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The Influence of Chronic Absenteeism on Grade 6, Grade 7, and Grade 8 2014 New Jersey Assessment of Skills and Knowledge

Cheryl A. Dunlap

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Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Education

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2016

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SETON HALL UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN SERVICES
OFFICE OF GRADUATE STUDIES

APPROVAL FOR SUCCESSFUL DEFENSE

Cheryl A. Dunlap, has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ed.D.** during this **Spring Semester 2016**.

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Abstract

The Influence of Chronic Absenteeism on Grade 6, Grade 7, and Grade 8
2014 New Jersey Assessment of Skills and Knowledge

This cross-sectional, correlational, explanatory study aimed to explain what influence, if any, chronic absenteeism has on Grade 6, 7, and 8 English Language Arts (ELA) and Mathematics New Jersey Assessment of Skills and Knowledge (NJ ASK) performance, in the aggregate, when controlling for other influential student and school demographic variables. Student achievement scores on the Grade 6-8 ELA NJ ASK and Mathematics NJ ASK were analyzed separately. Analyses were conducted using simultaneous regression, hierarchical regression, and binary logistic regression models. All student data explored in this study pertained to 220 Grade 6-8 middle schools located in New Jersey during the 2013-2014 school year. The sample was taken from the New Jersey Department of Education (NJDOE) NJ School Performance Report 2014, which was representative of a proportional random sample of New Jersey's district composition. The results of the study revealed that using chronic absenteeism as an independent variable to predict the dependent variable of students scoring Proficient or above on the NJ ASK accounted for a weak contribution—.9% for ELA and .5% for Mathematics—in the total variance that can be explained in ELA and Mathematics performance. This was demonstrated in Model 4 of the hierarchical regression where the independent variables chronically absent students, students with limited English proficiency, students with disabilities, and students with low socioeconomic status were considered. The results of the study also revealed that chronic absenteeism was not a statistically significant

predictor of the odds to determine whether or not students would score Proficient or above on the Grades 6-8 ELA or Mathematics NJ ASK.

Keywords: Chronic Absenteeism, Absenteeism, Attendance, NJASK, Achievement, Standardized Tests

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My help comes from the Lord, the maker of heaven and earth.

– Psalm 121:2

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Dedication

I dedicate this work to my family, Gregory, Chuck, Leah, and Shaun. I could not have done this work without your unconditional love and support. In each of your unique ways you have encouraged me to forge ahead and successfully complete my dissertation. You guys are the light of my life, and achieving this goal is only meaningful with each of you by my side. I am so blessed to have each of you in my life.

I would like to thank my mother and father for being hard workers and for supporting my educational endeavors. I will always remember how happy my mother was when I shared that I successfully passed my dissertation defense. My mother kept telling everyone that Cheryl is a Doctor of Education now. I am so saddened that she did not live to see me graduate, but knowing that her heart was filled with joy is comforting.

I also have many other family members and friends who have encouraged me along the way. I want all of them to know how much I appreciate their encouragement. The Comvalius family has always emphasized the importance of education. From the time I was young, they inspired me to work hard and make education a priority. That strict mindset has helped me face several challenges in life with an unwavering determination to succeed. The Dunlap family has always been supportive and cheered for me throughout the pursuit of my doctoral degree. I want to thank the Dunlaps for keeping me motivated. I also want to thank all of the friends I've met along the way who have offered their support in many ways.

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CHAPTER I

INTRODUCTION

Background

"Chronic absenteeism is a national problem, handicapping education efforts across the country. It is estimated that between 5 million and 7.5 million students nationwide are not attending school regularly" (Balfanz & Byrnes, 2013, p. 5). Chronic absenteeism refers to students who are absent for 10% or more of the school year for any reason (NJDOE, 2015a). In 2012 New Jersey added chronic absenteeism as an accountability metric for elementary and middle schools as part of New Jersey's waiver from No Child Left Behind (NCLB) strictures. In New Jersey, any school that has more than 6% of its enrollment chronically absent is under advisement to pay closer attention to attendance trends (Chang, Leong, Fothergill, & Ross, 2013). Tracking chronic absenteeism is not the same as tracking average daily attendance. Many schools assume that having a 95% average daily attendance is an indicator of good attendance but this is usually not the case (Bruner, Discher, & Chang, 2011).

> For example, even in a school of 200 students with 95 percent average daily attendance, 30 percent (or 60) of the students could be missing nearly a month of the school year. It all depends whether absences are due to most students missing a few days or excessive absences among a small but still significant minority of students (Bruner et al., 2011, p. 2).

Research shows that chronic absenteeism can start in the early grades and affect performance in later grades. By middle school, chronic absenteeism becomes an early warning sign that a student is more likely to drop out of high school. Chronic absenteeism

can affect teaching and learning not only for the individual student but for the whole class. When chronic absenteeism reaches high levels in a school, it may be an indication of systemic challenges within neighborhoods that create barriers to going to school. Chronic absenteeism may also be an indication that there are problems with the school. For example, a school may be experiencing ineffective teaching, high rates of teacher turnover, a poor school climate and ineffective school discipline. Challenging conditions in a school along with chronic absenteeism requires a substantial collaborative effort to understand and resolve (Chang et al., 2013).

> The extent of chronic absenteeism and its impacts, particularly in communities that educate large numbers of low-income students, are so great that educators and policymakers cannot truly understand achievement and graduation gaps or evaluate the effectiveness of efforts to close them without factoring in the role of chronic absenteeism (Balfanz & Byrnes, 2013, p. 5).

Research shows that students who attend school regularly benefit academically. The results of national testing show that in every state students that were chronically absent scored lower on standardized tests than their peers. Chronically absent students obtaining lower scores on standardized tests occurs at every age, in every racial and ethnic group (Ginsburg, Jordan, & Chang, 2014). Ginsburg et al.'s (2014) research shows that students from low-income families are more likely to be chronically absent, but the negative effects of missing too much school impacts all socioeconomic groups.

As early as the 19th century, chronic absenteeism, referred to in the literature as school absenteeism, school refusal, and truancy, concerned many schools, courts,

communities, and social and behavioral scientists (Clay, 2004; Leyba & Massat, 2009). During the 19th century public schools existed without rules and regulations for student attendance. Public schools had voluntary student attendance. To restructure the voluntary system, the courts intervened to implement compulsory education laws. The intervention of the courts played a significant role in validating and legitimizing the idea that education was synonymous with attendance at school (Hutt, 2012).

By 1918 all states had compulsory education laws, although until the 1930s, many states were unsuccessful in enforcing their compulsory education laws. The growth in the population and increased demand for skilled labor caused school bureaucrats to seek enforcement of compulsory education laws. “The emergence of effective enforcement mechanisms translated an isolated phenomenon—school attendance—into an integral part of the state's systematic regulation of the conduct of school-aged youth” (Katz, 1976, p. 21).

According to Tienken and Orlich (2013), education reform continues because of recommendations made by many people. In 1983 a national report entitled *A Nation at Risk* identified serious problems with public education and referred to the school system as a rising tide of mediocracy (Jones, 2009). *A Nation at Risk* focused on raising the standards for education, which included four important aspects of education: content, expectations, time, and teaching. Higher expectations for students were communicated through the presence of rigorous standardized testing (Gardner, 1983).

In 2001 the No Child Left Behind (NCLB) Act refocused the nation on maintaining high standards for education of all students. The main priorities addressed in NCLB include improving the academic performance of disadvantaged students, boosting

teacher quality, moving limited English proficient students to English fluency, promoting informed parental choice and innovative programs, encouraging safe schools for the 21st century, increasing funding for Impact Aid, and encouraging freedom and accountability. In order to hold school districts accountable for maintaining high academic standards, states were required to develop a system of sanctions for school districts that failed to meet the required NCLB targets. The use of required standardized tests is one measure that provides the necessary information to evaluate the performance of schools (Bush, 2001). To meet the requirements of NCLB, schools must demonstrate Adequate Yearly Progress (AYP). Schools demonstrate their AYP by reporting the performance of students on standardized tests along with attendance and dropout rate (Jones, 2009).

Under the leadership of President Barack Obama, the government continues the efforts made by previous administrations to implement a reform agenda based on an accountability assessment system that includes national standards and assessments (Deville & Chalhoub-Deville, 2011). “States will receive formula grants to develop and implement high-quality assessments aligned with college- and career-ready standards in English Language Arts and Mathematics that accurately measure student academic achievement and growth, provide feedback to support and improve teaching, and measure school success and progress” (United States Department of Education, 2010, p. 11).

According to Balfanz (2009), middle school will play a pivotal role in enabling the nation to reach President Obama’s goal of graduating all students from high school prepared for college or career training. Research shows that students’ middle grades experiences impact the extent to which they will graduate from high school and be prepared for college or career training. Consequently, a need exists to conceptualize the

role of the middle school as the launching pad for a secondary and post-secondary education system that enables all students to pursue the education they will need to fully experience the opportunities of 21st century America (Balfanz, 2009). Balfanz (2009) states that high schools with low graduation rates usually have significant, and often unrecognized, chronic absenteeism in the middle school. During middle school, many students learn that they can miss first a few, and then a growing number of school days with few or no repercussions. Schools should measure attendance in informative and actionable manners to implement effective attendance policies. Effective modifications to monitoring attendance will involve recording not simply average daily attendance in a school but keeping track of how many students have very good attendance; i.e., miss 5 or fewer days a year; are moderately absent, missing between 10 and 19 days; are chronically absent, missing 20 or more days; and are extremely chronically absent (Balfanz, 2009).

Problem Statement

According to Sethi (2014), most schools are comfortable with maintaining an average daily attendance rate of 90%. These schools do not realize that upon close analysis of their attendance rate, a large percentage of their students may be chronically absent. Chronic absenteeism is not the same as average daily attendance (Sethi, 2014). A chronically absent student is a student who is not present for 10% of the school year, whether the absence is excused or unexcused (NJDOE, 2014a). Monitoring the daily attendance rate is misleading because on different days different students represent the 90% daily attendance rate. In a school there may be a 40% chronic absenteeism rate with a 90% daily attendance rate (Sethi, 2014).

There is limited research on the influence of chronic absenteeism on student achievement. Reporting the average daily attendance is mandated in most states as an accountability measure for the No Child Left Behind Re-Authorization of the Elementary and Secondary Education Act (ESEA) (Balfanz & Byrnes, 2012). Average daily attendance is used as an accountability measure for school finance reasons (NJDOE, 2014b). In New Jersey in order to calculate state funding, schools are required to calculate the actual cost per student, which means "the local cost per pupil in average daily enrollment" (NJDOE, 2014b, p. 2).

Current research shows that using school data in the aggregate, specifically school wide attendance rates, hides very important individual student-level trends. To better monitor individual student-level trends, the New Jersey Department of Education has mandated that schools with greater than 6% of its enrollment identified as being chronically absent begin to pay closer attention to attendance trends and initiate involvement in attendance improvement programs (NJDOE, 2014a). Consequently, the NJDOE has required a new reporting format for all schools that includes reporting each student's cumulative days in membership and cumulative days present in order to determine if the student was chronically absent. The submitting of attendance data to the NJDOE is in accordance with the compulsory education law (N.J.S.A. 18A:38-28 through 31) and the attendance regulations law (N.J.A.C. 6A:16-7.6) (NJDOE, 2015b).

Empirical studies exist that use the input-output approach and associational quantitative analysis to examine the relationship of student achievement and policy-related variables, which includes average daily attendance; but these studies do not focus on chronic absenteeism, primarily because this metric has only been recently provided. A

comprehensive view of all factors that affect student achievement is necessary for administrators to develop education policy that is effective. There is limited empirical descriptive literature on chronic absenteeism in middle school, even though middle school attendance is a predictor of performance on state-mandated high-stakes tests and high school graduation rates (Kieffer, Marinell, & Stephenson, 2011). A quantitative study analyzing the influence of chronic absenteeism and what influence, if any, it has on New Jersey students' English Language Arts (ELA), formerly referred to as Language Arts Literacy, and Mathematics performance, as measured by NJ ASK, while controlling for other influential student and school demographic variables is necessary.

Purpose

The purpose of this quantitative study was to explain what influence, if any, chronic absenteeism has on Grade 6, 7, and 8 ELA and Mathematics NJ ASK performance, in the aggregate, when controlling for other influential student and school demographic variables. The study was performed to explain the strength and the direction of the relationships between chronic absenteeism and other school variables identified in the extant literature that influence the aggregate NJ ASK school scores for Grades 6 through 8 in ELA and Mathematics. By focusing on New Jersey middle schools and standardized test scores in ELA and Mathematics, this study sought to produce research-based evidence to inform school administrators when making policy decisions concerning the influence of chronic absenteeism.

Research Questions

The overarching research question is as follows: What is the influence of chronic absenteeism on the Grade 6, Grade 7, and Grade 8 school-level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables?

Research Question 1: What is the strength and direction of the relationship between chronic absenteeism and the Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables?

Research Question 2: What is the strength and direction of the relationship between chronic absenteeism and the Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables?

Research Question 3: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

Research Question 4: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

Null Hypotheses

Null Hypothesis 1: No statistically significant relationship exists between chronic absenteeism and the Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables.

Null Hypothesis 2: No statistically significant relationship exists between chronic absenteeism and the Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables.

Null Hypothesis 3: The probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant.

Null Hypothesis 4: The probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant.

Independent Variables: The NJ School Performance Report

The independent variables for this study were derived from the NJ 2014 School Performance Report. The New Jersey Department of Education collects data on various aspects of schools and makes the data available to the public in a yearly performance report. The NJ school performance report variables used in this study, and identified in extant literature, that potentially influence student achievement on standardized tests include the following:

Table 1

Student and School Variables

Student Variables	**School Variables**
Chronic absenteeism	Length of school day
Student attendance (Absenteeism)	Instructional time
Percentage of students with Free or Reduced-price Lunch (SES)	School size
Percentage of students with Limited English Proficiency (LEP)	
Percentage of students with disabilities	
Student Achievement Grade 6 NJ ASK, Grade 7 NJ ASK, and Grade 8 NJ ASK Aggregate ELA and Mathematics Scores 2014	

Dependent Variable: Grade 6 NJASK, Grade 7 NJASK, and Grade- 8 NJ ASK Aggregate ELA and Mathematics Scores

The dependent variable in this study was student achievement on Grade 6 NJ ASK, Grade 7 NJ ASK, and Grade 8 NJ ASK aggregate ELA and Mathematics scores for the year 2014. The New Jersey State Board of Education adopted the Common Core State Standards (CCSS) in ELA and Mathematics on June 16, 2010, which are the standards used for testing on the 2014 NJ ASK. NJ ASK scores are reported as proficiency percentages under the categories of Partially Proficient (<200), Proficient (200-249), and Advanced Proficient (250-300) for school, district, and state on NJ Performance Reports for all students tested in ELA and Mathematics (NJDOE, 2014c). The measurement value of the dependent variable used in this study is the percentage of Proficient and above.

Design and Methodology

This non-experimental, quantitative, correlational, explanatory study utilized the 2014 school data from the New Jersey Department of Education (NJDOE) website, which annually publishes school data gathered through the NJ Standards Measurement and Resource for Teaching (NJSMART) data system. "Quantitative research is a means for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures" (Creswell, 2009, p. 4). The chosen design is appropriate because I examined how a number of variables were related to student achievement on Grade 6 NJ ASK, Grade 7 NJ ASK, and Grade 8 NJ ASK ELA and Mathematics, in the aggregate, and to what degree this relationship existed.

The sample for this study was limited to New Jersey public middle schools that included only Grades 6-8, which totaled 220 middle schools excluding charter, vocational, and special education schools. The data were collected by downloading an Excel data file located on the NJDOE website and viewing the online NJ School Performance Reports for each middle school in the study. All data representing each of the 220 schools were utilized in a correlation analysis, multiple regression analysis, hierarchical regression analysis, and binary logistic regression analysis. Statistical analysis of the data was used to provide evidence of the influence of chronic absenteeism and what influence, if any, it has on Grade 6 NJ ASK, Grade 7 NJ ASK, and Grade 8 NJ ASK ELA and Mathematics scores, in the aggregate, while controlling for other influential student and school demographic variables.

Significance of the Study

Today's society is a global marketplace where education has critical importance as a primary factor in allowing youth to enter the workforce to advance economically. To benefit from educational opportunities, students must be present and engaged in school, yet absenteeism rates in the United States remain high and relatively unchanged (Tanner-Smith &Wilson, 2013). According to Dryfoos (1990), research shows that being absent from school is detrimental to student achievement, and chronic absenteeism will exacerbate educational risk factors for students in future years.

Traditionally at-risk populations of students fall within a variety of categories, including low achievement on standardized tests, poor attendance, low socioeconomic status, racial or ethnic minority, or engagement in high-risk behaviors such as truancy or substance use (Lauer, Akiba, Wilkerson, Apthorp, Snow & Martin-Glenn, 2006). Many efforts have been made to address the need to provide alternative educational opportunities for these at-risk populations. The effectiveness of these alternative educational opportunities must be explored because the New Jersey Department of Education (NJDOE, 2015a) has mandated that schools identified as schools with chronic absenteeism initiate involvement in attendance improvement programs.

The empirical studies on student attendance have predominantly focused on high school students (Gottfried, 2009). Middle school is an important transitional period for students that involves increased academic demands and exposure to a modified school structure; i.e., larger classes and multiple teachers. These environmental changes faced by middle school students heighten the risk of student disengagement and thus is an important period to identify early indicators that impact student achievement (Kieffer,

Marinell, & Neugebauer, 2014). Research shows that tracking a student's academic progress predicts whether a student will graduate from high school, but attendance trends in middle school are also a strong predictor of whether a student will graduate from high school (Kieffer & Marinell, 2012).

This study is based on the metrics reported in the 2014 NJ School Performance Report. Many of the metrics were collected for the first time, meaning that 2011-2012 was the first year that NJDOE collected the data and/or are presenting these metrics for publication. One of the metrics collected for the first time in 2011-2012 is chronic absenteeism (NJDOE, 2013). Chronic absenteeism begins to rise in middle school and continues to increase through high school (Balfanz & Chang, 2013). The NJDOE has mandated that "schools with greater than 6% of its [sic] enrollment determined to be chronically absent begin to pay closer attention to attendance trends" (NJDOE, 2013, p. 11). Schools with chronic absenteeism problems are also advised to use the resources located on the attendance works website (www.attendanceworks.org) to implement effective attendance initiatives (NJDOE, 2013). Chronic absenteeism is a college- and career-readiness indicator on the NJ School Performance Report because attendance is one of the behaviors that research has shown to be indicative of college- and career-readiness. The NJ School Performance Report indicates whether or not each school has met the state-mandated target of 6% or less, but chronic absenteeism is not currently a measure used for AYP. Average daily attendance continues to be used as the secondary measure for middle schools AYP targets (NJDOE, 2015d).

The chronic absenteeism rate of 6% or less was chosen as the target all schools must meet on their NJ School Performance Report. But the New Jersey Department of

Education does not state how the chronic absenteeism rate of 6% or less was chosen as a target for all schools to meet. The 6% or less chronic absenteeism rate may not be the optimal rate that predicts the point at which student performance on the NJ ASK is impacted for Grades 6-8. Further research is needed to predict the chronic absenteeism rate that is associated with student performance on the NJ ASK for Grades 6-8. The results of this study on middle school students adds to the existing knowledge dynamic and can help the NJDOE and the local school districts in which the study was conducted make informed decisions about how chronic absenteeism influences student achievement. The results may also have more encompassing value by supporting the establishment of effective attendance policies.

Limitations

According to Lamdin (1996), empirical studies on student achievement are typically based on data gathered from a large cross-section of school districts. These empirical studies often do not measure many of the factors that influence student achievement (Lamdin, 1996). The variables analyzed in this study are from the NJ 2014 School Performance Report, which are limited to the student and school variables listed in Table 1. The NJ 2014 School Performance Report does not contain statistics for a few variables that were included on prior school performance reports (i.e., the NJ 2011 School Performance Report). The variables that are excluded from the NJ 2014 School Performance Report are student mobility, percentage of faculty with a master's degree or higher, faculty mobility, and faculty attendance. Therefore the few variables that were eliminated from the NJ 2014 School Performance Report are not analyzed in this study, which poses a limitation to the study.

I conducted a non-experimental, cross-sectional, explanatory study. This study will address only the influence of chronic absenteeism on Grade 6 NJ ASK, Grade 7 NJ ASK, and Grade 8 NJ ASK aggregate ELA and Mathematics scores.

Delimitations

According to Balfanz, Herzog, and Mac Iver (2007), many grade spans exist in the United States, but most students attend a Grade 6 to 8 middle school more than any other school type. This study is limited to New Jersey middle schools with a Grade 6 to 8 configuration only. The results may not be projected to other middle school students. This study analyzes the aggregate NJ ASK ELA and Mathematics scores of students at the school level for the 2013-2014 school year. This explanatory study is also limited because it is a cross-sectional design.

Assumptions

In this study the researcher assumed that the school performance report data retrieved from the NJDOE website was accurate. The researcher also assumed that the data transferred from the NJDOE 2013-2014 Excel spreadsheets were accurately imported into the Statistical Package for the Social Sciences (SPSS). The researcher assumed that the NJ ASK scores and chronic absenteeism reports in New Jersey for the 2013-2014 school year revealed significant relationships and accurate variances. It is also assumed that NJ ASK 6, 7, & 8 accurately assesses student performance competence in both ELA and Mathematics.

Definition of Terms

Academic Learning Time. The amount of time a student spends engaged in an academic task that she or he can perform with high success (Denham & Lieberman, 1980).

Allocated school time. The number of school days in the year or number of hours students are required to attend school (Patall et al., 2010).

Attendance. Attendance is measured as the total days a student is present in a given school year (Gottfried, 2010).

Average daily attendance. The percentage of a school's student body that attends school on a typical day (Ginsburg et al., 2014).

Chronic absenteeism. The New Jersey School Performance Report defines chronic absenteeism for a student as not being present for 10% of the school year for any reason (includes unexcused and excused absences). Schools with greater than 6% of their enrollment determined to be chronically absent do not meet the state target of 6% or less for chronic absenteeism. Chronic absenteeism is calculated as the number of students in the most recent school year that missed 10% or more of the instructional days in the school year divided by the total number of students enrolled (NJDOE, 2015a).

Common Core State Standards (CCSS). The CCSS is used to identify the specific skills and knowledge that all students are expected to understand and be able to perform in English Language Arts and Mathematics. The goal for adopting CCSS is to help schools design learning experiences to focus on learning that will provide students with skills for the 21st century (NJDOE, 2014a).

Dropout. A dropout is a student who either voluntarily left school or was permanently removed from the school and who subsequently had not returned to that school or transferred to another one year later (Morris, Ehren, & Lenz, 1991).

Educational Policy Reform Research Institute (EPRRI). The EPRRI is funded by the U.S. Department of Education (USDOE). The guiding objective of EPRRI is to investigate the impact of educational accountability reform on students with disabilities and the programs that serve them by conducting in-depth research at all levels of the education system (Nagle, Yunker, & Malmgren, 2006).

Effect Size. The degree to which the phenomenon is present in the population or the degree to which the null hypothesis is false (Cohen, 1977).

English Language Learner (ELL). An ELL is a bilingual person who needs and uses two or more languages in his or her everyday life (Ardasheve, Tretter, & Kinny, 2012).

Generational Status. Generational status refers to whether the student and their parents were born in the United States or abroad and, specifically, whether these students were U.S. born to at least one immigrant parent (second generation), U.S. born to second generation parents (third generation), or foreign born (first generation) (Slama, 2012).

Limited English Proficiency (LEP). LEP students are students who are between 3 to 21 years old, enrolled or preparing to enroll in elementary or secondary school, either not born in the United States or speaking a language other than English and owing to difficulty in speaking, reading, writing, or understanding English, not meeting the states' proficient level of achievement to successfully achieve in English-only classrooms (Abedi, 2004).

Meta-analysis. Meta-analysis is the analysis of analyses. Meta-analysis is the statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating findings (Glass, 1976).

Mobility. Mobility is the proportion of students who move and have a different school assignment within the year (Thompson, Meyers, & Oshima, 2011).

New Jersey Assessment of Skills and Knowledge (NJ ASK). The NJ ASK is used to identify areas of curricular strength and weakness by examining the extent to which students meet established performance expectations. A student's performance on the NJ ASK is categorized as being Partially Proficient, Proficient, or Advanced Proficient (NJDOE, 2014c).

NJ Standards Measurement and Resource for Teaching (NJ SMART). The Department of Education's NJ SMART is an online data system that serves as a means to monitor state assessment data (NJDOE, 2014d).

No Child Left Behind (NCLB). On January 8, 2002, President Bush signed the NCLB act. The purpose of NCLB is to measure student achievement and to hold states and schools more accountable for student progress. The primary goal of NCLB is to ensure that all students, including students with disabilities, perform at a proficient level on state academic assessments (Simpson, LaCava, & Granner, 2004).

Opportunity to Learn (OTL). Opportunity to Learn is the degree to which a teacher dedicates instructional time and content coverage to the intended curriculum objectives emphasizing higher-order cognitive processes, evidence-based instructional practices, and alternative grouping formats (Kurz, Elliott, Lemons, Zigmond, Kloo, & Kettler, 2014).

Student achievement. A measure arrived at through formalized testing in the schools (Caldas, 1993).

Student disengagement. The process of detaching from school, disconnecting from the norms and expectations of school, reducing effort and involvement at school, and withdrawing from a commitment to school and to school completion (Balfanz, Herzog, & Mac Iver, 2007).

Truancy. A measure of how many students miss school without an excuse (Ginsburg et al., 2014).

Organization of the Study

In Chapter I, the researcher established an overview of the problem and background information related to chronic absenteeism and student achievement.

In Chapter II, the researcher provided a review of the literature pertaining to chronic absenteeism and student achievement. The literature review provides background information on other factors that influence student achievement and are reported on the 2014 NJ School Performance Report.

In Chapter III, the researcher explained the design methodology for this study. Data were collected from the Grades 6 through 8, 2014 NJ ASK aggregate test results as reported on the NJDOE website and part of the information contained on NJ School Performance Reports.

In Chapter IV, the researcher provided a report on the statistical findings of the study.

In Chapter V, the researcher provided a response to the research questions and recommendations for educational policies, practices, and future research. The response

was based on the research question: What is the strength and direction of the relationship between chronic absenteeism and student performance on the Grade 6, 7, and 8 aggregate NJ ASK scores in ELA and Mathematics?

CHAPTER II

REVIEW OF THE LITERATURE

Introduction of the Review

The purpose of this quantitative study was to explain what influence, if any, chronic absenteeism has on Grade 6, 7, and 8 ELA and Mathematics NJ ASK performance, in the aggregate, when controlling for other influential student and school demographic variables. The study was performed to explain the strength and the direction of the relationships between chronic absenteeism and other school variables identified in the extant literature that influence student performance in ELA and Mathematics as measured by standardized tests. By focusing on New Jersey middle schools and standardized test scores in ELA and Mathematics, this study aimed to produce research-based evidence to inform school administrators when making policy decisions concerning the influence of chronic absenteeism.

This literature review was guided by an overarching research question: what is the influence of chronic absenteeism on the Grade 6, Grade 7, and Grade 8 school-level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables? The research for the literature review was done by searching online databases and online and print editions of peer-reviewed educational journals. The search terms used in the literature review included high-stakes testing, NJ School Performance Report, student variables (chronic absenteeism, student attendance, socioeconomic status, students with LEP, and students with disabilities), and school variables (length of school day, instructional time, and school size), as listed on the 2014 NJ School Performance Report. The study reviewed the current and seminal literature on the relationship between

chronic absenteeism and student achievement scores on standardized assessments as well as establishing a profile on the relationship between student variables, school variables, and student achievement.

The objective of this literature review was to discuss the results of other studies that are closely related to this study on chronic absenteeism and its influence on student achievement in Grade 6-8 middle schools as measured by standardized assessments. This literature review also provided a framework for establishing the importance of this study as well as a benchmark for comparing the results with the findings in other relevant studies (Creswell, 2009). The references cited by other researchers were used to explore, expand, and uncover relevant information.

