Total	336	100.0

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 scores for the NJ HSPA are scaled to fit into the 100-300 range of possible points available, where >200 is Passing/Proficient. The mean percentage of students who attended DFG A schools, the districts with the highest percentage of poverty, and scored Proficient or higher on HSPA LAL was 64%, with a standard deviation of 21 (See Table 9). The mean percentage of students who attended DFG A schools and scored Proficient or higher on HSPA Math was 43% with a standard deviation of 23 (See Table 7).

Table 9

Percentage of Proficient Students in DFG A Schools

	TotalLALP	TotalMathP
Valid	56	56
Missing	0	0
Mean	63.739	43.234
Median	66.650	42.000
Mode	100.0	.0
Std. Deviation	21.0577	22.8196

The mean percentage of students who attended DFG J schools, the districts with the lowest percentage of poverty, and scored Proficient or higher on HSPA LAL was 98% with a standard deviation of 0.9. The mean percentage of students who attended DFG J schools and scored Proficient or higher on HSPA Math was 95% with a standard deviation of 1.1 (Table 10).

Table 10

Percentage of Proficient Students in DFG J schools

		TotalLALP	TotalMathP
N	Valid	12	12
	Missing	0	0
Mean		97.817	94.992
Median		97.900	94.700
Mode		95.9[a]	93.4[a]
Std. Deviation		.8953	1.1066

a. Multiple modes exist. The smallest value is shown.

Predictor Variables

The predictor variables included in the analyses that were selected from the NJ School Report Card have been established through the research base to influence testing results and/or student achievement as outlined and discussed in Chapter II. For editorial purposes, some variable names were shortened (See Table 11).

Table 11

Abbreviated Variable Names

Variable	**Label**
Student Mobility Rate	Student Mobility
Student Attendance Rate	Student Attendance
Faculty Mobility	Faculty Mobility
Faculty Attendance	Faculty Attendance
Teachers with a Master's Degree or Higher	MA+
Highly Qualified Teachers	HQ
School Size	School Size
Students with Disabilities	SPED
Socioeconomic Status	SES
Limited English Proficient (LEP) Students	LEP
Total % Proficient in Language Arts Literacy	TotalLALP
Total % Proficient in Math	TotalMathP

Multiple Regression

A regression analysis incorporating variables selected from NJ School Report Card Data offers a broad overview of possible relationships to performance on the NJ HSPA. This preliminary data analysis will allow researchers to identify those variables that demonstrate the greatest influence on HSPA scores. Any instances of multicollinearity will be noted and addressed. Multicollinearity occurs in regression analyses when two or more predictor variables are highly correlated (Witte & Witte, 2007). Simultaneous multiple regression were the first tier of this study. This process involves the simultaneous input of several predictor variables to learn more about their individual relationship to the dependent or criterion variable. It is often used in prediction and forecasting (Witte & Witte, 2007).

Researchers may use multiple linear regressions when it is not evident which variables would provide the best prediction equation model on an outcome/dependent variable (Leech, Morgan, & Barrett, 2008). Multiple linear regression "fits" straight lines to scattered data points of paired values X_i, Y_i, etc., where the values of Y (the vertical line) are observations of a variable. MLR is based on least squares: the model is fit such that the sum-of-squares of differences of observed and predicted values is minimized (Witte & Witte, 2007). The linear regression model requires that the relationship is linear; in fact it assumes linearity. This can be observed in a scatterplot diagram. Additionally, the linear regression model uses the standard error of estimate that assumes, except for chance, that the scatterplot dots will be equally dispersed about all segments of the regression line (Witte & Witte, 2007). This assumption is termed homoscedasticity.

Hierarchical Regression

The regression models measured the influence of the listed variables on Math and HSPA LAL scores separately. These data analyses were the starting point for further analysis that will allow education stakeholders to potentially make empirically based decisions on NJ HSPA preparation measures. The predictor variables entered into the models are Student Mobility, Student Attendance, Faculty Mobility, Faculty Attendance, Teachers with a Master's Degree or

Higher, Highly Qualified Teachers, School Size, Students with Disabilities, Socioeconomic Status, and Limited English Proficient (LEP) Students.

The regression models generated by this research illuminated the variation in the dependent/outcome variable (NJ HSPA scores in both LAL and Math) that can be explained by the selected NJ School Report Card variables. The analyses performed will give New Jersey education stakeholders information on variables that potentially have the greatest influence on NJ HSPA scores.

The models were first evaluated for significance, with the alpha set at .05, the significance threshold for the social sciences ($p < .05$). LAL and Math were treated separately as results did not correlate strongly between the subjects, based on the test's internal validity findings (NJDOE, 2008). If the model met the significance threshold, the Pearson correlation coefficient (*r*) was analyzed. Pearson's *r* represents the linear relationship between pairs of variables for quantitative data (Witte & Witte, 2007). It was interpreted in the following manner (Hinkle, Wiersman, & Jurs, 2003):

+ .9 to 1 -- very highly correlated (positively or negatively)

+ .7 to .9 -- highly correlated (positively or negatively)

+ .5 to .7 -- moderately correlated (positively or negatively)

+ .3 to .5 -- weakly correlated (positively or negatively)

+ .0 to .3 -- little if any correlation (positively or negatively)

The proportion of variance in one variable that can be explained by or is associated with the variance in another distribution is the Pearson value squared (R^2), also known as the coefficient of determination. More simply, the R^2 represents explained variance. In this case, the

R^2 explained the percentage of variation in NJ HSPA scores that can be explained by or attributed to the NJ School Report Card predictor variables.

Table 12 shows the regression models that were used to analyze all of the predictor variables and their influence on student achievement as defined by both HSPA Math and LAL scores.

Table 12

Models Analyzed in the Study

Simultaneous Regression Models		
MODEL 1: LAL	All Variables	Student Mobility Rate Student Attendance Rate Faculty Mobility Faculty Attendance Percentage of Teachers with a Master's Degree or Higher Percentage of Highly Qualified Teachers School Size Percentage of Students with Disabilities Socioeconomic Status Percentage of Limited English Proficient (LEP) Students
MODEL 2: Math	All Variables	Student Mobility Rate Student Attendance Rate Faculty Mobility Faculty Attendance Percentage of Teachers with a Master's Degree or Higher Percentage of Highly Qualified Teachers School Size Percentage of Students with Disabilities Socioeconomic Status Percentage of Limited English Proficient (LEP) Students
Hierarchical Regression Models		
MODEL 3: LAL	Model 1	Student Mobility Rate Student Attendance Rate

	Model 2	Student Mobility Rate Student Attendance Rate Percentage of Limited English Proficient (LEP) Students Percentage of Students with Disabilities Socioeconomic Status School Size
	Model 3	Student Mobility Rate Student Attendance Rate Percentage of Limited English Proficient (LEP) Students Percentage of Students with Disabilities Socioeconomic Status School Size Faculty Mobility
MODEL 4: Math	Model 1	Student Mobility Rate Student Attendance Rate
	Model 2	Student Mobility Rate Student Attendance Rate Percentage of Students with Disabilities Percentage of Limited English Proficient (LEP) Students School Size Socioeconomic Status
	Model 3	Student Mobility Rate Student Attendance Rate Percentage of Students with Disabilities Percentage of Limited English Proficient (LEP) Students School Size Socioeconomic Status MA+ Faculty Mobility

Results: Correlation Analysis

The Correlation Analysis performed accounts for all variables used in the study. Its purpose was to compare the correlation of predictor variables to the outcome variable. Further, the analysis allowed for the identification of potential multicollinearity issues between predictor variables in addition to possible suppressor variables among the predictors. Predictor variables found to be strongly related (i.e., r >.600) provide the possible potential for creating the multicollinarity problems within the regression model (See Appendix for Correlations Tables).

None of the variables revealed a strong, significant correlation to HSPA LAL performance. The Correlation Table shows Student Attendance as a moderately strong and significant correlate ($r = .766$, $\alpha \leq .001$). The weakest correlate, and not significant, was HQ ($r = .058$, $\alpha = .144$). The weakest, significant correlate of HSPA LAL performance was Faculty Mobility ($r = -.169$, $\alpha = .001$).

None of the variables revealed a strong, significant correlation to HSPA Math performance. The Correlation Table shows Student Attendance as a moderately strong and significant correlate($r = .736$, $\alpha \leq .001$) of HSPA Math performance. Different than in LAL, HQ was a weak, but significant, correlate in Math ($r = .096$, $\alpha = .039$). The weakest, significant correlate was Faculty Attendance ($r = .169$, $\alpha = .001$). Faculty Mobility was reported as a weak, but significant, correlate of HSPA Math performance ($r = -.180$, $\alpha \leq .001$).

Results: Multiple Regression Analyses

Model 1: Research Question 1. Language Arts Literacy

The first model regression analysis performed accounts for all variables used in the study. Its purpose was to determine the significance of each predictor and the extent of their contribution to HSPA LAL and Math performance.

Following is the data analysis for the first model regression, with LAL performance as the outcome variable. The first multiple linear regression model is analyzed with the intent to answer the first research question: How much variance in HSPA LAL student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card.

Table 13

Model Summary of All Variables on LAL performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.864[a]	.747	.739	8.3807

Table 14

ANOVA for All Variables on LAL performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67430.715	10	6743.071	96.007	.000[a]
	Residual	22826.516	325	70.235		
	Total	90257.230	335			

a. Predictors: (Constant), HQ, School Size, LEP, SPED, Faculty Mobility, SES, Student Attendance, Student Mobility, MA+, Faculty Attendance

b. Dependent Variable: TotalLALP

The ANOVA reported in Table 14 shows the model was statistically significant (F=96.007; df= 10, 325; p< .001). An examination of the R square (R^2) in the Model Summary (See Table 13) reveals that 73.9% (.739) of the variance in HSPA LAL achievement can be explained by all predictor variables entered in the model. The equation for collinearity tolerance, which examines multicollinearity between the variables entered in the model, is $1-R^2$. The tolerance value must be greater than $1 - R^2$ to meet the collinearity threshold. For this mode, $1 - R^2$ is .261. Table 15 shows that the tolerance value for all variables is greater than .261, suggesting that no collinearity issues are present in this model.

Table 15

Coefficients[a] table for All Variables on LAL performance

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Correlations	Collinearity Statistics

	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	-145.233	13.895		-10.452	.000					
School Size	.002	.001	.079	2.732	.007	.138	.150	.076	.940	1.064
SES	-.024	.008	-.085	-2.811	.005	-.341	-.154	-.078	.851	1.176
LEP	-.231	.062	-.110	-3.702	.000	-.339	-.201	-.103	.881	1.136
SPED	-.259	.038	-.195	-6.783	.000	-.328	-.352	-.189	.941	1.063
Student Attendance	2.613	.140	.595	18.647	.000	.766	.719	.520	.765	1.307
Student Mobility	-.525	.067	-.249	-7.865	.000	-.551	-.400	-.219	.776	1.289
Faculty Attendance	.148	.063	.096	2.333	.020	.133	.128	.065	.462	2.167
Faculty Mobility	-.141	.085	-.048	-1.661	.098	-.169	-.092	-.046	.930	1.075
MA+	-.003	.035	-.003	-.084	.933	.231	-.005	-.002	.769	1.300
HQ	-.187	.064	-.124	-2.940	.004	.058	-.161	-.082	.439	2.275

a. Dependent Variable: TotalLALP

An examination of the standardized beta coefficients in Table 13 indicates that some, but not all, variables in the model are significant predictors of HSPA LAL performance. They are School Size, SES, LEP, SPED, Student Attendance, Student Mobility, Faculty Attendance, and HQ (See Table 15).

In an effort to properly discern the actual contribution of each significant variable found in this model and all future models, both the standardized beta and the partial correlation value will be reported as a range of variance explaining the model's outcome variable. This is done whenever the regression model includes four (4) or more predictor variables in an effort to account for the possibility of one variable in the model acting as a suppressor variable on another (Leech, Barrett, & Morgan, 2008).

School Size is a significant predictor in the model (β=.079; t=2.732; p< .007), contributing 0.6% ($.079^2$) to 2.3% ($.150^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Smaller schools have better HSPA LAL performance than larger schools.

SES is a significant predictor in the model (β=-.085; t=-2.811; p< .005), contributing 0.7% ($-.085^2$) to 2.4% ($-.154^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools in regions of higher socioeconomic status perform better than schools in regions of lower socioeconomic status.

LEP is a significant predictor in the model (β=-.110; t=-3.702; p$\leq$ .001), contributing 1.2% ($-.110^2$) to 4% ($-.201^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as LEP perform better than schools with a higher percentage.

SPED is a significant predictor (β=-.159; t=-6.783; p$\leq$ .001) in the model, contributing 3.8% ($-.195^2$) to 12% ($-.352^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as SPED perform better than schools with a higher percentage.

Student Attendance was found to be most predictive of performance on NJ HSPA LAL performance scores in this model (β=.595; t=18.647; p$\leq$ .001). It contributed 35% ($.595^2$) to 52% ($.719^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools populated with students who regularly attend school perform better on the NJ HSPA LAL than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.249; t=-7.865; p$\leq$ .001), contributing 6.2% ($-.249^2$) to 16% ($-.400^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of student mobility perform better than schools with a higher percentage of student mobility.

Faculty Attendance is a significant predictor in the model (β=.096; t=2.333; p< .020), contributing 0.9% ($.096^2$) to 1.6% ($.128^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools whose faculty attends work consistently have better HSPA LAL performance than schools whose faculty is absent often.

The percentage of Highly Qualified teachers is a significant predictor in the model (β=-.124 t=-2.940; p=.004), contributing 1.5% ($-.124^2$) to 2.6% ($-.161^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of teachers who are Highly Qualified perform better than schools with a higher percentage of highly qualified teachers. This unexpected outcome could be due to the number of variables in the model. Once a study contains more than 4-5 variables in a model, the results can be spurious (Leech, Morgan, & Barrett, 2008).

An examination of the standardized beta coefficients indicates that MA+ is not significant in the model. The variable of most concern, Faculty Mobility, is also included in the list of insignificant predictors of HSPA LAL performance (β=-.048; t=-1.661; p< .098). The relationship, although not significant, implies that schools with a lower percentage of faculty mobility perform better than schools with a higher percentage of faculty mobility.

Model 1A was run without HQ as a variable. The high VIFs of Faculty Attendance and HQ inspired Model 1A, assuming that a suppression of variables existed in the previous model. HQ was eliminated from Model 1A since MA+ is likely to include faculty members who are also Highly Qualified and consequently suggests a level of redundancy that cannot be controlled for in the model. It was hypothesized that these variables were being accounted for twice and possibly magnifying their impact. Following is the data analysis for the Model 1A Regression with LAL performance as the outcome variable.

Model 1A.

Table 16

Model Summary of All Variables on LAL performance without HQ included

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.860[a]	.740	.733	8.4783

a. Predictors: (Constant), MA+, School Size, LEP, SPED, Faculty Mobility, SES, Faculty Attendance, Student Mobility, Student Attendance

Table 17

ANOVA for All Variables on LAL performance without HQ included

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66823.705	9	7424.856	103.292	.000[a]
	Residual	23433.526	326	71.882		
	Total	90257.230	335			

a. Predictors: (Constant), MA+, School Size, LEP, SPED, Faculty Mobility, SES, Faculty Attendance, Student Mobility, Student Attendance
b. Dependent Variable: TotalLALP

The ANOVA reported in Table 17 shows the model was statistically significant (F=103.292; df= 9, 326; p≤.001). An examination of the R square (R^2) in the Model Summary (See Table 16) reveals that 73.3% (.733) of the variance in HSPA LAL achievement can be explained by all predictor variables entered in the model. The R^2 changed only slightly (.739 to .733) from Model 1 to 1A, indicating that HQ had little influence on the variance in LAL performance. The equation for collinearity tolerance, which examines multicollinearity between the variables entered in the model, is $1-R^2$. The tolerance value must be greater than $1 - R^2$ to meet the collinearity threshold. For this mode, 1 – R^2 is .267. Table 18 shows that the tolerance value for all variables is greater than .267, suggesting that no collinearity exists between the variables in this model. Additionally, all VIF tolerances are within acceptable limits, with no VIF being equal to or greater than an absolute value of 2.

Table 18

Coefficients[a] table for All Variables on LAL performance without HQ included

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-149.476	13.981		-10.692	.000					
	School Size	.002	.001	.081	2.786	.006	.138	.152	.079	.941	1.063
	SES	-.024	.008	-.088	-2.878	.004	-.341	-.157	-.081	.851	1.174
	LEP	-.233	.063	-.111	-3.700	.000	-.339	-.201	-.104	.881	1.135
	SPED	-.253	.039	-.191	-6.576	.000	-.328	-.342	-.186	.943	1.061
	Student Attendance	2.604	.142	.593	18.377	.000	.766	.713	.519	.765	1.307
	Student Mobility	-.533	.067	-.253	-7.905	.000	-.551	-.401	-.223	.777	1.287
	Faculty Attendance	.019	.046	.012	.402	.688	.133	.022	.011	.891	1.123
	Faculty Mobility	-.155	.086	-.053	-1.808	.072	-.169	-.100	-.051	.933	1.072
	MA+	-.026	.034	-.024	-.749	.454	.231	-.041	-.021	.809	1.236

a. Dependent Variable: TotalLALP

An examination of the standardized beta coefficients (See Table 18) indicates that Student Attendance is the strongest predictor of HSPA LAL performance. Faculty Attendance, Faculty Mobility (β=-.053; t=-1.808; p=.072), and MA+ are not significant predictors in this model.

School Size is a significant predictor in the model (β=.081; t=-2.786; p=.006), contributing 0.7% ($.081^2$) to 2.3% ($.152^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Smaller schools have better HSPA LAL performance than larger schools.

SES is a significant predictor in the model (β=-.088; t=-2.878; p=.004), contributing 0.87% ($-.088^2$) to 2.5% ($-.157^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools within a region of higher socioeconomic status perform better than schools in regions of lower socioeconomic status.

LEP is a significant predictor in the model (β=-.111; t=-3.700; p≤.001), contributing 1.2% ($-.111^2$) to 4.0% ($-.201^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as LEP perform better than schools with a higher percentage.

SPED was found to be a significant predictor of NJ HSPA LAL performance in this model (β=-.191; t=-6.576; p≤.001). SPED is a significant predictor in the model, contributing 3.6% ($-.191^2$) to 12% ($-.342^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as SPED perform better than schools with a higher percentage.

Student Attendance was found to be the strongest predictor of performance on NJ HSPA LAL performance in this model (β=.593; t=18.377; p≤.001), contributing 35% ($.593^2$) to 51% ($.713^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools populated by students who attend school regularly perform better than schools populated with irregular student attendance.

Student Mobility is a significant predictor in the model (β=-.253; t=-7.905; p≤.001), contributing 5.8% ($-.253^2$) to 16% ($-.401^2$) of the variance in NJ HSPA LAL performance, as indicated by the standardized beta and partial correlation values, respectively. Schools affected by less student turnover perform better than schools affected by frequent turnover.

Model 2: Research Question 2. Math

Following is the data analysis for the second model regression with Math performance as the outcome variable. This multiple linear regression model is analyzed with the intent to answer the second research question: How much variance in HSPA Math student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?

Table 19

Model Summary of All Variables on HSPA Math performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	.736	.728	10.9075

a. Predictors: (Constant), HQ, School Size, LEP, SPED, Faculty Mobility, SES, Student Attendance, Student Mobility, MA+, Faculty Attendance

Table 20

ANOVA for All Variables on HSPA Math performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107941.290	10	10794.129	90.728	.000[a]
	Residual	38666.090	325	118.973		
	Total	146607.380	335			

a. Predictors: (Constant), HQ, School Size, LEP, SPED, Faculty Mobility, SES, Student Attendance, Student Mobility, MA+, Faculty Attendance
b. Dependent Variable: TotalMathP

The ANOVA reported in Table 20 shows the model was statistically significant ($F=90.728$; $df= 10,325$; $p< .001$). An examination of the Adjusted R square (R^2) in the Model Summary (See Table 19) reveals that 72.8% (.728) of the variance in HSPA Math achievement can be explained by the predictors in this study. The tolerance values for all variables are greater than the equation for tolerance, $1\text{-}R^2=.272$. Therefore, no collinearity issues between predictor variables seem to be present in this model (See Table 21).

Table 21

Coefficients table for All Variables on HSPA Math performance

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-197.986	18.084		-10.948	.000					
	School Size	.004	.001	.113	3.853	.000	.178	.209	.110	.940	1.064
	SES	-.035	.011	-.099	-3.190	.002	-.369	-.174	-.091	.851	1.176
	LEP	-.327	.081	-.122	-4.033	.000	-.346	-.218	-.115	.881	1.136
	SPED	-.293	.050	-.173	-5.904	.000	-.304	-.311	-.168	.941	1.063
	Student Attendance	2.948	.182	.526	16.165	.000	.736	.668	.460	.765	1.307
	Student Mobility	-.678	.087	-.253	-7.807	.000	-.567	-.397	-.222	.776	1.289
	Faculty Attendance	.207	.083	.105	2.506	.013	.169	.138	.071	.462	2.167
	Faculty Mobility	-.253	.111	-.067	-2.284	.023	-.180	-.126	-.065	.930	1.075
	MA+	.153	.045	.110	3.372	.001	.330	.184	.096	.769	1.300
	HQ	-.238	.083	-.123	-2.871	.004	.096	-.157	-.082	.439	2.275

a. Dependent Variable: TotalMathP

An examination of the coefficient correlation (See Table 21) indicates that all variables in the model are significant predictors of HSPA Math performance.