Existing Reviews

Specific studies on the influence of chronic absenteeism on Grade 6-8 middle schools' NJ ASK ELA and Mathematics scores do not exist. For the literature review, in gathering research on chronic absenteeism, I found studies that examined the following:

- The impact of attendance intervention programs on chronic absenteeism
- Students' chronic absenteeism patterns
- The impact of parental involvement on chronic absenteeism
- How community involvement and support impacts chronic absenteeism
- Factors that impact student achievement (i.e., socioeconomic status)

However, the majority of the research related to chronic absenteeism and student achievement are studies on the relationship between student attendance and student achievement.

Focus of Current Review

All schools must adhere to the compulsory education law (N.J.S.A. 18A:38-28 through 31) and attendance regulations (N.J.A.C. 6A:16-7.6). Legally all children between the ages of 6 to16 are required to attend school, and all school districts must implement student attendance policies (NJDOE, 2015). This literature review will focus on the need for students to attend school regularly, while explaining the difference between student attendance and chronic absenteeism.

There is a lack of existing empirical studies on chronic absenteeism, but there are several empirical studies on student and school variables and how they impact student achievement. In order to study chronic absenteeism and how it may influence student performance on the Grade 6-8 NJ ASK, a literature review of studies for each student and school variable was included. In addition, studies on how student attendance impacts student achievement are included; these are used to show how student attendance is related to chronic absenteeism.

There is an abundance of research on student attendance and its impact on student achievement, but little research exists on chronic absenteeism and student achievement. No study has examined the influence of chronic absenteeism on Grade 6-8 middle schools' NJ ASK ELA and Mathematics scores even though research shows that students with chronically poor attendance are characterized as having low academic achievement.

Significance of Existing Literature

No specific studies exist on the influence of chronic absenteeism on standardized assessments; however, studies do exist on the influence of student attendance on student achievement. Balfanz and Byrnes (2012) research as of May 2012 shows that only six

other states were reporting chronic absenteeism, including Georgia, Florida, Maryland, Nebraska, Oregon, and Rhode Island. Research shows that attendance in middle school can be used to identify students who are at a high risk of poor academic achievement in high school. Most of the high-risk students can be identified as early as sixth grade (Allensworth, Gwynne, Moore, & Torre, 2014). According to Kieffer, Marinell, and Neugebauer (2014), changes in attendance between Grades 4 and 8 can predict which students are on track to graduate from high school.

Review Methods

The literature review for this chapter was gathered through the use of online databases, which included EBSCOhost, ProQuest, ERIC, JSTOR, and Academic Search Premier. Online and print editions of peer-reviewed educational journals were also used to gather literature. Experimental studies, quasi-experimental studies, meta-analysis, and non-experimental studies were used to create the literature review. The literature review contains results from other studies that are closely related to the topic, which is the influence of chronic absenteeism on Grade 6-8 middle schools' NJ ASK ELA and Mathematics scores. The literature review relates the study to the broader ongoing dialogue in the literature and provides a framework for the comparison of the results with the findings of other studies (Creswell, 2009). The framework for literature reviews developed by Boote and Beile (2005) was followed for the research.

To find the literature in the research, some of the keywords used included chronic absenteeism, absenteeism, absenteeism and achievement, attendance, student socioeconomic status, ESL students, LEP students, ELL students, length of school day, instructional time, achievement testing, and school size. Relevant information was

identified in the literature on chronic absenteeism and other related variables. The bibliographies from the literature were used to broaden the scope of information. This strategy allowed for the exploration of a larger number of valid resources on chronic absenteeism.

Limitations of the Review

The limitations of this literature review are based on the lack of research available on chronic absenteeism as it relates to student achievement. The vast majority of the research focuses on how poor attendance and other student and school variables affect students academically.

Criteria for Inclusion and Exclusion of Literature

The criteria used to select the research for this literature review was identified as follows:

1. Studies that were peer reviewed
2. Studies that analyzed elementary, middle, and secondary schools
3. Studies that focused on the NJ School Performance Report variables in relation to student achievement
4. Research based on experimental studies, quasi-experimental studies, non-experimental studies, and meta-analysis
5. Studies published within the last 10 years
6. Research found in government reports
7. Seminal works

The research excluded from this literature review had to fit the following criteria:

1. Studies that included Charter schools.
2. Studies that included Pre-School.
3. Studies that included Vocational schools.
4. Studies that included Special Education schools.

Methodological Issues with Existing Literature

In the reviewed literature, particularly the research related to chronic absenteeism and the variables that influence student achievement, several methodological issues exist. Most of the studies were based on non-experimental and quasi-experimental research. Other methodological issues included a lack of reported effect sizes, most studies were cross-sectional, some were longitudinal studies that did not account for changes with the participants during the study, other studies presented mixed results using the same data, and the terms used from study to study were inconsistent.

The overwhelming cost of public school education poses a burden on local governments. The funding received from both the federal and state is essential for public schools to thrive. Several mandates from the federal and state government are linked to public school funding (Eger & McDonald, 2012). The government exerts its influence over the variables, including student variables and school variables that are addressed in predicting the influence of these variables on student achievement. Determining which student and school variables statistically influence or have little significance on Grade 6-8 NJ ASK ELA and Mathematics scores was part of this study.

Because few studies focus on chronic absenteeism and its influence on student achievement at the middle school level, the goal of this study was to provide evidence on

how much variance, if any, chronic absenteeism (as a predictive variable) has on aggregate Grade 6-8 middle school performance on NJ ASK ELA and Mathematics scores. The results of the research will inform school administrators so that decisions regarding chronic absenteeism will be based on empirical evidence.

Examination of Current Literature: The Body of the Review

Seminal Works

In Horace Mann's annual report for 1839, a seminal work, Mann (1872) discusses the importance of school attendance and how the lack of consistent attendance will affect students' development. According to Mann (1872), students must be present in school to receive the mental nourishment and access to resources they cannot provide for themselves. The irregular attendance of only one student negatively impacts the entire class, and the negative impact is an act of injustice. Schools have a responsibility to make both their internal and external aspects attractive to the students. The excuses used for absence by students must be eliminated. An alliance with the parents must be formed so that the students come to school eager to gain knowledge (Mann, 1872).

In the Cardinal Principles of Secondary Education, a seminal work, the Commission on the Reorganization of Secondary Education (1918) recognizes that education is a process of growth. The Commission on the Reorganization of Secondary Education (1918) focused on the function of the secondary school, and they also recognized the importance of the middle school years. The Commission on the Reorganization of Secondary Education (1918) stated that a need existed to differentiate the curriculum to support the different stages of students. At the age of 12 or 13, the ages of middle school students, schools should begin exposing students to skills they will need

as adults. This exposure prepares the student for the secondary school that will provide a more intimate knowledge of skills required by adults (Commission on the Reorganization of Secondary Education, 1918).

In the Eight-Year Study, a seminal work, the Progressive Education Association explored how schools can be changed to better service students. Two major principles were used to guide change, which include understanding the nature of the learner and establishing a vision. The concept of the school was broadened to recognize the school as consisting of more than a curriculum. The school was viewed as a society in which everyone works together to function as an educative force. The schools in the Eight-Year Study that succeeded in developing a curriculum based on problems and concerns of students recognized their students excelled in their future studies (Giles, McCutchen, & Zechiel, 1942). The success of these schools demonstrated that comprehensive educational improvement is possible. Middle level schools can learn from the results of the Eight-Year Study (Lipka, Lounsbury, Toepfer, Vars, Allessi, & Kridel, 1998).

The Coleman Report, a seminal work, resulted from a survey conducted by the National Center for Educational Statistics of the U.S. Office of Education as a requirement for the legislation of the Civil Rights Act of 1964. The results of the survey contained data on more than a half million students and their achievement in school. These data represented the most comprehensive description of elementary and secondary schools in the United States (Hanushek, 1979). The legislation was a response to the concern for equal educational opportunities for minorities. The report indicates that socioeconomic status and demographics are factors that affect student achievement. Another finding in the report is that student achievement is related to peer effects, such as

a students' background and family education background. Some of the variables used to characterize the student's background included urbanism, parents' education, student's education aspirations, structure of the home, size of the family, items in the home, reading material in the home, parents' interest, and parents' educational desires The report indicates the composition of the students within a school will influence student achievement for minority students (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966). Educational researchers have continued to assess the relationship between student achievement and peer effects. The assumption is that students who are educated with stronger peers will have better academic outcomes (Gottfried, 2011).

NJ Performance Report Variables

Several studies have explored and examined NJ School Performance Report variables and student achievement: Michel (2004), Cabezas (2006), Pereira (2011), Gemellaro (2012), Graziano (2012), deAngelis (2014), Sammarone (2014), and Ross (2014), although none have focused on chronic absenteeism.

Only a few studies have researched NJ School Performance Report individual variables and their effect on NJ ASK scores. Michel (2004) analyzed the influence of teacher educational attainment on Grade 4 NJ ASK scores. The data for the study were retrieved from the New Jersey Department of Education website. The data included individual schools' enrollment, student mobility, class size, Grade 4 NJ ASK scores, and percentage of teachers with degrees along with several other student, staff, and school variables. A sample of 888 schools was randomly selected to reflect 20% of the New Jersey public school districts with all of the District Factor Groups represented

proportionally. The results of the study show that when controlling for student and school variables, the percentage of teachers in a school with a master's degree was a statistically significant predictor of student performance for the measures Partially Proficient (B= -.055, t=2.113, p<.035) and Advanced Proficient (B= .116, t=4.195, p<.000) in Mathematics; as well as Partially Proficient (B= -.077, t= -3.215, p<.001), Proficient (B= .060, t=2.285, p<.023), and Advanced Proficient (B= .102, t=3.445, p<.001) in Language Arts. The percentage of teachers in a school with a master's degree was not a statistically significant predictor of student performance for the measure Proficient in Mathematics. The district factor group had the strongest impact on all levels of proficiency for Mathematics and Language Arts. The results of the study were that a positive relationship exists between schools with a higher percentage of teachers with a master's degree and Grade 4 NJ ASK scores (Michel, 2004).

Gemellaro (2012) conducted a study to determine which factors on the NJ School Performance Report account for the greatest amount of variance on the Grade 5 NJ ASK. The data were gathered from the New Jersey Department of Education website and included 591 school districts with 1,725 elementary schools that serve 1.37 million students. A stratified random sample consisting of 314 schools was used for the study. The results of the study show that the multiple regression model used to analyze Mathematics was statistically significant, with R^2 = .565. This means 56.5% of the variance in Grade 5 NJ ASK Mathematics scores can be explained by the model. Several variables in the model were not statistically significant predictors of Grade 5 NJ ASK Mathematics scores. The variables that were statistically significant included students receiving free lunch, student/faculty ratio, Grade 5 attendance, teachers holding doctoral

degrees, and faculty mobility. Students receiving free lunch was the variable that was most predictive of student performance on the Grade 5 NJ ASK Mathematics. Students receiving free lunch had a significant moderate and negative influence on Grade 5 NJ ASK Mathematics scores (B= -.684; t= -9.000; p<.000). The results of the study were that the students who are eligible for free lunch significantly underperformed compared to their peers on the Grade 5 NJ ASK Mathematics exam (Gemellaro, 2012).

The results of Gemellaro's (2012) study also show that the multiple regression model used to analyze ELA was statistically significant, with R^2 = .766. This means 76.6% of the variance in Grade 5 NJ ASK ELA can be explained by the model. Several variables in the model were not statistically significant predictors of Grade 5 NJ ASK ELA scores. The variables that were statistically significant included students receiving free lunch, student/faculty ratio, instructional minutes, Grade 5 attendance, and teachers holding master's degrees. Students receiving free lunch was also the variable that was most predictive of student performance on the Grade 5 NJ ASK ELA. Students receiving free lunch had a significant strong and negative influence on Grade 5 NJ ASK Language Arts scores (B= -.759; t= -13.618; p< .000) (Gemellaro, 2012).

Sammarone (2014) conducted a study to determine the influence of the length of school day on Grades 6 through 8 student achievement in Mathematics and Language Arts. Student achievement was measured by student performance on the NJ ASK. The data for the study were retrieved from the New Jersey Department of Education website. The sample included public middle schools from the 21 counties in New Jersey, and each school was categorized by District Factor Group. The sample of students for each grade included the following: for Grade 6 Language Arts there were 786 students, for Grade 6

Mathematics there were 786 students, for Grade 7 Language Arts there were 644 students, for Grade 7 Mathematics there were 653 students, for Grade 8 Language Arts there were 645 students, and for Grade 8 Mathematics there were 640 students. An ANOVA regression model was used for analysis. The results of the study show that there was a statistically significant influence of the length of school day on Grade 6 Mathematics (F (10,775) = 110.77, p= .001 < .05) with R^2 = .59. There was a statistically significant influence of the length of school day on Grade 6 Language Arts (F (10,775) = 184.66, p= .001 <.05) with R^2 = .70. There was a statistically significant influence of the length of school day on Grade 7 Mathematics (F (10,642) = 105.16, p= .001 < .05) with R^2 = .62. There was a statistically significant influence of the length of school day on Grades 7 Language Arts (F (10,633) = 178.68, p= .001 <.05) with R^2 = .74. There was a statistically significant influence of the length of school day on Grade 8 Mathematics (F (10,629) =109.46, p = .001 < .05) with R^2 = .64. There was a statistically significant influence of the length of school day on Grade 8 Language Arts (F (10, 634) =179.55, p = .001 < .05) with R^2 = .74. The length of the school day had a positive beta, but the magnitude of the beta showed a weak relationship with the passing rates on the NJ ASK. The results were that lengthening the school day to achieve greater results on the NJ ASK do not justify the expenditure (Sammarone, 2014).

High-Stakes Testing

Based on NCLB legislation, schools are evaluated based on their ability to ensure that students achieve a certain level of proficiency on standardized tests. The requirements of the NCLB legislation has increased the emphasis on standardized test scores as a measure of school quality and a tool for accountability (Parke & Kanyongo,

2012). Each year states administer standardized tests in Grades 3 through 8 and one year in high school. The test scores on the standardized tests have increased dramatically across the country in the past decade. But the gains demonstrated on the state standardized test have outpaced student progress on the National Assessment of Educational Progress and other international assessments of American students. As a result, many believe that teaching to the test has led to score inflation, gains in student test scores larger than gains in student learning. The current school policies that use test scores as an incentive for improvement and a measure of student progress may be negatively influencing teaching strategies (Jennings & Bearak, 2014).

The response to the pressure to obtain higher test scores has led to curriculum narrowing (Berliner, 2011). McMurrer (2008) conducted a study to examine the influence of high-stakes testing on instructional time. The results of the study show that 80% of the school districts in the United States increased their instruction time in Language Arts by 75 minutes a week, whereas many of the other schools increased instructional time by 150 minutes a week. Similarly for Mathematics, for 63% of the schools instructional time was increased by 75 minutes a week, whereas many of the other schools increased instructional time by 150 minutes a week. The results of the study suggest that if a school increased both Language Arts and Mathematics instructional time, a student may have 300 minutes of instructional time each week added to their schedule. By increasing instructional time in Language Arts and Mathematics, less time exists to provide students with other educational opportunities (McMurrer, 2008).

According to Au (2011), teachers are teaching to the standardized test with increased regularity, consistency, and intensity. The high-stakes test preparation narrows

the instructional curriculum because teachers shape their instruction to match the standardized test. The result of narrowing the instructional curriculum is a shift towards the fragmentation and rote memorization demanded by the standardized test (Au, 2011). Vogler and Burton (2010) conducted a study to examine the influence of high-stakes testing on Mathematics instruction using a stratified sample of Mississippi and Tennessee teachers. The results of the study show that over 90% of the teachers felt that their teaching strategies should focus on helping the students attain test scores that will allow them to graduate high school. These teachers were no longer focused on making their classes interesting, developing students' higher-order thinking skills, and sparking an interest in the subject (Vogler & Burton, 2010). Au (2007) conducted a quantitative meta-analysis to determine the relationship between high-stakes testing and curriculum. Au (2007) identified that a positive statistically significant relationship between the implementation of high-stakes testing and changes to the curriculum exist in most of the studies. Many of the teachers who participated in the study reported that they narrow the curriculum to the tested subjects on the standardized test (Au, 2007).

Historical View of the NJ ASK Exam

The Common Core State Standards were developed with the intent to provide a consistent framework among several states to ensure that students are prepared for the workforce. New Jersey adopted the Common Core State Standards in Mathematics and English Language Arts on June 16, 2010. The NJ ASK is a standardized test given to students to measure student comprehension of Mathematics and English Language Arts based on the Common Core State Standards. The NJ ASK is considered transitional because the exam will be replaced by the Partnership for Assessment of Readiness for

College and Careers (PARCC) exam, which is a standardized test believed to measure the full range of the Common Core State Standards (NJDOE, 2014h).

NCLB and the school reforms associated with the creation of the Common Core State Standards have continued the practice of using standardized test results as the deciding factor to evaluate student achievement. The provisions included in the 2014 proposal for reauthorization of NCLB and the NCLB waivers granted to several states, including New Jersey, require the use of standardized tests. School administrators will continue to be pressured to raise test scores as a focus of education policies (Babo, Tienken, & Gencarelli, 2014).

Student Variables

Chronic Absenteeism

Balfanz and Byrnes's (2013) quasi-experimental design was used to examine the impact of a chronic absenteeism prevention and intervention program on chronic absenteeism. The longitudinal study was conducted from 2009 to 2013. The four years includes three years of implementation of the chronic absenteeism prevention and intervention program with one year used as a baseline. The study had a sample size of 146 schools which were a mix of elementary, middle, and high schools in New York City (Balfanz & Byrnes, 2013). The sample consisted of four groups of schools:

> (1) the 25 schools that started participating in the task force programs during the 2010-11 school year (the first year of intervention); (2) the 25 schools that started in 2011-12 (year 2); (3) another 50 schools that started in year three (2012-13); and (4) 46 comparison schools that did not participate in any of the interventions but had similar initial rates of

> chronically absent, free/reduced-price lunch eligible, and limited English proficiency students (Balfanz & Byrnes, 2013, p. 34).

The results of the study show that the schools that participated in the chronic absenteeism prevention and intervention program did better than the comparison school in reducing their chronic absenteeism rate. The differences in reducing the chronic absenteeism rate were statistically significant (Balfanz & Byrnes, 2013).

> For the first group of schools, the program impact was 1.5 percentage points in year 2010-11, 3.7 percentage points in 2011-12, and 1.5 percentage points in 2012-13 (statistically significant difference in 2011-12). For the second group of schools, the impact was 2.4 percentage points in 2011-12 and 2.3 percentage points in 2012-13 (statistically significant in both years). For the third group of schools, impact was 0.9 percentage points in 2012-13, their only year of implementation (Balfanz & Byrnes, 2013, p. 35).

The results of the study also show that the reduction in chronic absenteeism for the schools that participated in the chronic absenteeism prevention and intervention program had effect sizes that ranged from .06 to .26 depending on the group and school year. The overall estimated effect size was 0.14 (Balfanz & Byrnes, 2013).

Plank, Durham, Farley-Ripple, and Norman (2008) conducted a seven-year longitudinal study to examine the chronic absenteeism patterns of a cohort of first grade students from the Baltimore City Public School System. The sample consisted of 9,176 students who were first graders in 1999. The majority of the students were African American (85.4%) and had a low socioeconomic status (89.5%). In Baltimore City public

schools chronic absenteeism is defined as missing 20 school days out of 180 school days, and habitual truancy is defined as missing more than 20% of school days. The results of the study show that 18.4% of the first grade cohort students were chronically absent during the first year of the study. The levels of chronic absenteeism remained similar over the next four years. Specifically, 15.4% of the cohort students were chronically absent during the second year, 13.6% of the cohort students were chronically absent during the third year, 15.9% of the cohort students were chronically absent during the fourth year, and 15% of the cohort students were chronically absent during the fifth year. The levels of chronic absenteeism and habitual truancy increased over the next two years. Specifically, 23.2% of the cohort students were chronically absent and 9.2% were habitually truant during the sixth year, while 29% of the cohort students were chronically absent and 13% were habitually truant during the seventh year (Plank et al., 2008). Based on the analysis of cohort students remaining in the Baltimore City Public School System and progressing as scheduled towards graduation, Plank et al. (2008) concluded that when a student is chronically absent, his or her odds of graduating on time were reduced.

Mac Iver, Durham, Plank, Farley-Ripple, and Balfanz (2008) conducted a seven year longitudinal study of a sixth-grade cohort as a companion study with Plank et al.'s study. The study was completed with a companion study to examine the chronic absenteeism patterns of students across the entire span of schools within the Baltimore City Public School System. The sample consisted of 9,176 students who were sixth graders in 1999. The majority of the students were African American (85.7%) and had a low socioeconomic status (85.4%). The results of the study show that there are a significant amount of students in the sixth grade and higher that are chronically absent

and habitually truant. Specifically, 17.1% of the cohort students were chronically absent and 16.8% were habitually truant during the first year of the study. For the next four years, habitual truancy became more pronounced; 18.9% of the cohort students were chronically absent and 17.9% were habitually truant during the second year, 18.8% of the cohort students were chronically absent and 20.4% were habitually truant during the third year, 17.1% of the cohort students were chronically absent and 30.1% were habitually truant during the fourth year, and 16.6% of the cohort students were chronically absent and 39.8% were habitually truant during the fifth year. For the last two years habitual truancy decreased slightly; 17.8% of the cohort students were chronically absent and 35.8% were habitually truant during the sixth year, and 17.4% of the cohort students were chronically absent and 31.1% were habitually truant during the seventh year. Only 26% of the sixth-grade cohort was never chronically absent or habitually truant, which provides evidence that chronic absenteeism became the norm within the district. At the conclusion of the study, only one in three students in the sixth-grade cohort graduated from high school on time. Chronic absenteeism and/or habitual truancy problems were the preceding indicators for many of the students who dropped out of school. On average, the students who dropped out of school scored at the 11th percentile in fifth-grade reading and math, compared to the students who graduated and scored at the 25th percentile in fifth-grade reading and math (Mac Iver et al., 2008).

Sheldon and Epstein's (2004) longitudinal study examined the effects of family and community involvement on chronic absenteeism. The study was conducted from 1999 to 2001. The sample included 39 schools which included 29 elementary schools and 10 secondary schools. The average enrollment for each school was 650 students. The

majority of the students (51%) were of low socioeconomic status. A survey was used to question school administrators about the effectiveness of attendance-focused activities that involved families and the community. The survey used a four-point Likert scale that ranged from (0) not at all effective to (3) highly effective. The results of the study show that there is a statistically significant association with family and community involvement and the reduced rate of chronic absenteeism from one year to the following year, with a high correlation of $r = .771$. There was also a statistically significant low correlation ($r = .375$) between low socioeconomic status and chronic absenteeism (Sheldon & Epstein, 2004). "Schools that used more communication practices about attendance with families reported significantly lower levels of chronic absenteeism in 2001 ($ß = -.311$, $p \leq .002$)" (Sheldon & Epstein, 2004, p. 50). According to Sheldon and Epstein (2004), chronically absent students tend to have poor academic performance and are thus more likely to drop out of school.

The Utah Education Policy Center (2012) used two data sets to examine the effects of chronic absenteeism. One data set was cross-sectional and included a sample of all Utah public school students in the 2010-2011 school year (587,402 students). The other data set was longitudinal and followed a cohort of eighth graders for five years, which included 37,347 students. Using the cross-sectional data set, chronic absenteeism was predicted by four variables, which included racial minority, LEP, special education, and low income (Utah Education Policy Center, 2012). The results were reported as odds ratios where "odds ratios greater that one indicate that members of the group being analyzed have odds of the outcome (in this case odds of being chronically absent) that are increased that many times compared to non-members of that group" (Utah Education

Policy Center, 2012, p. 3). The results of the study show that the highest odds ratio was low income (1.9), which indicates that a student who received free or reduced-price lunch (characteristic used to indicate low income) was 90% more likely to be chronically absent than a student who did not receive free or reduced-price lunch. The other odds ratio results were special education with an odds ratio of 1.7, LEP with an odds ratio of 1.2, and racial minority with an odds ratio of 1.4 (Utah Education Policy Center, 2012).

Using the longitudinal data set, the Utah Education Policy Center (2012) used logistic regression to predict chronic absenteeism from one year to the next. The results of the study show that "the likelihood of being chronically absent in any school year increased anywhere from 8 to 17 times (depending on the year) if the student had been chronically absent in the previous school year" (Utah Education Policy Center, 2012, p. 8). According to the Utah Education Policy Center (2012), the negative impact of chronic absenteeism is cumulative. Each year a student is chronically absent the odds of that student dropping out of school increases, on average, 2.21 times (Utah Education Policy Center, 2012). The longitudinal data were also used to examine the relationship between chronic absence and dropping out of school. The results show a statistically significant relationship between chronic absence and dropping out of school, with a moderate correlation of $r = .44$ (Utah Education Policy Center, 2012).

Coelho, Fischer, McKnight, Matteson, and Schwartz (2015) conducted a longitudinal study, from 2005 to 2014, that examined the impact of chronic absenteeism on student achievement. Student achievement was measured by student performance on the third grade Wisconsin Knowledge and Concepts Examination (WKCE). The WKCE accesses student knowledge of mathematics, reading, social studies, science, and

language arts skills. However, Coelho et al.'s (2015) research examined only the mathematics and reading results of the WKCE. The sample included 340,332 students who were divided into cohorts based on the year each student began first grade. The results of the study show there is a statistically significant negative relationship between the number of school days missed and third grade mathematics and reading scores. The impact of chronic absenteeism on mathematics achievement was statistically significant with R^2 = .202. This means that 20.2% of the variance in WKCE mathematics scores can be explained by the model. The impact of chronic absenteeism on reading achievement was statistically significant with R^2 = .223. This means that 22.3% of the variance in WKCE reading scores can be explained by the model. The results of the study also show that low-income students were the largest group of chronically absent students (78.6%) and Black students were identified as having a large number of chronic absences (25.5%).

The common findings of the research were that chronic absenteeism impacts student achievement. Often students that are chronically absent have a pattern of being chronically absent from one school year to the next. The results of the studies show that there is a need for interventions to reduce chronic absenteeism. However, the research shows that the magnitude of the impact of the chronic absenteeism prevention and intervention program on chronic absenteeism was small. The research also indicates that there is a strong association between family and community involvement and chronic absenteeism. Based on the results of the studies, administrators need to include the family and community in attendance initiatives aimed at reducing chronic absenteeism.

Student Attendance Rate

Caldas's (1993) quantitative study was used to examine the effect that several factors have on student achievement. In the study, Caldas (1993) refers to the factors that schools can control as process factors and the factors that schools cannot control as input factors. According to Caldas (1993), student attendance is a process factor that schools can control through attendance policies. The data were gathered from the Louisiana Department of Education for K-12 public schools, which included a sample size of 1,301 public schools. The schools were categorized as secondary (both high school and middle school), elementary, central city, and non-central city schools. The results of Louisiana's state standardized test were used to measure student achievement. The results of the study show that the relationship between student achievement and attendance was statistically significant with a weak correlation where $r = .36$. The strongest relationship was between student achievement and Black students with a negative, strong correlation of $r = -.70$. Student attendance was the only statistically significant process factor for secondary school achievement. The magnitude of the effect of student attendance on achievement was stronger for secondary schools than elementary schools ($\beta = .270$, $p < .01$). The results of the hierarchical regression show that the variance in student achievement that can be explained by process factors ranged from 2.1% in elementary schools to 6.3% in secondary schools (Caldas, 1993). Based on the results, Caldas (1993) concluded that schools have little control over many factors that have a significant impact on student achievement. However, school districts do have some control over student attendance, especially in secondary schools, which requires few resources to control (Caldas, 1993).

Lamdin (1996) conducted a quantitative study to examine the relationship between student attendance and student achievement. The California Achievement Test scores were used to measure student achievement. Lamdin (1996) used data from 97 elementary schools in Baltimore, Maryland. Student achievement was measured by the percentage of students in each school above the median mathematics score on the California Achievement Test. The results of the study show that the relationship between student attendance and student achievement was statistically significant with a moderate correlation of $r = .56$. The strongest relationship was between student achievement and socioeconomic status with a moderately strong correlation of $r = .69$ (Lamdin, 1996). Like Caldas (1993), Lamdin (1996) also believed that student attendance is worthy of attention because few resources are required for improvement.

According to Borland and Howsen (1998), Lamdin's (1996) model should have included additional independent variables that measure education market competition, teacher unionization, and students' innate ability. Borland and Howsen (1998) conducted a study, similar to Lamdin's (1996) study, using additional independent variables to examine the relationship between student achievement and explanatory factors, such as students' innate ability. Borland and Howsen's (1998) quantitative study included data from the 170 school districts in Kentucky, which was aggregated at both the district and school level. The results of the multiple regression analysis performed show that, with the inclusion of students' innate ability and education market competition, the impact of student attendance on student achievement was not statistically significant (Borland & Howsen, 1998). Borland and Howsen (1998) concluded that Lamdin's (1996) study was biased because of the failure to include students' innate ability, teacher unionization, and

education market competition in the analysis. Based on their findings, Borland and Howsen (1998) state that policies to increase student attendance should not be the focus of administrators.

Lamdin (1998) replied to Borland and Howsen's (1998) findings by stating that he examined schools within a district, the city of Baltimore, and education market competition was held constant because market competition was not an appropriate independent variable. Lamdin (1998) also defended his findings by stating that his use of socioeconomic status as an independent variable was used for the same purpose as innate ability. Socioeconomic status is a better measure of what the student brings to the school than the use of a proxy for innate ability. According to Lamdin (1998), Borland and Howsen's (1998) results do not weaken the results of the study (Lamdin, 1998).

Roby's (2004) concern about Ohio public school administrators' understanding of the effect of student attendance on student achievement led Roby to conduct a quantitative study to examine the relationship between student attendance and student achievement. The Ohio Proficiency Test scores were used to measure student achievement. The sample included 3,171 Ohio schools with fourth, sixth, ninth, and twelfth-grade students. The results of the study show that the relationship between student attendance and student achievement for the fourth grade was statistically significant with a moderate correlation of r = .57, sixth grade was statistically significant with a moderate correlation of r = .54, ninth grade was statistically significant with a moderately strong correlation of r = .78, and 12th grade was statistically significant with a moderate correlation of r = .55. The results of the study also show that student attendance was an evident predictor of student achievement for fourth grade with a R^2 =

.32, sixth grade with a R^2 = .29, ninth grade with a R^2 = .60, and 12th grade with a R^2 = .29. Based on the results, student attendance had a smaller impact on student achievement in 6th and 12th grade, but student attendance had a much larger impact on student achievement in 9th grade (Roby, 2004).

Gottfried (2009) conducted a quantitative longitudinal study to determine the impact of excused versus unexcused absences on student achievement. Student achievement was measured by the Stanford Achievement Test scores. Gottfried (2009) used data from second through fourth grade students, in the Philadelphia school district, who were organized into cohorts. Gottfried (2009) studied elementary school students to identify at-risk students at an early stage in school, prior to entering secondary schools where the risk of dropping out of school is higher. The results of the study show that the relationship between total absences and excused absences was statistically significant with a moderate correlation of r = .48, but the relationship between total absences and unexcused absences was statistically significant with a high correlation of r = .90. Total absences are associated more highly with unexcused absences. Gottfried concluded that distinguishing between students with excused or unexcused absences is significant because students with a higher proportion of excused absences to total absences have a positive relationship between reading and mathematics achievement, but students with a higher proportion of unexcused absences to total absences show lower levels of student achievement, specifically in mathematics. Based on the multiple regression analysis, the impact of teacher characteristics, classroom characteristics, and neighborhood characteristics on student achievement was not statistically significant. Total absences had a negative and statistically significant (β = -.119, p < .01) impact on student

achievement. Student characteristics, such as socioeconomic status, also had a negative and statistically significant ($\beta = -2.168$, $p < .01$) impact on student achievement, and this impact was greater when the excused absences and unexcused absences were included in the hierarchical multiple regression model ($\beta = -2.587$, $p < .01$) (Gottfried, 2009).

Gottfried (2010) also examined the impact of student attendance on students' Grade Point Average (GPA) and standardized test performance. The study was a longitudinal quantitative study that used a quasi-experimental design. Gottfried (2010) gathered data from all of the elementary and middle schools in the Philadelphia school district, which included 332,000 student observations. Analysis of attendance in an urban school district is important because urban youth tend to fall behind in mathematics achievement as early as the fourth grade (Balfanz & Byrnes, 2006). The students in Gottfried's (2010) study were divided into five cohorts and three of the cohorts reached middle school prior to the end of the study, which was from 1994-2001. The results of the study show that the relationship between student attendance and student achievement is statistically significant. The effect sizes for each school year, as defined by the standardized regression coefficient, range from .24 to .34. The relationship between student attendance and student achievement is consistent for the full sample and across elementary and middle school samples. The coefficient for the middle school regression ($\beta = .20$, $p < .01$) was larger than the coefficient for the elementary school regression ($\beta = .16$, $p < .01$), which indicates that attendance may have a stronger impact on students' GPA as they advance through school (Gottfried, 2010).

According to Gottfried (2011) a peer effect exists that causes individual student achievement to be affected by the attendance of other students in the class. A large

number of absences in the classroom requires that more instructional time be spent on remediation, thus slowing down the educational advancement of other students (Finn, 1989). In Balfanz's study of sixth-grade students in 23 Philadelphia middle schools the results indicate that not only does the student's attendance impact a student's achievement, but the attendance of peers also impacts a student's achievement (Balfanz, 2009). Gottfried (2011) conducted a quantitative longitudinal study to examine the peer-level effects of absences on student achievement, which is measured by student standardized test performance. The data used for the study consisted of five elementary schools in the Philadelphia school district, which included 33,420 student observations. There are two independent variables used for analysis, which include the number of total absences and number of unexcused absences. The impact of total and unexcused absences on Reading achievement is statistically significant, where 58% of the variance in Reading achievement can be explained by the number of total and unexcused absences (R^2 = .58). The impact of total and unexcused absences on mathematics achievement is also statistically significant, where 55% of the variance in mathematics achievement can be explained by the number of total and unexcused absences (R^2 = .55). The results of the study also show the relationship between unexcused absences and Stanford Achievement Test mathematics is statistically significant with a negative slight correlation of r = -.18. The relationship between total absences and Stanford Achievement Test mathematics scores is statistically significant with a negative slight correlation of r = -.05 (Gottfried, 2011). Based on Gottfried's (2011) research, unexcused absences have a larger impact on the student achievement than total absences for peers in the classroom.

Kieffer et al. (2014) conducted an eight-year longitudinal study on the use of attendance as a predictor of whether students will graduate from high school. Kieffer et al. (2014) used data from New York City schools that included Grade 4 through Grade 8, which included 303,845 students. The students were divided into four cohorts and only the first cohort, which included 77,916 students, was followed until they graduated. Data from Grade 9, which included credits earned, grade point average, annual attendance rate, and New York State Regents test results, were used as an indicator to determine if all of the students in each cohort were on-track to graduate. The amount of credits earned was the most predictive measure to determine if a student was on-track for graduation. The analysis of the patterns of change in attendance for students from Grade 4 through Grade 8 shows a decline in attendance for each grade with the greatest decline occurring between Grade 7 and Grade 8. The correlation for the decline in attendance between Grade 4 and Grade 5 is negative and low (r = -.38), and the relationship with students later decline in attendance through Grade 8 to an almost negligible correlation (r = .00 to .05). The correlation for the decline in attendance between Grade 4 and the Grade 9 on-track indicator was moderate (r = .47). The results of the study show that a student's attendance in Grade 4 may be a predictor of whether a student will be on-track for graduation in Grade 9. The results of the study also show that a student's attendance in the middle school grades provides information about whether a student will be on-track for graduation in Grade 9 (Kieffer et al., 2014). Kieffer et al. (2014) concluded that students with poor attendance in middle school have a 57% chance of graduating from high school as compared to students with good attendance, who have a 75% chance of graduating from high school.

Balfanz, Herzog, and Mac Iver's (2007) eight year longitudinal quantitative study was used to identify factors that can be used to predict which students in middle school would not graduate from high school. Some of the factors examined included academic performance, misbehavior, attendance, and status (i.e., special education). Balfanz et al.'s (2007) research utilized data from the Philadelphia school district, which included 12,972 sixth-grade students. Most of the students used in the study were minority students. Each factor was examined to determine if the factor could predict which middle school students, at least 10% of the students, would not graduate from high school. The results of the study show that attendance highly predicts which middle school students would not graduate from high school. Based on attendance, 23% of the students who did not graduate from high school were identified. However, the highest predictor for not graduating high school was misbehavior, where 50% of the students who did not graduate from high school were identified (Balfanz et al., 2007). Balfanz et al.'s (2007) research led to the conclusion that a significant number of students in the sixth grade were exhibiting characteristics that indicate they may not graduate from high school, so schools need to provide support for these students when they enter middle school. Balfanz and Boccanfuso's (2007) research on the risk factors for middle school students who do not graduate from high school shows that the majority of students who develop characteristics that indicate they may not graduate from high school do so in the sixth grade.

Balfanz et al.'s (2007) research continued by using a survey to determine the factors that influence student attendance, behavior, and effort. The survey focused on students' perceptions of mathematics, mathematics classrooms, and teachers. Six middle

schools in the Philadelphia school district were surveyed, which included 2,334 fifth to eighth grade students. The results of the study show that five factors influence student attendance, behavior, and effort. These factors include teacher support, academic press (expectation for success from teachers and peers), parental involvement, utility (the real-world usefulness of the subject material), and intrinsic interest. “Parental involvement and math intrinsic interest had significant effects on both students’ level of effort in math class and their attendance in school” (Balfanz et al., 2007, p. 231). Balfanz et al.’s (2007) research led to the conclusion that an intervention program, specifically the Talent Development Middle Grades Program (TDMG) Comprehensive Whole School Reform model, should be used as an intervention to improve high school graduation rates because several factors influence student attendance, behavior, and effort. The TDMG model implements research-based instructional programs in core academic subjects, teacher training and support, as well as helping schools to make organizational changes to improve the school community (i.e., forming small learning communities and teacher teams). Many dropouts are preventable because a large percentage of high school dropouts is identifiable prior to the students entering high school (Balfanz et al., 2007).

Like Roby (2004), Sheldon (2007) conducted a study using Ohio schools. Sheldon (2007) supports researchers who associate student attendance with student achievement but feels that researchers have not examined interventions for student attendance in early grades. Kieffer et al. (2014) found that research on interventions for student attendance focus on the high school years, with less research dedicated to investigating indicators for high school dropout in middle school. Sheldon (2007) conducted a quantitative study using a quasi-experimental design to examine the impact

of a schoolwide partnership program for attendance on student attendance. Sheldon (2007) used data from 69 elementary schools in the experimental group and 69 elementary schools in the control group. The experimental group was enrolled in the National Network of Partnership Schools program, whose purpose was to improve student attendance. The control group was not enrolled in any attendance-related program. A higher percentage of students with low socioeconomic status were in the experimental group (mean was 49.64 with a standard deviation of 24.94) than the control group (mean was 39.75 with a standard deviation of 23.24). The results of the study show that the relationship between participation in the National Network of Partnership Schools program and student attendance is statistically significant with a negative negligible correlation of r = -.014. The strongest relationship was between socioeconomic status and student attendance with a negative moderate correlation of r = -.60, which indicates that when there are fewer students of low socioeconomic status, student attendance increases. Sheldon's (2007) analysis indicated that for the schools in the experimental group, student attendance only improved an average of .5%. The results of the study also show that participation in the National Network of Partnership Schools program, as well as school characteristics, student characteristics, and prior attendance, may impact student attendance (Sheldon, 2007). Sheldon's (2007) calculated effect size for participation in the National Network of Partnership Schools program was .079, which is a small effect. The results of Sheldon's (2007) study show that implementing a program to improve attendance did not have a large impact on attendance.

The common findings from the research were that poor student attendance affects individual student achievement as well as the achievement of peers. Students that attend

urban schools, as well as students with a low socioeconomic status, were more likely to have poor attendance and lower student achievement. The overall consequence for poor attendance in elementary and middle school was lower graduation rates from high school. The research on the implementation of attendance intervention programs suggests that these programs did not have a strong impact on improving attendance.

Percentage of Students Receiving Free or Reduced-price Lunch

White, Reynolds, Thomas, and Gitzlaff (1993) studied the relationship between socioeconomic status and achievement using the data from two previous studies performed by Walsh (1986) and Walsh and Witte (1985). The data were gathered from 30,000 students in 22 school districts in a central city and suburban schools in a major metropolitan area. Prior to conducting the study, White et al. (1993) considered the results from other researchers. Some researchers used aggregate measures of socioeconomic status and student achievement in their study to conclude that students with low socioeconomic status do not achieve as highly as students with high socioeconomic status. Some researchers used individual student level data to conclude that the relationship between socioeconomic status and achievement is low. One researcher, White (1982), conducted a meta-analysis to examine both aggregate and individual measures of socioeconomic status and student achievement. White's (1982) meta-analysis of 101 studies shows that the relationship between socioeconomic status and student achievement is statistically significant with a low correlation of $r = .22$ when using individual student-level data. But when aggregated data is used, the relationship between socioeconomic status and student achievement is statistically significant with a high correlation of $r = .73$ (White, 1982).

White et al.'s (1993) research examined the impact of socioeconomic status on student achievement, using a students' eligibility for free or reduced-price lunch as the measure for socioeconomic status. Individual student-level data were used in the study. The results of the study show that socioeconomic status had a slight impact on student achievement where 15.4% of the variance in student achievement can be explained by socioeconomic status (R^2 = .154) (White et al., 1993).

Sirin's (2005) meta-analysis is the second review of literature relating to socioeconomic status and school achievement, which was conducted after White's (1982) meta-analysis. Sirin's (2005) research examined the relationship between socioeconomic status and student achievement and the extent to which the relationship is influenced by methodological and student characteristics. Seventy-five samples were used in the meta-analysis, of which 64 samples used student-level data and 11 samples used aggregate school data. There were 101,157 students in the study from 6,871 schools and 128 school districts. To analyze the data, a fixed effects model was used to generalize the results to the study sample. A random effects model was also used to generalize the results to a larger population. The results of the study show that for the samples that used student-level data, based on the fixed effects model, the relationship between socioeconomic status and academic achievement is statistically significant with an effect size of .28. Based on the random effects model, the relationship between socioeconomic status and academic achievement is statistically significant with an effect size of .27. For the samples that used aggregate school data, based on the fixed effects model, the relationship between socioeconomic status and academic achievement is statistically significant with an effect size of .67. Based on the random effects model, the relationship

between socioeconomic status and academic achievement is statistically significant with an effect size of .64 (Sirin, 2005).

To determine the extent to which the relationship between socioeconomic status and academic achievement is influenced by methodological and student characteristics, Sirin (2005) used Hedges Q test of homogeneity (Hedges & Olkin, 1985). Only the Q-between statistic of homogeneity was reported in the study. The results of the Q test of homogeneity indicate that the type of socioeconomic status significantly moderated the relationship between socioeconomic status and academic achievement with an effect size of .28 for parental occupation, .29 for parental income, .30 for parental education, .51 for home resources, and .33 for eligibility for free or reduced-price lunch. The selection of academic achievement measure also significantly moderated the relationship with an effect size of .22 for general achievement, .27 for science achievement, .32 for verbal achievement, and .35 for mathematics achievement (Sirin, 2005).

In Sirin's (2005) analysis of the student characteristics influence on the relationship between socioeconomic status and academic achievement, the students' grade level significantly moderated the relationship with an effect size of .19 for kindergarten, .27 for elementary school, .31 for middle school, and .26 for high school. Minority status also significantly moderated the relationship with an effect size of .27 for White students and .17 for Black students. The geographic location of the school significantly moderated the relationship with an effect size of .17 for rural schools, .23 for urban schools, and .28 for suburban schools (Sirin, 2005).

Sirin's (2005) effort to replicate White's (1982) meta-analysis using more recently published literature resulted in a smaller effect size of .299 as compared to

White's (1982) results, which revealed an effect size of .343. The results were that the magnitude of the relationship between socioeconomic status and academic achievement is not as strong in the more recent literature (Sirin, 2005).

Stull (2013) conducted a longitudinal study to examine the relationship between socioeconomic status and parental education expectations. The study also included an examination of the impact of socioeconomic status on student achievement, which was measured using the general knowledge test score. The data were gathered from 22,000 students who were enrolled in 900 kindergarten programs. The data consisted of information gathered from interviewing and surveying the students, parents, teachers, and administrators. The results of the study show that as socioeconomic status increases the parents' expectation of their child graduating from college rise. The results show that 87% of parents in the high socioeconomic category, 79.1% in the middle socioeconomic category, and 60.4% in the low socioeconomic category expected their child to graduate from college. Examination of the impact of socioeconomic status on student achievement revealed "a family's socioeconomic status is the most strongly related variable to the child's achievement (Beta = 0.285) as well as the most substantively significant (regression coefficient = 3.389)" (Stull, 2013, p. 62).

Caldas and Bankston (1997) studied the relationship between the socioeconomic status of peers and individual academic achievement. Caldas and Bankston (1997) hypothesized that the poverty status of peers would be negatively related to academic achievement. The hypothesis corresponds with Coleman's (1966) research on the influence of peers' socioeconomic status on the academic achievement of African American and White students. "The order of importance of factors affecting achievement

by members of both groups was the same: facilities and curriculum least, teacher quality next, and backgrounds of fellow students most" (Coleman, 1966, p. 18). Caldas and Bankston (1997) gathered data from the Louisiana Department of Education on 10th graders who completed the Louisiana Graduation Exit Examination, which included 42,041 students. The results of the study show that the relationship between a student's participation in the free/reduced-price lunch program and the percentage of Louisiana Graduation Exit Examination test takers who were participants in the free/reduced-priced lunch program was statistically significant with a moderate correlation of $r = .475$. This indicates that students with low socioeconomic status tend to attend schools with peers who also have a low socioeconomic status. The relationship between minority race and the percentage of minority students in the school was statistically significant with a moderate correlation of $r = .606$. The results indicate that students tend to attend schools with peers of the same race (Caldas & Bankston, 1997). Caldas and Bankston (1997) examined the impact of peer socioeconomic status on achievement. The results of the study show that the family poverty status of peers has a small negative impact on academic achievement ($\beta = -.084$). When controlling for the percentage of minority students in the school, the extent to which peers participated in the free/reduced-price lunch program had a statistically significant impact on academic achievement ($\beta = .080$) (Caldas & Bankston, 1997).

Ewijk and Sleegers's (2010) meta-analysis examined the impact of peer socioeconomic status on student achievement. The data were gathered from 30 studies which included 188 effect estimates. The major difference in the studies examined was the approach researchers used to analyze the size of the effect of peer average

socioeconomic status. In this meta-analysis socioeconomic status was measured as a composite that included two or more components, which included a parental education component, parental occupation component, parental income component, and home resources component. Researchers who used socioeconomic status dichotomously, such as eligibility for free/reduced-price lunch, found smaller effects than when using a composite measure for socioeconomic status. The results of the study show that peer socioeconomic status has a slight impact on student achievement, where 39% of the variance in student achievement can be explained by peer socioeconomic status (R^2 = .39) (Ewijk & Sleegers, 2010).

Borman and Dowling (2010) recognize the Coleman Report, which is also called the Equality of Educational Opportunity (EEO) study, as an important study that has influenced public opinion on schooling and equality. Coleman et al.'s (1966) research shows that a students' socioeconomic status is far more important than the characteristics of a school (i.e., social composition and resources provided). Coleman et al.'s (1966) study indicated there was no evidence that school resources, even financial resources, or racial composition had an appreciable effect on student achievement for students with low socioeconomic status. Coleman et al.'s (1966) study concluded that the beneficial effect of attending schools with predominantly White students is not based on the racial composition of the school but on the better educational background and higher educational aspirations found among White students.

Borman and Dowling (2010) conducted further research using the data from the Coleman Report and using contemporary statistical methods. The only data used from the Coleman Report were the principal surveys, teacher questionnaire and test data, and

student achievement and survey data from the ninth-grade cohort. The data used contained records for 134,030 students within 930 schools. Hierarchical linear models were used to examine the effects of school-level racial composition, socioeconomic status, and educational resources on verbal achievement. Verbal achievement was measured by students' performance on a standardized verbal ability test (Borman & Dowling, 2010).

Borman and Dowling (2010) used the same objective background family factors that were used in the Coleman Report. The objective background family factors include urbanism of background, parents' education, structural integrity of the home, small size of the family, items in the home, and reading materials in the home. The results of the hierarchical linear regression show that for Model 1, 68.3% of the variance in verbal achievement can be explained by the objective background family factors. Model 2 added school social composition predictors (percentage of Black students, school mean family resources, and school mean parental education). The results show that 92% of the variance in verbal achievement can be explained by the objective background family factors and social composition predictors. Model 3 added school facilities and curriculum predictors. The results show that 94% of the variance in verbal achievement can be explained by the objective background family factors, social composition predictors, school facilities, and curriculum predictors. Model 4 added teacher characteristics predictors. The results show that the additional variance in verbal achievement that can be explained by teacher characteristics was negligible. Model 5 added student body characteristics predictors. The results show that 94% of the variance in verbal achievement can be explained by the objective background family factors, social

composition predictors, school facilities, curriculum predictors, and student body characteristics (Borman & Dowling, 2010).

The common findings of the research were that individual and peer socioeconomic status has an impact on student achievement. The impact is statistically significant, but the magnitude of the impact is not as large as hypothesized in most studies. The influence of peer socioeconomic status is apparent in schools where a majority of students are of low socioeconomic status and the schools tend to fail to improve student achievement. The implications of the findings are that students with low socioeconomic status may benefit from being in a more diverse school environment, where the level of socioeconomic status varies among the students.

Percentage of Students with Limited English Proficiency

Abedi (2004) used a large public urban school district to compare the performance of LEP students to non-LEP students in Reading and Mathematics. The data were gathered from students in Grade 3 (996 LEP students and 13,054 non-LEP students), Grade 6 (726 LEP students and 12,628 non-LEP students), and Grade 8 (692 LEP students and 11,792 non-LEP students). The results of the study show that the non-LEP students performed better in both Reading and Mathematics than the LEP students. The magnitude of the difference in the students' performance for all three grades was larger for Reading (effect size was .213) than for Mathematics (effect size was .160). The individual effect sizes for the difference in the students' performance in each grade were smaller for the lower grades and became larger as the grade level increased. The results of the study were that as the complexity of the Reading and Mathematics concepts

increase for each grade level, the magnitude of the impact on LEP students becomes larger (Abedi, 2004).

Kim and Herman (2009) conducted a three-state study to examine the achievement gaps between LEP students and non-LEP students. For analysis, the students were divided into four categories which included current LEP students, recently reclassified LEP students, former LEP students, and non-LEP students. The analysis controls for whether a student receives free/reduced-price lunch because a large population of LEP students receive free/reduced-price lunch. The results of the study were converted into standard deviation (SD) units to allow for within- and between-state comparisons. The data were gathered from three states located in the West and Southeast and consisted of elementary and secondary school cohorts. The selection of cohorts varied by state, where State A included fifth and eighth grades, State B included fourth, seventh, and eighth grades, and State C included fourth and eighth grades. The total sample size consisted of 426,294 students. Standardized assessments required for determining AYP as required by NCLB were used to measure academic achievement. The scores from each state English Language Proficiency assessment was used even though each state used different English Language Proficiency assessments as well as different methods to reclassify LEP students. The results of the study show statistically significant achievement gaps between LEP students and non-LEP students in all three states (Kim & Herman, 2009).

> The gaps range from fairly modest magnitudes of about 0.2 to 0.3 SDs, to large magnitudes greater than 1 SD, depending on the subject, grade, and state combination. The magnitudes of average achievement gaps

> ranged from small to medium in Mathematics (0.2 to 0.6 SDs), whereas, in Reading or Science, they ranged from medium to large sizes (0.4 to 1.1 SDs) (Kim & Herman, 2009, p. 11).

The results showing larger achievement gaps between LEP students and non-LEP students in Reading and Science may indicate that linguistic barriers are one of the primary underlying sources of achievement gaps (Kim & Herman, 2009).

Ardasheve, Tretter, and Kinny's (2012) non-experimental research was conducted to examine the impact of English proficiency on academic achievement. Cummins Threshold Hypothesis was also researched, "which predicts that those aspects of bilingualism which might positively influence cognitive growth are unlikely to come into effect until the child has attained a certain minimum or threshold level of competence in a second language" (Ardasheve et al., 2012, p. 771). Takakuwa (2005) criticized Cummins Threshold Hypothesis because the threshold is defined in a relative sense, not absolute sense, by establishing arbitrary thresholds based on primary and secondary language measures (i.e., standardized test and researcher developed measures).

The data for Ardasheve et al.'s study were collected from 22 middle schools which consisted of 18,523 students (17,470 native English-speaking students, 558 current LEP students, and 500 former LEP students). Reading and Mathematics achievement was measured using the Kentucky Core Content Test, which tests current LEP students with accommodations. The results of the study show that the between-school variation was statistically significant for reading with χ^2 (21) = 2,663.55, $p < .001$ and Mathematics χ^2 (21) = 3,452.16, $p < .001$. School poverty explained 75% of the variance in Reading achievement between schools and 82% of the variance in Mathematics achievement

between schools. The former LEP students performed better than the native English-speaking students in Reading by 9.65 points with an effect size of 0.52 as well as in Mathematics by 9.52 points with an effect size of 0.42. The former LEP students performed better than the current LEP students in Reading by 19.95 points with an effect size of 1.07 as well as in Mathematics by 19.50 points with an effect size of 0.86. The current LEP students scored lower than the native English-speaking students in Reading by 10.30 points with an effect size of 0.55, as well as in Mathematics by 9.98 points with an effect size of 0.44. The results of the study were that Cummins Threshold Hypothesis is accurate in predicting that when a bilingual student becomes competent in a second language (English in this study), he or she may perform equally or better academically than native English-speaking students (Ardasheve et al., 2012).

According to Slama (2012), two competing hypotheses exist on the impact of generational status on immigrant students' (who represent 6% of public school students) academic achievement. One hypothesis states that the academic achievement of immigrant students can improve with each successive generation as these students learn English and maintain high aspirations for success. The other hypothesis states that the academic achievement of immigrant students may follow a downward trajectory for each successive generation because these students may behave more like low-achieving native-born peers (Slama, 2012). To investigate the impact of LEP students' generational status on their academic achievement in English proficiency, Slama (2012) conducted a five-year longitudinal study. The data were gathered for the study from ninth graders in Massachusetts, which consisted of a cohort of 3,702 students. The Massachusetts English Proficiency Assessment was used to measure student achievement. The results of the

study indicate that the LEP students born in the United States maintained an intermediate level of English proficiency throughout high school, whereas foreign-born LEP students progressed from an early intermediate level to an intermediate level of English proficiency. The scores on the Massachusetts English Proficiency Assessment for the U.S. born LEP students started at 350.99 and the foreign born LEP students started at a lower score of 338.23, with an effect size of 0.40. Each year the performance of the foreign born LEP students progressed. The scores during the final year of the study were 378.60 for U.S. born LEP students and 382.12 for foreign-born LEP students, with an effect size of -0.14. The results of the study were that the hypothesis that states the academic achievement of immigrant students can improve with each successive generation as these students learn English is accurate (Slama, 2012).

The common findings of the research were that students who are currently classified as LEP students have low English proficiency and as a result perform poorly academically, but these results do not account for the fact that the classified group of LEP students is not stable because students who become proficient in English transition out of the group. Research shows that some former LEP students outperform native English-speaking students academically. The LEP group may never excel academically because only the performance of the low achievers who remain in the group is monitored. School administrators may benefit from having more comprehensive information on LEP students by having the performance of former LEP students also monitored. In order to improve support for LEP students, a more comprehensive view of all LEP student progress is necessary.