School Size is a significant predictor in the model ($\beta=.113$; $t=3.853$; $p\leq .001$), contributing 1.3% ($.113^2$) to 4.4% ($.209^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Smaller schools perform better on HSPA Math than larger schools.

SES is a significant predictor in the model (β=-.099; t=-3.190; p=.002), contributing 1.0% ($-.099^2$) to 3.0% ($-.174^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools in regions of higher socioeconomic status perform better than schools in regions of lower socioeconomic status.

LEP is a significant predictor in the model (β=-.122; t=-4.033; p≤ .001), contributing 1.5% ($-.122^2$) to 4.8% ($-.218^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as LEP perform better than schools with a higher percentage.

SPED is a significant predictor in the model (β =-.173; t=-5.904; p≤ .001), contributing 3.0% ($-.173^2$) to 9.7% ($-.311^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as SPED perform better than schools with a higher percentage.

Student Attendance was found to be the most predictive of performance on NJ HSPA Math performance scores in this model (β=.526; t=16.165; p≤ .001). It contributed 28% ($.526^2$) to 45% ($.668^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools populated with students who regularly attend school perform better on the NJ HSPA Math than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.253; t=-7.807; p≤ .001), contributing 6.4% ($-.253^2$) to 16% ($-.397^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of student mobility perform better than schools with a higher percentage of student mobility.

Faculty Attendance is a significant predictor in the model (β=.105; t=2.506; p< .013), contributing 1.1% ($.105^2$) to 1.9% ($.138^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools whose faculty attend work regularly perform better on HSPA Math than schools whose faculty are absent often.

Different from Model 1, Faculty Mobility is a significant predictor in this model (β=-.067; t=-2.284; p< .023), contributing 0.4% ($-.067^2$) to 1.6% ($-.126^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with less faculty mobility perform better on HSPA Math than schools whose faculty is mobile.

MA+ is a significant predictor in the model (β=.110; t=3.372; p=.001), contributing 6.4% ($.110^2$) to 16% ($.184^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a higher percentage of teachers with a master's degree or higher perform better than schools with a lower percentage of teachers with a master's degree or higher.

The percentage of Highly Qualified teachers is a significant predictor in the model (β=-.123; t=-2.871; p=004), contributing 1.5% ($-.123^2$) to 2.5% ($-.157^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of teachers who are Highly Qualified perform better than schools with a higher percentage of highly qualified teachers. This unexpected outcome could be due to the number of variables in the model. Once a study contains above 4-5 variables in a model, the results can be spurious(Leech, Morgan, & Barrett, 2008).

Model 2A was run without HQ as a variable, using the same rationale as has been previously established concerning LAL performance. The high VIFs of Faculty Attendance and HQ inspired Model 1B, assuming that a suppression of variables existed in the previous model. HQ was also eliminated from Model 2A since MA+ is likely to include faculty members who are also Highly Qualified. It was hypothesized that these variables were being accounted for twice and possibly magnifying their impact. The following is the data analysis for the Model 2A Regression with Math performance as the outcome variable.

Model 2A

Table 22

Model Summary of All Variables on Math performance without HQ included

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.854[a]	.730	.722	11.0279

a. Predictors: (Constant), MA+, School Size, LEP, SPED, Faculty Mobility, SES, Faculty Attendance, Student Mobility, Student Attendance

Table 23

ANOVA for All Variables on Math performance without HQ included

Model		Sum of Squares	df	Mean Square	F	Sig.
1B	Regression	106960.936	9	11884.548	97.723	.000[a]
	Residual	39646.444	326	121.615		
	Total	146607.380	335			

a. Predictors: (Constant), MA+, School Size, LEP, SPED, Faculty Mobility, SES, Faculty Attendance, Student Mobility, Student Attendance

b. Dependent Variable: TotalMathP

The ANOVA reported in Table 23 shows the model was statistically significant ($F=97.723$; df= 9, 326; $p\leq.001$). An examination of the R square (R^2) in the Model Summary (See Table 22) reveals that 72.2% (.722) of the variance in HSPA Math achievement can be explained by all predictor variables entered in the model. The equation for collinearity tolerance, which examines multicollinearity between the variables entered in the model, is $1\text{-}R^2$. The tolerance value must be greater than $1 - R^2$ to meet the collinearity threshold. For this mode, $1 - R^2$ is .278. Table 24 shows that the tolerance value for all variables is greater than .278, suggesting that no collinearity exists between the variables in this model. Additionally, all VIF thresholds are less than an absolute value of 2, indicating a lack of multicollinearity issues.

Table 24

Coefficients table for All Variables on Math performance without HQ included

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1B	(Constant)	-203.378	18.185		-11.184	.000					
	School Size	.004	.001	.116	3.895	.000	.178	.211	.112	.941	1.063
	SES	-.036	.011	-.102	-3.252	.001	-.369	-.177	-.094	.851	1.174
	LEP	-.330	.082	-.124	-4.029	.000	-.346	-.218	-.116	.881	1.135
	SPED	-.286	.050	-.169	-5.713	.000	-.304	-.302	-.165	.943	1.061
	Student Attendance	2.937	.184	.525	15.934	.000	.736	.662	.459	.765	1.307
	Student Mobility	-.688	.088	-.256	-7.849	.000	-.567	-.399	-.226	.777	1.287
	Faculty Attendance	.042	.060	.022	.705	.481	.169	.039	.020	.891	1.123
	Faculty Mobility	-.271	.112	-.072	-2.423	.016	-.180	-.133	-.070	.933	1.072
	MA+	.124	.045	.089	2.772	.006	.330	.152	.080	.809	1.236

a. Dependent Variable: TotalMathP

An examination of the standardized beta coefficients (See Table 24) indicates that Student Attendance is the strongest predictor of HSPA Math performance. Faculty Attendance is not a significant predictor in this model.

School Size is a significant predictor in the model (β=.116; t=3.895; p$\leq$.001), contributing 1.3% ($-.116^2$) to 4.5% ($-.211^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. This is the only model in the study that deemed School Size significant. Schools of smaller size perform better on HSPA Math than larger schools.

SES is a significant predictor in the model (β=-.102; t=-3.252; p=.001), contributing 1.0% ($-.102^2$) to 3.1% ($-.177^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools within a region of higher socioeconomic status perform better than schools in regions of lower socioeconomic status.

LEP is a significant predictor in the model (β=-.124; t=-4.029; p≤.001), contributing 1.5% ($-.124^2$) to 4.8% ($-.218^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as LEP perform better than schools with a higher percentage.

SPED is a significant predictor in this model (β=-.169; t=-5.713; p≤.001), contributing 2.9% ($-.169^2$) to 9.1% ($-.302^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as SPED perform better than schools with a higher percentage.

Student Attendance was found to be most predictive of performance on NJ HSPA Math performance in this model (β=.525; t=15.934; p≤.001), contributing 28% ($.525^2$) to 44% ($.662^2$) of the variance in performance, as indicated by the standardized beta and partial correlation values, respectively. Schools populated by students who attend school regularly perform better than schools populated with irregular student attendance.

Student Mobility is a significant predictor in the model (β=-.256; t=-7.849; p≤.001), contributing 6.6% ($-.256^2$) to 16% ($-.399^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools affected by less student turnover perform better than schools affected by frequent turnover.

Different from Model 1A, Faculty Mobility is a significant predictor in this model (β=-.072; t=-2.423; p< .016), contributing 0.5% ($-.072^2$) to 1.8% ($-.133^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with less faculty mobility perform better on HSPA Math than schools whose faculty is mobile.

MA+ is a significant predictor in the model (β=.089; t=2.772; p$\leq$.006), contributing 0.8% ($.089^2$) to 2.3% ($.152^2$) of the variance in NJ HSPA Math performance, as indicated by the standardized beta and partial correlation values, respectively. Schools with a higher percentage of teachers with a master's degree or higher perform better than schools with a lower percentage.

Results: Hierarchical Regression Models

Hierarchical Multiple Regression Analyses (HMR) were used to estimate two or more regression equations simultaneously. HMR attempts to find the best linear combination of variables that predict *y* in a hierarchy in order to identify which model/equation explains the greatest proportion of variance. Based on an analysis of Models 1, 2, 3, and 4, hierarchical regression analyses were run to observe how variables in this study might influence one another. The order of variables inserted into the hierarchy was done purposefully, in order of significance based on previous regression analyses (See Tables 25 and 26). Table 31 displays the results of the following models.

Table 25

Model 3 Variables

1	(Constant)
	Student Attendance

Table 26

Model 4 Variables

1	(Constant)
	Student Attendance

	Student Mobility
2	(Constant)
	Student Attendance
	Student Mobility
	LEP
	SPED
	SES
	School Size
3	(Constant)
	Student Attendance
	Student Mobility
	LEP
	SPED
	SES
	School Size
	Faculty Mobility

	Student Mobility
2	(Constant)
	Student Attendance
	Student Mobility
	SPED
	LEP
	School Size
	SES
3	(Constant)
	Student Attendance
	Student Mobility
	SPED
	LEP
	School Size
	SES
	MA+
	Faculty Mobility

Model 3: **Research Question 3. Language Arts Literacy (LAL)**

The third model hierarchical regression analysis performed accounts for all significant variables used in the study that predicted LAL performance. They were Student Attendance, Student Mobility, LEP, SPED, SES, School Size, and Faculty Mobility. The purpose of the hierarchy was to determine the amount of change between models and their contribution to HSPA LAL performance in order to partition out the specific “block” influence of staff, school, and student mutable variables. The model was analyzed for its contribution to the research question: When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA LAL student performance?

Following is the hierarchical analysis for the third model regression with LAL performance as the outcome variable.

Table 27

Model Summary of Hierarchical Analysis on HSPA LAL performance

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	.819[a]	.670	.668	9.4541	.670	338.409	2	333	.000
2	.859[b]	.737	.732	8.4927	.067	20.915	4	329	.000
3	.860[c]	.740	.734	8.4602	.003	3.530	1	328	.061

a. Predictors: (Constant), Student Mobility, Student Attendance

b. Predictors: (Constant), Student Mobility, Student Attendance, School Size, SPED, LEP, SES

c. Predictors: (Constant), Student Mobility, Student Attendance, School Size, SPED, LEP, SES, Faculty Mobility

Table 28

ANOVA for Hierarchical Analysis on HSPA LAL performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60493.811	2	30246.905	338.409	.000[a]
	Residual	29763.419	333	89.380		
	Total	90257.230	335			
2	Regression	66527.857	6	11087.976	153.731	.000[b]
	Residual	23729.374	329	72.126		
	Total	90257.230	335			
3	Regression	66780.543	7	9540.078	133.287	.000[c]
	Residual	23476.687	328	71.575		
	Total	90257.230	335			

The ANOVA reported in Table 28 shows that all three models were statistically significant. Of the three models, the R^2 change in Model 3 explains the greatest proportion of variance in HSPA LAL performance. However, only .3% of the variance changed when Faculty Mobility was added to the model. Though the model was significant, as seen in the ANOVA table, the Model Summary (Table 27) shows that the change was not (Sig F Change = .061).

Consequently, Model 2 explained the greatest proportion of variance in student HSPA LAL performance.

In examining all three models for multicollinearity issues (Table 29), none were found. All VIFs were within normal parameters (< or = 2) and tolerances for all three models met the required threshold of > 1 – R^2 (Model 1 = .312, Model 2 = .268, Model 3 = .266).

An examination of the conservative indicator, adjusted R^2, reveals that Model 1 explains 66.8% of the variance in HSPA LAL performance. Table 29 shows that the student mutable variables, Student Mobility and Student Attendance, were both found to be statistically significant (F change = 338.409; df = 2, 333; $p \leq .000$).

Model 2 explains 73.2% of the variance in HSPA LAL performance when LEP, SPED, SES, School Size, Student Mobility, and Student Attendance are all included in the model. The R^2 change indicates that 6.7% of the change in variance was due to including these additional School Variables. School and Student mutable variables are statistically significant predictors for HSPA LAL performance (F change = 20.915; df = 4, 329; $p \leq .000$).

Model 3 explains 73.4% of the variance in HSPA LAL performance when Student and School Variables and Faculty Mobility are all included in the model. The R^2 change indicates that .3% of the change in variance was due to the inclusion of Faculty Mobility. Faculty Mobility is not a statistically significant predictor for HSPA LAL performance when controlling for all school and student mutable variables (F change = 3.530; df = 1, 328; p = .061).

Table 29

Coefficients[a] table for All Significant Variables on HSPA LAL performance

	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF

1	(Constant)	-175.574	14.123		-12.432	.000					
	Student Attendance	2.861	.149	.651	19.231	.000	.766	.725	.605	.864	1.158
	Student Mobility	-.655	.071	-.311	-9.184	.000	-.551	-.450	-.289	.864	1.158
2	(Constant)	-150.593	13.307		-11.317	.000					
	Student Attendance	2.611	.138	.594	18.929	.000	.766	.722	.535	.810	1.234
	Student Mobility	-.529	.067	-.251	-7.919	.000	-.551	-.400	-.224	.793	1.261
	LEP	-.253	.062	-.121	-4.057	.000	-.339	-.218	-.115	.904	1.106
	SPED	-.247	.038	-.186	-6.441	.000	-.328	-.335	-.182	.957	1.045
	SES	-.024	.008	-.086	-2.816	.005	-.341	-.153	-.080	.862	1.160
	School Size	.002	.001	.086	2.971	.003	.138	.162	.084	.950	1.053
3	(Constant)	-147.200	13.378		-11.003	.000					
	Student Attendance	2.585	.138	.588	18.709	.000	.766	.718	.527	.802	1.247
	Student Mobility	-.528	.067	-.251	-7.930	.000	-.551	-.401	-.223	.793	1.261
	LEP	-.237	.063	-.113	-3.788	.000	-.339	-.205	-.107	.888	1.126
	SPED	-.255	.038	-.192	-6.634	.000	-.328	-.344	-.187	.945	1.058
	SES	-.024	.008	-.085	-2.817	.005	-.341	-.154	-.079	.862	1.160
	School Size	.002	.001	.081	2.784	.006	.138	.152	.078	.941	1.063
	Faculty Mobility	-.160	.085	-.054	-1.879	.061	-.169	-.103	-.053	.945	1.058

a. Dependent Variable: TotalLALP

An examination of the standardized beta coefficients in Table 29 indicates that all variables in the model are significant predictors of HSPA LAL performance, except Faculty Mobility. They are Student Attendance, Student Mobility, LEP, SPED, SES, and School Size.

In Model 1, Student Attendance was found to be most predictive of performance on NJ HSPA LAL scores in the model (β=.651; t=19.231; p$\leq$ .001). It contributed 42% ($.651^2$) to 53% ($.725^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools populated with students who regularly attend school perform better on the NJ HSPA LAL than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.311; t=-9.184; p$\leq$ .001), contributing 9.7% ($-.311^2$) to 20% ($-.450^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of student mobility perform better than schools with a higher percentage of student mobility.

In Model 2, Student Attendance was found to be the most predictive of performance on NJ HSPA LAL scores in the model (β=.594; t=18.929; p≤ .001) though its contribution weakened when School Variables were added. Student Attendance contributed 35% ($.594^2$) to 52% ($.722^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools populated with students who regularly attend school perform better on the NJ HSPA LAL than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.251; t=-7.919; p≤ .001), contributing 6.3% ($-.251^2$) to 16% (-.400) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. The contribution of Student Mobility as a predictor variable decreased when School Variables were added to the model. Schools with a lower percentage of student mobility perform better on the NJ HSPA LAL than schools with a higher percentage of student mobility.

LEP is a significant predictor in the model (β=-.121; t=-4.057; p≤ .001), contributing 1.5% ($-.121^2$) to 4.8% ($-.218^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as LEP perform better than schools with a higher percentage.

SPED is a significant predictor (β=-.186; t=-6.441; p≤ .001) in the model, contributing 3.5% ($-.186^2$) to 11% ($-.335^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as SPED perform better on the NJ HSPA LAL than schools with a higher percentage.

SES is a significant predictor in the model (β=-.086; t=-2.816; p=.005), contributing 0.7% ($-.086^2$) to 2.3% ($-.153^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Schools in regions of higher socioeconomic status perform better on the NJ HSPA LAL than schools in regions of lower socioeconomic status.

School Size is a significant predictor in the model (β=.086; t=2.971; p=.003), contributing 0.7% ($.086^2$) to 2.6% ($.162^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. Larger schools have better HSPA LAL performance than smaller schools.

In Model 3, Student Attendance was found to be the most predictive of performance on NJ HSPA LAL scores in the model (β=.588; t=18.709; p≤ .001). Student Attendance contributed 35% ($.588^2$) to 52% ($.718^2$) of the variance in NJ HSPA LAL as indicated by the standardized beta and partial correlation values, respectively. When Faculty Mobility was added to the model, the contribution of Student Attendance as a predictor variable did not change. Schools populated with students who regularly attend school perform better on the NJ HSPA LAL than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.251; t=-7.930; p≤ .001), contributing 6.3% ($-.251^2$) to 16% (-.401) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Mobility was added to the model, the contribution of Student Mobility as a predictor variable did not change. Schools with a lower percentage of student mobility perform better on the NJ HSPA LAL than schools with a higher percentage of student mobility.

LEP is a significant predictor in the model (β=-.113; t=-3.788; p≤ .001), contributing 1.3% ($-.113^2$) to 4.2% ($-.205^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Mobility was added to the model, the contribution of LEP as a predictor variable decreased. Schools with a lower percentage of students classified as LEP perform better on the NJ HSPA LAL than schools with a higher percentage.

SPED is a significant predictor (β=-.192; t=-6.643; p$\leq$ .001) in the model contributing 3.7% ($-.192^2$) to 12% ($-.344^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Mobility was added to the model, the contribution of SPED as a predictor variable increased. Schools with a lower percentage of students classified as SPED perform better on the NJ HSPA LAL than schools with a higher percentage.

SES is a significant predictor in the model (β=-.085; t=-2.817; p=.005), contributing 0.7% ($-.085^2$) to 2.4% ($-.154^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Mobility was added to the model, the contribution of SES as a predictor variable increased slightly. Schools in regions of higher socioeconomic status perform better on the NJ HSPA LAL than schools in regions of lower socioeconomic status.

School Size is a significant predictor in the model (β=.081; t=2.784; p=.006), contributing 0.7% ($.081^2$) to 2.3% ($.152^2$) of the variance in NJ HSPA LAL, as indicated by the standardized beta and partial correlation values, respectively. The contribution of LEP as a predictor variable decreased when Faculty Mobility was added to the model. Larger schools have better HSPA LAL performance than smaller schools.

An examination of the standardized beta coefficients indicates that Faculty Mobility is not significant in the model (β=-.054; t=-1.879; p< .061). The relationship, although not significant, implies that schools with a lower percentage of Faculty Mobility perform better on the NJ HSPA LAL than schools with a higher percentage of faculty mobility.

Model 4: Research Question 4. Math

The forth model hierarchical regression analysis performed accounts for all significant variables used in the study that predicted Math performance in order to partition out the specific “block” influence of staff, school, and student mutable variables. They were Student Attendance, Student Mobility, SPED, LEP, School Size, SES, Faculty Mobility, MA+. The purpose of the hierarchy was to determine the amount of change between models and their contribution to HSPA Math performance. It sought to answer the following research question: When controlling for all staff, student and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA LAL student performance?

Following is the hierarchical regression analysis for the fourth model regression with Math performance as the outcome variable.

Table 30

Model Summary of Hierarchical Analysis on HSPA Math performance

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.801[a]	.642	.640	12.5526	.642	298.719	2	333	.000
2	.847[b]	.718	.712	11.2175	.076	21.995	4	329	.000
3	.854[c]	.729	.723	11.0194	.012	6.968	2	327	.001

Table 31

ANOVA for Hierarchical Analysis on HSPA Math performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94137.196	2	47068.598	298.719	.000[a]
	Residual	52470.183	333	157.568		
	Total	146607.380	335			

2	Regression	105208.213	6	17534.702	139.349	.000[b]
	Residual	41399.167	329	125.833		
	Total	146607.380	335			
3	Regression	106900.503	8	13362.563	110.045	.000[c]
	Residual	39706.877	327	121.428		
	Total	146607.380	335			

The ANOVA reported in Table 31 shows the models were statistically significant. Of the three models, the R^2 change in Model 3 explains the greatest proportion of variance in HSPA Math performance.

An examination of the Model Summary (Table 30) reveals that Model 1 explains 64% of the variance in HSPA Math performance when Student Mobility and Student Attendance are included in the model. These student mutable variables were found to be statistically significant (F change = 298.719; df = 2, 333; $p \leq .000$).

Model 2 explains 71.2% of the variance in HSPA Math performance when LEP, SPED, SES, School Size, Student Mobility, and Student Attendance are all included in the model. The R^2 change indicates that 6.7% of the variance changed when School Variables were included. School variables are statistically significant predictors for HSPA Math performance (F change = 21.995; df = 4, 329; $p \leq .000$).

Model 3 explains 72.3% of the variance in HSPA Math performance when Student and School Variables, Faculty Mobility, and MA+ are added to the model. The R^2 change indicates that 1.3% of the change in variance was due to the inclusion of Faculty Mobility and MA+. These Faculty Variables are statistically significant predictors for HSPA Math performance (F change = 6.968; df = 2, 327; $p < .001$).

In examining all three models for multicollinearity issues (See Table 32), none were to be found. All VIFs were within normal parameters (< 2) and tolerances for all three models met the required threshold of > 1 – R^2 (Model 1 = .360; Model 2 = .288; Model 3 = .277).

Of the three models, the R^2 change in Model 3 explains the greatest proportion of variance in HSPA Math performance. However, only 1.1% of the variance changed when Faculty Mobility and MA+ were added to the model. Consequently, even though Model 2 revealed the greatest proportion of variance in HSPA Math performance, Model 3 was the strongest predictive model overall.

Table 32

Coefficients[a] table for All Significant Variables on HSPA Math performance

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-238.932	18.752		-12.742	.000					
	Student Attendance	3.413	.197	.610	17.283	.000	.736	.688	.567	.864	1.158
	Student Mobility	-.917	.095	-.342	-9.683	.000	-.567	-.469	-.317	.864	1.158
2	(Constant)	-209.355	17.576		-11.911	.000					
	Student Attendance	3.098	.182	.553	17.002	.000	.736	.684	.498	.810	1.234
	Student Mobility	-.730	.088	-.272	-8.264	.000	-.567	-.415	-.242	.793	1.261
	SPED	-.271	.051	-.160	-5.357	.000	-.304	-.283	-.157	.957	1.045
	LEP	-.345	.082	-.129	-4.195	.000	-.346	-.225	-.123	.904	1.106
	School Size	.004	.001	.123	4.096	.000	.178	.220	.120	.950	1.053
	SES	-.039	.011	-.111	-3.523	.000	-.369	-.191	-.103	.862	1.160
3	(Constant)	-199.896	17.488		-11.431	.000					
	Student Attendance	2.938	.184	.525	15.954	.000	.736	.662	.459	.765	1.306
	Student Mobility	-.691	.088	-.257	-7.894	.000	-.567	-.400	-.227	.778	1.285
	SPED	-.288	.050	-.170	-5.746	.000	-.304	-.303	-.165	.944	1.059
	LEP	-.335	.082	-.125	-4.102	.000	-.346	-.221	-.118	.886	1.128
	School Size	.004	.001	.116	3.900	.000	.178	.211	.112	.941	1.063
	SES	-.036	.011	-.101	-3.229	.001	-.369	-.176	-.093	.853	1.173
	MA+	.133	.043	.095	3.101	.002	.330	.169	.089	.880	1.136
	Faculty Mobility	-.267	.112	-.071	-2.398	.017	-.180	-.131	-.069	.934	1.070

a. Dependent Variable: TotalMathP

An examination of the standardized beta coefficients in Table 32 indicates that all variables in the model are significant predictors of HSPA Math performance, including Faculty Mobility, which was not found to be a significant predictor in the HSPA LAL models. The significant predictors explaining the greatest proportion of variance in student performance in HSPA Math are Student Attendance, Student Mobility, SPED, LEP, School Size, SES, MA+, and Faculty Mobility.

In Model 1, Student Attendance was found to be most predictive of performance on NJ HSPA Math scores in the model (β=.610; t=17.283; p$\leq$ .001). It contributed 37% ($.610^2$) to 47% ($.688^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools populated with students who regularly attend school perform better on the NJ HSPA Math than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.342; t=-9.683; p$\leq$ .001), contributing 12% ($-.342^2$) to 22% ($-.469^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of Student Mobility perform better on the NJ HSPA Math than schools with a higher percentage of Student Mobility.

In Model 2, Student Attendance was found to be most predictive of performance on NJ HSPA Math scores in the model (β=.553; t=17.002; p$\leq$ .001) though its contribution weakened by 4% when School Variables were added. Student Attendance contributed 31% ($.553^2$) to 47% ($.684^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools populated with students who regularly attend school perform better on the NJ HSPA Math than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.272; t=-8.264; p≤ .001), contributing 7.4% ($-.272^2$) to 17% (-.415) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. The contribution of Student Mobility as a predictor variable decreased when School Variables were added to the model, Schools with a lower percentage of student mobility perform better on the NJ HSPA Math than schools with a higher percentage of student mobility.

SPED is a significant predictor (β=-.160; t=-5.357; p≤ .001) in the model contributing 2.6% ($-.160^2$) to 8.0% ($-.283^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as SPED perform better on the NJ HSPA Math than schools with a higher percentage.

LEP is a significant predictor in the model (β=-.129; t=-4.195; p≤ .001), contributing 1.7% ($-.129^2$) to 5.1% ($-.225^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools with a lower percentage of students classified as LEP perform better on the NJ HSPA Math than schools with a higher percentage.

School Size is a significant predictor in the model (β=.123; t=4.096; p≤ .001), contributing 1.5% ($.123^2$) to 4.8% ($.220^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Smaller schools have better HSPA Math performance than smaller schools.

SES is a significant predictor in the model (β=-.111; t=-3.523; p≤ .001), contributing 1.2% ($-.111^2$) to 3.7% ($-.191^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools in regions of higher socioeconomic status perform better on the NJ HSPA Math than schools in regions of lower socioeconomic status.

In Model 3, Student Attendance was found to be most predictive of performance on NJ HSPA Math scores in the model (β=.525; t=15.954; p≤ .001). Student Attendance contributed 28% ($.525^2$) to 44% ($.662^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Variables were added to the model, the contribution of Student Attendance as a predictor variable decreased. Schools populated with students who regularly attend school perform better on the NJ HSPA Math than schools whose students do not attend regularly.

Student Mobility is a significant predictor in the model (β=-.257; t=-7.894; p≤ .001), contributing 6.6% ($-.257^2$) to 16% (-.400) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. When faculty variables were added to the model, the contribution of Student Mobility as a predictor variable decreased slightly. Schools with a lower percentage of student mobility perform better on the NJ HSPA Math than schools with a higher percentage of student mobility.

SPED is a significant predictor (β=-.170; t=-5.746; p≤ .001) in the model contributing 2.9% ($-.170^2$) to 9.2% ($-.303^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Variables were added to the model, the contribution of SPED as a predictor variable increased. Schools with a lower percentage of students classified as SPED perform better on the NJ HSPA Math than schools with a higher percentage.

LEP is a significant predictor in the model (β=-.125; t=-4.102; p≤ .001), contributing 1.6% ($-.125^2$) to 4.9% ($-.221^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Variables were added to the model, the contribution of LEP as a predictor variable decreased slightly. Schools with a lower percentage of students classified as LEP perform better on the NJ HSPA Math than schools with a higher percentage.

School Size is a significant predictor in the model (β=.116; t=3.900; p$\leq$ .001), contributing 1.4% ($.116^2$) to 4.5% ($.211^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. The contribution of LEP as a predictor variable decreased slightly when Faculty Variables were added to the model. Larger schools have better HSPA Math performance than smaller schools.

SES is a significant predictor in the model (β=-.101; t=-3.229; p= .001), contributing 1.0% ($-.101^2$) to 3.1% ($-.176^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. When Faculty Variables were added to the model, the contribution of SES as a predictor variable decreased slightly. Schools in regions of higher socioeconomic status perform better on the NJ HSPA Math than schools in regions of lower socioeconomic status.

MA+ is a significant predictor in the model (β=.095; t=3.101; p=.002), contributing .9% ($.095^2$) to 2.9% ($.169^2$) of the variance in NJ HSPA Math, as indicated by the standardized beta and partial correlation values, respectively. Schools with a higher percentage of teachers with a master's degree or higher perform better on the NJ HSPA Math than schools with a lower percentage of teachers with a master's degree or higher.

Different from Model 3, Faculty Mobility is a significant predictor in this model (β=-.071; t=-2.398; p=.017), contributing 0.5% ($-.071^2$) to 1.7% ($-.131^2$), as indicated by the standardized beta and partial correlation values, respectively. Schools with less faculty mobility perform better on HSPA Math than schools whose faculty is mobile. Faculty Mobility was a highly significant predictor of HSPA Math performance, as seen, but bore no significance on HSPA LAL performance. This finding raises questions about faculty influence that will be addressed in Chapter V.

Conclusions

An analysis of the correlation coefficients showed none of the variables in the study revealed a strong, significant correlation to HSPA LAL or Math performance. Student Attendance is a moderately strong and significant correlate of LAL performance and of Math performance. Faculty Mobility, the variable in question, was the weakest, significant correlate of HSPA LAL performance. Also, it was reported as a weak, but significant, correlate of HSPA Math performance.

When all variables were run in a simultaneous regression model--SES, LEP, SPED, School Size, Faculty Mobility, Faculty Attendance, HQ, MA+, Student Attendance, and Student Mobility--they proved to account for 73.9% of the variance in HSPA LAL performance (See Table 33). Of these, Student Attendance was the strongest predictor of performance. Faculty Mobility and MA+ were not significant (See Table 33). The high VIFs of Faculty Attendance and HQ inspired Model 1A, assuming that a suppression of variables existed in the previous model. That model accounted for 73.3% of the variance in LAL performance (See Table 33). Student Attendance still reigned as the strongest predictor of performance. Faculty Attendance was insignificant in this model. Neither Faculty Mobility nor MA+ was significant (See Table 33).

Regarding Math performance, all variables accounted for 73.3% of the variance in performance (See Table 33). Student Attendance was the strongest predictor of performance.

All variables, including Faculty Mobility and MA+, were significant factors in this model (See Table 33). The high VIFs of Faculty Attendance and HQ inspired Model 1B, assuming that a suppression of variables existed in the previous model. That model accounted for 72.8% of the variance in Math performance (See Table 33). Student Attendance still reigned as the strongest predictor of performance. Faculty Attendance was not significant in this model (See Table 33).

The third Model Hierarchical Multiple Regression analysis performed accounts for all significant variables used in the study that predicted LAL performance. They were School Size, SES, LEP, SPED, Student Attendance, Student Mobility, and Faculty Mobility. All three models were statistically significant (See Table 33). Of the three models, the R^2 change in Model 3 explains the greatest proportion of variance in HSPA LAL performance (See Table 33). However, only .3% of the variance changed when Faculty Mobility was added to the model. Though the model was significant, the change was not (Sig F Change = .061).

The fourth Model Hierarchical Regression analysis performed accounts for all significant variables used in the study that predicted Math performance. They were Student Mobility, Student Attendance, School Size, SPED, LEP, SES, Faculty Mobility, and MA+. Model 3 explains the greatest proportion of variance in HSPA Math performance (See Table 33). The R^2 change indicates that 1.3% of the change in variance was due to the inclusion of Faculty Mobility and MA+. The Faculty Variables are statistically significant predictors for HSPA Math performance.

Table 33

Summary of Variances

MODEL	1	1A	2	2A	3 (Model 3)	4 (Model 3)
SUBJECT	LAL	LAL	MATH	MATH	LAL	MATH
VARIABLES	Student Attendance Student Mobility SPED LEP School Size MA+ SES HQ Faculty Attendance Faculty Mobility	Student Attendance Student Mobility SPED LEP School Size MA+ SES Faculty Attendance Faculty Mobility	Student Attendance Student Mobility SPED LEP School Size MA+ SES HQ Faculty Attendance Faculty Mobility	Student Attendance Student Mobility SPED LEP School Size MA+ SES Faculty Attendance Faculty Mobility	School Size SES LEP SPED Student Attendance Student Mobility Faculty Mobility	Student Mobility Student Attendance School Size SPED LEP SES Faculty Mobility MA+
VARIANCE (%)	73.9	73.3	73.3	72.8	73.4	72.3
SIGNIFICANT VARIABLES (in order of significance)	Student Attendance Student Mobility SPED LEP HQ SES School Size Faculty Attendance	Student Attendance Student Mobility SPED LEP SES School Size	Student Attendance Student Mobility SPED LEP School Size MA+ SES HQ Faculty Attendance Faculty Mobility	Student Attendance Student Mobility SPED LEP School Size SES MA+ Faculty Mobility	Student Attendance Student Mobility SPED LEP SES School Size	Student Attendance Student Mobility School Size LEP SPED SES MA+ Faculty Mobility
NOT SIGNIFICANT VARIABLES	Faculty Mobility MA+	Faculty Attendance Faculty Mobility MA+		Faculty Attendance	Faculty Mobility	

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to illuminate factors on the NJ School Report Card that influence NJ HSPA performance, specifically faculty mobility. The strength and direction of the relationships between variables and achievement were explored. By focusing on multiple school, staff, and student variables that significantly influence student achievement, the researcher aimed to produce research-based evidence to assist all stakeholders in public education regarding the reform initiatives addressed herein. This study was guided by the following overarching research question: How much variance, if any, does faculty mobility contribute to the aggregate student performance of New Jersey high schools, with a District Factor Group classification of A through J, on HSPA Mathematics and Language Arts?

Research Questions and Hypotheses

Research Question 1

How much variance in HSPA LAL student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?

The null hypothesis stated that there is no significant level of variability in HSPA Language Arts performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables. The null hypothesis is retained.

Model 1 included 10 of 42 variables on the NJ Report Card and accounted for nearly 74% of the variability in HSPA LAL school performance. The ten variables utilized in Model 1 were (1) School Size, (2) SES, (3) LEP, (4) SPED, (5), Student Attendance, (6) Student Mobility, (7) Faculty Attendance, (8) HQ, (9) Faculty Mobility, and (10) MA+. All variables were significant except Faculty Mobility and MA+. Student Attendance was the best predictor of HSPA LAL performance in the model. The high VIFs of Faculty Attendance and HQ inspired Model 1A, assuming that a suppression of variables existed in the previous model. It accounted for 73.3% of the variance in school performance on the HSPA LAL section. Student Attendance was the best predictor of HSPA LAL performance in the model. Faculty Attendance was not significant in Model 1A. Additionally, Faculty Mobility and MA+ were not significant predictors in the model. Consequently, the null hypothesis is retained.

Research Question 2

How much variance in HSPA Math student performance can be attributed to student, school, and staff mutable variables, specifically faculty mobility, as defined and reported on the NJ Report Card?

The null hypothesis states there is no significant level of variability in HSPA Language Arts Performance that can be attributed to faculty mobility when controlling for student, staff, and school demographic variables. The null hypothesis is rejected.

Model 2 included 10 of 42 variables on the NJ Report Card and accounted for 73.3% of the variability in HSPA Math school performance. The ten variables utilized in Model 2 were (1) School Size, (2) SES, (3) LEP, (4) SPED, (5) Student Attendance, (6) Student Mobility, (7) Faculty Attendance, (8) HQ, (9) Faculty Mobility, and (10) MA+. All variables were significant, including Faculty Mobility, which contributed .4-1.6% of the variance. Student Attendance was the best predictor of HSPA Math performance in the model. The high VIFs of Faculty Attendance and HQ inspired Model 2A, assuming that a suppression of variables existed in the previous model. It accounted for 72.8% of the variance in school performance on the HSPA Math section. Student Attendance was the best predictor of HSPA Math performance in the model. Faculty Attendance was not significant in Model 2A. Faculty Mobility remained significant contributing .52-1.8% of the variance. The null hypothesis is rejected.

Research Question 3

When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA LAL student performance?

The Model 3 analyses determined that it was possible to identify a regression model that accounts for the greatest proportion of explained variance in HSPA LAL school performance through hierarchical multiple regression analyses. Model 3 included 7 of the 10 variables used in the study and accounted for 73.4% of the variability in HSPA LAL school performance. The variables used in Model 3 were (1) Student Attendance, (2) Student Mobility, (3) SPED, (4) LEP, (5) SES, (6) School Size, and (7) Faculty Mobility. The R^2 change indicates that .3% of the change in variance was due to the inclusion of Faculty Mobility. Student Attendance was the best predictor of HSPA LAL performance in the model. Faculty Mobility was not a significant contributor to the model.

Research Question 4

When controlling for all staff, student, and school mutable variables, which model best accounts for the greatest proportion of explained variance in HSPA Math student performance?

The Model 4 analyses determined it was possible to identify a regression model that accounts for the greatest proportion of explained variance in HSPA Math school performance through hierarchical multiple regression analyses. Model 4 included 8 of the 10 variables used in the study and accounted for 72.3% of the variability in HSPA LAL school performance. The variables used in Model 3 were (1) Student Attendance, (2) Student Mobility, (3) SPED, (4) LEP, (5) SES, (6) School Size, (7) MA+, and (8) Faculty Mobility. The R^2 change indicates that 1.3% of the change in variance was due to the inclusion of Faculty Mobility and MA+. Student Attendance was the best predictor of HSPA LAL performance in the model. Faculty Mobility was significant contributing .50-1.7% of the variance, as indicated by the standardized beta and partial correlation values.

Review of Findings and Interpretations

Findings of this study indicate that Faculty Mobility is a significant predictor of HSPA Math performance, but is not a significant predictor of HSPA LAL performance (See Table 34). In both Math models (2A and 4), Faculty Mobility was the weakest predictor of performance, as compared to the other variables in the model, contributing to .52-1.8% of the variance in Model 2A and .50-1.7% of the variance in Model 4 (See Table 34). Table 34 shows the significance of faculty mobility on HSPA performance and its contribution to the variance. Models 1 and 2 were excluded from the Table because collinearity was found in the results. Consequently, the models were replaced by Model 1A and Model 2A.

Table 34

Summary of the Influence of Faculty Mobility per Model

Research Question	**1**	**2**	**3**	**4**
Subject	**LAL**	**MATH**	**LAL**	**MATH**
Model	**1A**	**2A**	**3**	**4**
Variables	Student Attendance Student Mobility SPED LEP School Size MA+	Student Attendance Student Mobility SPED LEP School Size MA+	School Size SES LEP SPED Student Attendance Student Mobility	Student Mobility Student Attendance School Size SPED LEP SES

	SES Faculty Attendance Faculty Mobility	SES Faculty Attendance Faculty Mobility	Faculty Mobility	Faculty Mobility MA+
Significance of Faculty Mobility	.072	.016	.061	.017
Contribution of Faculty Mobility on Variance (%)	.28-1.0	.52-1.8	.29-1.1	.50-1.7

Implications of the Research

The creation of the extant research on the Language Arts section of the HSPA provides educators and researchers with a new tool for critically analyzing a school's performance on the HSPA. The same holds true for the models pertaining to the Mathematics section of the HSPA. Every school has a responsibility to ensure that it reaches a minimum level of educational competency in these two areas of curriculum. Nevertheless, it is wise to acknowledge that judging every school using identical criteria gives an advantage to schools with lower percentages of minority students, less diversity, and greater socioeconomic status. Such schools are far more likely to make AYP. Schools need additional tools to evaluate student performance on the HSPA that recognize the uneven playing field that schools face. This study is one avenue that seeks to evaluate the performance of schools on the HSPA while controlling for other factors. In both Language Arts and Mathematics, Student Attendance, Student Mobility, SPED, LEP, SES, and School Size were significant predictors of school HSPA performance.

Student Attendance

The results from this study are consistent with a study conducted by the Public Policy Institute of California (2003). They concluded that the “number of days a student was absent was a strong, negative predictor of each student's gain in achievement in math and reading" (p. 12). Roby (2003) used the Ohio Proficiency Test to study the correlation between student attendance and student achievement. The correlation was moderate to strong, with the most significant relationship occurring at the ninth grade level, when comparing attendance and achievement rates.

Results from this study show Student Attendance as the strongest predictor of HSPA LAL and Math performance in every model. Regarding HSPA LAL performance, Student Attendance accounts for the following:

35-52% of the variance in Model 1

35-51% of the variance in Model 1A

35-52% of the variance in Model 3

Regarding HSPA Math performance, Student Attendance accounts for the following:

28-45% of the variance in Model 2

28-44% of the variance in Model 2A

28-44% of the variance in Model 4 (See Table 35).

Student Attendance has greater influence on LAL than on Math performance. This result refutes Jones' (2008) study, which concluded that student attendance rate was not a significant predictor of NJ ASK 5 LAL scores. Similarly, results of the current study refute Clement's (2006) examination of the influence of student absenteeism on the Florida Comprehensive Assessment Tests (FCAT) from 1998-99 through 2003-2004. No important relationship between excused absences and performance on the FCAT was detected.

Today, researchers postulate that the positive influence of school attendance on academic achievement may be stronger than historically thought (Johnston, 2000, Lamdin, 1996). A report from the United States Department of Education (1992) revealed that attendance rates among at-risk students was 80% compared to non-at-risk students, whose average attendance was 92%. According to the National Assessment of Educational Progress (NAEP) analysis reported by Sparks (2012), missing even a few days of school makes a difference in whether eighth graders perform optimally. Fifty-six percent of eighth graders who performed at the advanced level in NAEP reading in 2011 had perfect attendance in the month before the test. Such a finding raises question about whether high-performing students are more likely to attend school regularly. Also, the finding raises question about the teaching. Are teachers “teaching-to-the-test” one month prior to the test rather than shaping classes as ongoing preparation for the high-stakes tests? From 1996 to 2000, 18% of eighth-grade students moved from having less than four hours of mathematics instruction each week to four or more hours a week (Sparks, 2012). From 2005 to 2011, another 6% of students started receiving five or more hours of math each week (Sparks, 2012). In addition to instructional time, the analysis found that teachers are assigning more work outside of class to bolster students’ skills (Sparks, 2012). From 1996 to 2011, the percentage of eighth graders assigned an hour or more of math homework each night rose more than fourfold, from 4% to 17% (Sparks, 2012). Increasing student exposure to math is an effort made by schools and districts to enhance students’ achievement in math. However, such efforts make “time on task” the problem to solve rather than unraveling the problem of erratic student attendance.