Percentage of Students with Disabilities

NCLB holds schools responsible for improving the performance of all students, including students with disabilities. Many schools believe that improving the performance of students with disabilities is the most challenging barrier to reaching AYP. The Educational Policy Reform Research Institute (EPRRI) researchers used in-depth interviewing and analysis of documents to investigate the impact of AYP requirements for students with disabilities on their performance on statewide assessments. The study included four states (California, Maryland, New York, and Texas) with two school districts from each state. The EPRRI researchers interviewed special education directors from state education agencies (35 people) and local education agencies (44 people). The EPRRI researchers also reviewed policy documents of the four states in the study, which were provided by each state or located on each state's website. Two themes emerged from the study. One theme was that students with disabilities were opened to new opportunities by participating in state assessments. The other theme was that the increase in participation and performance requirements for students with disabilities creates incentives to exclude these students (Nagle et al., 2006).

Malmgren, McLaughlin, and Nolet (2005) conducted a two-year study to examine the effect of school variables (enrollment, percentage of special education students, percentage of students with low socioeconomic status, percentage of minority students, and percentage of ELL students) on the achievement of students with disabilities. Student achievement was measured by student achievement on the Maryland statewide assessment. The data were gathered from two school districts, where School District 1 included 27,528 students (10.9% were special education students) and School District 2

included 134,180 students (13.5% were special education students). Hierarchical regression was performed to determine what factors predict the Reading and Mathematics achievement of students with disabilities in Grade 3, Grade 5, and Grade 8. The results of the study show that the performance of general education students was the most consistently statistically significant predictor of achievement. The socioeconomic status of students was only statistically significant in one model, and the percentage of students with disabilities in a school was not statistically significant (Malmgren et al., 2005). "The changes in R^2 ranged from modest (i.e., .070 for fifth grade Mathematics in the 2000-2001 school year) to marked (i.e., .490 in eighth-grade Reading in the 1999-2000 school year)" (Malmgren et al., 2005, p. 92).

According to McLeskey, Landers, Williamson, and Hoppey (2012) the Individuals with Disabilities Education Act supports improving academic achievement for students with disabilities by mandating that these students be educated in the least restrictive environment. The mandate specifically states the following:

> To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and that special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (McLeskey et al., 2012, p. 131).

McLeskey et al. (2012) studied the trends of national placement of students with disabilities in the least restrictive learning environment from 1990-2007. Two age groups were studied, age 6-11 and age 12-17. The results of the study show that for both age groups the placement of students with disabilities into general education classes increased. For age 6-11 the increase was 46.08% to 73.45% and for age 12-17 the increase was 19.94% to 58%. The placement of the students with disabilities in a pullout setting, separate class, or separate school decreased. Although both groups moved toward having students with disabilities in a least restrictive learning environment, the change in placement practices for students age 12-17 changed substantially more than placements for age 6-11 (McLeskey et al., 2012).

According to Kurz, Elliott, Lemons, Zigmond, Kloo, and Kettler (2014), in adherence to the Individuals with Disabilities Education Act, most schools educate students with disabilities in general education settings to the greatest extent appropriate. But researchers question if inclusion in a general education setting provides students with disabilities with an opportunity to learn. Kurz et al. (2014) examined the impact of inclusion in general education classes for students with disabilities on student achievement. To access student achievement, teachers used an online log to track each student with disabilities: Opportunity to Learn (OTL), which was measured by three dimensions of curriculum (time indices, content indices, and quality indices). Research shows that time, content, and quality indices are related to student achievement. The data were gathered from 38 general and special education teachers from seven middle schools in Arizona, five middle schools in Pennsylvania, and five middle schools in South Carolina. A total of 46 classrooms were monitored; 29 classrooms had full-inclusion

classes and 17 classrooms had self-contained classes. Fifty-six students with disabilities were in the sample (Kurz et al., 2014). Kurz et al.'s study found the following:

> The respective mean differences between general and special education classrooms were statistically significant with large and medium effect sizes for time on standards (min/day), with $t(44) = -2.60$, $p < .05$, $d = -.83$, and for content coverage (%), with $t(44) = -2.35$, $p < .05$, $d = -.69$. The observed mean differences between general and special education classrooms were statistically significant with medium effect sizes for the cognitive process score, $t(44) = -2.41$, $p < .05$, $d = -.75$ (Kurz et al., 2014, p. 33).

The results of the study suggest that access to OTL for students with disabilities when compared with the access students without disabilities have to OTL is not equal. The current accountability system may not be appropriate because students with disabilities receive insufficient OTL grade-level content. Further research is needed to explore better methods for holding schools accountable for educating students with disabilities (Kurz et al., 2014).

To gain insight into the perceptions of general education teachers on teaching students with disabilities, Berry (2011) conducted an exploratory study using 46 general education teachers from five elementary schools. The participants were gathered through the use of a purposive sampling to obtain early career and veteran teachers as well as rural, suburban, and urban school districts. Eight focus groups were conducted and a teacher demographic questionnaire was used to gather data. Teacher demographic and discussion item data were analyzed using Pearson chi-square. The results of the study

show that the associations between any of the topics and teacher experience were not statistically significant, but a statistically significant association existed between the instruction and policies/procedures topics and school type. The rural (73%) and suburban (83%) teachers frequently included instruction in their discussion of concerns for educating students with disabilities. The rural (55%) and suburban (61%) teachers also included policies/procedures in their discussion of concerns for educating students with disabilities (Berry, 2011).

The common findings of the research were that NCLB has both positive and negative effects on how schools implement the policy requirements. Policymakers should be cautious that future reauthorizations to school reform policies do not create incentives to exclude students with disabilities from assessments that are used for school accountability measures. The common findings of the research also were that in schools where general education students are succeeding, the students with disabilities are also succeeding. The research shows that socioeconomic status is not a significant predictor of the achievement of students with disabilities. This result informs administrators that socioeconomic status, which is a variable that schools cannot directly control, is not negatively impacting the students with disabilities. The research also informs administrators that interventions for ensuring that teachers get the support in instruction and policies/procedures for educating students with disabilities is essential to successfully providing equal education opportunities for students with disabilities.

School Variables

Length of School Day

In 1990 Smith and McNelis's mixed methods study was used to examine the impact of adding an additional class period to the school day on student achievement. Central high school, the suburban Tennessee high school in the study, initiated a school improvement program that involved changing the school schedule to include seven class periods (45 minutes for each class) instead of six class periods (55 minutes for each class). The goal of the program was to provide a broader curriculum with more options for academic courses and electives. The sample for the study included 853 students and 54 teachers. Student achievement was measured by students' grade point average, Pre-Scholastic Aptitude Test scores, Stanford Test of Academic Skills scores, and the Tennessee Ninth Grade Proficiency Test. To determine if any differences existed between pre-program student achievement and post-program student achievement, scores from the prior school year (1987-1988) were compared with scores from the current school year (1988-1989). The results of the study show that for the 12th graders the difference between their pre-program grade point average and post-program grade point average was statistically significant, where the post-program grade point average was higher. For the 11th graders the difference between their pre-program grade point average and post-program grade point average was statistically significant, where the pre-program grade point average was higher. For the 10th graders the difference between their pre-program grade point average and post-program grade point average was statistically significant, where the pre-program and post program grade point average was the same. The results of the Pre-Scholastic Aptitude Test show that for 10th graders the difference between

their pre-program scores and post-program scores on both the Mathematics and verbal sections was statistically significant, where the post-program score was higher. For the 11th graders the difference between their pre-program score and post-program score on the Mathematics section was statistically significant, where the post-program score was higher. However, for the 11th graders the difference between their pre-program score and post-program score on the verbal section was not statistically significant. The results of the Stanford Test of Academic Skills test show that for 12th graders the difference between their pre-program scores and post-program scores on all sections of the test was statistically significant, where the pre-program scores were higher on all sections except for science. The scores for the Tennessee Ninth Grade Proficiency Test were analyzed by comparing the scores of Central High School's ninth graders with the scores of Hamilton County High Schools' ninth graders. The results of the Tennessee Ninth Grade Proficiency Test show that the ninth graders from Central High School scored lower on the test than the Hamilton County High Schools' ninth graders. The results of the study were inconclusive because the grade point average, Pre-Scholastic Aptitude Test scores, Stanford Test of Academic Skills scores, and the Tennessee Ninth Grade Proficiency Test data were not consistent across the assessment measures (Smith & McNelis, 1990).

Smith and McNelis (1990) also surveyed the students and teachers of Central High School to examine their attitudes toward the implementation of the seven-class period-program. The survey used a 5-point Likert scale to measure the students' and teachers' attitudes. The results of the survey show that the attitudes of the students were more positive toward the seven-class-period program than the teachers. One consistent response from the students for why they liked the program was that the program allowed

them to take an additional class. The teachers' consistent response for why they did not like the program was that the program increased their workload without providing more planning time (Smith & McNelis, 1990).

Patall et al. (2010) conducted a meta-analysis of 15 studies to examine the impact of extending the school day or school year on student achievement. Three of the studies examined the relationship between extending the school day and student achievement, and in all of these studies some evidence that extending the school day led to improved student achievement exist. However, the relationship was not statistically significant for all grade levels and socioeconomic status levels. The results of one study, conducted by Wheeler (1987), were that the effect of extending the school day on student achievement for at-risk students is evident. The evidence from these studies is weak because the evidence was based primarily on correlational data and case studies. Eight studies examined the relationship between extending the school year and student achievement, and in all of these studies some evidence that extending the school year led to improved student achievement exists. However, the relationship was not statistically significant for all grade levels and socio-economic status levels. The relationship between extending the school year and student achievement for students with low socioeconomic status (who are most at-risk) is statistically significant (Sims, 2008). Even though the evidence in some of these studies is from quasi-experimental designs, the evidence is still weak because the student was often improperly used as the unit of analysis (Patall et al., 2010).

Kolbe et al.'s (2012) research involved analyzing the time students spend in school. The data gathered for the study were from the Federal Schools and Staffing Survey for 2007-2008, which was the only national data source for the amount of time

students spend in public schools. For the study, 180 days within 10 months was considered a standard school year, and six hours was considered a standard school day. The New Jersey state policy for required in-school time is based on minimum instructional days (180 days) and minimum instructional hours in the school day (four hours). The results of the study show that on average, public schools do not lengthen their school year but some public schools lengthen their school day. Thirty-six percent of public schools had a school day of seven or more hours. Middle and high schools were more likely to expand the school day, where 46% had a school day of seven or more hours. Among the schools with an extended school day, 68% made AYP during the prior school year. The results of the study were that lengthening the school day improves student achievement. The schools that lengthened the school day to eight or more hours had a majority of minority students and 68% of them received Title 1 funding. Some public schools lengthened the school year; 11% of public schools had a school year of more than 180 days. Some public schools lengthened both the school day and school year (Kolbe et al., 2012).

Furrer, Magnuson, and Suggs (2012) used a quasi-experimental design, using a control and experimental group, to examine the impact of an extended-day program on student achievement. Furrer et al. (2012) measured student achievement using student attendance, credits earned, and standardized test scores. The students in the experimental group were selected based on their current participation in the Schools Uniting Neighborhoods extended-day program offered at four high schools in the Portland, Oregon school district. The students in the control group were selected using a stratified random sample of students from the 12 high schools in the Portland, Oregon school

district. The sample included 441 extended day program students and 499 control group students. The results of the study show that the extended-day program students had a higher average attendance rate (89.8%) than the control group (85.6%), where 2.6% of the variance in attendance was explained by participation in the extended-day program (R^2 = .026). The extended-day program students also earned on average more credits (6.5 credits) than the control group students (5.3 credits), with a moderate effect size (.57). However, the impact of the extended-day program on standardized test scores was not statistically significant. The results of the study were that extending the school day had a positive impact on some school initiatives; i.e., improving attendance, but extending the school day does not support the goal of improving student performance on standardized tests (Furrer et al., 2012).

deAngelis (2014) conducted a study to examine the influence of the length of the school day on the Grade 11 NJ High School Proficiency Assessment (HSPA) Language Arts and Mathematics. The data used in the study were retrieved from the 2011 New Jersey School Performance Report. The sample included 326 New Jersey public secondary schools. The sample only included public comprehensive high schools in New Jersey associated with District Factor Groups in categories A, B, CD, DE, FG, GH, I and J. A hierarchical regression was used to examine the impact of socioeconomic status, attendance, length of school day, faculty with a master's degree and above, and students with disabilities on HSPA scores. The results of the hierarchical regression when mathematics was used as the dependent variable show that 58.7% of the variance in HSPA mathematics scores can be explained by the model. Socioeconomic status was the independent variable that contributed the most to the predictive power of the model

(43.1%), while the length of the school day contributed only 5.7% to the predictive power of the model. The results of the hierarchical regression when Language Arts was used as the dependent variable show that 64% of the variance in HSPA Language Arts scores can be explained by the model. Socioeconomic status was the independent variable that contributed the most to the predictive power of the model (48.1%), while the length of the school day contributed only 3.4% to the predictive power of the model (deAngelis, 2014). deAngelis (2014) also examined the variation in HSPA scores based on the category of socioeconomic status of the schools (poor, median, and wealthy). The results of the study show that for the median and wealthy schools there was little variation in the Mathematics passing percentages when the length of the school day was increased. But for poor schools there was a six-point improvement in the Mathematics passing percentages when the length of the school day was increased from a median to long day. For the median and wealthy schools there was little variation in the Language Arts passing percentages when the length of the school day was increased, but for poor schools there was a 3.5 point improvement in the Language Arts passing percentages when the length of the school day was increased from a median to a long day (deAngelis, 2014).

The common findings of the research show that the results are mixed regarding lengthening the school day. In some cases, lengthening the school day led to improved student achievement. However, the magnitude of the improved achievement was very small, which indicates that lengthening the school day may not be a viable solution that administrators should explore. The most consistent results for improved student

achievement occurred when the school day was lengthened for students at risk, specifically students who attended Title I schools.

Instructional Time

Link and Mulligan (1986) conducted a study to examine the impact of increasing Mathematics and Reading instruction time on student achievement. The data used in the study were from the Study of the Sustaining Effects of Compensatory Education on Basic Skills, which included a random sample from over 110,000 elementary school students nationwide. The sample selected included 7,268 students in Grades 3 through 6 who received increased Mathematics instruction and 7,842 students in Grades 3 through 6 who received increased Reading instruction. Student achievement was measured by student performance on the Comprehensive Test of Basic Skills, which was administered as a pre-test in September and a post-test in May. The results of the study show that the impact of increased Mathematics instruction time on student achievement was only statistically significant for sixth graders of all races. There was a 62% variance in student achievement that was explained by increasing Mathematics instruction for White students (R^2 = .62). There was a 51% variance in student achievement that was explained by increasing Mathematics instruction for Black students (R^2 = .51). There was a 53% variance in student achievement that was explained by increasing Mathematics instruction for Hispanic students (R^2 = .53). The results were that increasing the amount of Mathematics instruction time does not impact the majority of the students. The impact of increased Reading instruction time on student achievement was only statistically significant for Grade 3 Hispanics, where 77% of the variance in student achievement was explained by increasing Reading instruction for Hispanics (R^2 = .77); and for Grade 6

Hispanics where 80% of the variance in student achievement was explained by increasing Reading instruction for Hispanics (R^2 = .80). The results were that little benefit exists for increasing the amount of Reading instruction time (Link & Mulligan, 1986).

Coates's (2003) three-year study examined the impact of instructional time on student achievement. Student achievement was measured by student performance on the Illinois Goal Assessment Program test, which is used to test 3rd, 6th, 8th, and 10th grades in Reading, Mathematics, and Writing, and the 4th, 7th, and 11th grades in Science and Social Studies. The data were gathered from the school districts in Illinois, which included a sample size of 6,806 students. Amongst the schools examined in the study, 60% of the schools used the same minutes of instruction in each subject area for the three years of the study, whereas 10% of the schools used the same minutes of instruction in each subject area for two successive years of the study. Three subject areas were studied using a multiple regression model that included independent variables for the instructional time allotted for English, Mathematics, Social Studies, and Science. The results of the study show that the impact of instructional time on student achievement was statistically significant for Reading, where 69% of the variance in student achievement was explained by instructional time (R^2 = .690), Mathematics, where 57.5% of the variance in student achievement was explained by instructional time (R^2 = .575), and Writing, where 42.5% of the variance in student achievement was explained by instructional time (R^2 = .425). The results also show that for English, where the instructional time was 147 minutes, an increase of an extra minute in instructional time per day would raise the Illinois Goal Assessment Program test score on average by 0.038. For Mathematics, where the instructional time was 52 minutes, an increase of an extra

minute in instructional time per day would raise the Illinois Goal Assessment Program test score on average by 0.188. The results of the study were that the importance of the instructional time variables is unclear because the actual effects of raising instructional time are very small (Coates, 2003).

Marcotte (2007) relied on the natural variation in weather to conduct a longitudinal study to examine the impact of instructional time on student achievement. Student achievement was measured using the Maryland School Performance Assessment Program test. The winter snow caused non-trivial variations in the amount of instructional time students received prior to taking the Maryland School Performance Assessment Program test. "This natural variation in weather is used to examine whether performance on the various Maryland School Performance Assessment Program subject tests are related to snow and subsequent school closings over a 10-year period" (Marcotte, 2007, p. 630). The data used were gathered from all elementary and middle schools in Maryland. The results of the study show that the reduced instructional time had a negative statistically significant impact on student achievement in Mathematics for Grade 3 where 80.8% of the variance in student achievement can be explained by reduced instructional time (R^2 = .808), Grade 5 where 83.2% of the variance in student achievement can be explained by reduced instructional time (R^2 = .832), and Grade 8 where 95.1% of the variance in student achievement can be explained by reduced instructional time (R^2 = .951). The reduced instructional time also had a negative statistically significant impact on student achievement in Reading for Grade 3 where 81.0% of the variance in student achievement can be explained by reduced instructional time (R^2 = .810). However, the impact of the reduced instructional time on student

achievement in Reading for Grade 5 and Grade 6 was not statistically significant. The results of the study were that Mathematics scores suffered more from reduced instructional time than Reading. One reason may be that Mathematics is a subject in which students receive most of their guidance and assistance from school, unlike Reading, which tends to be reinforced at home. Another reason is that the Mathematics curriculum is rigid and tightly scheduled so that reduced instruction time may impact the depth in which a topic may be covered. The results of the study also show that the performance of the students in the lower grades was more affected by the reduced instructional time than the students in the higher grades (Marcotte, 2007).

Corey, Phelps, Ball, Demonte, and Harrison (2012) used data from the Study of Instructional Improvement to examine the amount of instructional time received by students based on their participation in the Comprehensive School Reform programs. The study analyzes data from three Comprehensive School Reform programs, which includes the Accelerated Schools Project, America's Choice, and Success for All programs. The sample consisted of 112 elementary schools that were equally divided among four groups of schools, which included schools in the Accelerated Schools Project, America's Choice, and Success for All programs, and a control group of schools who did not participate in any Comprehensive School Reform program. The data were collected from daily instruction logs, teacher surveys, parent interviews, and student achievement tests. The daily instruction logs contained the total number of minutes spent in English and Mathematics instruction. Student achievement was measured by student performance on the Terra Nova Basic Battery test. The Accelerated Schools Project program was designed to exclude a specific amount of instructional time for either English or

Mathematics. The America's Choice program was designed to include a recommended 120 minutes of instructional time for English and no specific amount of instructional time was given for Mathematics. The Success for All program was designed to group students by ability in English for 90 minutes of instructional time in English and no specific amount of instructional time was given for Mathematics. Hierarchical linear models and quantile regression models were used to estimate the difference between the treatment and control group at five points, which included the .10, .25, .50, .75, and .90 quantiles, of instructional time. The results of the study show that for the Hierarchical Linear models the America's Choice program was the only Comprehensive School Reform program that had a statistically significant effect on English instructional time. The students in the America's Choice program received on average 7.2 more minutes a day of English instruction than in comparison schools. The quantile regression models showed different results, where at the .10 quantile the Success for All program had a statistically significant effect on English instructional time. The students in the Success for All program received on average 16 more minutes a day of English instruction than in comparison schools. At the .25 quantile the Success for All program also had a statistically significant effect on English instructional time, where the students received on average 10 more minutes a day of English instruction than in comparison schools. The quantile regression models for the America's Choice program show that at the .25 quantile the effect on English instruction was statistically significant, where the students received on average 9.7 more minutes a day of English instruction than in comparison schools. None of the Comprehensive School Reform programs had a statistically significant effect on Mathematics instructional time. The results of the study were that

direct intervention on the amount of time allotted for English can have a positive impact on student achievement, but additional time spent on English does not transfer into improved achievement in Mathematics (Corey et al., 2012).

Trust (2015) conducted a study to examine the influence of increased instructional time on underperforming students' achievement scores in Grade 7 and 8 Mathematics and ELA. The data were gathered from a large middle school in New York State. The sample included eighth-grade students who had taken both seventh-grade and eighth-grade New York State examinations and were enrolled in the learning labs. The learning labs were designed to improve student performance on the NY state examinations. Binary logistic regression was used to determine if the odds of scoring in the Proficient range on the NY state examinations in Mathematics and ELA were affected by enrollment in the learning labs. The results of the study show that for ELA achievement only the previous achievement in ELA was a significant predictor of whether a student will score at the Proficient level on a subsequent examination. When the predictors socioeconomic status, prior achievement, and special education classification were considered together, the model for ELA achievement was statistically significant (χ^2 = 8.83, *df* = 3, *N* = 198, *p*=.032). For Mathematics achievement only the previous achievement in Mathematics was a significant predictor of whether a student will score at the Proficient level on a subsequent examination. When the predictors socioeconomic status, prior achievement, and special education classification were considered together, the model for Mathematics achievement was statistically significant (χ^2 = 13.224, *df* = 3, *N* = 204, *p*=.010). The results of the study were that academic interventions may not lead to a student improving his or her chances of scoring in the Proficient range on the NY state examination because

previous achievement influences subsequent performance on the NY state examination (Trust, 2015).

To analyze the reading growth for poor second grade readers, Falco (2001) conducted a study to examine the impact of increased time allocated for connected reading activities on their reading growth. The data were gathered from the Iowa Test of Basic Skills in Reading-level B, Terra Nova Test in Reading, and reading achievement measured by the SuccessMaker reading program. The sample consisted of an experimental group and control group. The population for the study included 392 urban second grade students. The experimental group consisted of the bottom 20% of the population in reading and the control group was randomly selected from the population. The study used a pre-test/post-test control group design. The experimental group received full-day time on task allocated for connected reading activities (303 minutes), while the control group received a varied amount of time on task allocated for connected reading activities (35 to 186 minutes). The results of the study show that 21.7% of the variance in reading achievement can be explained by participation in the connected reading activities. The results were consistent with other studies in identifying that time on task for reading and connected reading activities improved student achievement in reading (Falco, 2001).

The common findings of the research were that increasing instructional time has a small effect on student achievement. When instructional time is increased in one subject, small gains in student achievement are achieved without impacting other subjects. Interventions can be implemented in one subject without consequent negative effects on other subjects, but academic interventions may not have an effect on improving

achievement because previous achievement in a subject is a strong predictor of subsequent performance.

School Size

To gain an understanding of how school size relates to student achievement among various subgroups of students, McMillen (2004) conducted a study using data from the North Carolina public schools. Student achievement was measured using the End-of-Grade test in Reading and Mathematics, as well as the High School Comprehensive Test. The study consisted of three cohorts of students, which included an elementary cohort, middle school cohort, and high school cohort. Each cohort consisted of one grade, where the elementary cohort consisted of third graders, the middle school cohort consisted of sixth graders, and the high school cohort consisted of eighth graders. The student data were collected for the school year when the cohorts were in the third, sixth, and eighth grade; then student data were collected again for the same students two years later when they were in the 5th, 8th, and 10th grade. The data on school size for each school were averaged across the two years to an estimate of 54,615 students in the elementary schools, 53,306 students in the middle schools, and 58,786 students in the high schools. The number of students in the study consisted of 506 elementary school students, 570 middle school students, and 859 high school students. The results of the study show that for the elementary cohort the relationship between school size and student achievement in Reading was not statistically significant. The relationship between elementary school size and prior Mathematics achievement was negative and statistically significant. The results of the study were that students who attended smaller elementary schools scored better in Mathematics in the fifth grade, but the magnitude of

this relationship was very small (.09 standard deviations). The results of the study also show that for the middle school cohort the relationship between school size and student achievement in Reading was not statistically significant. The relationship between middle school size and prior Reading and Mathematics achievement was negative and statistically significant, but the magnitude of the relationship was small, with .12 standard deviations for Reading and .13 standard deviations for Mathematics. The results of the study show that for the high school cohort the relationship between high school size and student achievement in Reading was statistically significant. The magnitude of the relationship was .12 standard deviations for students with parents with post-secondary education and .20 standard deviations for White students (McMillen, 2004). "These relationships implied that although students overall performed better in Reading in larger high schools, the benefits accrued more strongly to White students and students whose parents had at least some post-secondary education" (McMillen, 2004, p. 14). The relationship between high school size and prior Mathematics achievement was statistically significant. The magnitude of the relationship was .28 standard deviations for prior Mathematics achievement, .10 standard deviations for White students, and .11 standard deviations for students with parents with post-secondary education (McMillen, 2004).

Kuziemko (2006) assessed the impact of school size on student achievement. School mergers, openings, and closings were used to account for changes in school size. Student achievement was measured by the third graders performance on the Indiana Statewide Test for Educational Progress in English and Mathematics. The data for the study were gathered from the Indiana Department of Education, which consisted of a

sample all of the Indiana elementary schools. Analysis of the data was performed during three years within the 1989 through 1998 time frame. Two analysis techniques were used in the study, which included multiple regression analysis and a two-stage least squares regression analysis. The results of the study show that for the multiple regressions the impact of school size on Mathematics achievement was negative and statistically significant where the coefficients ranged from -1.18 to -1.45. The model was predictive of Mathematics achievement where 17.6% of the variance in Mathematics achievement can be explained by the school size for year one (R^2 = .176), 26.4% of the variance in Mathematics achievement can be explained by the school size for year two (R^2 = .264), and 28.1% of the variance in Mathematics achievement can be explained by the school size for year three (R^2 = .281). For the two-stage least squares regression there was also a negative statistically significant impact of school size on Mathematics achievement where the coefficients ranged from -1.20 to -4.12. The model was predictive of Mathematics achievement where 17.6% of the variance in Mathematics achievement can be explained by the school size for year one (R^2 = .176), 26.3% of the variance in Mathematics achievement can be explained by the school size for year two (R^2 = .263), and 28% of the variance in Mathematics achievement can be explained by the school size for year three (R^2 = .280). The impact of school size on English achievement was not statistically significant (Kuziemko, 2006). The results of the study were as follows:

> The negative effect of enrollment as measured by the two-stage least squares regression tends to grow in absolute value each year after an enrollment change, suggesting that the longer students attend larger

> (smaller) schools, the more their achievement indicators fall (rise) (Kuziemko, 2006, p. 71).

Monitoring the academic performance of various racial subgroups is important because school administrators are expected to analyze the performance of all students, based on the NCLB act (Zoda, Slate, & Combs, 2011). Given the increase in enrollment of Hispanic students in public schools, Zoda et al. (2011) chose to examine the impact of school size on student achievement for Hispanic students. Student achievement was measured by student performance on the Grade 4 Texas Assessment of Knowledge & Skills (TAKS) Reading, Mathematics, and Writing examination. The schools included in the study were categorized as very small (less than 400 students), small (400-799 students), and large (800-1,199 students). The study was conducted over a five-year period, where the number of schools studied varied. The number of very small schools studied ranged from 138 to 319, the number of small schools studied ranged from 862 to 1,537, and the number of large schools studied ranged from 247 to 333. The results of the study show that for each of the five years of the study, the impact of school size on student achievement for Hispanic students was statistically significant. For the 2003-2004 school year the effect size was small (.02), for 2004-2005 the effect size was small (.01), for 2005-2006 school year the effect size was small (.01), for 2006-2007 the effect size was trivial (.003), and for 2007-2008 school year the effect size was small (.01). For each year of the study the larger schools had statistically significant higher passing rates on the Texas Assessment of Knowledge & Skills when compared to very small schools. The results of the study suggest that Hispanics perform better in Reading and Writing in large schools than in very small schools. One possible reason for larger schools being better

than small schools is the economies of scale model in which larger schools can produce equivalent or better outcomes at a lower cost per student by being more efficient in their use of resources (Zoda et al., 2011).