School administrators face multiple implications for student absenteeism. Over time, chronically absent students tend to increase the pattern of absenteeism throughout their academic career and are more likely to drop out of high school (Ensminger & Slusarcick, 1992). “Students who are absent from school receive fewer hours of instruction; they are often more likely to become long-term unemployed, homeless, caught in the poverty trap, dependent on welfare, and involved in the justice system" (House of Representatives, 1996, p. 3). Just as administrators must be aware of the motivations for faculty mobility in order to limit it, administrators must realize the early indicators of poor student attendance in order to limit it. Roderick (1993) found a significant drop in attendance, 10 or more days absent, during the middle school years. According to data from Wehlage and Rutter (1986), socioeconomic status, low grades combined with discipline issues, and low expectations were the most common reasons for student truancy and dropping out of school. According to Schagen, Benton, and Rutt (2004), contextual variables such as, school size and location, have a major influence on the extent of absence within schools. The U.S. Department of Justice Office of Juvenile Justice and Delinquency Prevention reports that the correlates of excessive absenteeism or truancy fall into four broad categories (2001):

1. Family factors: These include lack of guidance or parental supervision, domestic violence, poverty, drug or alcohol abuse in the home, lack of awareness of attendance laws, and differing attitudes toward education.
2. School factors: These include school climate issues such as school size, attitudes of teachers, other students, administrators, and inflexibility in meeting the diverse cultural and learning styles of the students. Schools often have inconsistent procedures in place for dealing with chronic absenteeism and may not have meaningful consequences available for truant youth.
3. Economic influences: These include employed students, single-parent homes, high mobility rates, parents who hold multiple jobs, and a lack of affordable transportation and childcare.

4. Student variables: These include drug and alcohol abuse, lack of understanding of attendance laws, lack of social competence, mental health difficulties, and poor physical health.

Though some factors, including family and economic factors, are beyond the control of a school, schools are capable of addressing other contributors of student truancy listed prior. Administrators may consider the following:

1. Enhancing the school climate: Reduce school or class size, cultivate a positive attitude among staff, provide flexibility for the various learning styles of students, and create meaningful and consistent consequences for truant youth, such as in-school suspension or service days.
2. Providing support for truant students: Inform students of the attendance laws, implement workshops aimed toward building social competence, and supply professional mental and physical health resources.

Student Mobility

The results from this study are consistent with research conducted by Gariss-Hardy & Vrooman **(**2004) who reported a relationship between student mobility and academic achievement. They found that highly mobile students tend to perform at a level below that of their stable counterparts. Such findings were similar to those found by Xu et al. (2009) and Kerbow et al. (2003).

Results from the current study show Student Mobility as a reliable predictor of HSPA LAL and Math performance in every model. Regarding HSPA LAL performance, Student Mobility accounts for the following:

6.2-16% of the variance in Model 1

5.8-16% of the variance in Model 1A

6.3-16% of the variance in Model 3

Regarding HSPA Math performance, Student Mobility accounts for the following:

6.4-16% of the variance in Model 2

6.6-16% of the variance in Model 2A

6.6-16% of the variance in Model 4 (See Table 35).

Student Mobility has a slightly greater influence on Math than on LAL performance. This finding is consistent with data derived from Xu, Hannaway, and D'Souza (2009) between the years 1997 and 2005. Researchers found that minority and disadvantaged students had the highest mobility rates. Mobility presented a negative influence on math achievement. The same study found insignificant gains for reading scores, postulating that math is a more "school dependent" subject (Xu, Hannaway, & D'Souza, 2009).

SPED

The results from this study are consistent with research conducted by Jones (2008). Jones analyzed the percentage of Students with Disabilities who took and passed the HSPA in a New Jersey school. Almost 75% of the variability in the passing rate of the Language Arts section of the HSPA can be explained by the four variables identified.

Results from the current study show SPED as a reliable predictor of HSPA LAL and Math performance in every model. Regarding HSPA LAL performance, SPED accounts for the following:

3.8-12% of the variance in Model 1

2.6-12% of the variance in Model 1A

3.7-12% of the variance in Model 3

Regarding HSPA Math performance, SPED accounts for the following:

3.0-9.7% of the variance in Model 2

2.9-9.1% of the variance in Model 2A

2.9-9.2% of the variance in Model 4 (See Table 35).

SPED has a greater influence on LAL than on Math performance. According to Wehmeyer and Schwartz (2001), special education males outnumber females in a ratio of 2:1. Kleinfeld (1998) explains that females typically surpass males in writing ability, reading achievement, and certain other verbal skills on standardized achievement tests. With twice as many SPED males than females testing in LAL, it is sensible that SPED would stand as a reliable predictor of achievement.

LEP

The results from this study are consistent with results of statewide assessments across the country. The percentage of LEP students who achieve Proficiency (as defined by each state) is 20–30 percentage points lower than the percentage of non-LEP Proficient students (Abedi & Dietel, 2004).

Results from this study show LEP as a reliable predictor of HSPA LAL and Math performance in every model. Regarding HSPA LAL performance, LEP accounts for the following:

1.2-4.0% of the variance in Model 1

1.2-4.0% of the variance in Model 1A

1.3-4.2% of the variance in Model 3

Regarding HSPA Math performance, LEP accounts for the following:

1.5-4.8% of the variance in Model 2

1.5-4.8% of the variance in Model 2A

1.6-4.9% of the variance in Model 4 (See Table 35).

LEP has a slightly greater influence on Math than on LAL performance. This result is surprising, as it would be expected for Limited English Proficiency to be a strong predictor of Language Arts performance.

SES

The results from this study are consistent with Goldhaber (2002), Chow (2007, and Tienken (2012), who reported that variance in student achievement was directly associated with SES.

Results from this study show SES as a reliable predictor of HSPA LAL and Math performance in every model.

Regarding HSPA LAL performance, SES accounts for the following:

.70-2.4% of the variance in Model 1

.87-2.5% of the variance in Model 1A

.7-2.4% of the variance in Model 3

Regarding HSPA Math performance, SES accounts for the following:

1.0-3.0% of the variance in Model 2

1.0-3.1% of the variance in Model 2A

1.0-3.1% of the variance in Model 4 (See Table 35).

SES has a greater influence on Math than on LAL performance. Xu, Hannaway, and D'Souza (2009) posited a connection between SES and Student Mobility. Minority and disadvantaged students had the highest mobility rates, and mobility presented a negative influence on math achievement. One can deduce, therefore, that SES largely influences math achievement. According to Tienken (2012), no state reports a group of economically disadvantaged students ever scoring higher than its middle class and wealthy counterparts, on any state test at any grade level. The achievement differences, based on results from state-mandated high school tests of language arts and mathematics, between economically disadvantaged and middle class and wealthy students ranged from 12 to 36 percentile points (Tienken, 2012). The influence of poverty on student learning appears to have the greatest influence on students at the highest and lowest achievement levels, especially during the summer months, says Tienken, reporting Borman and Dowling's research (2006). The "summer slide" (Borman & Dowling, 2006), or the loss of skill(s) over the summer months created by absence from school, has a compounding effect on the achievement gap.

School Size

The results from this study are consistent with Beavers' (1981) study that showed increased school size having a negative effect on achievement regardless of social class. The negative effects were most pronounced for middle and upper class students. Results of Tramaglini's study (2010), however, found no relationship between high school enrollment size and student achievement on the HSPA in Mathematics and Language Arts Literacy among affluent students. Tramaglini found that between 37.8% and 48.1% of the time, student achievement in high SES schools was determined by something other than school size. Conversely, between only 0.9% and 4.5% of the time, student achievement in low SES schools was determined by something other than school size. Results from this study show School Size as a reliable predictor of HSPA LAL and Math performance in every model.

Regarding HSPA LAL performance, School Size accounts for the following:

.60-2.3% of the variance in Model 1

.7-2.3% of the variance in Model 1A

.7-2.3% of the variance in Model 3

Regarding HSPA Math performance, School Size accounts for the following:

1.3-4.4% of the variance in Model 2

1.3-4.5% of the variance in Model 2A

1.4-4.5% of the variance in Model 4 (See Table 35).

School Size has a greater influence on Math than on LAL performance. These results were predicted since large school size is linked to city schools normally populated with lower SES students. As seen, SES is a determinant of math performance. Therefore, School Size would be a predictor of Math performance.

Faculty Mobility

Results from the current study show Faculty Mobility as a reliable but weak predictor of HSPA Math performance, but not LAL performance. Results are consistent with The New York City Board of Education's (1992) quantitative look at teacher mobility, investigating correlation to student performance on the state's Regents Testing. It was determined that teacher mobility was weak but significantly related to student outcomes in math. Results from this study also mirror Marrone-Gemellaro's (2012) research on the influence of NJ School Report Card variables on NJ ASK 5 Scores. She found faculty mobility to have a weak, but significant, influence on NJ ASK 5 math scores, but not on LAL scores. Regarding HSPA Math performance, Faculty Mobility accounts for the following:

1.1-1.9% of the variance in Model 2

.5-1.8% of the variance in Model 2A

.5-1.7% of the variance in Model 4 (See Table 35).

Table 35

Summary of Significant Variables' Contribution to HSPA LAL and Mathematics per Model (%)

	LANGUAGE ARTS				MATHEMATICS		
Model	**1**	**1A**	**3**		**2**	**2A**	**4**
Student Attendance	35-52	35-51	35-52		28-45	28-44	28-44
Student Mobility	6.2-16	5.8-16	6.3-16		6.4-16	6.6-16	6.6-16
SPED	3.8-12	2.6-12	3.7-12		3.0-9.7	2.9-9.1	2.9-9.2
LEP	1.2-4.0	1.2-4.0	1.3-4.2		1.5-4.8	1.5-4.8	1.6-4.9
SES	.70-2.4	.87-2.5	.7-2.4		1.0-3.0	1.0-3.1	1.0-3.1
School Size	.60-2.3	.7-2.3	.7-2.3		1.3-4.4	1.3-4.5	1.4-4.5
Faculty Mobility	.23-.85	.28-1.0	.29-1.1		1.1-1.9	.5-1.8	.5-1.7

The result is a curious and dichotomous finding. Faculty mobility having no influence on student LAL performance even though faculty mobility in LAL is greater may be attributed to school being a literacy-based environment. To some extent, students may constantly be developing LAL skills as all teachers in a school teach Language Arts Literacy. Math, on the other hand, can be considered a very discrete subject. It stands alone and, consequently, the skills that need to be attained are very specific. Students are not likely to get the skills from somewhere else. The following list explores other possible explanations for the dichotomous finding between math and language arts achievement.

1. Math teachers may have higher rates of mobility than teachers of other subjects.

   It was always thought that math teachers largely surpassed other subject teachers in the area of turnover, but that is because the math and science teachers were normally grouped in the research (Blazer, 2006; Grissmer & Kirby, 1992; Henke, Zahn, & Carroll, 2001; Ingersoll, 2006; Murnane, Singer, Willett, Kemple, & Olsen, 1991; Rumberger, 1987; Weiss & Boyd, 1990). Differences in mobility rates between academic areas were attributed to the various fields of math (and science) offering more attractive earning opportunities outside of teaching, as compared to other subject areas (Blazer, 2006). Ingersoll and May (2012) report Teacher Follow-Up Survey data revealing that, from the late 1980s to 2005, annual rates of total turnover for public school mathematics teachers increased by 34%; but the data also showed that rates were not considerably different from other teachers, such as in English. The National Center for Educational Statistics (NCES) refutes this assumption. More LAL teachers were mobile in the 2008/09 school year than teachers of math (National Center for Educational Statistics, 2010). According to the 2008/2009 NCES Teacher Follow-Up Survey, 39,717 math teachers left the public school where they were working, while 76,144 English/Language Arts teachers left the public school in which they were working. This statistic translates to 14.4% of math teachers versus 18.2% of English/Language Arts teachers (NCES Teacher Follow-Up Survey, 2009).

   Math teachers do not experience higher rates of mobility than LAL teachers. Therefore, it cannot be assumed that math teachers' higher rates of mobility are a plausible explanation for faculty mobility's influence on math achievement.

2. Math HSPA may be more comprehensive than the LAL sections.

Other countries experiencing difficulties in students passing math exit exams question why systems (Departments of Education) create such arduous exams. One reason posited was pressure from universities, who claimed that undergraduates could not cope with their courses because of their poor mathematical knowledge and skills (Jha, 2012). Whether or not the math sections of HSPA are more intense than the LAL sections may be debatable. In 2009-10, before New Jersey adopted the Core Content Standards, the HSPA was based on the New Jersey Core Curriculum Content Standards. The Mathematics Section tested student knowledge of (1) Standard 4.1 Number and Numerical Operations, (2) Standard 4.2 Geometry and Measurement, (3) Standard 4.3 Patterns and Algebra, and (4) Standard 4.4 Data Analysis, Probability, Statistics, and Discrete Mathematics. Standard 4.5, Mathematical Processes, was not a part of the 2009-10 HSPA test. Within the four standards, students were tested on a cumulative 66 Cumulative Progress Indicators (CPIs) (NJDOE, 2006)--a daunting task indeed, pale in comparison to the Language Arts Literacy section.

New Jersey's Core Curriculum Content Standards identified five categories of Language Arts Literacy: (1) Reading, (2) Writing, (3) Speaking, (4) Listening, and (5) Viewing. Within the five standards, students were tested on a cumulative 132 Cumulative Progress Indicators (NJDOE, 2010), exactly twice as many CPIs as in the mathematics sections of the HSPA.

Therefore, the claim that math sections of the HSPA are more comprehensive than LAL sections is not a plausible explanation for faculty mobility's influence on math achievement.

The former two reasons/assumptions for faculty mobility having an influence on math achievement and not LAL achievement were shown to be inaccurate. The reasons were based on factors outside of pedagogy—the turnover and the test. Look now at the teaching, the pedagogy, to explain why faculty mobility is a significant predictor of HSPA Math achievement.

3. Math education requires a sequenced and scaffolded curriculum.

   Mathematics is a complex and compact symbol system, and unless meanings are attached to those symbols, mathematics becomes literally meaningless to children (National Council of Teachers of Mathematics, 1989). According to the Public Broadcasting System (PBS) (2002), students experience more difficulties learning math than other subjects, with the exception of some sciences that are highly dependent on math skills, for the following reasons:

   a. Computational weakness

      Some students, despite a good understanding of mathematical concepts, are inconsistent at computing. They make errors because they misread signs or carry numbers incorrectly. These students often struggle, especially in primary school, where basic computation and "right answers" are stressed.

   b. Difficulty transferring knowledge

      Some students have the inability to easily connect the abstract or conceptual aspects of math with reality. Holding and inspecting an equilateral triangle, for example, will be much more meaningful to a child than simply being told that the triangle is equilateral because it has three equal sides. And yet children with this problem find connections, such as these, painstaking at best.

c. Making connections

Some students have difficulty making meaningful connections within and across mathematical experiences. For instance, a student may not readily comprehend the relation between numbers and the quantities they represent. If this kind of connection is not made, math skills may not be anchored in any meaningful or relevant manner. This makes them harder to recall and apply in new situations.

d. Incomplete understanding of the language of math

For some students, a math disability is driven by problems with language. These children may also experience difficulty with reading, writing, and speaking. In math, however, their language problem is confounded by the inherently difficult terminology, some of which they hear nowhere outside of the math classroom. These students have difficulty understanding written or verbal directions or explanations and find word problems especially difficult to translate.

e. Difficulty comprehending the visual and spatial aspects and perceptual difficulties

A far less common problem, and probably the most severe, is the inability to effectively visualize math concepts. Students who have this problem may be unable to judge the relative size among three dissimilar objects. (WGBH Educational Foundation, 2002).

Therefore, math education requiring a sequenced and scaffolded curriculum is a plausible explanation for it being influenced by mobile faculty.

4. Math education requires highly qualified math teachers.

   Michel (2004) found that teacher certification was strongly associated with higher NJ ASK 4 scores. Research reported by the ASCD (2004) revealed that general education students having teachers with a major in mathematics or mathematics education, or teachers who are fully certified in mathematics, are more likely to have higher scores on the eighth grade NEAP mathematics test. When high-poverty students and students in low-ability classes were taught by teachers who were fully certified or had a mathematics or mathematics education major, their scores were also higher than those whose teachers lacked these characteristics (ASCD, 2004).

   Good teaching is required. Teachers new to the field or those who are under-qualified are unlikely to perform at the level needed for students to master math skills. An underqualified teacher cannot teach mathematics effectively. According to Chen & Weiland (2007), some effective teaching methodologies for mathematics include (1) incorporating children's prior knowledge, (2) using students' experiences and interests as reference points, (3) demonstrating and encouraging multiple forms of representation (symbols, pictures, objects), (4) encouraging students to represent their understanding of a mathematical concept in the manner that makes sense to them, (5) applying differentiated instruction, (6) practicing flexible grouping, and (7) connecting literature to understanding mathematical concepts. As mentioned, high-poverty students and students in low-ability classes are less likely to have teachers masterful in these practices (Haycock, 1998; Kane, Rockoff, & Staiger, 2006; Rivkin, Hanushek, and Kain, 2005; Rockoff, 2004).

> Therefore, math education requiring highly qualified math teachers is a plausible explanation for math scores being influenced by mobile faculty.

In sum, school and district administrators must exercise practices that recruit and retain highly-qualified math teachers able to implement a sequenced and scaffolded curriculum.

Recommendations for Policy and Practice

Since the early 1990s, the number of teachers leaving the profession has been greater than the teachers entering the profession (Sterling, 2004). This is an alarming trend, according to Sterling (2004), which affects all grade levels but is especially apparent in secondary schools. Ingersoll (2000) reports that mathematics (and science) teachers make up 11% of the total teaching force, with 22% in elementary or middle schools, 73% in secondary schools, and 5% in schools with grades K-12 (Sterling, 2004). Indeed, there is a shortage of teachers, but also the teaching of mathematics in the United States is falling short of the need to prepare future generations with analytic skills (National Commission on Mathematics and Science Teaching for the 21st century, 2000). Having highly qualified teachers for every class is especially problematic when the current mathematics teachers in the profession do not have mathematics backgrounds (Sterling, 2004).

The National Commission on Mathematics and Science Teaching for the 21st century (2000) reports approximately 25% of high school mathematics teachers lacking even a minor in their teaching field (Sterling, 2004). The incidence of mathematics teachers teaching without a concentration in mathematics or licensed teachers teaching out of their field is even more frequent in high poverty schools. Students that attend schools with a high minority population have a 50% chance of getting teachers in mathematics (and science) that do not hold both a license and a degree in the field they are teaching (National Commission on Mathematics and

Science Teaching for the 21st century, 2000). According to the Wenglinsky (2000) study reported by Sterling (2004), student achievement increased by 39% of a grade level in mathematics when their teachers had a major or minor in the subject they were teaching. Because of the shortage of mathematics teachers, licensed teachers in other subject areas are often asked to teach mathematics (Ingersoll, 2000). Twenty-seven percent of high school students taking mathematics classes are taught by teachers teaching out of their field (National Commission on Mathematics and Science Teaching for the 21st Century, 2000). These percentages are higher in high poverty schools. As the shortage of mathematics teachers increases, more schools are hiring under-qualified teachers (Ingersoll, 2000). Though these teachers usually have a bachelor's degree in mathematics, many of these teachers do not have any teaching experience or education coursework. Thus, these provisionally licensed mathematics teachers face the extra challenge of discovering how to teach on their own.

General reasons for high turnover in high poverty schools include family or personal reasons, retirement, job dissatisfaction, or pursuit of another job (Ingersoll, 2000). However, for mathematics (and science) teachers, the biggest reason for leaving is job dissatisfaction (Sterling, 2004). School-based job dissatisfactions include poor salary, poor administrative support, student discipline problems, lack of faculty influence, absence of teacher/classroom autonomy, feeble professional development opportunities, and the inadequacy of school resources (Ingersoll, 2012). Poor administrative support was at the top of the list among these and consistent with studies from Haberman & Richards' (1990), The Alliance for Excellent Education (2002), the United States Department of Education (2001), Ingersoll (2003), and Darling-Hammond (2003).

Following are suggestions for avoiding or mitigating the most commonly reported reason for faculty mobility–poor administrative support. The section represents a culmination of current research that will be outlined in the following manner:

- Recommendations for Recruitment

  (Dillon, 2009; Kuchar, 2008; Liu, 2004; McCarthy & Guiney, 2004; Sterling, 2004).
- Recommendations for Retention

  (Ascher, 1991; Corcoran, Walker, & White, 1988; Dillon, 2009; Sterling, 2004).
- Recommendations for Administrative Support

  (The Alliance for Excellent Education, 2002; Bass, 1997; Corcoran et al., 1988; Darling-Hammond, 2003; Drake & Burns, 2004; Gardner, 1983; Haberman & Richards, 1990; Henke, Chen, et al., 2000; Ingersoll & Kralik, 2004; Johnson et al., 2004; Leithwood, 1992; Lewis et al., 1999; Littky & Gabrielle, 2005; McTighe & Wiggins, 2004; Saphier, et al., 2008; Sullivan & Glanz, 2005; Tomlinson, 2001).

Recommendations for Recruitment

Research indicates that the hiring process affects a new teacher's likelihood of being satisfied with his or her position and remaining in teaching (Liu, 2004; McCarthy & Guiney, 2004; Wise, Darling-Hammond, & Berry, 1987). Specifically, when a hiring experience gives the candidate an accurate job preview—a rich and detailed picture of what the work and the workplace is like—he or she is in a better position to choose a workplace that matches his or her needs and be satisfied subsequently (Liu, 2004).

Recruiting new teachers is an ongoing problem that is being augmented by placing unqualified teachers in the classroom to discover how to teach on their own. These teachers are not remaining in the profession (Sterling, 2004). Recruitment committees should be considered, such as the following implemented by the Kern County School Districts in California (Kern County Initiative, 2002):

1. The Recruitment Committee will encourage all districts to utilize all available resources to ensure that teachers are being selected from a sufficient pool of fully-credentialed teachers.
2. A Hard-to-Staff Schools Committee will oversee the implementation of educational policies and strategies that will alleviate the misdistribution of fully credentialed teachers.

According to Kuchar (2008), various recruitment practices should be considered. Such plans involve (1) developing a coherent and symbolic action plan for teacher recruitment and (2) recruiting teachers using diversified outside-in and inside-out strategies. Administrators would employ inside-out strategies by enacting recruitment efforts at colleges and universities or participating in district and county job fairs. Outside-in recruitment would be executed when administrators survey candidates regarding impressionable assets of other districts or interview candidates and inquire about their needs.

Recommendations for Retention

Retaining good teachers is imperative for student learning and for the elimination of the teacher shortage problem (Sterling, 2004). The teacher retention problem is further exacerbated by a higher percentage of new teachers and under-prepared teachers hired in high poverty schools, a setting where many have little first-hand experience. This adds to the challenges of learning on the job. It takes new teachers three to seven years to hit their stride and become quality instructional leaders (Dillon, 2009). With one-third of all novice teachers leaving the profession in three years and more than 40% leaving within five, some students rarely get the benefit of having an experienced teacher (Dillon, 2009). Retaining teachers by upholding a mutually beneficial relationship between the school and its staff can increase the likelihood of its success. Ascher (1991) recommends some methods for a symbiotic relationship:

1. Providing guidance and information about teacher credentialing
2. Implementing a first-year mentoring program
3. Offering alternative teacher certification routes (such as TFA)
4. Supplying on-the-spot contracts
5. Reimbursing for relocation benefits and moving expenses
6. Providing tuition assistance for graduate work

Good working conditions, even more than students' socioeconomic status, are associated with better teacher attendance, more effort, higher morale, and a greater sense of efficacy in the classroom (Corcoran, Walker, & White, 1988). These conditions include (1) strong, supportive principal leadership; (2) high levels of staff collegiality; (3) high levels of teacher influence on school decisions; and (4) high levels of teacher control over curriculum and instruction (Ascher, 1991).

Recommendations for Administrative Support

Mobile faculty expressed dissatisfaction with administration as their primary reason for leaving their prospective school or the teaching profession (The Alliance for Excellent Education, 2004; Darling-Hammond, 2003; Haberman & Richards, 1990; Ingersoll, 2003; United States Department of Education, 2001). So what is effective administrative support? According to Sullivan and Glanz (2005), effective implementation of supervision and evaluation, instruction and curriculum, professional development, data analysis, and new teacher induction are likely to positively impact a teacher’s perceptions of administrative support and, therefore, increase the likelihood of teacher retention.

Supervision and evaluation.

Supervision as leadership (Sullivan & Glanz, 2005), or transformational leadership (Burns, 1978), is the prime method for emphasizing collaboration, which has been shown to be a need for staff. According to Leithwood (1992), transformational leaders involve staff in collaborative goal setting, reduce teacher isolation, use bureaucratic mechanisms to support cultural changes, share leadership with others by delegating power, and actively communicate the school's norms and beliefs. Leithwood (1992) finds that transformational leaders pursue three fundamental goals: (1) helping staff develop and maintain a collaborative, professional school culture, (2) fostering teacher development, and (3) helping teachers solve problems more effectively. Following are examples of what “supervision as leadership” (Sullivan & Glanz, 2005) and the “transformational leadership” (Burns, 1978) methods look like in a school setting:

1. Reflecting and clarifying with teachers by delivering continuous feedback
2. Utilizing quantitative and qualitative observation instruments—determined by the needs of the teacher—as well as instructional dialogue to encourage interpersonal/collegial relationships. “The supervisor is not and should not be the overseer or prescriber, but rather the guide, facilitator, or collaborator” (Sullivan & Glanz, 2005, p. 71).
3. When hiring new staff, expressing the desire for them to be actively involved in school decision-making. Hiring teachers with a commitment to collaboration.
4. Assisting in classrooms; encouraging teachers to visit one another's classes.

5. Involving the whole staff in deliberating on school goals, beliefs, and visions at the beginning of the year.
6. Using action research teams or school improvement teams as a way of sharing power. Give everyone responsibilities and involve staff in governance functions. For those not participating, ask them to be in charge of a committee.
7. Publicly recognizing the work of staff and students who have contributed to school improvement. Writing private notes to teachers expressing appreciation for special efforts.
8. Surveying the staff often about their wants and needs. Being receptive to teachers' attitudes and philosophies. Use active listening and show people you truly care about them.
9. Letting teachers experiment with new ideas. Share and discuss research with them. Propose questions for people to think about.
10. Using bureaucratic mechanisms to support teachers, such as finding money for a project or providing time for collaborative planning during the workday. Protect teachers from the problems of limited time, excessive paperwork, and demands from other agencies.

Bass (1997) explains four interrelated components that he views as essential for leaders to hone as they move followers into the transformational style.

1. Genuine trust. Genuine trust must be built between leaders and followers. Trust for both leader and follower is built on a solid moral and ethical foundation.
2. Inspirational motivation. The leader’s appeal to what is right and needs to be done provides the impetus for all to move forward.

3. Intellectual stimulation. Intellectual stimulation helps followers to question assumptions and to generate more creative solutions to problems.
4. Individual consideration. Individual consideration treats each follower as an individual and provides coaching, mentoring, and growth opportunities. This approach fulfills the individual's need for self-actualization, self-fulfillment, and self-worth.

Instruction and curriculum.

Curriculum and instruction must move away from the traditional philosophy that views students as blank slates and disregards the authentic nature of knowledge. Students must be viewed as active constructors of meaning who bring prior knowledge to the classroom. Because there are differences in students' cognitive, social, and emotional development, activities can differentiate and instruction can scaffold to meet the needs of all learners. Instruction that achieves these goals includes the following:

1. Authentic project- and problem-based activities that bring sense and meaning to concepts taught
2. Questions provoking thought, inquiry, and informed objection replacing non-essential, slanted questions
3. Technology as a tool for enriching students' 21st century skills, global awareness, technological literacy, and creativity.

These approaches to instruction can be categorized as constructivist methodologies, as theorized by John Dewey (1964). In this methodology, teachers will appeal to the human spirit of the students. Their individuality will be encouraged; they will be empowered; their inherent abilities and talents will be drawn upon. When students are engaged in the lessons and making visible investments in their learning, teachers are more likely to feel a sense of purpose and efficacy.

Professional development.

Professional development has been posited primarily as a means to update teachers' skill and knowledge base. In part due to this belief, 99% of American public school teachers participate in professional development (Lewis et al., 1999). Yet professional development that raises student achievement could have another benefit: in increasing teachers' efficacy, it may make them more satisfied and thus, more likely to remain in schools and the profession (Gusky, 1989).

Research indicates that some teachers, as they gain experience, want to take on responsibilities and roles in the school at large (Henke, Chen, et al., 2000; Johnson et al., 2004; Little & Bartlett, 2001). Teachers' desire for different tasks and expanded authority may go unfulfilled in this historically flat, undifferentiated profession (Johnson, 1990; Lortie, 1975). The department head position at high schools is perhaps the most widespread and enduring differentiated role. Recently, new roles, such as mentor teacher, instructional coach, literacy coach, or grade level team leader have emerged.

A school leader seeks to develop a positive attitude about learning among students. All teachers require assistance in their pedagogical goals and feedback based on empirical, as well as anecdotal, methods of teaching that lends itself to enhancing student attitude. Strategies that offer the opportunity for enhancing teachers' sense of effectiveness, such as team teaching and joint planning, can be instituted in schools without the addition of major resources or restructuring (Corcoran, et al., 1988). Enhancing communication with stakeholders by instituting parent-teacher councils can also give teachers new arenas of authority, while breaking down the isolation of the classroom and creating new partnerships in schooling (Ascher, 1991). School leaders may facilitate teacher growth and instructional strategies by offering professional development in areas proven to be effective in both urban and suburban classrooms:

1. Differentiating instruction (Tomlinson, 2001)
2. Multiple intelligence activities (Gardner, 1983)
3. Integrating/infusing curriculum (Drake & Burns, 2004)
4. Applying the Principles of Learning (Saphier, et al., 2008)
5. Alternative forms of testing (Littky & Gabrielle, 2005)
6. Understanding by Design (McTighe & Wiggins, 2004).

When student needs are nurtured, students will respond favorably to the demands of teaching and learning. Support for students includes recognition, resources, efficacy, feedback, dialogue, and reflection. Any of these ingredients without the other(s) may not yield success. In alignment with the Adult Learning Theory, it is the researcher's contention that the same holds true for adults, with an emphasis on dialogue and reflection. Talking, reflecting, and learning with teachers, rather than appointing them, increases the likelihood of teachers making their own connections and, therefore, enhancing their own professional development and sense of satisfaction.

Data analysis.

Empirical data can be utilized to its fullest potential with the notion that student achievement is a relatively stable, uniform, and coherent concept that can be measured, understood, and generalized about. When teachers are taught strategies to read and apply data, they are apt to take control of their art by identifying areas in need of improvement among students. Some types of data that may be useful for teachers include the following:

1. Student learning data include a variety of measurements—norm-referenced tests, criterion-referenced tests, standards assessments, teacher-assigned grades, and authentic assessments—that show the impact of the education system on the students.
2. Perceptions data—gathered through questionnaires, interviews, and observations—facilitate an understanding of what students, parents, teachers, and the community think about the learning environment. Student perceptions, for example, can illuminate what motivates students to learn. Staff perceptions can indicate what kind of change is possible and necessary within the school.
3. School processes data include the school's programs, instructional strategies, assessment strategies, and classroom practices. Keeping track of these processes through careful documentation helps build a continuum of learning for all students (ASCD, 2003).

New teacher induction.

Induction programs have multiplied in recent years in response to concerns about new teachers' struggles and evidence of increasing turnover rates. In the early 1990s, 40% of new teachers participated in a formal induction program; by 1999-2000, 80% took part (Ingersoll & Smith, 2003). Moreover, by the late 1990s, about 70% of new teachers in public schools reported that they worked closely with a mentor (Ingersoll & Smith, 2003). Although the terms *induction* and *mentoring* are often used interchangeably, they are conceptually distinct. Induction programs often include one-to-one mentoring of new teachers alongside other supports, such as classroom management seminars and peer observation sessions. Mentoring and induction, when well-conceived, carefully implemented, and soundly supported by the schools in which new teacher work, have been shown to positively affect the retention of these teachers (Ingersoll & Kralik, 2004).

When integrating a new teacher, a school leader must remain aware that relationships are building between the teacher and the administration, the staff, and the district—not only with the students. The process can be daunting. A school leader can mitigate the process by employing the following strategies:

1. Providing school and district data to the new teacher. Knowledge is power and can be the first tool toward familiarizing the teacher with his or her new surroundings
2. Meeting with the teacher to design a plan for instruction and class management
3. Arranging professional learning communities, if not already in place, to allow a reflective spot for the teacher with other teachers
4. Performing frequent informal observations
5. Engaging in dialogue
6. Being available

In sum, effective implementation of Supervision and Evaluation, Instruction and Curriculum, Professional Development, Data Analysis, and New Teacher Induction are likely to positively impact a teacher's perceptions of administrative support and, therefore, increase the likelihood of teacher retention.

Recommendations for Future Research

This research adds to the extant literature on factors that influence NJ HSPA scores. Finding the best methods of educating New Jersey students is a multifaceted and complex task. However, one exploratory study cannot provide complete answers as to which variables most influence student achievement. The variables on the NJ School Report Card, as described in this study, are useful as a guide for further research. To make the literature more complete, research topics deserving exploration are considered below.

1. A comparison of one group's results on another standardized measure.
   a. What is the influence of faculty mobility on the end-of-year Biology test?
   b. What is the influence of faculty mobility on students' SAT scores?
   c. When delineated, which topics in math are influenced by faculty mobility?
2. A study among states with different teacher licensing requirements.
   a. What is the influence of faculty mobility in New Jersey elementary schools as compared to faculty mobility in New York elementary schools?
   b. What is the influence of faculty mobility in New Jersey secondary schools as compared to faculty mobility in New York secondary schools?
3. A meta-analysis on the extant research between state report cards and standardized achievement and find the effect size of each variable.
   a. What is the influence of Report Card variables on state standardized test performance in New Jersey and Pennsylvania secondary schools?
   b. What is the influence of Report Card variables on state standardized test performance in New Jersey and Pennsylvania elementary schools?
4. The repetition of the study involving other age groups.
   a. What is the correlation between faculty mobility in the elementary grades and faculty mobility in the secondary grades?
   b. What is the influence of faculty mobility on math achievement in elementary and in secondary schools?
5. Illuminate the differences in faculty mobility among DFG classifications.

a. What is the correlation between faculty mobility in urban schools and faculty mobility in suburban schools?

b. What is the influence of faculty mobility on Math achievement in urban versus suburban secondary schools?

6. Based on the findings concerning student attendance, it would be beneficial to compare the variable's influence on another measure.

a. What is the influence of student variables, in particular Student Attendance, on NJ ASK performance?

b. What is the influence of "student time on task" and/or "instructional time" on student achievement?

A Closing Thought

In his 1997 State of the Union address, President Clinton asked all Americans to insist a talented, dedicated, well prepared teacher is staffed in every classroom across the country. He proposed that the increasing complexity of the technological society would command that our children have well-prepared teachers who know their subjects and know how to teach effectively. We must be able to recruit and hire those teachers and keep them in the profession.

We have been facing a teacher shortage since the early 1980s, as the quantity of teachers needed exceeded the quantity of teachers available (Darling-Hammond, 2003). Recruiting teachers will not resolve staffing inadequacies without schools addressing the problem of teacher retention. There is much more at stake than the increasing number of students and the increasing retirement of teachers (Ingersoll, 2000). Job dissatisfaction, resulting from poor administrative support, is among the leading reason cited by teachers for leaving (Ingersoll, 2000).

Teachers are crucial to the success of our students. Yet many of them are leaving their schools and the profession every year, particularly in poorer, lower-performing schools for reasons within administrative control (Alliance for Excellent Education, 2008). To decrease the teacher turnover rate and increase the teacher satisfaction rate, there needs to be a significant change in the management and conditions of schools (Sterling, 2004). Students being served by the most-disadvantaged schools should not be neglected; neither should the teachers who have the desire and knowledge to contribute to students' academic achievement, but lack the tools necessary to do so (Alliance for Excellent Education, 2008). Instead, systems should be designed to ensure that the best teachers are teaching the students with the highest challenges and that those teachers receive the training and support they need to help students succeed.

References

Aaronson, D., Barrow, L., & Sander, W. (2007). *Teachers and student achievement in the Chicago Public High Schools.* Retrieved from http://faculty.smu.edu/millimet/classes/eco7321/papers/aaronson%20et%20al.pdf

Abbott v. Burke, 100 N.J. 269 (1985). Retrieved from http://www.edlawcenter.org/ELCPublic/AbbottvBurke/AbbottHistory.htm

Abedi, J., & Dietel, R. (2004, Winter). *Challenges in the No Child Left Behind Act for English Language Learners.* Retrieved from http://www.cse.ucla.edu/products/policy/cresst_policy7.pdf

Abedi, J. (2004, Spring). Assessment accommodations for English Language Learners: Implications for policy-based empirical research. *Review of Educational Research*, *74*, 1-28.

Achilles, C. M., Reynolds, J. S., & Achilles, S. H. (1997). *Problem analysis: Responding to school complexity.* Larchmont, NY: Eye on Education.

Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college.* Washington, DC: U.S. Department of Education, Office of Vocational and Adult Education.

Alexander, K. L., Entwisle, D. R., & Bedinger, S. D. (1994). When expectations work: Race and socioeconomic differences in school performance. *Social Psychology Quarterly*, *57*, 283-299.

Alexander, K. L., Entwisle, D. R., & Dauber, S. L. (1996). Children in motion: School transfers and elementary school performance. *The Journal of Educational Research, 57(*4), 3.

Allen, S. G. (1983). How much does absenteeism cost? *Journal of Human Resources, 18*(3), 379-393.

Alliance for Excellent Education (2004). *Tapping the potential: Retaining and developing high-quality new teachers.* Retrieved from http://www.all4ed.org/publications/TappingThePotential/Problem.html

Alliance for Excellent Education (2005). *Teacher attrition: a costly loss to the nation and to the states.* Retrieved from http://www.all4ed.org/files/archive/publications/TeacherAttrition.pdf

Alliance for Excellent Education (2008). *What keeps good teachers in the classroom? Understanding and reducing teacher turnover.* Retrieved from http://www.all4ed.org/files/TeachTurn.pdf

Amato, S. (2010). *Variables that predict world language achievement in one New Jersey high school as measured by the STAMP test.* Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.

American Federation of Teachers. (2008). We asked, you answered. *American Educator*, 32(2), 6-7.

Aos, S., Miller, M., & Pennucci, A. (2007, December). *Report to the joint task force on basic education finance: School employee compensation and student outcomes.* (Document No. 07-12-2201). Olympia, WA: Washington State Institute for Public Policy. Retrieved from http://www.wsipp.wa.gov/rptfiles/07-12-2201.pdf

Aptekar, L. (1983, Summer). Mexican-American high school students' perception of school. *Adolescence*, *18*(70), 345-357.

Archambault, R. D. (Ed.). (1964). *John Dewey on education*. Chicago, IL: University of Chicago Press.

Arciniega, T. A., & Reider, L. E. (2002). *A Kern County initiative for recruiting, preparing, and retaining highly qualified and effective teachers.* Santa Cruz, CA: Center for the Future of Teaching and Learning.

Ascher, C. (1991). *Retaining good teachers in urban schools*. ERIC Clearinghouse on Urban Education. Retrieved December 12, 2010 from http://www.ericdigests.org/1992-4/good.htm

Associated Press of NJ.com. (2009). *More students in NJ get free, reduced-priced lunches in recession.* Retrieved from http://www.nj.com/news/index.ssf/2009/12/more_students_in_nj_get_free_r.html/

Attewell, P., & Domina,T. (2008). Raising the bar: Curricular intensity and academic performance. *Educational Evaluation and Policy Analysis*, 30, 51–71.

Aud, S., Hussar, W., Kena, G., Bianco, K., Frohlich, L., Kemp, J., & Tahan, K. (2011). *The condition of education 2011*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Balfanz, R. & Byrnes, V. 2006. *Closing the mathematics achievement gaps in high poverty middle schools: Enablers and constraints Journal for Educating Students Placed at Risk, 11*(2), 143-157.

Balfanz, R., & Legters, N. (2004). Locating the dropout crisis: Which high schools produce the nation's dropouts? In G. Orfield (Ed.), *Dropouts in America: Confronting the graduation rate crisis* (pp. 57–84). Cambridge, MA: Harvard Education Press.

Ballou, D. (1996). *The condition of urban school finance: Efficient resource allocation in urban schools*: Washington, DC: National Center for Education Statistics.

Barker, R., & Gump, P. (1964). *Big school, small school.* Palo Alto, CA: Stanford University Press.

Barton, P. (2004). Why does the achievement gap persist? *Educational Leadership, 62*(3), 8-13.

Batalova, J., & Lee, A. (2012). *U.S. in focus: Frequently requested statistics on immigrants and immigration in the United States.* Washington, DC: Migration Policy Institute. Retrieved from http://www.migrationinformation.org/usfocus/display.cfm?ID=886

Bates, J. T. (1993, Spring). Portrait of a successful rural alternative school. *Rural Educator, 14*(3), 20-24.

Bayard, S. R. (2003). *A study of the relationship between teacher absenteeism, teacher attributes, school schedule, and student achievement.* Unpublished doctoral dissertation, Florida Atlantic University, Boca Raton, FL.

Beatty, A. (2010). *Student mobility: Exploring the impact of frequent moves on achievement: Summary of a workshop*. Washington, DC: The National Academies Press. Retrieved from http://books.nap.edu/catalog.php?record_id=12853

Beavers, H. J. (1981). *The Relationship between selected educational variables and student achievement in a selected school district.* Unpublished doctoral dissertation, East Texas State University, Commerce, TX.

Before It's Too Late. (2000). Washington, DC: U.S. Department of Education, National Commission on Mathematics and Science Teaching for the 21st Century. Retrieved from http://www.ed.gov/americacounts/glenn

Berlin, B. M., & Cienkus, R. C. (1989, February). Size: The ultimate educational issue? *Education and Urban Society*, 21(2), 228-231.