According to Wyse, Keesler, and Schneider (2008), small schools have been promoted as a means to reform schools and improve student achievement, but students who attend small schools may have characteristics that influence student achievement that are unrelated to school size. To address this issue, Wyse et al. (2008) used propensity score matching techniques to conduct a study to examine the influence of high school size on Mathematics achievement. Students with similar characteristics were matched to estimate the potential impact of school size on Mathematics achievement. Wyse et al. (2008) measured Mathematics achievement based on student performance on standardized tests. The data for the study were gathered from the Educational Longitudinal Study of 2002. The sample included students who completed surveys in both the 10th and 12th grade, which included 12,853 students. Analysis of the data shows that the larger schools are most likely to be in urban areas, have a large minority student population, and a large population of students with low socioeconomic status. Separate propensity score matches were performed for students who attended schools with 2,000 or more students, to students attending schools of 1-399, 400-799, 800-1,199, and 1,200-1,999 students. The school size categories are representative of the sizes that exist in most schools. For each of the propensity score matches, separate least square within strata regression models were constructed to estimate the potential effect of attending a smaller school for students in each stratum. The results of the study show that for each of the four propensity score matches the difference in mathematics achievement between students

who attend larger schools and those students who attend smaller schools was not statistically significant. The within-strata regression models for the individual strata show that the signs of the mean differences were not strictly positive, which also suggests that students who attend smaller schools do not benefit in improved mathematics achievement in all circumstances. To further examine the potential impact of school size on Mathematics achievement, a multivariate sensitivity analysis was conducted. The plot of the average residual from the model for each school against the continuous variable for school size shows a band of points across the entire range of school sizes. The results were that no optimal school size would result in improved student Mathematics achievement (Wyse et al., 2008).

The common findings of the research were that the size of the school has little to no influence on student achievement. Even though students performed better in Reading in larger schools, the magnitude of the effect was small. The results of the studies show mixed results for mathematics achievement for minority students, where the benefits of being in large schools for these students relied on other factors; i.e., parents having post-secondary education. The length of time spent in a school proved to be one indicator of how students may perform academically, where small schools has better outcomes, but no optimal school size could be determined that would result in improved student achievement.

Practical and Research Significance of the Literature Review

Even with the numerous studies that are in existence on attendance and student achievement, chronic absenteeism in connection with student achievement has not received much attention by policymakers and school administrators. Research shows that

chronic absenteeism is an early predictor of dropping out of high school. Chronic absenteeism also negatively impacts students with low socioeconomic status because chronic absenteeism is more prevalent in urban, as compared to rural, schools (Utah Education Policy Center, 2012). Further research is required to identify how chronic absenteeism affects student achievement because chronic absenteeism is now an accountability measure that must be reported to the NJDOE. The results of a study on the influence of chronic absenteeism on student achievement can further inform school administrators on the use of the variable in identifying which students are at risk for dropping out of school. In addition, all of the studies related to the student and school variables and student achievement use student and school data to provide results that can be used by school administrators to analyze academic achievement issues.

Theoretical Framework

In this study, I examined student and school inputs to determine the influence of chronic absenteeism on Grade 6 NJ ASK, Grade 7 NJ ASK, and Grade 8 NJ ASK ELA and Mathematics scores, in the aggregate, for the year 2014. According to Summers and Wolfe (1997), the theory of the education production function models the relationship between school inputs and various output measures of student achievement. Based on the education production function theory, I modeled the relationship between student and school inputs and various output measures of student achievement at the middle school level.

Studies including the education production function are statistical analyses relating student outcomes to characteristics of the students and school. Frequently, student outcomes are measured by standardized test scores (Hanushek, 1979). The inputs

(student and school factors) were specified to assess the amount of variance exerted on the output measure (Grades 6-8 NJ ASK aggregate ELA and Mathematic scores).

Abraham Maslow (1954) is a classical theorist whose work can be used to connect chronic absenteeism to student achievement. Maslow's hierarchy of needs is based on a belief that people are motivated by a variety of needs and basic needs must be satisfied before people are motivated to seek higher level needs. The lowest level of the hierarchy, physiological, represents people's basic needs for physical well-being (i.e., need for shelter, food, and water). The next level is safety, which represents the need to be free from danger. Once these lower level needs are satisfied, people seek to satisfy their social/belonging needs. The social/belonging need is characterized by the desire for inclusion and acceptance by various groups in an effort to establish meaningful relationships. Once the social/belonging need is satisfied, people seek esteem. The need for esteem is based on the need for respect and recognition from others. When esteem is achieved, people often feel more self-confidence, prestige, power, and control. The top level of the hierarchy, self-actualization, represents people reaching their maximum potential (Bolman & Deal, 2013).

Middle school students who attend school in high-poverty neighborhoods are at risk of being exposed to unsafe situations. Many of these low-income students are recruited into activities that interfere with school attendance, which may include drug activity, gang activity, or out-of-school adventures with their peers (Balfanz, Herzog, & Mac Iver, 2007). Shtasel-Gottlieb, Palakshappa, Yang, and Goodman's (2014) research shows that growing up in a low-income community presents many challenges for access to basic resources needed for survival, such as food and appropriate housing. The basic

need for food, shelter, and safety, which are lower levels in Maslow's hierarchy, are not being met for many low-income students. Since the basic needs for low-income students are often not met, most of these students fail to strive to reach their maximum potential, which is the highest level in Maslow's hierarchy (Balfanz, Herzog, & Mac Iver, 2007).

Conclusion

According to Balfanz and Byrnes (2012) attending school regularly is important for all students, specifically students who live in or near poverty. "Chronic absenteeism is a key driver of the nation's achievement, high school graduation, and college attainment gaps" (Balfanz & Byrnes, 2012, p. 41). If chronic absenteeism is measured and monitored, school administrators can respond by using existing resources. Millions of students miss too much school, which leads to many detrimental effects that negatively impact students' future (Balfanz & Byrnes, 2012). A growing body of research shows that student and school variables also contribute to a substantial portion of factors that impact student achievement.

When conducting research, many student, parent, environmental, and school contextual variables are considered to explain the influence of chronic absenteeism on standardized test scores (Parke & Kanyongo, 2012). One variable to consider when examining the influence of chronic absenteeism on standardized test scores is attendance. In order to improve student attendance, "schools should incorporate mechanisms to develop strong connections with students' home and community into their organizational structure" (Sheldon, 2007, p. 273). The implementation of the schoolwide partnership programs had small-to-moderate effect sizes on student attendance. Many other factors need to be addressed to improve student attendance (Sheldon, 2007).

Gottfried's (2009) research shows that students who have excused absences as a greater part of total absences are associated with having a positive relationship with academic achievement. Students who have unexcused absences as a greater part of total absences are at risk academically. School administrators must perform a detailed examination of the types of absences to gain insight into what affects academic performance (Gottfried, 2009).

Gottfried's (2010) longitudinal study of elementary and middle school students in the Philadelphia School District shows a statistically significant relationship between school attendance, grade point average (GPA), and standardized test performance. Gottfried (2010) believed that attendance matters across multiple measures of achievement early in a student's academic experience, especially in urban schools. According to Gottfried (2011) a negative peer effect exists where students experience lower standardized test scores as a result of being in a classroom with peers who are frequently absent. Recognizing the negative peer effects that arise from students with unexcused absences is important (Gottfried, 2011).

Balfanz et al.'s (2007) research shows that high-poverty cities are the source of the nation's graduation rate crisis. During the middle grades the crisis intensifies due to the onset of adolescence, living in impoverished neighborhoods, and attending under-resourced schools. Balfanz et al.'s (2007) research included data from Philadelphia's urban schools to demonstrate that urban students display behavioral indicators in middle school that can be used to determine their likelihood of graduating from high school. Poor attendance is feasible to use as an early warning to identify students who are at risk for high school graduation. The success of reform models, such as the Talent

Development Middle Grades and Talent Development High School Comprehensive model, shows that high school dropout is preventable (Balfanz et al., 2007).

According to Kieffer and Marinell (2012), improvement or declines in test scores are also an indication of a student's progress towards graduation; and poor attendance is equally, if not more, important as an indication that a student is at risk of not graduating from high school. "The middle grades may not be too late to prevent declining attendance and stagnant achievement, given that changes during these years (not just prior levels in grade four) are predictive of students' later success" (Kieffer & Marinell, 2012, p. 22).

Research shows that socioeconomic status influences student achievement; but according to White et al. (1993), knowledge of a student's socioeconomic status provides little assistance in predicting student achievement. White et al.'s (1993) research examined the impact of socioeconomic status on student achievement. The results of the study show that the aggregation of student data, the method most commonly used for research, greatly overestimates the percentage of variance in achievement that is explained by socioeconomic status. Sirin (2005) conducted a meta-analysis to examine the impact of socioeconomic status on student achievement. The results of Sirin's (2005) meta-analysis show that the magnitude of the relationship between socioeconomic status and school achievement was not as strong as was reported in White's (1982) meta-analysis. According to Caldas and Bankston (1997), low socioeconomic status has a small negative effect on student achievement.

The academic achievement amongst LEP students varies. Some LEP students improve their academic performance and their LEP status is removed. Then some of these LEP students close the achievement gap with their non-LEP peers, but a substantial

amount of LEP students never lose their LEP status and never perform academically as well as their non-LEP peers (Kim & Herman, 2009). In Abedi's (2004) study on the impact of LEP student status on student achievement, the LEP students' academic performance was substantially lower than non-LEP students. Even though LEP students can master content knowledge, the LEP students may not be at a level of English language proficiency necessary to understand the linguistic structure of assessment tools (Abedi, 2004). Based on Slama's (2012) study on the academic proficiency of LEP students, U.S. born LEP students performed better academically than their foreign-born LEP peers. However, the foreign-born LEP students developed their academic skills at a fast rate so that in many cases they caught up to their U.S. born LEP peers academically. Unfortunately, both groups remained at low levels of academic proficiency (Slama, 2012).

Malmgren et al.'s (2005) research shows that schools with good results for the academic performance of their general education students also have good results for students with disabilities. But in many learning environments an achievement gap exists between students with disabilities and students without disabilities. One reason for the achievement gap may be due to not having an opportunity to learn, which may occur in a self-contained classroom that must focus on the needs of many students with disabilities (Malmgren et al., 2005). According to Berry (2011), teachers in the general education classroom must fully attend to the individual learning needs of students with disabilities.

Marcotte and Hansen (2010) examined the influence of instructional time on student achievement. Marcotte and Hansen (2010) discovered that the average number of days lost to unscheduled school closings varied from four and a half to 10 days. Several

schools in the study, 35 of the 56 elementary schools, did not make AYP as a result of unscheduled school closings (Marcotte & Hansen, 2010). Marcotte (2005) also examined the impact of instructional time on standardized test scores using the variation in winter weather that led to unscheduled school closings. Student achievement in Mathematics was most affected by the unscheduled school closings. Student performance in the lower grades was more affected by the unscheduled school closings than student performance in the higher grades (Marcotte, 2005).

Even though obstacles to extending instructional time exist, such as the substantial expense and handling of stakeholder attachment to the current school year and summer schedule, increasing instructional time is beneficial to improving student achievement (Marcotte & Hansen, 2010). Adding minutes or hours to the school day is the least common approach to increasing instructional time. (Silva, 2012). But Kolbe et al.'s (2012) research shows that over the past decade while steady increases in the length of the school day have occurred, the magnitude of this change is small. On average, the net gain in instructional time was four minutes over a ten-year period (Kolbe et al., 2012).

Furrer et al. (2012) conducted a study to examine the influence of an extended school day program on standardized test scores. Furrer et al. (2012) discovered that the extended school day program improved student attendance and the amount of credits earned. However, the students who attended the extended school day program did not score statistically different from the comparison group of students on the standardized test. (Furrer et al., 2012). Research shows that the effect of extending the school day on student achievement is neutral to small and positive (Patall et al., 2010). In the meta-analysis conducted by Patall et al. (2010) to examine the impact of extending the school

day or school year on student achievement, the results were that extending school time is effective for minority, low socioeconomic status, and low achieving students, but Link and Mulligan's (1986) research on the impact of a longer school day on achievement shows that all ethnic groups experienced diminishing returns from an increased amount of instructional time. "The effects of instructional time are quite small" (Coates, 2003, p. 290). Corey et al. (2012) also discovered that lengthening instructional time has no effect on English Language Arts and the effects for Mathematics were small and marginally significant.

The majority of studies on school size and its relationship to student achievement indicate that smaller schools are better (McMillen, 2004). Kuziemko's (2006) research on the impact of school size on student achievement shows that reducing school size increases student achievement. However, McMillen's (2004) research to examine the relationship between school size and student achievement shows that the relationship for high school students is statistically significant and has a positive effect size. The results were that students who attend larger high schools have a higher level of academic achievement (McMillen, 2004). Zoda et al.'s (2011) study to examine the influence of school size on the academic performance of Hispanic students shows that Hispanic students have statistically significant higher academic achievement in large schools than in very small schools. Wyse et al.'s (2008) study to examine the impact of high school size on academic outcomes "confirmed that there was not a particular school size that would result in optimal Mathematics achievement" (Wyse et al., 2008, p. 1894).

CHAPTER III

METHODOLOGY

I conducted this quantitative study to explain what influence, if any, chronic absenteeism has on Grade 6, 7, and 8 ELA and Mathematics NJ ASK performance, in the aggregate, when controlling for other influential student and school demographic variables. This research was conducted to add to the existing literature, which has only a few studies on the topic of chronic absenteeism. This study adds to the existing literature by attempting to provide school administrators with data and evidence to better inform school initiatives that promote better student attendance.

Research Questions

The overarching research question is as follows: What is the influence of chronic absenteeism on the Grade 6, Grade 7, and Grade 8 school-level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables?

Research Question 1: What is the strength and direction of the relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables?

Research Question 2: What is the strength and direction of the relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables?

Research Question 3: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

Research Question 4: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

Null Hypotheses

Null Hypothesis 1: No statistically significant relationship exists between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables.

Null Hypothesis 2: No statistically significant relationship exists between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables.

Null Hypothesis 3: The probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant.

Null Hypothesis 4: The probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant.

Design

This study is designed as a correlational, non-experimental explanatory design that uses quantitative methods. The correlational design was chosen to explain the relationship, if any, which exists between chronic absenteeism and student achievement on the Grade 6, 7, and 8 NJ ASK ELA and Mathematics. “Correlational research involves collecting data in order to determine whether, and to what degree, a relationship exists between two or more quantifiable variables” (Johnson, 2001, p. 4). This correlational,

non-experimental explanatory study that uses quantitative methods also explores the influence of student and school variables on student achievement. It is important to conduct non-experimental quantitative research because there are so many important but non-manipulatable independent variables needing further study in the field of education (Johnson, 2001).

Determining which student and school variables have a statistically significant relationship with student achievement on the middle school NJ ASK ELA and Mathematics sections required the use of multiple regression, hierarchical regression, and logistic regression models. According to Morgan, Leech, Gloeckner, and Barrett (2013), multiple regression is used to predict a dependent variable from two or more independent variables. The assumption for multiple regression is that the relationship between each of the independent variables and the dependent variable is linear and that the error is normally distributed and uncorrelated with the independent variables (Leech, Barrett, & Morgan, 2011). In a statistical analysis, hierarchical regression is helpful "when one has an idea about the order in which one wants to enter predictors and wants to know how prediction by certain variables improves on prediction by others" (Leech et al., 2011, p. 106). Logistic regression is similar to multiple regression because logistic regression is used to predict a dependent variable from two or more independent variables (Leech et al., 2011). Logistic regression is helpful when one wants to predict a categorical variable from a set of predictor variables (Leech et al., 2011, p. 129). The assumption for logistic regression is that the "observations must be independent and independent variables must be linearly related to the logit (natural log of the odds ratio) of the dependent variable" (Leech et al., 2011, p. 129).

Sample Population/Data Source

The sample for this study included only New Jersey middle schools configured with Grades 6-8. The study did not include charter schools, vocational schools, and special education schools. The following criteria were used to select the sample:

- The schools were New Jersey public schools
- The schools were configured with only Grades 6-8
- The schools reported all demographic and testing information to the NJDOE

There are 220 schools in the sample that had complete data for Grades 6-8 NJ ASK ELA and Mathematics, in the aggregate.

Data Collection

Data collection for this study involved gathering data from the New Jersey DOE website (http://www.state.nj.us/education/reportcard/2014/index.html). The 2014 School Performance Report Excel spreadsheet was downloaded from the New Jersey Department of Education's website. The data used for this study were from all New Jersey public middle schools configured with Grades 6-8 that provided information on the student and school variables examined in this study (see Table 2). The data from all schools that were vocational, charter, and special education were removed from the study. The schools that did not provide information for some of the variables were removed from the study. The middle schools that were used in the study were listed in the Microsoft Excel workbook. An Excel workbook was created for Grade 6-8 middle schools. The workbook contained two worksheets, one for ELA and one for Mathematics. Only the Grade 6-8 public middle schools in the DFG A, B, CD, DE, FG, GH, I, or J were included in the study (see

Table 3). DFG “A” represents middle schools with the lowest socioeconomic status and DFG “J” represents middle schools with the highest socioeconomic status.

The results of the NJ ASK ELA and Mathematics data, in the aggregate, were added to the Excel spreadsheets. The data for the percentage of students who scored Proficient or Advanced Proficient on the NJ ASK were merged as follows:

- Total percent Proficient and above for ELA in Grade 6-8
- Total percent Proficient and above for Mathematics in Grade 6-8

The student and school data from each school’s NJ School Performance Report were added to the Excel spreadsheets. The Excel spreadsheets were formatted and IBM’s SPSS statistical software was used to perform statistical analysis. The number of middle schools that met the criteria were categorized by DFG as shown in Table 3. The number of public middle schools configured with Grades 6-8 that tested students on the NJ ASK was 220.

Table 2

Variables from the 2014 NJ School Performance Report

Variable	Description	Measurement	Type of Variable
County	An NJDOE assigned code that represents the county of the school's location	Nominal	Descriptive variable
District	An NJDOE assigned code that represents the school's district.	Nominal	Descriptive variable
School	An NJDOE assigned code that represents the school.	Nominal	Descriptive variable
District Factor Group	An NJDOE assigned code that represents an approximate measure of a community's socioeconomic status. Defined using the percentage of adults with no high school diploma, percentage of adults with some college education, adult occupational status, adult unemployment rate, percentage of individuals in poverty, and median family income.	Ordinal/ Categorical	Descriptive variable
Chronic absenteeism	Represents whether or not a school met the target level of chronic absenteeism mandated by NJDOE.	Nominal (0=did not meet target; 1=met target)	Dependent variable
Percentage of students chronically absent	Percentage of students who are chronically absent (includes unexcused and excused absences). Calculated as the number of students in the most recent school year that missed 10% or more of the instructional days in the school year divided by the total number of students	Ratio/Interval	Predictor variable/ Independent variable

Variable	Description	Measurement	Type of Variable
	enrolled.		
Absenteeism: Level A - 0 Absences Level B - 1- 5 Absences Level C - 6 - 10 Absences Level D - 11 - 15 Absences Level E - 15 + Absences	Percentage of students who are absent (includes unexcused and excused absences).	Ratio/Interval	Control variable
Percentage of students with free or reduced-price lunch	The percentage of students with free or reduced-price lunch is derived from the number of students who receive free or reduced-price lunch divided by the enrollment of the school.	Ratio/Interval	Control variable
Percentage of students with LEP	The percentage of students with LEP is calculated using the number of students with LEP divided by the school enrollment.	Ratio/Interval	Control variable
Percentage of students with disabilities	The percentage of students with disabilities is calculated using the number of students with disabilities divided by the school enrollment.	Ratio/Interval	Control variable
Length of school day	The length of time, in minutes, students are in school each day.	Ratio/Interval	Control variable
Instructional time	The length of time, in minutes, a school has students actively participating in instruction with the supervision of a certified teacher.	Ratio/Interval	Control variable
School size	The enrollment of the school.	Ratio/Interval	Control variable
Coded School Size	School size categories that are representative of the sizes that exist in most middle schools.	Ordinal/ Categorical	Descriptive variable
Race: White	The percentage of students in each racial	Ratio/Interval	Control variable

Variable	Description	Measurement	Type of Variable
Black Hispanic Asian American Indian Pacific Islander Two or more races	category.		
Grade 6-8 aggregate NJ ASK ELA score	The total schoolwide percent Proficient and above on NJ ASK ELA.	Ratio/Interval	Criterion variable/ Dependent variable
Grade 6-8 aggregate NJ ASK Mathematics score	The total schoolwide percent Proficient and above on NJ ASK Mathematics.	Ratio/Interval	Criterion variable/ Dependent variable
ELA Proficient	Represents whether or not a school met the acceptable margin for students deemed Proficient or above in ELA, typically 75%+ as mandated by the NJDOE.	Nominal/ Dichotomous (0=did not make Proficient level, 1=did make proficient level)	Criterion variable/ Dependent variable
Math Proficient	Represents whether or not a school met the acceptable margin for students deemed Proficient or above in Math, typically 75%+ as mandated by the NJDOE.	Nominal/ Dichotomous (0=did not make Proficient level, 1=did make Proficient level)	Criterion variable/ Dependent variable

Table 3

Number of Middle Schools within each District Factor Group

District Factor Group	Number of Middle Schools
A	21
B	23
CD	17
DE	29
FG	35
GH	37
I	45
J	13
Total	220

Chronic absenteeism
Percentage of chronically absent students
Absenteeism: Level A - 0 Absences Level B - 1- 5 Absences Level C - 6 - 10 Absences Level D - 11 - 15 Absences Level E - 15 + Absences
Percentage of students with low socioeconomic status
Percentage of LEP students
Percentage of disabled students
Length of school day
Instructional time
School size
Race: White Black Hispanic Asian American Indian Pacific Islander Two or more races

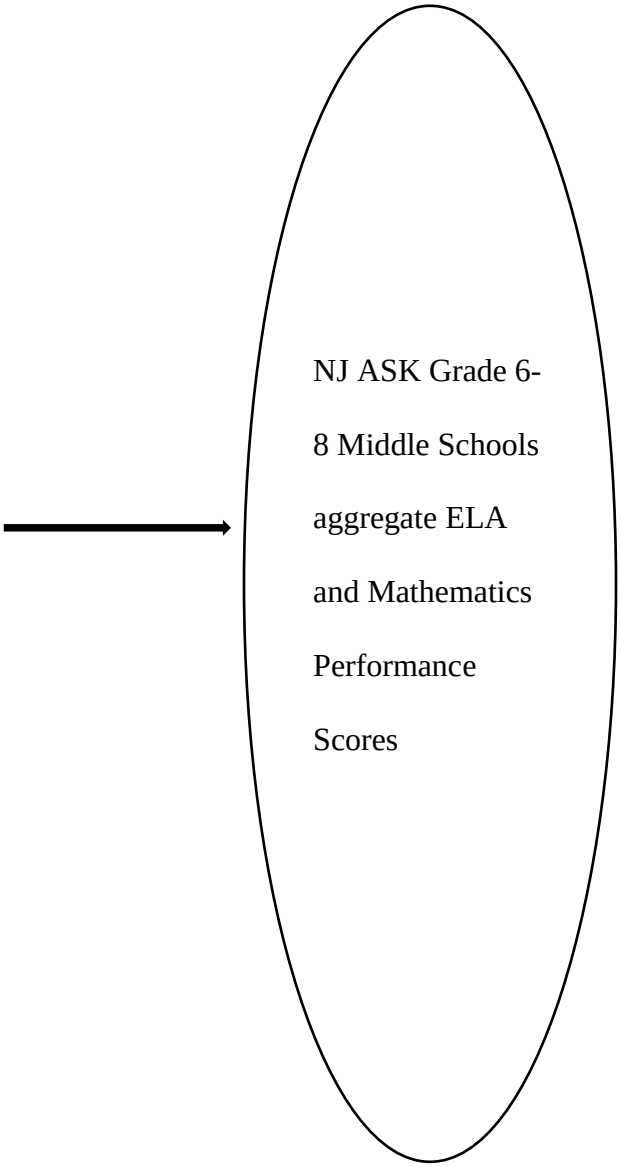

Figure 1. Conceptual framework (input/output theory).

Data Analysis

The regression models used a sample size necessary to determine statistical significance. The calculations were based on determining if the p value was at least .05 and had an effect size of at least 0.50. Analysis of the standardized beta coefficients was used to determine the strength of the contribution and direction of the relationship

between the predictor variables and ELA and Mathematics NJ ASK scores. For the regression models I used a rule stated by Field (2014):

> The simplest rule of thumb is that the bigger the sample size, the better: the estimate of *R* that we get from regression is dependent on the number of predictors, *k*, and the sample size, *N*. In fact, the expected *R* for random data is *k*/(*N*-1) and so with small sample sizes random data can appear to show a strong effect: for example, with six predictors and 21 cases of data, *R* = 6/(21-1) = .3 (a medium effect size by Cohen's criteria). Obviously for random data we'd want the expected *R* to be 0 (no effect) and for this to be true we need large samples (to take the previous example, if we had 100 cases rather than 21, then the expected *R* would be a more acceptable .06) (p. 313).

The sample size for the study met the requirements as defined by Field (2014). I included a maximum of eight independent variables (predictor variables) in a model and used a sample size of 220 schools. Therefore, *R* = 8/(220-1) = .04, which is considered acceptable.

The initial step of the analysis phase involved determining whether the dependent variables (Grade 6-8 ELA and Mathematics NJ ASK) met the assumption of normality. I examined the value of skewness for the dependent variables. The closer the value was to zero the more likely the data are normally distributed (Field, 2014). I conducted the tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk). If the test of normality is non-significant ($p > .05$), it means the distribution of the sample is not significantly different from a normal distribution (it is probably normal). If, however, the test of normality is

significant ($p < .05$), then the distribution is significantly different from a normal distribution (it is not normal) (Field, 2014). I generated histograms to examine the distribution of the dependent variables. I also calculated the descriptive statistics for Grades 6-8 ELA and Mathematics NJ ASK, which included the means and standard deviations.

I continued the analysis by running simple scatterplots and adding a linear regression line to check the assumption that there is a linear relationship between the independent and dependent variables (Morgan et al., 2013). The variables used for the scatterplots were the percentage of students chronically absent and NJ ASK scores on ELA and Mathematics. The layout of the plotted points was used to determine if there was a positive or negative relationship between the independent and dependent variables. There is a positive relationship if the plotted points are close to a straight line from the lower left corner of the plot to the upper right. There is a negative relationship if the plotted points are close to a straight line from the upper left to the lower right (Morgan et al., 2013). A Pearson correlation was conducted to analyze the correlation among the predictor variables and the NJ ASK scores on ELA and Mathematics. The Pearson correlation coefficient results in a value from -1 to 1. According to Cohen's criteria for the Pearson's correlation coefficient r, when $r = .10$ a small effect has occurred, when $r = .30$ a medium effect has occurred, and when $r = .50$ a large effect has occurred (Field, 2014).

The next step required the use of simultaneous multiple regression to investigate the best prediction of NJ ASK ELA and Mathematics scores. "By capitalizing on the combined predictive power of several predictor variables, these multiple regression

equations supply more accurate predictions than could be obtained from a simple regression equation" (Witte & Witte, 2007, p. 165). I conducted a simultaneous multiple regression that involved all of the independent variables for each subject area. I used the results of the multiple regression to identify potentially statistically significant variables. Based on Pedhazur's (1986) research, multiple regression is helpful when used to determine whether a particular effect exists and to measure the magnitude of the particular effect.

Multicollinearity was a concern because more than one predictor was used in the regression model. Multicollinearity occurs when there is a strong correlation between two or more predictors. If there is perfect collinearity between two predictors (they have a correlation coefficient of 1), it is impossible to obtain unique estimates of the regression coefficients. Then determining the importance of an individual predictor is not possible. To detect multicollinearity, I examined the variance inflation factor (VIF) to ensure that it was not substantially greater than 1. When the average of all VIFs is substantially greater than 1, the regression may be biased. I also examined the tolerance to ensure that it was not less than 0.1. When the tolerance is below 0.1, there is a serious problem (Field, 2014).

Next I conducted a hierarchical regression, which enabled me to enter the independent variables in a sequential order. "In hierarchical regression predictors are selected based on past work and the researcher decides in which order to enter the predictors into the model" (Field, 2014, p. 322). The predictors selected for the hierarchical regression models were chosen based on their statistical significance in the

simultaneous multiple regression model. I used the hierarchical regression models in analyzing the Grade 6-8 ELA and Mathematics NJ ASK scores.

The final step was to conduct a binary logistic regression. “Logistic regression is helpful when you want to predict a categorical variable from a set of predictor variables” (Leech et al., 2011, p. 129). ELA proficiency and Mathematics proficiency were used as the dependent variables to determine the odds of each predictor, significantly predicting whether or not a school met the NJDOE target for the school’s proficiency in ELA and Mathematics. The odds ratio is an indicator of a change in odds that results from a unit change in the predictor. If the odds ratio is greater than 1, it indicates that as the predictor increases, the odds of the outcome occurring increase. If the odds ratio is less than 1, it indicates that as the predictor increases, the odds of the outcome occurring decrease (Field, 2014).

New Jersey School Performance Report

The NCLB legislation requires schools to be held accountable for the academic achievement of all students. Under NCLB, states are required to implement annual standardized testing that will be used to measure the proficiency level of a student. Schools are required to meet AYP targets to avoid being sanctioned. Annual school district performance reports are produced to monitor a school’s progress. These reports are also used to inform communities and parents of a school’s progress. The 2013-2014 New Jersey School Performance Report provides data on the results of the standardized assessments, chronic absenteeism, student attendance, peer school comparison, college- and career-readiness, student growth, within-school achievement gap, and school climate. The data for the 2013-2014 New Jersey School Performance Report were gathered

through the NJ SMART submissions during the 2013-2014 school year. Some of the data were also collected from third-party sources, such as the College Board and National Student Clearinghouse (NJDOE, 2013). The data that were gathered are useful for administrators to perform benchmark analyses to identify both strengths and weaknesses of the school. The data also supports administrators in setting goals, planning, and improving their school.

Grade 6

The 2013-2014 New Jersey School Performance Report data were based on the results of the NJ ASK. The NJ ASK 6 was administered to students between May 5 and May 8, 2014. Based on an enrollment of 102,513 students, 100,791 students received valid scale scores in ELA, and 101,075 students received valid scores in Mathematics. In ELA 58.1% of the students were scored as Proficient, and 8.8% of the students were scored as Advanced Proficient. In Mathematics, 44.1% of the students were scored as Proficient, and 35.2% of the students were scored as Advanced Proficient. The mean scale score in ELA was 211.2, and the mean scale score in Mathematics was 229 (NJDOE, 2014b).

Grade 7

The 2013-2014 New Jersey School Performance Report data were based on the results of the NJ ASK. The NJ ASK 7 was administered to students between April 28 and May 1, 2014. Based on an enrollment of 104,245 students, 102,572 students received valid scale scores in ELA, and 102,797 students received valid scores in Mathematics. In ELA 48.9% of the students were scored as Proficient, and 15.1% of the students were scored as Advanced Proficient. In Mathematics, 41.6% of the students were scored as

Proficient, and 25.2% of the students were scored as Advanced Proficient. The mean scale score in ELA was 211.2, and the mean scale score in Mathematics was 215.9 (NJDOE, 2014c).

Grade 8

The 2013-2014 New Jersey School Performance Report data were based on the results of the NJ ASK. The NJ ASK 8 was administered to students between April 28 and May 1, 2014. Based on an enrollment of 104,616 students, 102,958 students received valid scale scores in ELA and 103,034 students received valid scores in Mathematics. In ELA 67.2% of the students were scored as Proficient and 12.6% of the students were scored as Advanced Proficient. In Mathematics, 35.9% of the students were scored as Proficient and 35.6% of the students were scored as Advanced Proficient. The mean scale score in ELA was 220.1 and the mean scale score in Mathematics was 225.2 (NJDOE, 2014d).

Dependent Variables

The dependent variables for this study were the percentage of students who scored Proficient or above on the Grade 6-8 ELA and Mathematics NJ ASK. The NJ ASK is a standardized test that measures student achievement based on the expectations defined in New Jersey's Core Curriculum Content Standards (NJDOE, 2015c). According to Tienken and Orlich (2013), testing plays a key role in educational reform that aims to improve student achievement. Student achievement on the NJ ASK is identified by scoring students as Partially Proficient (100-199), Proficient (200-249), or Advanced Proficient (250-300). The Partially Proficient scale score indicates that the student is in need of additional instructional support. Schools are advised to use the NJ ASK results as

a means of identifying the strengths and weaknesses in their educational programs (NJDOE, 2015c). Even with the use of scale scores, it is difficult to distinguish between Proficient and not Proficient.

> Proficient is merely an arbitrary point on a continuum of performance; it does not indicate mastery of all of a discrete set of skills. To get reliable information about which kids really have reached proficient status, one needs test items that discriminate well among kids whose mastery is near that level of proficiency. (An even larger issue is deciding where to put the cut score that divides the failures from the "proficient" successes) (Koretz, 2008, p. 29).

Instrumentation

The New Jersey Department of Education's (2015c) Technical Report for 2014 describes the various components called content clusters for the ELA and Mathematics sections on the NJ ASK (see Table 4).

Table 4

ELA and Mathematics Clusters for Grades 6-8

ELA	**Mathematics**
Reading:	Expressions and equations
Literature	Geometry
Informational text	Numbers system
Writing:	Ratio and proportion
Persuasive prompt	Statistics and probability
Narrative prompt	

Reliability and Validity

The New Jersey Office of State Assessments (OSA) is responsible for the implementation of the NJ ASK exam. Some of the responsibilities of the OSA staff include test design, item and statistical review, security, quality assurance, and analytical procedures. In addition to the work of OSA, Measurement Incorporated (MI) is responsible for all aspects of the testing program, which includes distribution of all materials, scoring the answer documents, and distribution of score reports (NJDOE, 2015c).

The NJDOE confirms that the results of the NJ ASK 2014 exam reliably measure student achievement. The standard error of measurement (SEM) was reasonable and can be utilized when interpreting the scores for individual students (NJDOE, 2015c). The NJ ASK is designed to optimize scale score test-retest reliability, but it is not possible to

design a test with scores that are 100% reliable. The NJ ASK scale score is an estimate of a student's achievement for the school year (NJDOE, 2014f).

Cronbach's coefficient alpha estimates the consistency of individual student achievement on the NJ ASK (NJDOE, 2015c). "Coefficient alpha is conceptualized as the proportion of total raw score variance that may be attributed to a student's true score variance" (NJDOE, 2015c, p. 137). Morgan et al.'s (2013) research describes alpha, which should be above .70, as being widely used because it provides a measure of reliability that can be obtained from just one testing session. Creswell (2009) states that it is important to demonstrate validity and reliability of data. Validity is confirmed by ensuring that the test measures the content intended to be measured and that meaningful and useful inferences can be made from the scores. Reliability is demonstrated by ensuring that measures of internal consistency are reported and that test-retest correlations are stable over time. There must also be consistency in test administration and scoring (Creswell, 2009).

Cronbach's coefficient alpha score and SEM were provided for Grades 6-8 (see Table 5). School administrators will use the results from the state assessment to make decisions concerning curriculum and instruction, teacher quality, and student achievement. The validity and reliability of the state assessment is important to the school administrators who must make key decisions based on the results of a high-stakes test. The state's proficiency cut-score has increasingly become an indicator that school administrators must also monitor to make decisions regarding the use of interventions for specific groups of students who score closest to the state's proficiency cut-score (Pereira & Tienken, 2012).

Table 5

2013-2014 Coefficient Alpha and SEM by Grade and Content Area

Grade Level & Subject	Coefficient Alpha Score	Standard Error of Measurement (SEM)
Grade 6 ELA	.90	3.36
Grade 7 ELA	.89	3.48
Grade 8 ELA	.90	3.28
Grade 6 Mathematics	.92	3.05
Grade 7 Mathematics	.92	3.07
Grade 8 Mathematics	.93	3.06

The New Jersey Department of Education's (2015c) Technical Report for 2014 states that test blueprints are used to ensure validity of the NJ ASK. The adequacy of the content is measured by aligning the New Jersey performance standards and the Core Curriculum Content Standards with the test blueprint. The validity of the internal structure of the NJ ASK was also demonstrated through the use of correlational analysis of the NJ ASK content clusters with one another. The Standards for Educational and Psychological Testing were also included in ensuring validity of the test, where appropriate (NJDOE, 2015c).

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this quantitative study was to explain what influence, if any, chronic absenteeism has on Grade 6, 7, and 8 ELA and Mathematics NJ ASK performance, in the aggregate, when controlling for other influential student and school demographic variables. The data analyzed included chronic absenteeism data with controls for student and school variables. I sought to provide research-based evidence on chronic absenteeism and its effect on Grade 6, 7, and 8 ELA and Mathematics NJ ASK performance in the aggregate. ELA and Mathematics NJ ASK performance has been an accountability measure for all New Jersey public middle schools since the 1970s. In the 2014-2015 school year New Jersey transitioned from the NJ ASK to the PARCC standardized assessment, which was designed to more accurately test the skills developed under the Common Core Standards. Since New Jersey will continue to use standardized assessments for accountability, school administrators must consider the influence that chronic absenteeism has on student achievement. This study was performed to provide research-based evidence to support school administrators in creating school policy and practice that will improve students' school attendance.

Variables

Existing research suggested the variables to include in the analyses because of their influence on the overall percentage of aggregate student proficiency levels for students in Grades 6, 7, and 8 on the NJASK ELA and Mathematics assessments. These

independent and dependent variables were included in the overall analysis and are listed in Table 6.

Table 6

Variable Names

Variable	**Label**	**Description**
County	CountyCode	An NJDOE assigned code that represents the county of the school's location
District	DistrictCode	An NJDOE assigned code that represents the school's district.
School	SchoolCode	An NJDOE assigned code that represents the school.
District Factor Group	DFG	An NJDOE assigned code that represents an approximate measure of a community's socioeconomic status. Defined using the percentage of adults with no high school diploma, percentage of adults with some college education, adult occupational status, adult unemployment rate, percentage of individuals in poverty, and median family income.
Chronic absenteeism	ChronicAbsentTarget	Represents whether or not a school met the target level of chronic absenteeism mandated by NJDOE.
Percentage of students chronically absent	ChronicAbsent	Percentage of students who are chronically absent (includes unexcused and excused absences). Calculated as the number of students in the most recent school year that missed 10% or more of the instructional days in the school year divided by the total number of students enrolled.
Absenteeism: Level A - 0 Absences Level B - 1- 5 Absences Level C - 6 - 10 Absences Level D - 11 - 15 Absences Level E - 15 + Absences	Absent0 Absent1to5 Absent6to10 Absent11to15 Absent15+	Percentage of students who are absent (includes unexcused and excused absences).
Percentage of students with free or reduced-price lunch	SES	The percentage of students with free or reduced-price lunch is derived from the number of students who receive free or reduced-price lunch divided by the enrollment of the school.

Variable	Label	Description
Percentage of students with LEP	LEP	The percentage of students with LEP is calculated using the number of students with LEP divided by the school enrollment.
Percentage of students with disabilities	Disabled	The percentage of students with disabilities is calculated using the number of students with disabilities divided by the school enrollment
Length of school day	LengthofSchDay	The length of time, in minutes, a student is in school each day.
Instructional time	InstructionTime	The length of time, in minutes, a school has students actively participating in instruction with the supervision of a certified teacher.
School size	SchSize	The enrollment of the school.
Coded School Size	CodedSchSize	School size categories that are representative of the sizes that exist in most middle schools.
Race: White Black Hispanic Asian American Indian Pacific Islander Two or more races	 White Black Hispanic Asian AmericanIndian PacificIslander TwoorMoreRaces	The percentage of students in each racial category.
Grade 6-8 aggregate NJ ASK ELA score	ELA	The total schoolwide percent Proficient and above on NJ ASK ELA.
Grade 6-8 aggregate NJ ASK Mathematics score	Math	The total schoolwide percent Proficient and above on NJ ASK Mathematics.
ELA Proficient	ProfELA	Represents whether or not a school met the acceptable margin for students deemed Proficient or above in ELA, typically 75%+ as mandated by the NJDOE.
Math Proficient	ProfMath	Represents whether or not a school met the acceptable margin for students deemed proficient or above in Math, typically 75%+ as mandated by the NJDOE.

I gathered the data for this study from the NJDOE website. The NJDOE data are publically available in the form of NJ School Performance Reports and an Excel workbook. The data gathered contained school and student information for all New Jersey schools. Since the data are available in the public domain, permission was not required for access from the institution's IRB. The 2014 School Performance Report Excel spreadsheet was downloaded from the New Jersey Department of Education's website. Relevant data was transferred to an Excel workbook and additional student and school information gathered from visually examining the NJ Performance Reports was added to the Excel workbook. This study used all of the data from New Jersey public middle schools configured with Grades 6-8 that included information for the student and school variables examined in this study. The Excel workbook contained two worksheets, one for ELA and one for Mathematics.

I used a sample of 220 New Jersey Grade 6 to 8 public schools in the analysis of ELA and Mathematics NJ ASK scores. Only the Grade 6-8 public middle schools that were in DFG A, B, CD, DE, FG, GH, I, or J and reported on all of the independent student and school variables were included in the study. All charter schools, vocational schools, and special education schools were eliminated from the study to ensure all results represented the most typical, comprehensive New Jersey middle schools.

Descriptive Statistics

The statistical software application IBM SPSS Statistics version 22 was used to perform statistical analysis on the independent student and school variables, as well as the dependent variables ELA and Mathematics NJ ASK scores. Descriptive statistics for the independent variables are provided in Table 7.

Table 7

Independent Variables - Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SchSize	220	105.0	1447.0	678.845	292.5954
Disabled	220	7.0	35.0	16.473	4.4223
SES	220	.0	97.8	31.474	26.8545
LEP	220	.0	41.0	2.092	4.2201
ChronicAbsent	220	.0	100.0	8.873	8.8793
Absent0	220	.0	79.0	7.418	8.7407
Absent1to5	220	.0	100.0	39.650	9.8477
Absent6to10	220	.0	38.0	28.077	5.8613
Absent11to15	220	.0	27.0	13.932	4.6709
Absent15+	220	.0	50.0	10.982	7.2104
LengthofSchDay	220	330.0	465.0	397.873	16.6591
InstructionTime	220	285.0	435.0	348.236	21.5881
White	220	.0	93.2	57.413	27.6162
Black	220	.0	91.9	13.487	17.1866
Hispanic	220	1.6	95.1	17.648	18.2686
Asian	220	.0	76.6	10.005	12.7041
AmericanIndian	220	.0	4.4	.117	.3597
PacificIslander	220	.0	10.7	.227	.7837
TwoorMoreRaces	220	.0	6.7	1.092	1.3878
Valid *N* (listwise)	220				

There were 220 schools in the study, and the average school size was 678 students with a maximum of 1,447 students and a minimum of 105 students. The average percentage of disabled students was 16% with a maximum of 35% and a minimum of 7%. The average percentage of students with low socioeconomic status was 31% with a maximum of 97% and a minimum of zero. The average percentage of students with LEP was 2% with a maximum of 41% and a minimum of zero. The average percentage of

chronically absent students was 8% with a maximum of 100% and a minimum of zero. The average percentage of students with no absences was 7% with a maximum of 79% and a minimum of zero. The average percentage of students with one to five absences was 39% with a maximum of 100% and a minimum of zero. The average percentage of students with six to ten absences was 28% with a maximum of 38% and a minimum of zero. The average percentage of students with 11 to 15 absences was 13% with a maximum of 27% and a minimum of zero. The average percentage of students with more than 15 absences was 10% with a maximum of 50% and a minimum of zero. The average length of the school day was 397 minutes with a maximum of 465 minutes and a minimum of 330 minutes. The average amount of instructional time was 348 minutes with a maximum of 435 minutes and a minimum of 285 minutes. The average percentage of White students was 57% with a maximum of 93% and a minimum of zero. The average percentage of Black students was 13% with a maximum of 91% and a minimum of zero. The average percentage of Hispanic students was 17% with a maximum of 95% and a minimum of 1%. The average percentage of Asian students was 10% with a maximum of 76% and a minimum of zero. The average percentage of American Indian students was .1% with a maximum of 4% and a minimum of zero. The average percentage of Pacific Islander students was .2% with a maximum of 10% and a minimum of zero. The average percentage of students who were two or more races was 1% with a maximum of 6% and a minimum of zero.

Research Questions

The overarching research question was the following: What is the influence of chronic absenteeism on the Grade 6, Grade 7, and Grade 8 school-level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables?

Research Question 1: What is the strength and direction of the relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables?

Research Question 2: What is the strength and direction of the relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables?

Research Question 3: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

Research Question 4: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

Null Hypotheses

Null Hypothesis 1: No statistically significant relationship exists between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables.

Null Hypothesis 2: No statistically significant relationship exists between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables.

Null Hypothesis 3: The probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant.

Null Hypothesis 4: The probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant.

Grade 6 through 8 ELA Results

I calculated the descriptive statistics for the dependent variable Grade 6-8 ELA percentage of students who scored Proficient or above (see Table 8). An average of 73% of the students scored Proficient or above on the Grade 6-8 ELA NJ ASK (maximum = 96% and minimum = 10%). Skewness was -1.260 and kurtosis was 1.442. The negative value for skewness indicates that there is a build-up of high scores (Fields, 2014). The positive value for kurtosis indicates there is a pointy and heavy-tailed distribution (Fields, 2014). The skewness was divided by the standard error to determine the *z*-score. The kurtosis was also divided by the standard error to determine the *z*-score. The *z*-score derived from the skewness value was -7.68, which is significant because -7.68 is greater than 1.96 when the minus sign is ignored (Fields, 2014). The *z*-score derived from the kurtosis value was 4.41. Since the resulting score is greater than 1.96, it is significant (Fields, 2014). I also analyzed the data using the Kolmogorov-Smirnov and Shapiro-Wilk tests (see Table 9). The Shapiro-Wilk test showed that the test of normality was significant ($p < .05$) indicating the distribution was significantly different from a normal distribution (W (220) = .90, p = .000). When using large samples, the skewness and kurtosis values are likely to be significant, even when the skewness and kurtosis are close

to normal (Fields, 2014). Since this study uses a large sample size, in determining whether the dependent variable (Grade 6-8 ELA NJ ASK) met the assumption of normality, the requirements were relaxed.

Table 8

ELA Dependent Variable - Descriptive Statistics

Descriptives

			Statistic	Std. Error
ELA	Mean		73.241	1.1198
	95% Confidence Interval for Mean	Lower Bound	71.034	
		Upper Bound	75.448	
	5% Trimmed Mean		74.672	
	Median		77.000	
	Variance		275.855	
	Std. Deviation		16.6089	
	Minimum		10.0	
	Maximum		96.0	
	Range		86.0	
	Interquartile Range		21.0	
	Skewness		-1.260	.164
	Kurtosis		1.442	.327

Table 9

ELA Tests of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
ELA	.125	220	.000	.893	220	.000

a. Lilliefors Significance Correction

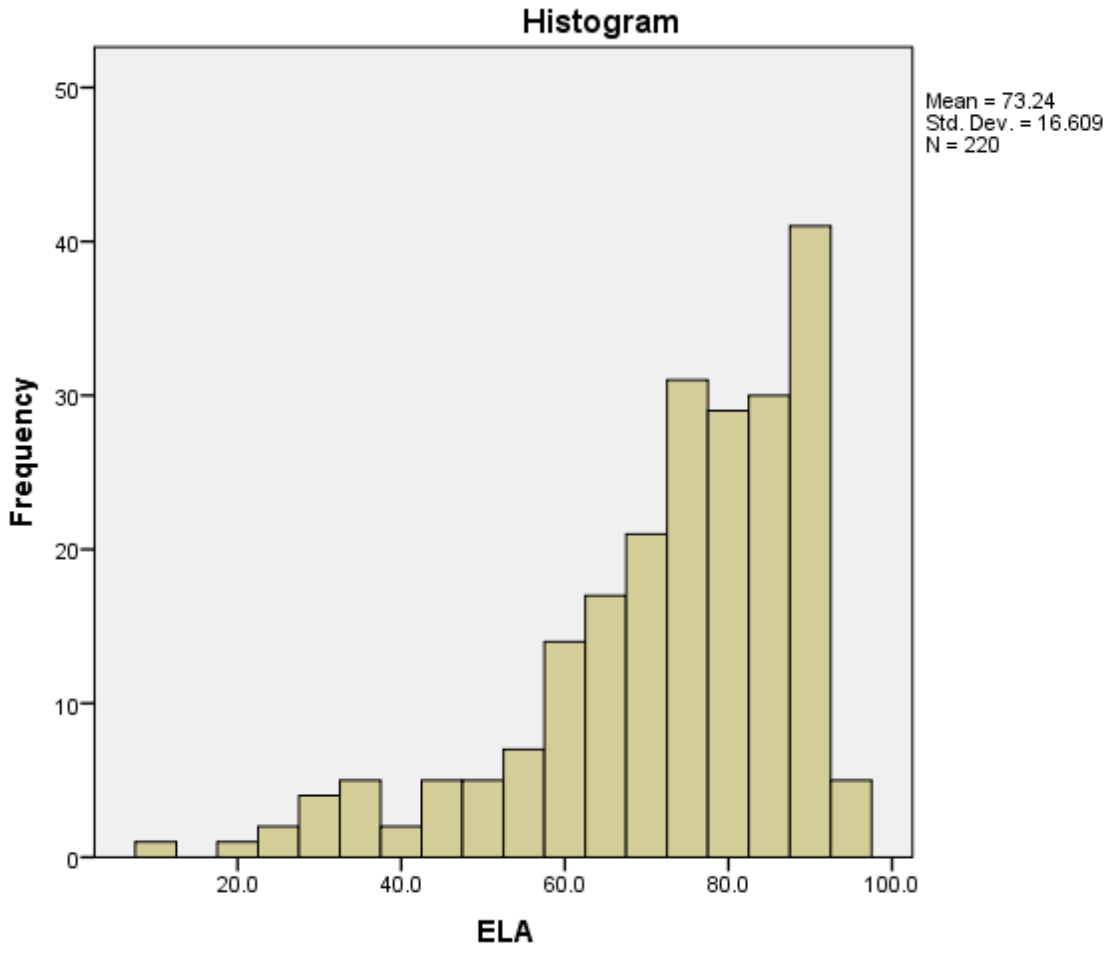

Figure 2. ELA histogram of NJ ASK Proficient or above scoring percentage.

The data were further analyzed by running a simple scatterplot and adding a linear regression line to check the assumption there is a linear relationship between the percentage of chronically absent students and the Grade 6 through 8 ELA NJ ASK scores (see Figure 3). There was a negative relationship between the percentage of chronically absent students and the Grade 6 through 8 ELA NJ ASK scores because the plotted points were close to a straight line from the upper left to the lower right (Morgan et al., 2013). The negative relationship indicates that as the percentage of chronically absent students increases, the achievement on the Grade 6 through 8 ELA NJ ASK may decrease. As shown in the figure, R^2 is .292, which indicates that 29.2% of the variance in ELA NJ ASK scores can be explained by the percentage of chronically absent students.

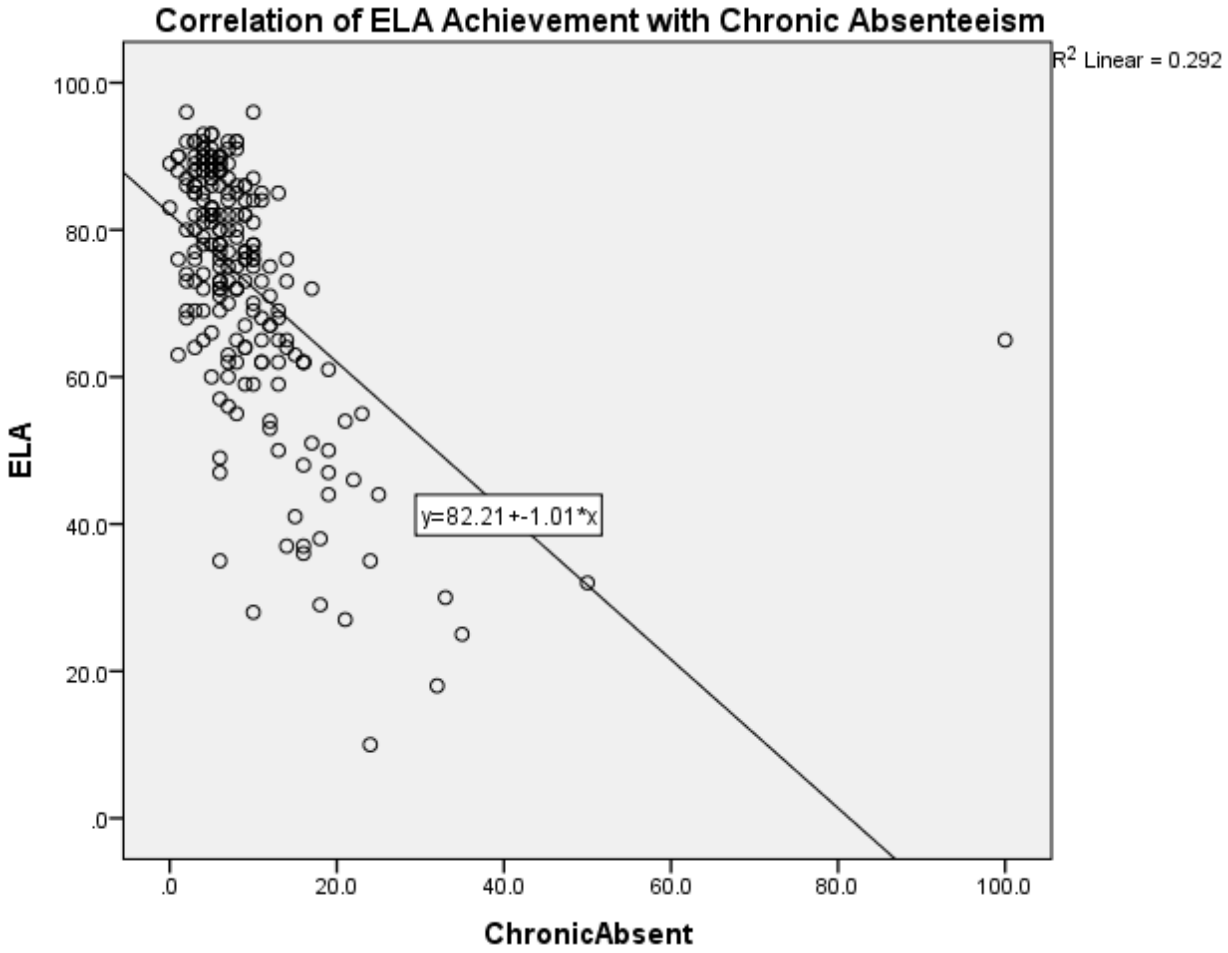

Figure 3. ELA achievement and chronic absenteeism linear regression line.

Pearson Correlation

A Pearson correlation coefficient matrix was used to identify the relationship between the independent variables (predictor variables) (see Table 10). The correlation coefficients vary from -1 to 1. The Pearson correlation coefficient matrix shows that there was a statistically significant (p<.000) moderate negative relationship between the students with disabilities and ELA NJ ASK scores (r = -.409). There was a statistically significant (p<.000) very high negative relationship between students with low socioeconomic status and ELA NJ ASK scores (r = -.924). There was a statistically significant (p<.000) moderate negative relationship between students with LEP and ELA

NJ ASK scores (r = -.561). There was a statistically significant (p<.000) moderate negative relationship between chronically absent students and ELA NJ ASK scores (r = -.540). There was a statistically significant (p<.034) slight, almost negligible relationship between length of school day and ELA NJ ASK scores (r = .143).