Betts, J., Zau, A., & Rice, L.A. (2004). Determinants of student achievement: New evidence from San Diego Public Policy, Institute of California. Retrieved from http://epsl.asu.edu/epru/articles/EPRU-0309-39-OWI.pdf

Blazer, C. (2006). *Literature review on teacher transfer and turnover.* Miami, FL: Office of Accountability and Systemwide Performance.

Bobbit, S. A., Faupel, E., & Burns, S. (1991). Characteristics of stayers, movers, and leavers: Results from the teacher follow-up survey, 1988-1989. (NCES Publication No. 91-128). Washington, DC: US Department of Education, Office of Educational Research and Improvement.

Boe, E. E., Cook, L. H., Bobbitt, S. A., & Weber, A. L. (1996). *Retention and attrition of teachers at the district level: National trends in special and general education.* (Research Report No. 1996-TSD6). Philadelphia: University of Pennsylvania, Graduate School of Education, Center for Research and Evaluation in Social Policy.

Boe, E. E., Bobbitt, S., Cook, L., Whitener, S., & Weber, A. (1997). Whither didst thou go? Predictors of retention, transfer, and general education teachers from a national perspective. *Journal of Special Education, 30,* 371–389.

Boe, E. E., Cook, L. H., Bobbitt, S. A., & Weber, A. L. (1995). *Retention, transfer, and attrition of special and general education teachers in national perspective.* Paper presented at the National Dissemination Forum on Issues Relating to Special Education Teacher Satisfaction, Retention and Attrition, Washington, DC.

Boote D. N., & Beile. P. (2005). Scholars before researchers: On the centrality of the dissertation literature in research preparation. *Educational Researcher, 34*(6), 3-15.

Borman, G. D., & Dowling, N. M. (2006). Longitudinal achievement effects of multiyear summer school: Evidence from the teach Baltimore randomized field trial. *Educational Evaluation and Policy Analysis*, *28*(1), 25–48.

Boswell, C. B. (1993). *The relationship between teacher absenteeism and student achievement in secondary schools in South Carolina.* Unpublished doctoral dissertation, University of South Carolina, Columbia, SC.

Boyd, D., Goldhaber, D., Lankford, H., & Wyckoff. J. (2007). The effect of certification and preparation on teacher quality. *Future* of *Children,* 17(1), *45-68.*

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2005, December). *How changes in entry requirements alter the teacher workforce and affect student achievement.* (NBER Working Paper No. 11844). Cambridge, MA: National Bureau of Economic Research.

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2007). *Who leaves? Teacher attrition and student achievement.* Albany, NY: State University of New York.

Boyd, D., Loeb, S., Lankford, H., and Wyckoff, J. (2005). *Explaining the short careers of high achieving teachers in schools with low performing students.* Albany, NY: Teacher Policy Research.

Broadhurst, K., May-Chahal, C., & Paton, H. (2005) Children missing from school systems: Exploring divergent patterns of disengagement in the narrative accounts of parents, carers, children, and young people. *British Journal of Sociology of Education, 26*(1), 105-119.

Burke, A. M. (1987). Making a big school smaller: The school-within-a-school arrangement for middle level schools. Orting, WA: Orting Middle School (ED 303 890).

Burns, J. M. (1978) *Leadership*. New York, NY: Harper & Row.

Byrne, B. (1993). The Maslach Burnout Inventory: Testing for factorial validity and invariance across elementary, intermediate, and secondary teachers. *Journal of Occupational and Organizational Psychology, 66,* 197-212

Cabezas, C. (2006). *The influence of highly qualified teacher designation, and other teacher variables, on student achievement.* Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.

Caldas, S. J. (1993). Reexamination of input and process factor effects in public school achievement. *The Journal of Educational Research*, *86*(4), 206-214.

Cantrell, S. (2003). *Pay and performance: The utility of teacher experience, education, credentials, and attendance as predictors of student achievement at elementary schools in LAUSD*. Los Angeles, CA: Los Angeles Unified School District, Program Evaluation and Research Branch.

Capitan, J. H. (1980). *Teacher absenteeism. A study of the Ohio Association of School Personnel Administrators*. Seven Hills, OH: American Association of School Personnel Administrators.

Certo, J. L., & Fox, J. E. (2002). Retaining quality teachers. *The High School Journal, 86,* 57-75.

Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K., & Rogers, F. H. (2006). Missing in action: Teacher and health worker absence in developing countries. *Journal of Economic Perspectives, 20*(1), 91-116.

Chen, J. and Weiland, L. (2007, March/April). Helping young children learn mathematics: Strategies for meeting the needs of diverse learners. *Exchange, 174,* 46-51.

Chow, P. (2007) *The effects of socioeconomic status on growth rates in academic achievement.* (Doctoral dissertation, University of North Texas). Retrieved from Dissertations and Theses: Full Text. (Publication No. AAT 3300936).

Clement, R. (2006). It's not being absent that affects a student's achievement; Florida data show it's whether the absences are excused or unexcused. *ERS Spectrum,* 24(2), 24-32. Retrieved from ERIC database. (EJ795671).

Clinton,W. J. (1997, February 4). State of the union address. Retrieved from http://www.law.uoknor.edu/hist/state97.html

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2006). *Teacher absences: importance, incidence, and consequence*. Paper presented at the Association for Public Policy Analysis and Management, Washington, DC.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007, March). *How and why do teacher credentials matter for student achievement?* (Working Paper No. 2). Washington, DC: Urban Institute, National Center for Analysis of Longitudinal Data in Education Research. Retrieved from http://www.caldercenter.org/PDF/ 1001058_Teacher_ Credentials.pdf

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (2nd ed). New York, NY: Academic Press.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, DC: U.S. Government Printing Office.

Colgan, C. (2004, August). Is there a teacher retention crisis? *American School Board Journal,* 22-25.

Commission on Business Efficiency of the Public Schools. (2003, September). *School size violence, cost, and achievement.* Retrieved from http://www.njleg.state.nj.us/legislativepub/reports/buseff_report.pdf

Consolidation concerns more than dollars. (1998, January 6). *McCook Daily Gazette.* Retrieved from http://news.google.com/newspapers?nid=1933&dat=19980105&id=GqcgAAAAIBAJ&sjid=6WgFAAAAIBAJ&pg=1475,400760

Corcoran, R., Walker, L. J., & White, J. L. (1988). *Working in urban schools* (ED 299 356).Washington, DC: The Institute for Educational Leadership.

Cotton, K. (1996, December). Affective and social benefits of small-scale schooling. *ERIC Digest*. Clearinghouse on Rural Education & Small Schools (EDO-RC-96-5).

Cotton, K. (2001, December). *New small learning communities: Findings from recent research*. Portland, OR: Northwest Regional Education Laboratory.

Council of Great City Schools. (1987). *Results in the making.* Washington, DC: Author.

Creswell, J.W. (1994). *Research design: Qualitative and quantitative approaches*. Thousand Oaks, CA. Sage.

Croasmun, J., Hampton, D., & Herrmann, S. (1999). *Teacher Attrition: Is Time Running Out?* Retrieved from http://horizon.unc.edu/projects/issues/papers/Hampton.asp

Crocco, M. S., & Costigan, A. T. (2006). High-stakes teaching: What's at stake for teachers (and students) in the age of accountability. *The New Educator, 2*, 1-13.

Crosnoe, R. & Huston, A. C. (2007). Socioeconomic status, schooling, and the developmental trajectories of adolescents. *Developmental Psychology, 43,* 1097–1110.

Darling-Hammond, L. (2000). Teacher quality and student achievement. Retrieved July 23, 2010 from http://epaa.asu.edu/epaa/v8nl/

Darling-Hammond, L. (2003). Keeping good teachers: Why it matters, what leaders can do. *Educational Leadership. 60*(8); 6-13.

Darling-Hammond, L., Berry, B., Haselkorn, D., & Fideler, E. (1999). Teacher recruitment, selection, and induction. In L. Darling-Hammond & G. Sykes, G., (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 182-232*).* San Francisco: Jossey-Bass.

Darling-Hammond, L., & Sykes, G. (2003). Wanted: A national supply policy for education: The right way to meet the "Highly Qualified Teacher" challenge. *Educational Policy Analysis Archives, 11(33).*

DeAngelis, K. J., & Presley, J. B. (2007*). Leaving schools or leaving the profession: Setting Illinois' record straight on teacher attrition* (IERC 2007-1). Edwardsville, IL: Illinois Education Research Council.

DeKalb, J. (1999). *Student truancy*. Retrieved from ERIC Clearinghouse on Educational Management (ED429334).

Dillon, M. (2009). Teacher retention vital to teacher quality. *American School Board Journal.* Retrieved from http://www.asbj.com/TopicsArchive/HelpingStudentsLearn/2009-Helping-Learn-Archive/Teacher-Retention-Vital-to-Teacher-Quality.html

Donaldson, M. L. & Johnson, S. M. (2011, October 4). TFA teachers: How long do they teach? Why do they leave? *Phi Delta Kappan, 93*(2), 47-51.

Drake, S. M., & Burns, R. C. (2004). *Meeting standards through integrated curriculum.* Alexandria, VA: ASCD.

Dropouts. (2004, August 3). *Education Week.* Retrieved from http://www.edweek.org/ew/issues/dropouts/

Eberts, R. W., Kehoe, E., & Stone, J. A. (1982, June). *The effect of school size on student outcomes*. (Final Report. ED 245382). Eugene, OR: Center for Educational Policy and Management, University of Oregon.

Edington, E. D., & Gardener, C. E. (1984, Fall), The relationship of school size to scores in the affective domain from the Montana Testing Service Examination. *Education* 105(1), 40-45.

Education finance: School employee compensation and student outcomes. (2007). .Olympia, WA: Washington State Institute for Public Policy. (Document No. 07-12-2201). Retrieved from http://www.wsipp.wa.gov/rptfiles/07-12-2201.pdf

Educational Research Service. (1980). *Employee absenteeism: A summary of research*. Arlington, VA: Author.

Eggers, D. & Calegari, C. (2011, May 1). The high cost of low teacher salaries. *New York Times, WK-12.*

Eichenstein, R. (1994, August). *Project Achieve, Part I: Qualitative Findings 1993-94*. Brooklyn, NY: New York City Board of Education, Office of Educational Research. (ED 379 388).

Eisler, P., & Weise, E. (2009). More students on free lunch programs. *USA Today*. Retrieved from http://usatoday30.usatoday.com/news/education/2009-06-10-student-lunches_N.htm

Elementary & Secondary Education Act (ESEA) of 1965. (P.L. 89-10).

Ensminger, M. E., & Slusarcick, A. L. (1992). Paths to high school graduation or dropout: A longitudinal study of a first-grade cohort. *Sociology of Education,* 65(95), 113.

Farber, B. (1991). *Crisis in education: Stress and burnout in the American teacher.* San Francisco: Jossey-Bass.

Ferguson, R. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal of Legislation, 28*, 465-491.

Fine, S. (2009, August 9). Schools need teachers like me. I just can't stay. *Washington Post.* Retrieved from http://www.washingtonpost.com/wp-dyn/content/article/2009/08/07/AR2009080702046.html.

Fineman-Nemser, S. (1996). *The current status of teaching and teacher development in the United States*. Retrieved from http://www.tc.columbia.edu/~teachcomm/BRIEF6.HTM

Flannery, M. E. (2009). *A new look at America's English language learners: A growing number of ELLs were born in the United States*. Washington, DC: National Education Association. Retrieved from http://www.nea.org

Fowler, W. J., Jr. (1995). School size and student outcomes. *Advances in Educational Productivity, 5*, 3-26.

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

Franklin, B., & Crone, L. (1992, November). School accountability: Predictors and indicators of Louisiana school effectiveness. Paper presented at the meeting of the Mid-South Educational Research Association, Knoxville, TN.

Friedkin, N., & Necochea, J. (1988). School system size and performance: A contingency perspective. *Educational Evaluation and Policy Analysis, 10*(3), 237-249.

Fuller, B., Wright, J., Gesicki, K., & Kang, E. (2007). Gauging growth: How to judge No Child Left Behind? *Educational Researcher (36)*5, 268-278. Retrieved from http://gse.berkeley.edu/research/pace/reports/Gauging_Growth.pdf

Gagne, R. M. (1977). *The conditions of learning* (3d ed.). New York, NY: Holt Rinehart and Winston.

Gamoran, A. & Long, D.A. (2006). *Equality of educational opportunity: A 40-years retrospective (WCER Working Paper No. 2006-9).* Madison, WI: University of Wisconsin, Wisconsin Center for Education Research. Retrieved from http://www.wcer.wisc.edu/publications/workingPapers/index.php

Garbarino, J. C. (1997). *A conceptual toolbox for dealing with youth development issues*. Retrieved from http://www.ext.vt.edu/vce/fcs/toolbox.html

Gardner, H. (1983). *Multiple intelligences: The theory in practice, a reader*. New York, NY: Basic Books.

Gariss-Hardy, B. & Vrooman, C. (2004). *School stability and school performance: A review of the literature.* Greensboro, NC: University of North Carolina, *National Center for Homeless Education.*. Retrieved from http://center.serve.org/ nche/downloads/school_stab_lit_rev.doc

Goldhaber, D. (2002). *The mystery of good working conditions.* Retrieved from http://www.educationnext.org/20021/50.html

Goldhaber, D., & Brewer, D. J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis, 22*(2), 129-145.

Goldhaber, D., Gross, B., & Player, D. (2007). Are public schools really losing their “best”? Assessing the career transitions of teachers and their implications for the quality of the teacher workforce (Working Paper No.12). Washington DC: National Center for Analysis of Longitudinal Data in Education Research.

Gotfried, M. A. (2009). Excused versus unexcused: How student absences in elementary school affect academic achievement. *Educational Evaluation and Policy Analysis*, *31*(4), 392-415.

Grady County Schools (2012). *Title I - Part A: It's the largest federal assistance program for our nation's schools.* Retrieved from http://www.grady.k12.ga.us/?DivisionID=2162&ToggleSideNav

Gregory, T. (1992). Small is too big: Achieving a critical anti-mass in the high school. In *Source Book on School and District Size, Cost, and Quality* (pp. 1-31). Minneapolis, MN: Minnesota University, Hubert H. Humphrey Institute of Public Affairs; Oak Brook, IL: North Central Regional Educational Laboratory, 1992, 1-31 (ED 361 159).

Gregory, T. B., & Smith, G. R. (1983, April). *Differences between alternative and conventional schools in meeting students' needs*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

Guin, K. (2004). Chronic teacher turnover in urban elementary schools. *Educational Evaluation and Policy Analysis*, *12*(42), 1-25.

Guskey, T. (1989). Attitude and perceptual change in teachers. *International Journal of Educational Research, 3*(4), 439-453.

Haberman M., & Richards, W. H. (1990). Urban teachers who quit: Why they leave and what they do. *Urban Education*, *25*(3), 297-303.

Haberman, M. (1987). Recruiting and selecting teachers for urban schools. ERIC/CUE Urban Diversity Series, 95. New York, NY: Institute for Urban and Minority Education.

Haggstrom, G. W., Darling-Hammond, L., & Grissmer, D. (1988). *Assessing teacher supply and demand.* Santa Monica, CA: Rand Corporation.

Haller, E. J., Monk, D. H., & Tien, L. T. (1993, Fall). Small schools and higher-order thinking skills. *Journal of Research in Rural Education, 9*(2), 66-73.

Hanushek, E. A., & Rivkin, S. G. (2004). How to improve the supply of high quality teachers. In D. Ravitch (Ed.), *Brookings Papers on Education Policy: 2004* (pp. 7-44). Washington, DC: Brookings Institution. Retrieved from http://edpro.stanford.edu/Hanushek/ admin/pages/ files/uploads/Teacher%20quality.Brookings.pdf

Hanushek, E. A., & Rivkin, S. G. (2007, Spring). Pay, working conditions, and teacher quality. *Excellence in the Classroom, 17*(1), 69–86. Retrieved from http://www.futureofchildren.org/usr_doc/Classroom_07_01.pdf

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why public schools lose teachers. *Journal of Human Resources*, 39(2), 326–54.

Hanushek, E. A., Kain J. F., & Rivkin, S. G. (2005). Teachers, schools and academic achievement. *Econometrics*, 73, 417-458.

Hanushek, E., Kain, J., O'Brien, D., & Rivkin, S. (2005, February). *The market for teacher quality*. (NBER Working Paper No. 11154). Cambridge, MA: National Bureau of Economic Research. Retrieved from http://edpro.stanford.edu/hanushek/ admin/pages/files/uploads/w11154.pdf

Harnisch, D. L. (1987, March–April). Characteristics associated with effective public high schools. *Journal of Educational Research, 80*(4), 233–241.

Harris, D. N., & Sass, T. R. (2007, March). *Teacher training, teacher quality, and student achievement.* (Working Paper No. 3). Washington, DC: The Urban Institute, National Center for Analysis of Longitudinal Data in Education Research. Retrieved from http://www.caldercenter.org/PDF/1001059_Teacher_Training.pdf

Haycock, K. (1998). Good teaching matters…a lot. *Thinking K-16, 3*(2), 3-14.

Hechinger, F. M. (1983). *About education: Raising the question of federal interference*. *New York Times*, p. 1. Retrieved from http://query.nytimes.com/gst/fullpage.html?res=9E06E1DA1E38F937A15756C0A965948260&sec=health&spon=&pagewanted=all

Henderson, E., Protheroe, N., & Porch, S. (2002). *Developing an effective substitute teacher program*. Arlington, VA: Educational Research Service.

Henderson, H., & Raywid, M.A. (1994, Winter). Small revolution in New York City. *Journal of Negro Education, 63*(1), 28–45.

Henke, R. R., Chen, X., Geis, S., & Knepper, P. (2000). *Progress through the teacher pipeline: 1992-93 college graduates and elementary/secondary school teaching as of 1997*. (NCES Report No. 2000-152). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Henke, R. R., Zahn, L., & Carroll, D. (2001). *Attrition of new teachers among recent college graduates.* Washington, DC: National Center for Education Statistics.

Heyns, B. (1988). Educational defectors: A first look at teacher attrition in the NLS-72. *Educational Researcher, 17*(3), 24-32.

Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2003). *Applied statistics for the behavioral sciences* (5th ed.). Boston, MA: Houghton Mifflin Company.

House of Representatives Standing Committee on Employment, Education and Training (1996). *Truancy and exclusion from school*. AGPS, Canberra, p. 3.

Howley, C. B. (1994, June). *The Academic effectiveness of small-scale schooling (An update)*. Charleston, WV: Clearinghouse on Rural Education and Small Schools. Retrieved from ERIC Digest (ED 372 897).

Howley, C. B. (1995). The Matthew principle: A West Virginia replication? *Education Policy Analysis Archives*, *3*(18). Retrieved from http://seamonkey.ed.asu.edu/epaa/v3n18.html.

Howley, C. B. (1996). *Sizing up schooling: A West Virginia analysis and critique.* Unpublished doctoral dissertation, West Virginia University, Morgantown, WV.

Howley, C. B., & Howley, A. A. (2004). School size and the influence of socioeconomic status on student achievement: Confronting the threat of size bias in national data sets. *Education Policy Analysis Archives 12*(52). Retrieved from http://epaa.asu.edu/ojs/ article/ view/207/333.

Huang, G., & Howley, C. B. (1993, Winter). Mitigating disadvantage: Effects of small-scale schooling on student achievement in Alaska. *Journal of Research in Rural Education*, *9*(3), 137-149.

Imazeki, J. (2001, March). *Moving on or moving out? Determinants of job and career changes for teachers*. Paper presented at the meeting of the American Education Finance Association, Cincinnati, OH.

Ingersoll, G. M., Scamman, J. P., & Eckerling, W. D. (1989, Summer). Geographic mobility and student achievement in an urban setting. *Educational Evaluation and Policy Analysis*, *11*(2), 143-149.

Ingersoll, R. (2000). *Turnover among mathematics and science teachers in the U.S.* National Commission on Mathematics and Science Teaching for the 21st Century. Retrieved from http://www.ed.gov/inits/Math/glenn/Ingersollp.doc

Ingersoll, R. (2001). *Control, accountability, and America's teachers.* (Manuscript submitted for publication).

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

Ingersoll, R. (2001). *Teacher turnover, teacher shortages, and the organization of schools*. Seattle, WA: University of Washington, Center for the Study of Teaching and Policy.

Ingersoll R. (2003). *Is there really a teacher shortage?* Philadelphia, PA: University of Pennsylvania, Consortium for Policy Research in Education.

Ingersoll, R. (2004, November). *Why do high-poverty schools have difficulty staffing their classrooms with qualified teachers?* (Report prepared for *Renewing Our Schools, Securing Our Future*). Retrieved from http://www.americanprogress.org/wp-content/uploads/ kf/ingersoll-final.pdf

Ingersoll, R. (2006). Understanding supply and demand among mathematics and science teachers. In J. Rhoton & P. Shane (Eds.), *Teaching science in the 21st century* (pp. 197–211). Arlington, VA: National Science Teachers Association.

Ingersoll, R., & Kralik, J. M. (2004). *The impact of mentoring on teacher retention: What the research says.* Denver, CO: Education Commission of the States.