The Pearson Correlation table also shows a low relationship between the percentage of chronically absent students and the percentage of disabled students (r = .344), the percentage of chronically absent students and the percentage of students with LEP (r = .201), the percentage of disabled students and the size of the school (r = -.272), and the percentage of disabled students and the percentage of students with low socioeconomic status (r = .293). There was a slight, almost negligible relationship between the percentage of disabled students and the percentage of students with LEP (r = .160) and the percentage of students with low socioeconomic status and the length of the school day (r = -.149). There was a moderate relationship between the percentage of chronically absent students and the percentage of students with low socioeconomic status (r = .485) and the percentage of students with LEP and the percentage of students with low socioeconomic status (r = .544).

Table 10

ELA Correlation Table

Correlations[c]

		ELA	SchSize	Disabled	SES	LEP	ChronicAbsent	LengthofSchDay
ELA	Pearson Correlation	1	.115	-.409**	-.924**	-.561**	-.540**	.143*
	Sig. (2-tailed)		.088	.000	.000	.000	.000	.034
SchSize	Pearson Correlation	.115	1	-.272**	-.070	-.022	-.100	-.007
	Sig. (2-tailed)	.088		.000	.300	.749	.138	.923
Disabled	Pearson Correlation	-.409**	-.272**	1	.293**	.160*	.344**	.025
	Sig. (2-tailed)	.000	.000		.000	.018	.000	.710
SES	Pearson Correlation	-.924**	-.070	.293**	1	.544**	.485**	-.149*
	Sig. (2-tailed)	.000	.300	.000		.000	.000	.027
LEP	Pearson Correlation	-.561**	-.022	.160*	.544**	1	.201**	-.058
	Sig. (2-tailed)	.000	.749	.018	.000		.003	.395
ChronicAbsent	Pearson Correlation	-.540**	-.100	.344**	.485**	.201**	1	.003
	Sig. (2-tailed)	.000	.138	.000	.000	.003		.966
LengthofSchDay	Pearson Correlation	.143*	-.007	.025	-.149*	-.058	.003	1
	Sig. (2-tailed)	.034	.923	.710	.027	.395	.966	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

c. Listwise N=220

Simultaneous Multiple Regression

I ran a simultaneous multiple regression using all of the independent variables (predictor variables). The results revealed a multicollinearity problem when I examined the VIF and Tolerance of each predictor variable (see Table 11). The average of all VIFs was much greater than 1, which indicates that the regression may be biased (Field, 2014). The VIF scores for race (Black and Hispanic) were 2.626 and 5.392. The VIF scores for absenteeism were 99.144 for no absences, 121.762 for 1 to 5 absences, 48.265 for 6 to 10 absences, 29.985 for 11 to 15 absences, and 70.157 for more than 15 absences. When the tolerance values are low (<1-R^2) there is a multicollinearity problem (Leech et al., 2011).

For this model R^2 was .918; therefore, 1-R^2 is .082, which was larger than the tolerance values for the predictor variables no absences (.010), 1 to 5 absences (.008), 6 to 10 absences (.021), 11 to 15 absences (.033), and more than 15 absences (.014). Multicollinearity problems are corrected by running the simultaneous multiple regression without the use of redundant variables or highly correlated variables (Morrow-Howell, 1994). Therefore, I continued the analysis without the use of the race and absenteeism variables.

Next I ran a simultaneous regression using the predictor variables that were not highly correlated. See Table 12 and Table 13 for the Model Summary and ANOVA results. The results show that the model was statistically significant ($F(6,213) = 276.827$, $p=.001<.05$). The R^2 was .886, which indicates that 88.6% of the variance in the Grade 6 through 8 ELA NJ ASK scores can be predicted from the length of the school day, percentage of chronically absent students, school size, percentage of students with LEP, percentage of disabled students, and percentage of students with low socioeconomic status. Eliminating the highly correlated independent variables (predictor variables) did not make a huge difference in the strength of the model, as the variance changed from 91.8% to 88.6%. The Durbin-Watson test determines if adjacent residuals are correlated. The Durbin-Watson test statistic varies from 0 to 4, where a value greater than 2 means there is a negative correlation between adjacent residuals, and a value less than 2 means there is a positive correlation between adjacent residuals. If the Durbin-Watson test statistic is less than 1 or greater than 3, then the assumption that the residuals are uncorrelated is violated (Fields, 2014). In this model the Durbin-Watson test statistic was 1.478, which indicates that the residuals were not correlated.

Table 11

ELA Coefficients Table with Multicollinearity Problems

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	58.810	39.376		1.494	.137					
SchSize	.001	.001	.022	.964	.336	.115	.068	.019	.782	1.279
Disabled	-.264	.096	-.070	-2.738	.007	-.409	-.190	-.055	.617	1.622
SES	-.389	.035	-.628	-11.081	.000	-.924	-.616	-.223	.126	7.912
LEP	-.444	.114	-.113	-3.908	.000	-.561	-.266	-.079	.488	2.050
ChronicAbsent	-.008	.064	-.004	-.121	.904	-.540	-.009	-.002	.343	2.914
Absent0	.412	.382	.217	1.080	.282	.164	.076	.022	.010	99.144
Absent1to5	.355	.375	.211	.947	.345	.418	.067	.019	.008	121.762
Absent6to10	.375	.397	.132	.945	.346	.121	.066	.019	.021	48.265
Absent11to15	.709	.393	.199	1.805	.073	-.276	.126	.036	.033	29.985
Absent15+	-.122	.389	-.053	-.314	.754	-.698	-.022	-.006	.014	70.157
LengthofSchDay	-.040	.025	-.040	-1.572	.117	.143	-.110	-.032	.628	1.591
InstructionTime	.030	.020	.039	1.495	.136	.043	.105	.030	.594	1.685
Black	-.128	.032	-.132	-4.049	.000	-.653	-.275	-.082	.381	2.626
Hispanic	.004	.043	.005	.103	.918	-.685	.007	.002	.185	5.392
Asian	.121	.035	.093	3.435	.001	.338	.235	.069	.559	1.789
AmericanIndian	.359	.987	.008	.364	.716	-.031	.026	.007	.890	1.123
PacificIslander	.109	.442	.005	.246	.806	.056	.017	.005	.934	1.071
TwoorMoreRaces	.654	.259	.055	2.527	.012	.158	.175	.051	.870	1.150

a. Dependent Variable: ELA

Table 12

ELA Model Summary

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.941[a]	.886	.883	5.6778	.886	276.827	6	213	.000	1.478

a. Predictors: (Constant), LengthofSchDay, ChronicAbsent, SchSize, LEP, Disabled, SES

b. Dependent Variable: ELA

Table 13

ANOVA Table - ELA

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	53545.591	6	8924.265	276.827	.000[b]
	Residual	6866.641	213	32.238		
	Total	60412.232	219			

a. Dependent Variable: ELA

b. Predictors: (Constant), LengthofSchDay, ChronicAbsent, SchSize, LEP, Disabled, SES

The beta coefficients are presented in Table 14, and all of the variables are statistically significant with the exception of the school size and length of school day. The strongest variables were the percentage of students with low socioeconomic status (-.785), percentage of disabled students (-.128), percentage of chronically absent students (-.095), and percentage of students with LEP (-.092). The Adjusted R^2 was .883, which indicates that 88.3% of the variance in the Grade 6 through 8 ELA NJ ASK scores was explained by the model.

Table 14

Coefficients Table - ELA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	88.764	9.512		9.331	.000					
	SchSize	.001	.001	.014	.573	.567	.115	.039	.013	.925	1.081
	Disabled	-.482	.097	-.128	-4.978	.000	-.409	-.323	-.115	.803	1.246
	SES	-.486	.020	-.785	-24.806	.000	-.924	-.862	-.573	.533	1.878
	LEP	-.364	.109	-.092	-3.338	.001	-.561	-.223	-.077	.697	1.435
	ChronicAbsent	-.178	.051	-.095	-3.481	.001	-.540	-.232	-.080	.710	1.408
	LengthofSchDay	.024	.023	.024	1.021	.308	.143	.070	.024	.966	1.035

a. Dependent Variable: ELA

Further analysis of the coefficients table showed that the variable percentage of disabled students was found to be a statistically significant contributor to the overall model (β=-.128, *t*=-4.978, *p*<.001). Although a significant variable, it should be noted that it only contributed 1.6% of the explained variance to the overall model. When beta is negative, this indicates that when there is an increase in the percentage of disabled students in a school, the percentage of Proficient and above students decreases. The variable percentage of students with low socioeconomic status was found to be a statistically significant contributor to the overall model (β =-.785, *t*=-24.806, *p*<.001). The variable percentage of students with low socioeconomic status contributed 61.6% of

the explained variance to the overall model. When beta is negative, this indicates that when there is an increase in the percentage of students with low socioeconomic status in a school, the percentage of Proficient and above students decreases. The variable percentage of students with LEP was found to be a statistically significant contributor to the overall model (β =-.092, t=-3.338, p<.001). Although a significant variable, it should be noted that it only contributed .8% of the explained variance to the overall model. The negative beta indicates that as the percentage of LEP students in a school increases, the percentage of Proficient and above students decreases. The variable percentage of chronically absent students was found to be a statistically significant contributor to the overall model (β =-.095, t=-3.481, p<.001). Although a significant variable, it should be noted that it only contributed .9% of the explained variance to the overall model. When beta is negative, this indicates that when there is an increase in the percentage of chronically absent students in a school, the percentage of Proficient and above students decreases.

Hierarchical Regression

The simultaneous multiple regression model was used to measure the influence of the independent variables (predictor variables) together on the Grade 6-8 ELA NJ ASK scores, whereas the hierarchical regression model was used to measure the influence of each of the independent variables (predictor variables) on the Grade 6-8 ELA NJ ASK scores in separate block models as individual and combined independent variables (predictor variables) were entered into the overall model. The percentage of chronically absent students was entered into the hierarchical regression model first (Model 1 = percentage of chronically absent students). The remaining models were built by inputting

the independent variables in order of their strength as follows: Model 2 = percentage of chronically absent students and percentage of students with LEP, Model 3 = percentage of chronically absent students, percentage of students with LEP, and percentage of students with disabilities, Model 4 = percentage of chronically absent students, percentage of students with LEP, percentage of students with disabilities, and percentage of students with low socioeconomic status.

In Model 1 (see Table 15), the predictor variable was the percentage of chronically absent students and R^2 was .292, which indicates that 29.2% of the variance in the Grade 6 through 8 ELA NJ ASK scores was explained by the percentage of chronically absent students. In Model 2, the percentage of students with LEP was added to the percentage of chronically absent students and R^2 was .505, which indicates that 50.5% of the variance in the Grade 6 through 8 ELA NJ ASK scores was explained by the percentage of students with LEP and the percentage of chronically absent students. From Model 1 to Model 2 the R^2 Change was .214, which indicates that the percentage of students with LEP added 21.4% of the variance to the model. The R^2 Change was statistically significant $F(1,217) = 93.749$, $p<.000$. In Model 3, the percentage of disabled students was added and R^2 was .543, which indicates that 54.3% of the variance in the Grade 6 through 8 ELA NJ ASK scores was explained by the percentage of students with disabilities, percentage of students with LEP, and percentage of chronically absent students. From Model 2 to Model 3 the R^2 Change was .037, which indicates that the percentage of students with disabilities added 3.7% of the variance to the model. The R^2 Change was statistically significant $F(1,216) = 17.539$, $p<.000$. In Model 4, the percentage of students with low socioeconomic status was added and R^2 was .886, which

indicates that 88.6% of the variance in the Grade 6 through 8 ELA NJ ASK scores was explained by the percentage of students with low socioeconomic status, percentage of students with disabilities, percentage of students with LEP, and percentage of chronically absent students. From Model 3 to Model 4 the R^2 Change was .343, which indicates that the percentage of students with low socioeconomic status added 34.3% of the variance to the model. The R^2 Change was statistically significant $F(1,215) = 644.669$, $p<.000$. The Durbin-Watson test statistic was 1.495, which indicates that the residuals were not correlated.

Table 15

Hierarchical Regression Model Summary Table - ELA

Model Summary[e]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.540[a]	.292	.289	14.0092	.292	89.820	1	218	.000	
2	.711[b]	.505	.501	11.7338	.214	93.749	1	217	.000	
3	.737[c]	.543	.536	11.3106	.037	17.539	1	216	.000	
4	.941[d]	.886	.883	5.6695	.343	644.669	1	215	.000	1.495

a. Predictors: (Constant), ChronicAbsent

b. Predictors: (Constant), ChronicAbsent, LEP

c. Predictors: (Constant), ChronicAbsent, LEP, Disabled

d. Predictors: (Constant), ChronicAbsent, LEP, Disabled, SES

e. Dependent Variable: ELA

As shown in Table 16, all of the regression models were statistically significant. This means that the independent variables entered in the four regression models predicted the variance in students scoring Proficient or above on the Grade 6-8 ELA NJ ASK. Each model was statistically significant (Model 1: F=89.820, df=1,218, p<.000; Model 2:

F=110.892, d*f*=2,217, *p*<.000; Model 3: *F*=85.409, *df*=3,216, *p*<.000; Model 4: *F*= 416.109, *df*=4,215, *p*<.000).

Table 16

Regression ANOVA Table - ELA

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	17627.945	1	17627.945	89.820	.000[b]
	Residual	42784.286	218	196.258		
	Total	60412.232	219			
2	Regression	30535.426	2	15267.713	110.892	.000[c]
	Residual	29876.806	217	137.681		
	Total	60412.232	219			
3	Regression	32779.219	3	10926.406	85.409	.000[d]
	Residual	27633.012	216	127.931		
	Total	60412.232	219			
4	Regression	53501.316	4	13375.329	416.109	.000[e]
	Residual	6910.916	215	32.144		
	Total	60412.232	219			

a. Dependent Variable: ELA

b. Predictors: (Constant), ChronicAbsent

c. Predictors: (Constant), ChronicAbsent, LEP

d. Predictors: (Constant), ChronicAbsent, LEP, Disabled

e. Predictors: (Constant), ChronicAbsent, LEP, Disabled, SES

Further analysis of the coefficients table (see Table 17), shows that in Model 1, the predictor variable the percentage of chronically absent students was statistically significant (β=-.540, *t*=-9.477, *p*=.000). The negative beta indicates that chronic absenteeism has a negative influence on the Grade 6 through 8 ELA NJ ASK scores. As

chronic absenteeism increases, there is a decrease in performance on the Grade 6 through 8 ELA NJ ASK. Analysis of the collinearity statistics of Model 1 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low (<1-R^2). For this model R^2 was .292; therefore, 1-R^2 is .708, which was smaller than the tolerance values for all of the predictor variables in the model.

In Model 2, the predictor variable percentage of students with LEP was added to the model, and the strength of the variable percentage of chronically absent students decreased (from -.540 to -.446). This means that the variable percentage of students with LEP has a significant effect on the strength of the percentage of chronically absent students. The percentage of chronically absent students continued to be a statistically significant variable (β=-.446, t=-9.144, p=.000) and the percentage of students with LEP was also a statistically significant predictor of scoring Proficient or above on the Grade 6 through 8 ELA NJ ASK (β=-.472, t=-9.682, p=.000). The negative betas indicate that both chronic absenteeism and students with LEP have a negative influence on the Grade 6 through 8 ELA NJ ASK scores. As chronic absenteeism and students with LEP increases, there is a decrease in performance on the Grade 6 through 8 ELA NJ ASK. Analysis of the collinearity statistics of Model 2 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low (<1-R^2). For this model R^2 was .505; therefore, 1-R^2 is .495, which was smaller than the tolerance values for all of the predictor variables in the model.

In Model 3, the predictor variable percentage of students with disabilities was added to the model, and the strength of the variables percentage of chronically absent students decreased (from -.446 to -.378) and percentage of students with LEP decreased (from -.472 to -.452). This means that the variable percentage of students with disabilities has a significant effect on the strength of the percentage of chronically absent students and the percentage of students with LEP. The percentage of chronically absent students continued to be a statistically significant variable (β=-.378, t=-7.624, p=.000) as well as the percentage of students with LEP (β=-.452, t=-9.582, p=.000). The percentage of students with disabilities was also a statistically significant predictor of scoring Proficient or above on the Grade 6 through 8 ELA NJ ASK (β=-.206, t=-4.188, p=.000). The negative betas indicate that chronic absenteeism, students with LEP, and students with disabilities have a negative influence on the Grade 6 through 8 ELA NJ ASK scores. As chronic absenteeism, students with LEP, and students with disabilities increases, there is a decrease in performance on the Grade 6 through 8 ELA NJ ASK. Analysis of the collinearity statistics of Model 3 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low ($<1-R^2$). For this model R^2 was .543, therefore $1-R^2$ is .457, which was smaller than the tolerance values for all of the predictor variables in the model.

In Model 4, the predictor variable percentage of students with low socioeconomic status was added to the model, and the strength of the variables percentage of chronically absent students decreased (from -.378 to -.093), percentage of students with LEP decreased (from -.452 to -.091), and percentage of students with disabilities decreased

(from -.206 to -.131). This means that the variable percentage of students with low socioeconomic status has a significant effect on the strength of the percentage of chronically absent students, percentage of students with LEP, and percentage of students with disabilities. The three independent variables continued to be statistically significant, which included the percentage of chronically absent students (β=-.093, *t*=-3.425, *p*=.001), percentage of students with LEP (β=-.091, *t*=-3.298, *p*=.001), and percentage of students with disabilities (β=-.131, *t*=-5.258, *p*=.000). The percentage of students with low socioeconomic status was also a statistically significant predictor of scoring Proficient or above on the Grade 6 through 8 ELA NJ ASK (β=-.791, *t*=-25.390, *p*=.000). The negative betas indicate that chronic absenteeism, students with LEP, students with disabilities, and students with low socioeconomic status have a negative influence on the Grade 6 through 8 ELA NJ ASK scores. As chronic absenteeism, students with LEP, students with disabilities, and students with low socioeconomic status increases, there is a decrease in performance on the Grade 6 through 8 ELA NJ ASK. Analysis of the collinearity statistics of Model 4 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low ($<1-R^2$). For this model R^2 was .886; therefore, $1-R^2$ is .114, which was smaller than the tolerance values for all of the predictor variables in the model.

The histogram shown in Figure 4 follows a bell-shaped distribution, which indicates that the regression model is valid. “The distribution is very normal: the histogram is symmetrical and approximately bell-shaped” (Field, 2014, p. 349).

Further analysis of Model 4 of the hierarchical regression showed that when the variable percentage of students with low socioeconomic status was added to the model, the strength of the variable percentage of chronically absent students was severely diminished, which means two things: (1) the percentage of chronically absent students is most likely correlated with the percentage of students with low socioeconomic status; if a student is on free and reduced-price lunch, he or she is more likely to miss time from school and 92) the percentage of students with low socioeconomic status could quite possibly be acting as a suppressor variable and influencing the overall influence of chronically absent students, which the partial correlations seem to suggest.

Table 17

ELA Coefficients and VIF Table

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	*t*	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	82.206	1.337		61.497	.000					
	ChronicAbsent	-1.010	.107	-.540	-9.477	.000	-.540	-.540	-.540	1.000	1.000
2	(Constant)	84.520	1.145		73.826	.000					
	ChronicAbsent	-.833	.091	-.446	-9.144	.000	-.540	-.527	-.437	.960	1.042
	LEP	-1.857	.192	-.472	-9.682	.000	-.561	-.549	-.462	.960	1.042
3	(Constant)	96.008	2.957		32.471	.000					
	ChronicAbsent	-.708	.093	-.378	-7.624	.000	-.540	-.460	-.351	.860	1.163
	LEP	-1.780	.186	-.452	-9.582	.000	-.561	-.546	-.441	.950	1.052
	Disabled	-.775	.185	-.206	-4.188	.000	-.409	-.274	-.193	.873	1.146
4	(Constant)	99.024	1.487		66.601	.000					
	ChronicAbsent	-.175	.051	-.093	-3.425	.001	-.540	-.227	-.079	.714	1.400
	LEP	-.358	.109	-.091	-3.298	.001	-.561	-.219	-.076	.698	1.433
	Disabled	-.491	.093	-.131	-5.258	.000	-.409	-.338	-.121	.860	1.162
	SES	-.489	.019	-.791	-25.390	.000	-.924	-.866	-.586	.549	1.823

a. Dependent Variable: ELA

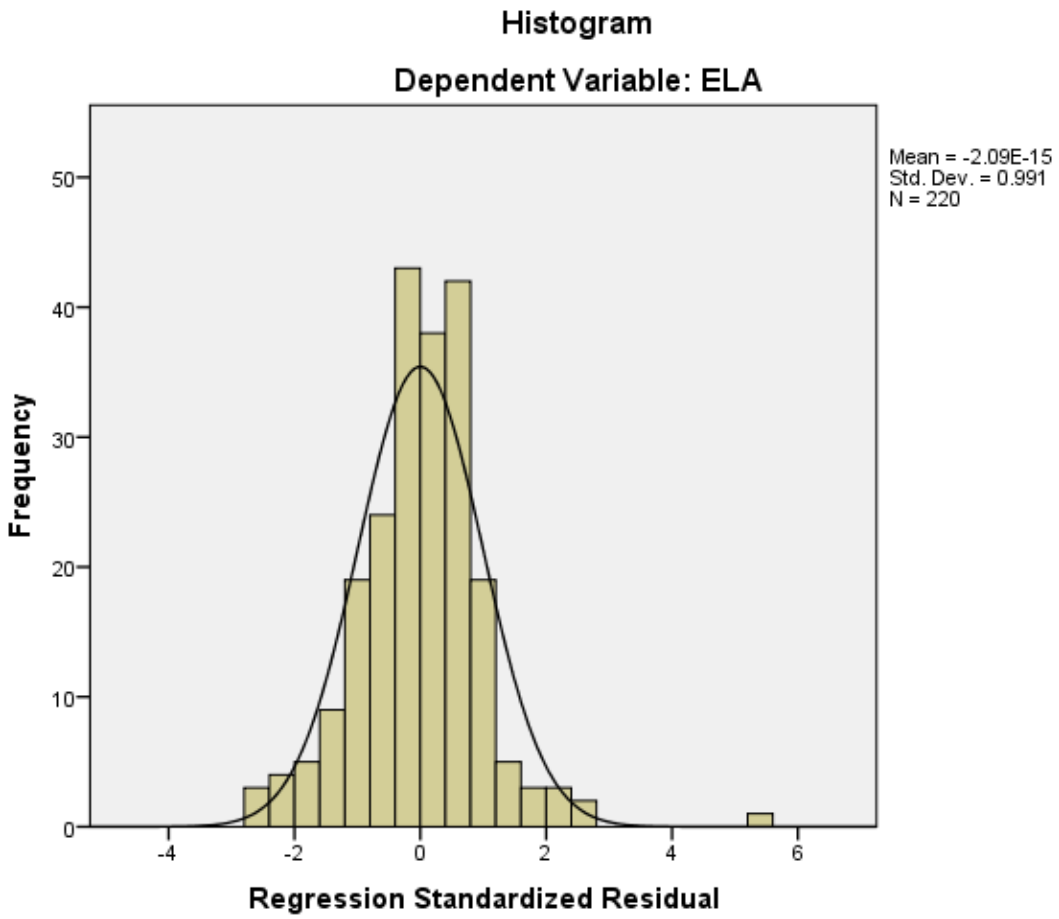

Figure 4. ELA histogram of regression residuals.

Binary Logistic Regression

Binary logistic regression is similar to linear regression except it requires the use of a dependent dichotomous variable (Leech et al., 2011). The dichotomous outcome variable for this study was ELA Proficient and was coded (0,1) to represent whether or not schools were Proficient or above on the Grade 6 through 8 ELA NJ ASK (not met/met). The target proficiency score for each school varies and is based on a standard formula established by the NJDOE. New Jersey has selected option A on the NCLB waiver, which requires states to set performance targets in annual equal increments so that within six years the percentage of non-proficient students in the all-students group

and in each subgroup is reduced by half. The NJDOE has established a performance and accountability framework that calculates the state, district, school, and subgroup level performance targets. The process used to calculate the six-year goal for the percentage of Proficient students in both ELA and Mathematics is as follows (refer to Table 18 for an illustration) (NJDOE, 2012d):

1. Start with the percentage of students who were not Proficient in the 2010-2011 school year (column 1).
2. Divide the percentage of students who were not Proficient in the 2010-2011 school year by 2 (column 2).
3. Subtract the number in column 2 from 100%. This will provide the 2016-2017 percent Proficient goal.
4. Divide the number in Column 2 by 6 to establish the annual incremental performance targets.

Table 18

Example for Calculating Performance Targets

Process Steps			**1**	**2**	**3**	**4**
Level	Subject	2010-2011 Percent Proficient	2010-2011 Percent Partially Proficient	Partially Proficient divided by 2	2017 Percent Proficient Goal	Annual Equal Increments
School	ELA	71.7	28.3	14.2	85.9	2.4
School	Mathematics	78.1	21.9	11	89.1	1.8

The school in this example begins this process with a rate of 71.7% proficiency in ELA and is then expected to move in equal increments of 2.4 annually to proficiency rates of 74.1%, 76.5%, 78.9%, 81.3%, 83.7%, and 86.1%. This school also begins this

process with a rate of 78.1 percent proficiency in Mathematics and is then expected to move in equal increments of 1.8 annually to proficiency rates of 79.9%, 81.7%, 83.5%, 85.3%, 87.1%, and 88.9%.

Binary logistic regression was used in this study to assess whether the predictor variables (school size, percentage of students with disabilities, percentage of students with low socioeconomic status, percentage of students with LEP, percentage of chronically absent students, and length of school day) significantly predicted whether or not schools were Proficient or above on the Grade 6 through 8 ELA NJ ASK.

The ELA Block 0 Classification Table (see Table 19) shows that the null model (only the constant is in the model) correctly classifies 66.4% of the cases. If it was predicted that no schools were Proficient or above on the ELA NJ ASK, the prediction would be correct 66.4% of the time. The ELA Block 1 Classification Table (see Table 20) shows that the fitted/full model correctly classifies 81.4% of the cases, which is an improvement of 15% over the null model. Based on the full model, 86.3% of the schools who were not Proficient or above on the ELA NJ ASK were predicted correctly with this model, while 71.6% of the schools who were Proficient or above on the NJ ASK ELA were also predicted correctly with this model.

Table 19

ELA Block 0 Classification Table

Classification Table[a,b]

	Observed		Predicted		
			ProfELA		
			Not Met	Met	Percentage Correct
Step 0	ProfELA	Not Met	146	0	100.0
		Met	74	0	.0
	Overall Percentage				66.4

a. Constant is included in the model.

b. The cut value is .500

Table 20

ELA Block 1 Classification Table

Classification Table[a]

	Observed		Predicted		
			ProfELA		
			Not Met	Met	Percentage Correct
Step 1	ProfELA	Not Met	126	20	86.3
		Met	21	53	71.6
	Overall Percentage				81.4

a. The cut value is .500

The ELA Block 0 Variables in the Equation Table (see Table 21) shows that if one predicted that all schools would not be Proficient or above on the ELA NJ ASK, the odds of a successful prediction was statistically significant. The ELA Block 0 Variables not in the Equation Table (see Table 22) shows that four of the six predictor variables (percentage of students with disabilities, percentage of students with low socioeconomic status, percentage of students with LEP, and percentage of chronically absent students) were, individually, significant predictors of whether or not schools were Proficient or

above on the ELA NJ ASK. School size and length of school day were not significant predictors.

Table 21

ELA Block 0 Variables in the Equation

Variables in the Equation

		B	S.E.	Wald	*df*	Sig.	Exp(B)
Step 0	Constant	-.680	.143	22.677	1	.000	.507

Table 22

ELA Block 0 Variables not in the Equation

Variables not in the Equation

			Score	*df*	Sig.
Step 0	Variables	SchoolSize	2.417	1	.120
		PercentDis	7.203	1	.007
		PercentSES	48.896	1	.000
		PercentLEP	8.593	1	.003
		PercentChronic	11.947	1	.001
		SchoolDay	.226	1	.634
	Overall Statistics		56.204	6	.000

The ELA Omnibus Tests of Model Coefficients Table (see Table 23) shows the model chi-square and tests for statistical significance of the full model. The full model with all six variables entered compared to the constant-only model was statistically significant (χ^2 (6) = 74.118, p<.000). The results show that the full model was able to distinguish between the schools who were proficient or above on the ELA NJ ASK and those who were not Proficient or above on the ELA NJ ASK.