Ingersoll, R., & May, H. (2012, August 14). The magnitude, destinations, and determinants of nathematics and science teacher turnover. *Educational Evaluation and Policy Analysis.* Retrieved from http://epa.sagepub.com/content/early/2012/08/13/0162373712454326.

Ingersoll, R., & Smith, T. (2003). The wrong solution to the teacher shortage. *Educational Leadership*, *60*(8), 30-33.

Jencks, C., Smith, M., Acland, H., Bane, M. S., Cohen, D., & Gintis, H. (1972). *Inequality: A reassessment of the effect of family and schooling in America.* New York, NY: Basic Books.

Jewell, R. S (1989, February). School and school district size relationships: Costs, results, minorities, and private school enrollments. *Education and Urban Society, 21*(2), 140-153.

Jha, A. (2012, July 23). Make math compulsory for all A level students, say Lords. *The Guardian.*

Johnson, A. (2001). Toward a new classification of nonexperimental quantitative action research. *Educational Researcher, 30*(2), 3-15.

Johnson, J. (2005, November 8). It's time to address the human factor in education reform. *Public Agenda: School Board News*.

Johnson, K. (2000). *The effects of advanced teacher training in education on student achievement.* Washington, DC: Heritage Foundation. Retrieved from www.heritage.org/Research/Education/ CDA00-09.cfm.

Johnson, S. M., & Birkeland, S. (2003). Pursuing a "sense of success:" New teachers explain their career decisions. *American Educational Research Journal, 40*(3), 581-617.

Johnson, S. M., & The Project on the Next Generation of Teachers. (2004). *Finders and keepers: Helping new teachers survive and thrive in our schools.* San Francisco: Jossey-Bass.

Johnson, S. M., Berg, J. H., & Donaldson, M. L. (2005, February). Who stays in teaching and why: A review of the literature on teacher retention. *The Project on the Next Generation of Teachers.* Cambridge, MA: Harvard Graduate School of Education.

Johnston, R. C. (2000). As studies stress link to scores, districts get tough on attendance. *Education Week, 20*(1), 10.

Jones, M. (2008). *The influence of variables on school report cards regarding the passing rates for students taking the high school proficiency assessment (HSPA) in New Jersey's* *comprehensive high schools.* Unpublished Doctoral Dissertation, Seton Hall University, South Orange, NJ.

Kahn-Horwitz J., Shimron, J., & Sparks, R. L. (2006). Weak and strong novice readers of English as a foreign language: Effects of first language and socioeconomic status. *Annals of Dyslexia 56*(1), 161-85.

Kain, E. (2011, March 8). High teacher turnover rates are a big problem for America's public schools. *Forbes Magazine.* 8 March 2011. Retrieved from. http://www.forbes.com/sites/erikkain/2011/03/08/high-teacher-turnover-rates-are-a-big-problem-for-americas-public-schools/

Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2006). What does certification tell us about teacher effectiveness? Evidence from New York City. (Working Paper No. 12155). Cambridge, MA: National Bureau of Economic Research.

Kaufman, D., Johnson, S. M., Kardos, S. M., Liu, E., & Peske, H. G. (2002, March 2). "Lost at sea": New teachers' experiences with curriculum and assessment. *Teachers' College Record, 104*(2), 273-300.

Kerbow, D. (1996). Patterns of urban student mobility and local school reform. *Journal of Education for Students Placed at Risk*, 1(2).

Kerbow, D., Azcoitia, C., & Buell, B. (2003). Student mobility and local school improvement in Chicago. *The Journal of Negro Education, 72*, 158-164.

Kershaw, C.A., & Blank, M.A. (1993, April). *Student and educator perceptions of the impact of an alternative school structure*. Paper presented at the meeting of the American Educational Research Association, Atlanta, GA.

Kirby, S. N., & Grissmer, D. W. (1992). *Teacher attrition: Theory, evidence, and suggested policy options*. Santa Monica, CA: Rand Corporation. (ERIC Document Reproduction Service No. ED364533)

Kleinfeld, J. (1998*). The myth that schools shortchange girls: Social science in the service of deception*. Washington, DC: The Women's Freedom Network.

Kuchar, M. (personal communication, September, 2008).

Kurki, A., Boyle, A., & Aladjem, D. K. (2005, April). *Beyond free lunch: Alternative poverty measures in educational research and program evaluation.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Laczko-Kerr, I., & Berliner, D. C. (2003). The effectiveness of "Teach for America" and other under-certified teachers. *Education Policy Analysis Archives, 10.*

Laitsch, D. (2004). Teacher quality measures and student achievement in mathematics. *Association for Supervision and Curriculum Development, 2*(15).

Lambert, C. (2006). (2006, May 9). Half of teachers quit in 5 years. *The Washington Post.*

Lamdin, D. J. (1996). Testing for effect of school size on student achievement within a school district. *Education Economics, 3,* 33-42.

Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. *The Journal of Educational Research, 89*, 155-62.

Lawrence, B. K., Bingler, S., Diamond, B. M., Hill, B., Hoffman, J. L., Howley, C. B., Mitchell, S., Rudolph, D., Washor, E. (2002). Dollars & sense: The cost effectiveness of small schools. The Small Schools Project. Retrieved from pdfsmall.gif

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

Lee, V., Smerdon, B., Alfeld-Liro, C., & Brown, S. (2000). Inside large and small high schools: Curriculum and social relations. *Educational Evaluation and Policy Analysis, 22*(2), 147-171.

Leech, N. L., Barrett, K. C., & Morgan, G. A. (2008*). SPSS for intermediate statistics: Use and interpretation*. (3rd ed.). New York, NY: Lawrence Erlbaum Associates.

Leithwood, K. A. (1992, February). The move toward transformational leadership. *Educational Leadership, 49* (5), 8-12.

Lewis, J. (1981, November). Do you encourage teacher absenteeism? *American School Board Journal*, 29.

Lewis, L., Parsad, B., Carey, N., Bartfai, N., Farris, E., & Smerdon, B. (1999). *Teacher quality: A report on the preparation and qualifications of public school teachers.* Washington, DC: U.S. Department of Education, National Center for Educational Statistics, Office of Educational Research and Improvement.

Lindsay, P. (1982,Spring). The effect of high school size on student participation, satisfaction, and attendance. *Educational Evaluation and Policy Analysis,* 4(1), 57-65.

Link, C. R. & Ratledge, E. C. (1979). Student perceptions, IQ, and achievement. *Journal of Human Resources. 14*(1), 98-111.

Littky, D., & Grabelle, S. (2005) The world is integrated. *Association for Supervision and Curriculum Development, 14*, 3. Retrieved from http://www.samgrabelle.com/docs/ctqspring05.pdf

Liu, E. (2004). *New teachers' experiences of hiring in four states.* Cambridge, MA: Harvard University.

Loeb, S., Darling-Hammond, L., & Luczak, J. (2005). How teaching conditions predict teacher turnover in California schools. *Peabody Journal of Education, 80*(3), 44–70.

Lortie, D. C. (1975). *Schoolteacher: A sociological study.* Chicago: University of Chicago Press.

Madden, H. D., Flanigan, J. L., & Richardson, M. D. (1991). *Teacher absences: Are there implications for educational restructuring?* Paper presented at the annual meeting of the Mid-South Educational Research Association, Lexington, KY.

Mark, J., & Anderson, B. (1978). Teacher survival rates: A current look. *American Educational Research Journal, 15*(3), 379-382.

Mark, J., & Anderson, B. (1985). Teacher survival rates in St. Louis, 1969-1982. *American Educational Research Journal, 22*(3), 413-421.

Marlow, S., & Minehira, N. (2005). *Principals as curriculum leaders: New perspectives for the 21st century*. Honolulu, HI: Pacific Resources for Education and Learning. Retrieved from http://www.prel.org/products/Products/Curriculum.htm

Marrone-Gemellaro, D. (2012). *What is the relative influence of NJ school report card variables on NJ ASK 5 scores?* Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.

McCain, J. (2012, April 30). 2008 presidential candidates: The issues. *The Washington Post*. Retrieved from http://projects.washingtonpost.com/2008-presidential-candidates/issues/candidates/john-mccain/

McCarthy, M. and Guiney, E. (2004). *Building a professional teacher corps in Boston: Baseline study of new teachers in Boston's public schools.* Boston, MA: Boston Plan for Excellence.

McGuire, K. (1989, February). School Size: The Continuing Controversy. *Education and Urban Society*, *21*(2), 164-174.

McLoyd, V. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, 53, 185-204.

McTighe, J., & Wiggins, G. (1999). *The understanding by design handbook*. Alexandra, VA: Association for Supervision and Curriculum Development.

Measuring the effects of work loss on productivity with team production. (2006) *Health Economics*, *15*(2), 111-123.

Meier, D., Kohn, A., Darling-Hammond, L., Sizer, T. R., & Wood, G. (2004). In D. Meier, & G. Wood (Eds.), *Many children left behind*. Boston, MA: Beacon Press.

Michel, A. P. (2004). *What is the relative influence of teacher educational attainment on student NJ ASK 4 scores?* Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.

Michel, A. P. (2008). Variables from the New Jersey school report card that predict student achievement on the NJASK4. *New Jersey Journal of Supervision and Curriculum Development*, *52*, 34-45.

Mid-Atlantic Regional Educational Laboratory at Pennsylvania State University. (2012) *A descriptive analysis of enrollment and achievement among limited English proficient students in New Jersey.* Retrieved from http://ies.ed.gov/ncee/edlabs/regions/midatlantic/pdf/ REL_2012108.pdf

Miller, J. W., Ellsworth, R., & Howell, J. (1986). Public elementary schools which deviate from the traditional SES-achievement relationship. *Educational Research Quarterly, 10*(3), 31-50.

Miller, R., Murnane, R., & Willett J. (2007, August). *Do teacher absences influence student achievement? Longitudinal evidence from one urban school district*. National Bureau of Economic Research (Working Paper Number W13356).

Murnane, R. J. (1981, Winter). Teacher mobility revisited. *Journal of Human Resources, 16*(1), 3-19.

Murnane, R. J., & Phillips, B. R. (1981). Learning by doing, vintage, and selection: Three pieces of the puzzle relating teaching experience and teaching performance. *Economics of Education Review, 4*, 691-693.

Murnane, R. J., & Steele, J. L. (2007). What is the problem? The challenge of providing effective teachers for all children. *The Future of Children*, *17*(1), 15-43. Retrieved from http://muse.jhu.edu/

Murnane, R. J., Singer, J., Willett, J., Kemple, J., & Olsen, R. (1991). *Who will teach? Policies that matter.* Cambridge, MA: Harvard University Press.

National Academy of Sciences. (1987). *Toward understanding teacher supply and demand*. Washington, DC: National Academy Press.

National Association of Secondary School Principals. (2010). *National agenda for graduating every child prepared for the 21st century.* Retrieved from http://www.nassp.org/portals/0/content/58860.pdf

National Center for Education Statistics. (2005). *Special analysis 2005: Mobility in the teacher workforce*. Washington, DC: U.S. Government Printing Office.

National Center for Educational Statistics (2010). *Teacher attrition and mobility: Results from a 2008-09 teacher follow-up survey.* Retrieved from http://nces.ed.gov/pubs2010/2010353.pdf

National Center for Education Statistics. (2011). *1999–2000 public school teacher survey.* Retrieved from http://nces.ed.gov/

National Center for Education Statistics (2012). *Fast facts.* Retrieved from http://nces.ed.gov/ fastfacts/display.asp?id=28

National Center for Education Statistics. (2012). *Projections of educational statistics to 2019*. Retrieved from http://nces.ed.gov/programs/projections/ projections2019/tables/ table_16.asp

National Clearinghouse for English Language Acquisition. (2011, February). The growing numbers of English learner students, 1998/99-2008/09.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC:: Government Printing Office.

National Commission on Excellence in Education (2008). *The condition of education: Contexts of elementary and secondary education.* Retrieved from http://nces.ed.gov/ pubs2008/2008031_4.pdf

National Commission on Excellence in Education (2010). *Mobility of public and private elementary and secondary teachers, by selected teacher and school characteristics: Selected years, 1987–88 through 2008–09.* Retrieved from http://nces.ed.gov/ programs/digest/d10/tables/dt10_077.asp

National Commission on Mathematics and Science Teaching for the 21st Century. (2000). *Before it's too late.* Jessup, MD: Education Publication Center.

National Commission on Teaching & America's Future. (2002). *Unraveling the "teacher shortage" problem: Teacher Retention is the key*. New York, NY: Author.

National Commission on Teaching and America's Future. (2003). *No dream denied: A pledge to America's children.* Washington, DC: Author.

National Commission on Teaching & America's Future (2011). *The High Cost of Teacher Turnover.* Retrieved from http://chalkboardproject.org/wp-content/uploads/2011/01/ment-13.pdf

National Council of Teachers of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics.* Reston, VA: Author.

National Partnership for Teaching in At-Risk Schools. (2005). *Qualified teachers for at-risk schools: A national imperative.* Washington, DC: Author.

New Jersey Department of Education. (2004). *NJ Department of Education District Factor Groups (DFG) for school districts.* Retrieved from http://www.nj.gov/education/finance/sf/dfg.shtml

New Jersey Department of Education. (2006). *Fast facts.* Retrieved from http://www.state.nj.us/nj/about/facts/facts

New Jersey Department of Education. (2006). *High School Proficiency Assessment: A mathematics handbook.* Retrieved from http://www.nj.gov/education/assessment/hs/hspa_mathhb.pdf

New Jersey Department of Education. (2006). *New Jersey No Child Left Behind.* Retrieved from http://www.state.nj.us/education/grants/nclb

New Jersey Department of Education. (2006). *Your guide to the HSPA: New Jersey Department of Education High School Proficiency Assessment.* Retrieved from http://www.nj.gov/education/assessment/hs/hspa_guide_english.pdf

New Jersey Department of Education. (2008). *District factor grouping system.* Retrieved from http://www.state.nj.us/education/finance/sf/dfgdesc.shtml

New Jersey Department of Education. (2009*). 2009 New Jersey High School Proficiency assessment executive summary.* Retrieved from http://www.state.nj.us/education/schools/achievement/2011/hspa/summary.pdf

New Jersey Department of Education. (2009). *New Jersey public schools fact sheet*. Retrieved from http://www.state.nj.us/education/data/fact.htm

New Jersey Department of Education. (2010). *Historical report card data 2007 Definitions*. Retrieved from http://education.state.nj.us/rc/2007/definitions.htm

New Jersey Department of Education. (2010). *NCLB report: How adequate yearly progress is calculated.* Retrieved from http://education.state.nj.us/rc/nclb/ayp.html#school

New Jersey Department of Education. (2010). *New Jersey School Report Card.* Retrieved from http://education.state.nj.us/rc/rc10/index.html

New Jersey Department of Education. (2011). *Guide to the New Jersey Report Card.* Retrieved from http://education.state.nj.us/rc/rc10/guide.htm

New Jersey Department of Education. (2011). *New Jersey High School Proficiency Assessment spring 2010 executive summary*. Retrieved from http://www.state.nj.us/education/schools/achievement/2011/hspa/summary.pdf

New Jersey Department of Education. (2012). *Definition of the highly qualified teacher (HQT).* Retrieved from http://www.state.nj.us/education/profdev/nclb/hqtcharts.pdf.

New York City Board of Education. (1992). *Student and teacher mobility: Impact on school performance in New York City schools*. Albany, NY: State Education Department, Office for Planning, Research, and Support Services.

Nicholson, S., Pauly, M. V., Polsky, D., Sharda, C., Szrek, H., & Berger, M. L. (2006). Measuring the effects of work loss on productivity with team production. *Health Economics, 15*(2), 111-123.

No Child Left Behind. (2011, September 19). *Education Week.* Retrieved from http://www.edweek.org/ ew/issues/no-child-left-behind/

No schools left behind. (2003). *Association for Supervision and Curriculum Development* 60(5). Retrieved from http://www.ascd.org/publications/educational-leadership/feb03/vol60/num05/No-Schools-Left-Behind.aspx

Noguera, P.A. (2003). *City schools and the American dream: Reclaiming the promise of public education.* New York, NY: Teachers College Press.

Obama, B. (2011, January 25). State of the union address. Retrieved from http://projects.washingtonpost.com/2008-presidential-candidates/ issues/candidates/john-mccain/

O'Connor, R., Abedi, J., & Tung, S. (2012, April). *A descriptive analysis of enrollment and achievement among limited English proficient students in New Jersey*. Washington, DC: National Center for Education Evaluation and Regional Assistance.

Orfield, G., & Kornhaber, M. (Eds.). (2001). *Raising standards or raising barriers? Inequality and high stakes testing in public education.* New York, NY: Century Foundation Press.

Orfield, G., Losen, D., Wald, J., & Swanson, C. (2004). *Losing our future: How minority youth are being left behind by the graduation rate crisis*. Cambridge, MA: Harvard University, Civil Rights Project.

Ornstein, A. C. (1993, April-May). School district and school size: Overview and outlook. *The High School Journal 76*, 240-44.

Orr, A. J. (2003, October). Black-white differences in achievement: The importance of wealth. *Sociology of Education*, *76*(4), 281-304.

Parsippany High School (2009). *Mrs. Van's HSPA information*. Retrieved from http://www.pthsd.k12.nj.us/sch/phs/academicstudies/HSPA/HSPA.title.html

Paulson, S. E. & Marchant, G. J. (2009). Background variables, levels of aggregation, and standardized test scores. *Education Policy Analysis Archives, 17*(22). Retrieved from http://epaa.asu.edu/epaa/v/17n22/

Payne, K. J. & Biddle, B. J. (1999). Poor school funding, child poverty, and mathematics achievement. *Educational Researcher, 28*(6), 4-13.

Pereira, M. (2011). *The influence of student and school variables on student performance on the New Jersey Assessment of Skills and Knowledge in Grade 8.* Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.

Perie, M., Marion, S., & Gong, B. (2007). *The role of interim assessments in a comprehensive assessment system: A policy brief.* Retrieved from http://www.achieve.org/files/TheRoleofInterimAssessments.pdf

Planty, M. (2008). *The condition of education 2008*. Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 2008-031).

Podgursky, M. (2003, Summer). Fringe benefits. *Education Next, 3*(3).

Public Broadcasting System. (2002). What can stand in the way of a student's mathematical development? PBS. Retrieved from http://www.pbs.org/wgbh/misunderstoodminds/mathdiffs.html

Raudenbush, S. (2010). *Student mobility: Exploring the impact of frequent moves on achievement: Summary of a workshop*. Washington, DC: The National Academies Press.

The relationship of student mobility to achievement. (2010). Portland, OR: Northwest Regional Educational Laboratory. Retrieved from http://archive.relnei.org/documents/RDR_2010-09-03_Student_Mobility.pdf

Rhodes, V. L. (2011). Kids on the move: The effects of student mobility on NCLB school accountability ratings. Retrieved from http://academic.research.microsoft.com/Paper/5149383.aspx

Rice, J. K. (2003, August). *Teacher quality: Understanding the effectiveness of teacher attributes.* Washington, DC: Economic Policy Institute.

Rivers, J., & Sanders, W. (2002). Teacher quality and equity in educational opportunity: Findings and policy implications. In L.Izumi and W. Evers (Eds.), *Teacher quality (*pp. 13-23). Stanford, CA: Stanford University, Hoover Institution Press.

Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica 73*(2), 417-458.

Robins, L., & Ratcliff, K. (1978). *Long range outcomes associated with school truancy.* Washington, DC: Public Health Service.

Robinson, J., Rivers, W., & Brecht, R. (2006). Speaking foreign languages in the United States: Correlates, trends, and possible consequences. *Modern Language Journal*, *90*(4), 457-472.

Roby, D. (2003). Research on school attendance and student achievement: A study of Ohio schools. *Educational Research Quarterly*, 28(1), 3-16.

Rockoff, J. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review, 94*(2), 247–52. Retrieved from http://129.3.20.41/eps/pe/papers/0304/0304002.pdf

Roderick, M. (1993). *The path to dropping out: Evidence for intervention*. Westport, CT: Auburn House.

Ronfeldt, M., Loeb, S., Wyckoff, J. How teacher turnover harms student achievement. *American Educational Research Journal*. (NBER Working Paper No. 17176).

Rosenberg, M. S., & Sindelar, P. T. (2001). *The proliferation of alternative routes to certification in special education: A critical review of the literature.* Arlington, VA: National Clearinghouse for Professions in Special Education.

Rothstein, R. (2004). The achievement gap: A broader picture. *Educational Leadership*, *62*(3), 40-41.

Rowan, B., Correnti, R., & Miller, R. J. (2002).What large-scale, survey research tells us about teacher effects on student achievement: Insights from the Prospects study of elementary schools. *Teachers College Record, 104*(8), 1525–1567.

Rumberger, R. W. (1987). The impact of salary differentials on teacher shortages and turnover: The case of mathematics and science teachers. *Economics of Education Review*, *6*(4), 389–399.

Rumberger, R. W. (2003). The causes and consequences of student mobility. *The Journal of Negro Education, 72*(1), 6–21.

Rundall, R.A. (1986). Continuity in subbing: Problems and solutions. *Clearing House, 59*(5), 240.

Rutter, R. A. (1988). *Effects of school as a community*. Madison, WI: National Center on Effective Secondary Schools.

Sagor, R. D. (1992, February). Three principals who make a difference. *Educational Leadership 49*, 5, 13-18.

Saphier, J., Haley-Speca, M. A., Gower, R. (2008). *The Skillful Teacher: Building your teaching skills.* Acton, MA: Research for Better Teaching.

Schagen, I., Benton, T., & Rutt, S. (2004). *Study of attendance in England*: (Report for National Audit Office). Sough, England: National Foundation for Educational Research.

Simmons, T. (1996, June 5). State's teachers leaving classroom, with the brightest leading the way. *The News and Observer.* Retrieved from http://www.nando.net/newsroom/nao/nc/060596/nct_13259.htm

Smith, D. B. (1984). *A study of the relationship between elementary teacher absenteeism and the achievement of elementary pupils in reading and mathematics.* Unpublished doctoral dissertation, Michigan State University, East Lansing, MI.

Smith, D. L., & Smith, B. J. (2006, February/March). Perceptions of violence: The views of teachers who left urban schools. *The High School Journal, 89*(3), 34-42.

Smith, D.T., & DeYoung, A. J. (1988, Winter). Big school vs. small school: Conceptual, empirical, and political perspectives on the re-emerging debate. *Journal of Rural and Small Schools,* 2-11.

Smith, G. R., Gregory, T. B., & Pugh, R. C. (1981, April). Meeting student needs: Evidence for the superiority of alternative schools. *Phi Delta Kappan*, 62(8), 561-564.

Smollin, M. (2011). Five reasons teacher turnover is on the rise. Money and respect are only two things quality educators want more of. *Take Part.* Retrieved from http://www.takepart.com/article/2011/08/09/five-reasons-teacher-turnover-rise

Sparks, D. (2012). School absences translate to lower test scores, study says. *Education Week, 32*(14), 12-13.

StatSoft, Inc. (2012). Electronic Statistics Textbook. Tulsa, OK: StatSoft. Retrieved from http://www.statsoft.com/textbook/

Sterling, D. R. (2004). The teacher shortage: National trends for science and mathematics teachers. *The Journal of Mathematics and Science: Collaborative Explorations (7)*. 85-96.

Stockard, J., & Mayberry, M. (1992). Resources and school and classroom size. In J. Stockard, & M. Mayberry, *Effective Educational Environments* (pp. 40-58). Newbury Park, CA: Corwin Press.

Strickland, D. S., & Alvermann, D. E. (2004). Learning and teaching literacy in grades 4–12: Issues and challenges. In D. S. Strickland & D. E. Alvermann (Eds.), *Bridging the literacy achievement gap: Grades 4–12* (pp. 1-12). New York, NY: Teachers College Press.

Stronge, J. H. (2002). *Qualities of effective teachers*. Alexandria, VA: Association of Supervision and Curriculum Development.

Student achievement gains have slowed since NCLB. (2011). National Education Association. Retrieved from http://www.nea.org/home/16213.htm

Sullivan, S. & Glanz, J. (2005). *Supervision that improves teaching* (2nd ed.). Thousand Oaks, CA: Corwin Press.

Summers, A. A., & Wolfe, B. L. (1977, September). Do schools make a difference? *American Economic Review*, *67*(4), 639–652.

Summers, A., & Raivetz, M. (1982). What helps fourth grade students to read? In A. Summers (Ed.), *Productivity Assessment in Education*. San Francisco, CA: Jossey-Bass.

Sutton A., & Soderstrom, I. (1999). Predicting elementary and secondary school achievement with school-related and demographic factors. *The Journal of Educational Research, 92*(6), 330. Retrieved March 7, 2010, from ProQuest Education Journals. (Document ID: 44508416)

Temple, J. A., & Reynolds, A. J. (1999). School mobility and achievement: Longitudinal findings from an urban cohort. *Journal of School Psychology, 37,* 355-377.

Terry, L. A., & Kritsonis, W. A. (2008). A national issue: Whether the teacher turnover effects students' academic performance? *National Journal for Publishing and Mentoring Doctoral Student Research, 5* (1). (ERIC Document Reproduction Service No. ED499543).

Theobald, N. (1990). An examination of the influence of personal, professional, and school district characteristics on public school teacher retention. *Economics of Education Review 90*(3), 241-250. Retrieved from http://ideas.repec.org/a/eee/ecoedu/v9y1990i3p241-250.html

Tienken, C. H. (2012). Poverty Matters. *Journal of Scholarship and Practice* 9(1), 3-8.

Tienken, C. H. (2012). The influence of poverty on achievement. *Kappa Delta Pi Record, 48,* 105-107.

Tomlinson, C. A., (2001). *How to differentiate instruction in mixed-ability classrooms.* (2nd ed.) Alexandria, VA: ASCD.

Tramaglini, T. (2010). *Student achievement in lower SES high schools*. Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.

Trochim, M. K. (2006). *General Linear Model.* Web Center for Social Research Methods. Retrieved May 8, 2012 from http://www.socialresearchmethods.net/kb/genlin.php

Tuerk, P. W. (2005, June). Research in the high stakes era. *Psychological Science, 16*(6),419-25.

Turbeville, I. F. (1987). *The relationship of selected teacher characteristics on teacher absenteeism in selected school districts of South Carolina.* Unpublished doctoral dissertation, University of South Carolina, Columbia, SC.

Tye, B. B. & O'Brien. L. (2002). Why are experienced teachers leaving the profession? *Phi Delta Kappan* 84(1), 24-32.

U.S. Census Bureau. (2010). *2010 Census data*. Retrieved from http://www.census.gov/

U.S. Department of Education (1996). *The problem of truancy in America's communities*. Washington, DC: Government Printing Office.

U.S. Department of Education (2001). No Child Left Behind Act. Retrieved from http://www.nclb.org

U.S. Department of Education. (2004). *No child left behind: A toolkit for teachers*. Washington, DC: U.S. Department of Education.

U.S. Department of Education, (2007). *Teacher attrition and mobility: Results from the 2004-05 teacher follow-up survey*.

U.S. Department of Education. (2008). *25 years after A Nation at Risk*. Retrieved from http://www2.ed.gov/rschstat/research/pubs/risk25.html

U.S. Department of Education. (2010). C*onsolidated state application accountability workbook.* Retrieved from http://www.state.nj.us/education/grants/nclb/accountability/workbook0910.pdf

U.S. Department of Education, (2012). *Digest of Education Statistics, 2011. Washington, DC:* U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey.

U.S. Department of Education. (2012). *Reauthorization of the Elementary and Secondary Education Act (ESEA)*. Retrieved from http://www.ed.gov/blog/topic/esea-reauthorization/

U.S. Department of Justice. (2001). *Truancy reduction: Keeping students in school.* Office of Justice Programs. Office of Juvenile Delinquency Prevention.

Uekawa, K., Borman, K., & Lee, R. (2007). Student engagement in U.S. urban high school mathematics and science classrooms: Findings on social organization, race, and ethnicity. *Urban Review: Issues and Ideas in Public Education, 39*(1), 1-43.

Urban Schools Initiative, Ohio Department of Education. (1998). *Student mobility and academic achievement: A report of the urban schools initiative mobility work/study group*. Columbus, OH: Author.

Varlas, L. (2001). Succeeding with substitute teachers. *Education Update, 43*(7).

Walberg, H. J. On local control: Is bigger better? In *Source Book on School and District Size, Cost, and Quality*. Minneapolis, MN: Minnesota University, Hubert H. Humphrey Institute of Public Affairs; OakBrook, IL: North Central Regional Educational Laboratory, 1992, 118-134 (ED 361 164).

Walberg, H., & Walberg, H. (1994). Losing local control. *Educational Researcher, 23*(5), 19–26.

Wang, M. C., Haertel, G.D., & Wahlberg, H.J. (1993). Toward a knowledge base for school learning. *Review of Education Research, 63*(3), 249-294.

Washington Township High School (2012). *Course Selection Guide.* Retrieved from http://www.wtps.org/wths/guidance/docs/HS_Course_Selection_Guide.pdf

Way, J. W. (1985, August). *Evaluation of the School Within a School*, 1984-85. Kansas City, MO: Kansas City School District.

Wayne, A. J., & Youngs, P. (2003). Teacher characteristics and student achievement gains: A review. *Review of Educational Research, 73*(1), 89–122.

Web Center for Social Research Methods. (2006). *GLM Models.* Retrieved from http://www.socialresearchmethods.net/kb/genlin.php

Webster, W. J. (1988, March-April). Selecting effective teachers. *Journal of Educational Research*, *81*(4), 245-53.

Wehlage, G. G., & Rutter, R. (1986). *Evaluation of model program for at-risk students.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Wehmeyer, M. L. & Schwartz, M. (2001, February 28), Disproportionate representation of males in special education services: Biology, behavior, or bias? *Education & Treatment of Children*, *24*(1), 28-45.

Weiss, I. R., & Boyd, S. E. (1990). *Where are they now? A follow-up study of the 1985-86 science and mathematics teaching force.* Chapel Hill, NC: Horizon Research.

Wenglinsky, H. (2000). *How teaching matters: Bringing the classroom back into discussions of teacher quality*. Princeton, NJ: Educational Testing Service.

West, M. R., & Peterson, P. E., (2003). The politics and practice of accountability. In M. R. West, & P. E. Peterson (Eds.), *No Child Left Behind? The politics and practice of accountability*. Washington, DC: Brookings Institution Press.

Whitener, S. (1997). *Characteristics of stayers, movers, and leavers: Results from the teacher followup survey, 1994-95*. Washington, DC: U. S. Department of Education, National Center for Education Statistics, Office of Educational Research and Improvement.

Wise, A. E., Darling-Hammond, L., & Berry, B. (1987). Effective teacher selection: From recruitment to selection. Santa Monica, CA: RAND Corporation.

Witte, R. S., Witte, J. S. (2007). *Statistics*. Hoboken, NJ. John Wiley & Sons.

Womble, M. (2001). *Teacher absenteeism: The relationship between teacher absence due to illness and school performance level ranking on the 1998-1999 North Carolina ABCs accountability K-8 plan model.* Greenville, NC: East Carolina University.

Woods, R. C. (1990). *The effect of teacher attendance on student achievement in two selected school districts.* Unpublished doctoral dissertation, Ball State University, Muncie, IN.

Wright, W. E. & Pu, C.. (2005). Academic achievement of English language learners in post-Proposition 203 Arizona. Tempe, AZ: Education Policy Studies Laboratory. Retrieved from http://www.asu.edu/educ/epsl/EPRU/documents/EPSL-0509-103-LPRU.pdf.

Wuensch, K. L. (2007). *A brief introduction to multiple correlation/regression as a simplification of the multivariate general linear model.* Retrieved from http://core.ecu.edu/psyc/wuenschk/MV/multReg/intromr.doc

Xu, Z., Hannaway, J., D'Souza, S., & Urban Institute, N. (2009). *Student transience in North Carolina: The effect of school mobility on student outcomes using longitudinal data.* (Working Paper No. 22). Washington, DC: National Center for Analysis of Longitudinal Data in Education Research. Retrieved from ERIC database. (EJ938590).

Appendices

Appendix A

Mobility of public elementary and secondary teachers, by selected teacher and school characteristics: Selected years, 2008–09

http://nces.ed.gov/programs/digest/d10/tables/dt10_077.asp

Selected Characteristic	Remained in same school			Changed schools			Left teaching		
Total (percent)	**84.5**		**(0.84)**	**7.6**		**(0.53)**	**8.0**		**(0.55)**
Sex									
Male	84.4		(1.77)	7.8		(1.33)	7.9		(1.13)
Female	84.5		(0.94)	7.5		(0.57)	8.0		(0.65)
Race/ethnicity									
White	85.0		(0.96)	7.0		(0.58)	8.0		(0.67)
Black	80.5		(3.13)	10.4		(1.90)	9.0		(2.27)
Hispanic	83.8		(3.18)	10.7		(2.54)	5.6	!	(1.81)
Asian/Pacific Islander	80.1		(10.84)	11.9	!	(8.27)	8.0	!	(3.84)
Asian	79.5		(10.95)	10.9	!	(8.50)	9.6	!	(4.38)
Age									
Less than 25	75.3		(4.06)	16.0		(3.16)	8.7	!	(3.11)
25 to 29	76.3		(3.08)	14.3		(1.90)	9.4		(2.09)
30 to 39	84.4		(2.14)	7.3		(1.33)	8.4		(1.46)
40 to 49	89.6		(1.54)	6.6		(1.09)	3.9		(0.91)
50 to 59	85.9		(1.61)	5.7		(1.08)	8.4		(1.26)
60 to 64	80.0		(5.29)	2.6	!	(0.86)	17.5		(5.10)
65 and over	89.2		(4.72)	‡		(†)	10.4	!	(4.84)
Full- and part-time teaching experience									
1 year or less	73.0		(4.29)	15.7		(2.28)	11.4	!	(3.94)
2 years	76.0		(4.70)	15.2		(3.26)	8.8	!	(2.93)
3 years	79.5		(5.12)	11.5	!	(4.00)	9.0	!	(3.11)

4 to 10 years	83.6		(1.70)	8.3		(1.02)	8.1		(1.27)
11 to 20 years	90.7		(1.13)	5.0		(0.64)	4.3		(0.89)
21 to 25 years	87.2		(2.93)	7.1		(1.93)	5.8	!	(2.31)
More than 25 years	82.8		(2.23)	4.6	!	(1.39)	12.6		(2.12)
Level taught									
Elementary	84.6		(1.28)	7.5		(0.69)	7.9		(1.01)
Secondary	84.3		(1.13)	7.6		(0.89)	8.0		(0.75)
School size									
Less than 150	79.2		(7.38)	9.6	!	(3.47)	11.2	!	(6.15)
150 to 349	83.4		(2.25)	9.2		(1.71)	7.3		(1.26)
350 to 499	82.3		(2.82)	8.3		(1.34)	9.4		(2.28)
500 to 749	87.7		(1.33)	7.0		(0.92)	5.3		(0.79)
750 or more	84.3		(1.43)	6.8		(0.94)	8.9		(1.01)
Locale									
City	84.5		(1.41)	8.0		(0.97)	7.5		(1.01)
Suburban	84.3		(1.30)	7.5		(0.80)	8.3		(1.08)
Town	84.9		(3.64)	7.6		(2.06)	7.5	!	(2.51)
Rural	84.4		(1.97)	7.2		(0.97)	8.4		(1.44)

—Not available.

†Not applicable.

!Interpret data with caution.

‡Reporting standards not met.

NOTE: Race categories exclude persons of Hispanic ethnicity. Detail may not sum to totals because of rounding. Standard errors appear in parentheses. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), Characteristics of Stayers, Movers, and Leavers: Results From the Teacher Follow-up Survey 1994-95; Teacher Attrition and Mobility: Results From the Teacher Follow-up Survey: 2000-01; "Public School Teacher Data File" and "Private School Teacher Data File," 2003–04 and 2007–08; and Teacher Follow-up Survey (TFS), "Current and Former Teacher Data Files," 2004–05 and 2008–09. (This table was prepared December 2010.)

Appendix B

Pearson Correlations: All Variables and LAL

		TotalLALP	School Size	SES	LEP	SPED	Student Attendance	Student Mobility	Faculty Attendance	Faculty Mobility	MA+	HQ
Pearson Correlation	TotalLALP	1.000	.138	-.341	-.339	-.328	.766	-.551	.133	-.169	.231	.058
	School Size	.138	1.000	-.177	.031	-.117	-.001	-.079	.009	-.083	.033	-.014
	SES	-.341	-.177	1.000	.168	.076	-.217	.304	-.046	.065	-.185	-.026
	LEP	-.339	.031	.168	1.000	.012	-.245	.235	-.094	.163	-.042	-.048
	SPED	-.328	-.117	.076	.012	1.000	-.165	.104	-.055	-.077	-.039	-.073
	Student Attendance	.766	-.001	-.217	-.245	-.165	1.000	-.369	.121	-.132	.274	.124
	Student Mobility	-.551	-.079	.304	.235	.104	-.369	1.000	-.129	.083	-.238	-.090
	Faculty Attendance	.133	.009	-.046	-.094	-.055	.121	-.129	1.000	.043	.311	.729
	Faculty Mobility	-.169	-.083	.065	.163	-.077	-.132	.083	.043	1.000	.059	.086
	MA+	.231	.033	-.185	-.042	-.039	.274	-.238	.311	.059	1.000	.374
	HQ	.058	-.014	-.026	-.048	-.073	.124	-.090	.729	.086	.374	1.000
Sig. (1-tailed)	TotalLALP	.	.006	.000	.000	.000	.000	.000	.008	.001	.000	.144
	School Size	.006	.	.001	.283	.016	.489	.075	.438	.065	.272	.397
	SES	.000	.001	.	.001	.083	.000	.000	.201	.116	.000	.314
	LEP	.000	.283	.001	.	.415	.000	.000	.043	.001	.221	.191
	SPED	.000	.016	.083	.415	.	.001	.029	.159	.079	.241	.090
	Student Attendance	.000	.489	.000	.000	.001	.	.000	.013	.008	.000	.011
	Student Mobility	.000	.075	.000	.000	.029	.000	.	.009	.066	.000	.049
	Faculty Attendance	.008	.438	.201	.043	.159	.013	.009	.	.214	.000	.000

	Faculty Mobility	.001	.065	.116	.001	.079	.008	.066	.214	.	.140	.058
	MA+	.000	.272	.000	.221	.241	.000	.000	.000	.140	.	.000
	HQ	.144	.397	.314	.191	.090	.011	.049	.000	.058	.000	.
N	TotalLALP	336	336	336	336	336	336	336	336	336	336	336
	School Size	336	336	336	336	336	336	336	336	336	336	336
	SES	336	336	336	336	336	336	336	336	336	336	336
	LEP	336	336	336	336	336	336	336	336	336	336	336
	SPED	336	336	336	336	336	336	336	336	336	336	336
	Student Attendance	336	336	336	336	336	336	336	336	336	336	336
	Student Mobility	336	336	336	336	336	336	336	336	336	336	336
	Faculty Attendance	336	336	336	336	336	336	336	336	336	336	336
	Faculty Mobility	336	336	336	336	336	336	336	336	336	336	336
	MA+	336	336	336	336	336	336	336	336	336	336	336
	HQ	336	336	336	336	336	336	336	336	336	336	336

Appendix C

Pearson Correlations: All Variables and Math

		TotalMathP	School Size	SES	LEP	SPED	Student Attendance	Student Mobility	Faculty Attendance	Faculty Mobility	MA+	HQ
Pearson Correlation	TotalMathP	1.000	.178	-.369	-.346	-.304	.736	-.567	.169	-.180	.330	.096
	School Size	.178	1.000	-.177	.031	-.117	-.001	-.079	.009	-.083	.033	-.014
	SES	-.369	-.177	1.000	.168	.076	-.217	.304	-.046	.065	-.185	-.026
	LEP	-.346	.031	.168	1.000	.012	-.245	.235	-.094	.163	-.042	-.048
	SPED	-.304	-.117	.076	.012	1.000	-.165	.104	-.055	-.077	-.039	-.073
	Student Attendance	.736	-.001	-.217	-.245	-.165	1.000	-.369	.121	-.132	.274	.124
	Student Mobility	-.567	-.079	.304	.235	.104	-.369	1.000	-.129	.083	-.238	-.090
	Faculty Attendance	.169	.009	-.046	-.094	-.055	.121	-.129	1.000	.043	.311	.729
	Faculty Mobility	-.180	-.083	.065	.163	-.077	-.132	.083	.043	1.000	.059	.086
	MA+	.330	.033	-.185	-.042	-.039	.274	-.238	.311	.059	1.000	.374
	HQ	.096	-.014	-.026	-.048	-.073	.124	-.090	.729	.086	.374	1.000
Sig. (1-tailed)	TotalMathP	.	.001	.000	.000	.000	.000	.000	.001	.000	.000	.039
	School Size	.001	.	.001	.283	.016	.489	.075	.438	.065	.272	.397
	SES	.000	.001	.	.001	.083	.000	.000	.201	.116	.000	.314
	LEP	.000	.283	.001	.	.415	.000	.000	.043	.001	.221	.191
	SPED	.000	.016	.083	.415	.	.001	.029	.159	.079	.241	.090
	Student Attendance	.000	.489	.000	.000	.001	.	.000	.013	.008	.000	.011
	Student Mobility	.000	.075	.000	.000	.029	.000	.	.009	.066	.000	.049
	Faculty Attendance	.001	.438	.201	.043	.159	.013	.009	.	.214	.000	.000
	Faculty Mobility	.000	.065	.116	.001	.079	.008	.066	.214	.	.140	.058
	MA+	.000	.272	.000	.221	.241	.000	.000	.000	.140	.	.000
	HQ	.039	.397	.314	.191	.090	.011	.049	.000	.058	.000	.
N	TotalMathP	336	336	336	336	336	336	336	336	336	336	336
	School Size	336	336	336	336	336	336	336	336	336	336	336

SES	336	336	336	336	336	336	336	336	336	336	336
LEP	336	336	336	336	336	336	336	336	336	336	336
SPED	336	336	336	336	336	336	336	336	336	336	336
Student Attendance	336	336	336	336	336	336	336	336	336	336	336
Student Mobility	336	336	336	336	336	336	336	336	336	336	336
Faculty Attendance	336	336	336	336	336	336	336	336	336	336	336
Faculty Mobility	336	336	336	336	336	336	336	336	336	336	336
MA+	336	336	336	336	336	336	336	336	336	336	336
HQ	336	336	336	336	336	336	336	336	336	336	336