Table 23

ELA Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

		Chi-square	*df*	Sig.
Step 1	Step	74.118	6	.000
	Block	74.118	6	.000
	Model	74.118	6	.000

The Model Summary Table (see Table 24) shows the -2 Log likelihood for the full model and two pseudo R^2 estimates (Cox & Snell and Nagelkerke). The -2 Log likelihood was 206.863 for the full model, and this statistic is used to assess the overall fit of the full model and should also be lower than the -2 Log likelihood of the null model (Field, 2014). Approximately 28.6% to 39.7% of the variance associated with schools being Proficient or above on the ELA NJ ASK can be explained by the model with Cox and Snell R^2 = .286 and Nagelkerke R^2 = .397. The Cox & Snell R^2 value is usually an underestimate (Leech et al., 2011).

Table 24

Model Summary - ELA

Model Summary

Step	-2 Log likelihood	Cox & Snell *R* Square	Nagelkerke *R* Square
1	206.863[a]	.286	.397

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

As shown in Table 25, the only statistically significant predictor variables of ELA NJ ASK scores were school size and percentage of students with low socioeconomic status. The school size predictor variable had an odds ratio of .998 (95% CI between .997 & 1.000), which indicates the odds of schools being Proficient or above on the ELA NJ ASK decrease .998 times for each unit increase in school size. In other words, a one (1) unit increase in school size reduces the probability of meeting proficiency on the NJ ASK

ELA by .2%. The percentage of students with a low socioeconomic status predictor variable had an odds ratio of .935 (95% CI between .910 & .960), which indicates the odds of schools being Proficient or above on the ELA NJ ASK decrease .935 times for each unit increase in students with low socioeconomic status. In other words, a one (1) unit increase in a school's low socioeconomic population reduces the probability of meeting proficiency on the NJ ASK ELA by 6.5%. The percentage of a chronically absent student's variable was not statistically significant.

Table 25

ELA Logistic Regression Results

Variables in the Equation

		B	S.E.	Wald	*df*	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	SchoolSize	-.002	.001	6.184	1	.013	.998	.997	1.000
	PercentDis	-.087	.051	2.888	1	.089	.916	.829	1.013
	PercentSES	-.067	.013	25.138	1	.000	.935	.910	.960
	PercentLEP	.000	.126	.000	1	1.000	1.000	.781	1.281
	PercentChronic	.000	.030	.000	1	.994	1.000	.943	1.059
	SchoolDay	-.009	.010	.787	1	.375	.991	.971	1.011
	Constant	7.058	4.307	2.685	1	.101	1162.111		

a. Variable(s) entered on step 1: SchoolSize, PercentDis, PercentSES, PercentLEP, PercentChronic, SchoolDay.

Grade 6 through 8 Mathematics Results

I calculated the descriptive statistics for the dependent variable Grade 6-8 Mathematics percentage of students who scored Proficient or above (see Table 26). An average of 75% of the students scored Proficient or above on the Grade 6-8 Mathematics NJ ASK (maximum = 97% and minimum = 18%). Skewness was -1.494 and kurtosis was 2.391. The negative value for skewness indicates that there is a build-up of high scores

(Fields, 2014). The positive value for kurtosis indicates there is a pointy and heavy-tailed distribution (Fields, 2014). The skewness was divided by the standard error to determine the *z*-score. The kurtosis was also divided by the standard error to determine the *z*-score. The *z*-score derived from the skewness value was -9.11, which is significant because -9.11 is greater than 1.96 when the minus sign is ignored (Fields, 2014). The *z*-score derived from the kurtosis value was 7.31. Since the resulting score is greater than 1.96, it is significant (Fields, 2014). I also analyzed the data using the Kolmogorov-Smirnov and Shapiro-Wilk tests (see Table 27). The Shapiro-Wilk test showed that the test of normality was significant ($p < .05$) indicating the distribution was significantly different from a normal distribution (W (220) = .87, p = .000). When using large samples the skewness and kurtosis values are likely to be significant, even when the skewness and kurtosis are close to normal (Fields, 2014). Since this study uses a large sample size, in determining whether the dependent variable (Grade 6-8 Mathematics NJ ASK) met the assumption of normality, the requirements were relaxed.

Table 26

Mathematics Dependent Variable - Descriptive Statistics

Descriptives

			Statistic	Std. Error
Math	Mean		75.309	1.0528
	95% Confidence Interval for Mean	Lower Bound	73.234	
		Upper Bound	77.384	
	5% Trimmed Mean		76.838	
	Median		79.000	
	Variance		243.831	
	Std. Deviation		15.6151	
	Minimum		18.0	
	Maximum		97.0	
	Range		79.0	
	Interquartile Range		17.0	
	Skewness		-1.494	.164
	Kurtosis		2.391	.327

Table 27

Mathematics Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Math	.152	220	.000	.870	220	.000

a. Lilliefors Significance Correction

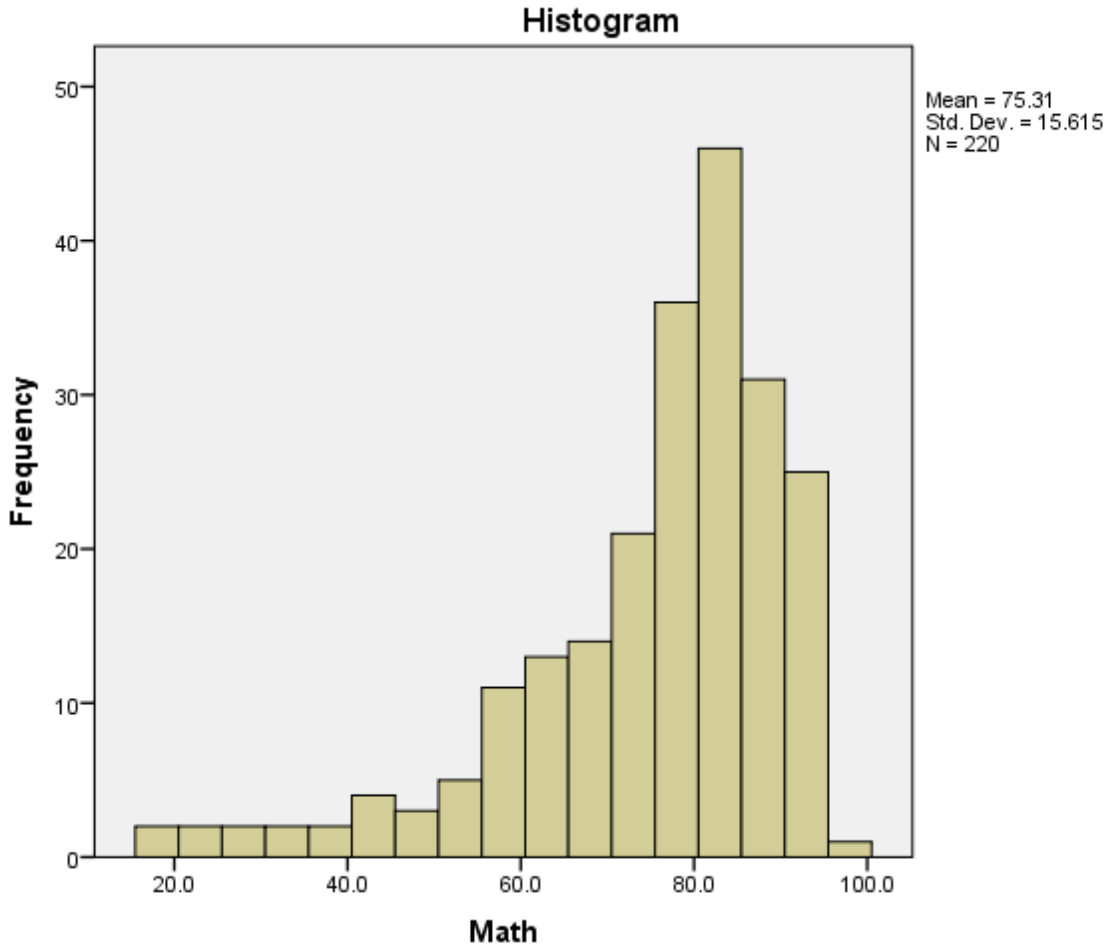

Figure 5. Mathematics histogram of NJ ASK Proficient or above scoring percentage.

The data were further analyzed by running a simple scatterplot and adding a linear regression line to check the assumption there is a linear relationship between the percent of chronically absent students and the Grade 6 through 8 Mathematics NJ ASK scores (see Figure 6). There was a negative relationship between the percentage of chronically absent students and the Grade 6 through 8 Mathematics NJ ASK scores because the plotted points were close to a straight line from the upper left to the lower right (Morgan et al., 2013). The negative relationship indicates that as the percentage of chronically absent students increases, the achievement on the Grade 6 through 8 Mathematics NJ ASK may decrease. As shown in the figure R^2 is .255, which indicates that 25.5% of the

variance in Mathematics NJ ASK scores can be explained by the percentage of chronically absent students.

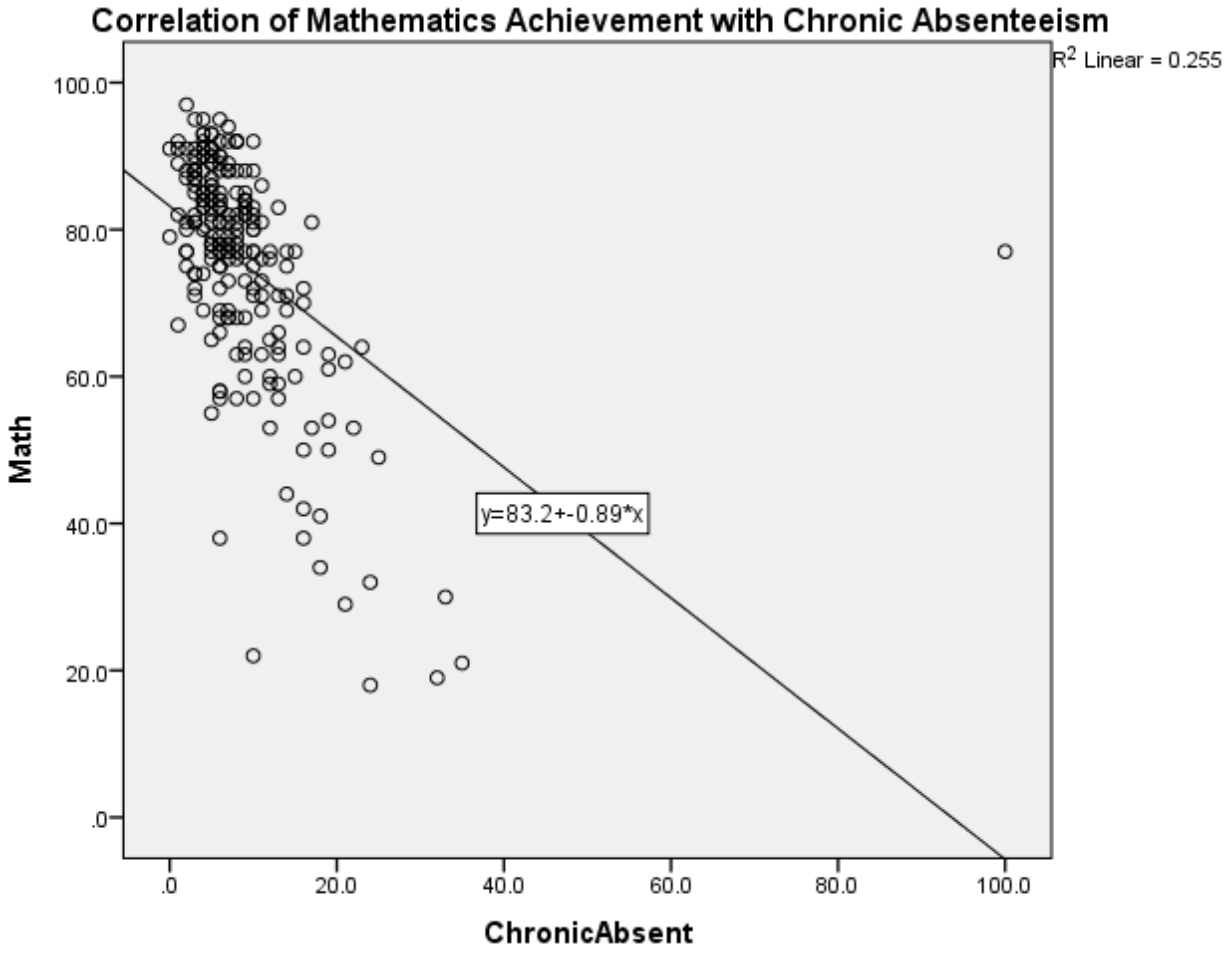

Figure 6. Linear regression line of mathematics achievement and chronic absenteeism.

Pearson Correlation

A correlation coefficient matrix was analyzed to identify the relationship between the independent variables (predictor variables) (see Table 28). The correlation coefficients vary from -1 to 1. The Pearson correlation coefficient matrix shows that there was a statistically significant (p<.024), slight, almost negligible, relationship between school size and Mathematics NJ ASK scores (r = .152). There statistically significant

(p<.000) moderate negative relationship between students with disabilities and Mathematics NJ ASK scores (r = -.413). There was a statistically significant (p<.000) high negative relationship between students with low socioeconomic status and Mathematics NJ ASK scores (r = -.871). There was a statistically significant (p<.000) moderate negative relationship between students with LEP and Mathematics NJ ASK scores (r = -.520). There was a statistically significant (p<.000) moderate negative relationship between chronically absent students and Mathematics NJ ASK scores (r = -.505). There was a statistically significant (p<.044), slight, almost negligible, relationship between length of school day and Mathematics NJ ASK scores (r = .136).

Simultaneous Multiple Regression

I ran a simultaneous multiple regression using all of the independent variables (predictor variables). The results revealed a multicollinearity problem when I examined the VIF and Tolerance of each predictor variable (see Table 29). The average of all VIFs was much greater than 1. For this model R^2 was .852; therefore, 1-R^2 is .148, which was larger than the tolerance values for the predictor variables percentage of students with low socioeconomic status (.126), no absences (.010), 1 to 5 absences (.008), 6 to 10 absences (.021), 11 to 15 absences (.033), and more than 15 absences (.014). Based on research conducted by Storer, Mienko, Chang, and Kang (2012) race is highly related to socioeconomic status, which explains why the tolerance value for socioeconomic status reveals a multicollinearity problem when both race and socioeconomic status are included in the model. Multicollinearity problems are corrected by running the simultaneous multiple regression without the use of redundant variables or highly

correlated variables (Morrow-Howell, 1994). Therefore I continued the analysis without the use of the race and absenteeism variables.

Table 28

Mathematics Correlation Table

Correlations[c]

		Math	SchSize	Disabled	SES	LEP	ChronicAbsent	LengthofSchDay
Math	Pearson Correlation	1	.152*	-.413**	-.871**	-.520**	-.505**	.136*
	Sig. (2-tailed)		.024	.000	.000	.000	.000	.044
SchSize	Pearson Correlation	.152*	1	-.272**	-.070	-.022	-.100	-.007
	Sig. (2-tailed)	.024		.000	.300	.749	.138	.923
Disabled	Pearson Correlation	-.413**	-.272**	1	.293**	.160*	.344**	.025
	Sig. (2-tailed)	.000	.000		.000	.018	.000	.710
SES	Pearson Correlation	-.871**	-.070	.293**	1	.544**	.485**	-.149*
	Sig. (2-tailed)	.000	.300	.000		.000	.000	.027
LEP	Pearson Correlation	-.520**	-.022	.160*	.544**	1	.201**	-.058
	Sig. (2-tailed)	.000	.749	.018	.000		.003	.395
ChronicAbsent	Pearson Correlation	-.505**	-.100	.344**	.485**	.201**	1	.003
	Sig. (2-tailed)	.000	.138	.000	.000	.003		.966
LengthofSchDay	Pearson Correlation	.136*	-.007	.025	-.149*	-.058	.003	1
	Sig. (2-tailed)	.044	.923	.710	.027	.395	.966	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

c. Listwise N=220

Table 29

Mathematics Coefficients Table with Multicollinearity Problems

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	11.816	49.813		.237	.813					
	SchSize	.003	.002	.064	2.097	.037	.152	.146	.057	.782	1.279
	Disabled	-.292	.122	-.083	-2.391	.018	-.413	-.166	-.065	.617	1.622
	SES	-.326	.044	-.561	-7.348	.000	-.871	-.460	-.199	.126	7.912
	LEP	-.481	.144	-.130	-3.345	.001	-.520	-.230	-.091	.488	2.050
	ChronicAbsent	.060	.081	.034	.735	.463	-.505	.052	.020	.343	2.914
	Absent0	.843	.483	.472	1.748	.082	.147	.122	.047	.010	99.144
	Absent1to5	.821	.475	.518	1.730	.085	.443	.121	.047	.008	121.762
	Absent6to10	.869	.502	.326	1.731	.085	.111	.121	.047	.021	48.265
	Absent11to15	1.080	.497	.323	2.175	.031	-.285	.152	.059	.033	29.985
	Absent15+	.263	.492	.122	.535	.593	-.693	.038	.015	.014	70.157
	LengthofSchDay	-.050	.032	-.053	-1.554	.122	.136	-.109	-.042	.628	1.591
	InstructionTime	.045	.025	.062	1.761	.080	.050	.123	.048	.594	1.685
	Black	-.162	.040	-.178	-4.046	.000	-.665	-.274	-.110	.381	2.626
	Hispanic	.042	.054	.049	.779	.437	-.606	.055	.021	.185	5.392
	Asian	.093	.045	.075	2.076	.039	.325	.145	.056	.559	1.789
	AmericanIndian	.677	1.248	.016	.542	.588	-.025	.038	.015	.890	1.123
	PacificIslander	-.548	.559	-.027	-.979	.329	.027	-.069	-.027	.934	1.071
	TwoorMoreRaces	.283	.327	.025	.865	.388	.120	.061	.023	.870	1.150

a. Dependent Variable: Math

Next I ran a simultaneous regression using the predictor variables that were not highly correlated. See Table 30 and Table 31 for the Model Summary and ANOVA results. The results show that the model was statistically significant ($F(6,213) = 138.467$, $p=.001<.05$). The R^2 was .796, which indicates that 79.6% of the variance in the Grade 6 through 8 Mathematics NJ ASK scores can be predicted from the length of the school day, percentage of chronically absent students, school size, percentage of students with LEP, percentage of disabled students, and percentage of students with low socioeconomic status. Eliminating the highly correlated independent variables (predictor variables) did not make a huge difference in the strength of the model, as the variance changed from 85.2% to 79.6%. The Durbin-Watson test determines if adjacent residuals are correlated. In this model the Durbin-Watson test statistic was 1.517, which indicates that the residuals were not correlated.

Table 30

Mathematics Model Summary

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.892[a]	.796	.790	7.1525	.796	138.467	6	213	.000	1.517

a. Predictors: (Constant), LengthofSchDay, ChronicAbsent, SchSize, LEP, Disabled, SES

b. Dependent Variable: Math

Table 31

ANOVA Table - Mathematics

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	42502.275	6	7083.712	138.467	.000[b]
	Residual	10896.707	213	51.158		
	Total	53398.982	219			

a. Dependent Variable: Math

b. Predictors: (Constant), LengthofSchDay, ChronicAbsent, SchSize, LEP, Disabled, SES

The beta coefficients are presented in Table 32 and all of the variables are statistically significant with the exception of school size and length of school day. The strongest variables were the percentage of students with low socioeconomic status (-.746), percentage of disabled students (-.143), percentage of chronically absent students (-.075), and percentage of students with LEP (-.074). The Adjusted R^2 was .790, which indicates that 79% of the variance in the Grade 6 through 8 Mathematics NJ ASK scores was explained by the model.

Table 32

Coefficients Table - Mathematics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	87.919	11.983		7.337	.000					
	SchSize	.003	.002	.052	1.620	.107	.152	.110	.050	.925	1.081
	Disabled	-.506	.122	-.143	-4.148	.000	-.413	-.273	-.128	.803	1.246
	SES	-.434	.025	-.746	-17.579	.000	-.871	-.769	-.544	.533	1.878
	LEP	-.272	.137	-.074	-1.985	.048	-.520	-.135	-.061	.697	1.435
	ChronicAbsent	-.131	.065	-.075	-2.032	.043	-.505	-.138	-.063	.710	1.408
	LengthofSchDay	.023	.030	.025	.785	.433	.136	.054	.024	.966	1.035

a. Dependent Variable: Math

Further analysis of the coefficients table showed that the variable percentage of disabled students was found to be a statistically significant contributor to the overall model (β=-.143, t=-4.148, p<.000). Although a significant variable, it should be noted that it only contributed 2% of the explained variance to the overall model. The negative beta indicates that as the percentage of disabled students in a school increases, the percentage of Proficient and above students decreases. The variable percentage of students with low socioeconomic status was found to be a statistically significant contributor to the overall model (β =-.746, t=-17.579, p<.000). The variable percentage of students with low socioeconomic status contributed 55.6% of the explained variance to the overall model. When beta is negative, this indicates that when there is an increase in

the percentage of students with low socioeconomic status in a school, the percentage of Proficient and above students decreases. The percentage of students with LEP was found to be a statistically significant contributor to the overall model (β =-.074, *t*=-1.985, *p*<.048). Although a significant variable, it should be noted that it contributed .5% of the explained variance to the overall model. When beta is negative, this indicates that when there is an increase in the percentage of students with LEP in a school, the percentage of Proficient and above students decreases. The percentage of chronically absent students was found to be a statistically significant contributor to the overall model (β =-.075, *t*=-2.032, *p*<.043). Although a significant variable, it should be noted that it only contributed .6% of the explained variance to the overall model. When beta is negative, this indicates that when there is an increase in the percentage of chronically absent students in a school, the percentage of Proficient and above students decreases.

Hierarchical Regression

The simultaneous multiple regression model was used to measure the influence of the independent variables (predictor variables) together on the Grade 6-8 Mathematics NJ ASK scores, whereas the hierarchical regression model was used to measure the influence of each of the independent variables (predictor variables) on the Grade 6-8 Mathematics NJ ASK scores in separate block models as individual and combined independent variables (predictor variables) were entered into the overall model. The percentage of chronically absent students was entered into the hierarchical regression model first (Model 1 = percentage of chronically absent students). The remaining models were built by inputting the independent variables in order of their strength as follows: Model 2 = percentage of chronically absent students and percentage of students with

LEP, Model 3 = percentage of chronically absent students, percentage of students with LEP, and percentage of students with disabilities, Model 4 = percentage of chronically absent students, percentage of students with LEP, percentage of students with disabilities, and percentage of students with low socioeconomic status.

In Model 1 (see Table 33), the predictor variable was the percentage of chronically absent students and R^2 was .255, which indicates that 25.5% of the variance in the Grade 6 through 8 Mathematics NJ ASK scores was explained by the percentage of chronically absent students. In Model 2, the percentage of students with LEP was added to the percentage of chronically absent students and R^2 was .438, which indicates that 43.8% of the variance in the Grade 6 through 8 Mathematics NJ ASK scores was explained by the percentage of students with LEP and the percentage of chronically absent students. From Model 1 to Model 2 the R^2 Change was .183, which indicates that the percentage of students with LEP added 18.3% of the variance to the model. The R^2 Change was statistically significant $F(1,217) = 70.476$, $p<.000$. In Model 3, the percentage of disabled students was added and R^2 was .483, which indicates that 48.3% of the variance in the Grade 6 through 8 Mathematics NJ ASK scores was explained by the percentage of students with disabilities, percentage of students with LEP, and percentage of chronically absent students. From Model 2 to Model 3 the R^2 Change was .045, which indicates the percentage of students with disabilities added 4.5% of the variance to the model. The R^2 Change was statistically significant $F(1,216) = 18.944$, $p<.000$. In Model 4, the percentage of students with low socioeconomic status was added and R^2 was .793, which indicates that 79.3% of the variance in the Grade 6 through 8 Mathematics NJ ASK scores was explained by the percentage of students with low

socioeconomic status, percentage of students with disabilities, percentage of students with LEP, and percentage of chronically absent students. From Model 3 to Model 4 the R^2 Change was .310, which indicates that the percentage of students with low socioeconomic status added 31% of the variance to the model. The R^2 Change was statistically significant $F(1,215) = 321.216$, $p<.000$. The Durbin-Watson test statistic was 1.535, which indicates that the residuals were not correlated.

Table 33

Hierarchical Regression Model Summary Table - Mathematics

Model Summary[e]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.505[a]	.255	.252	13.5046	.255	74.800	1	218	.000	
2	.662[b]	.438	.433	11.7600	.183	70.476	1	217	.000	
3	.695[c]	.483	.476	11.3020	.045	18.944	1	216	.000	
4	.890[d]	.793	.789	7.1732	.310	321.216	1	215	.000	1.535

a. Predictors: (Constant), ChronicAbsent

b. Predictors: (Constant), ChronicAbsent, LEP

c. Predictors: (Constant), ChronicAbsent, LEP, Disabled

d. Predictors: (Constant), ChronicAbsent, LEP, Disabled, SES

e. Dependent Variable: Math

As shown in Table 34, all of the regression models were statistically significant. This means that the independent variables entered in the four regression models predicted the variance in students scoring Proficient or above on the Grade 6-8 Mathematics NJ ASK. Each model was statistically significant (Model 1: F=74.800, df=1,218, p<.000; Model 2: F=84.557, df=2,217, p<.000; Model 3: F=67.347, df=3,216, p<.000; Model 4: F= 205.695, df=4,215, p<.000).

Table 34

Mathematics Regression ANOVA Table

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	13641.553	1	13641.553	74.800	.000[b]
	Residual	39757.428	218	182.374		
	Total	53398.982	219			
2	Regression	23388.220	2	11694.110	84.557	.000[c]
	Residual	30010.762	217	138.298		
	Total	53398.982	219			
3	Regression	25808.033	3	8602.678	67.347	.000[d]
	Residual	27590.949	216	127.736		
	Total	53398.982	219			
4	Regression	42336.166	4	10584.042	205.695	.000[e]
	Residual	11062.816	215	51.455		
	Total	53398.982	219			

a. Dependent Variable: Math

b. Predictors: (Constant), ChronicAbsent

c. Predictors: (Constant), ChronicAbsent, LEP

d. Predictors: (Constant), ChronicAbsent, LEP, Disabled

e. Predictors: (Constant), ChronicAbsent, LEP, Disabled, SES

Further analysis of the coefficients table (see Table 35), shows that in Model 1, the predictor variable the percentage of chronically absent students was statistically significant (β=-.505, *t*=-8.649, *p*=.000). The negative beta indicates that chronic absenteeism has a negative influence on the Grade 6 through 8 Mathematics NJ ASK scores. As chronic absenteeism increases, there is a decrease in performance on the Grade 6 through 8 Mathematics NJ ASK. Analysis of the collinearity statistics of Model 1 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low (<1-R^2). For this model R^2 was

.255; therefore, 1-R^2 is .745, which was smaller than the tolerance values for all of the predictor variables in the model.

In Model 2, the predictor variable percentage of students with LEP was added to the model, and the strength of the variable percentage of chronically absent students decreased (from -.505 to -.418). This means that the variable percentage of students with LEP has a significant effect on the strength of the percentage of chronically absent students. The percentage of chronically absent students continued to be a statistically significant variable (β=-.418, *t*=-8.046, *p*=.000) and the percentage of students with LEP was also a statistically significant predictor of scoring Proficient or above on the Grade 6 through 8 Mathematics NJ ASK (β=-.436, *t*=-8.395, *p*=.000). The negative betas indicate that both chronic absenteeism and students with LEP have a negative influence on the Grade 6 through 8 Mathematics NJ ASK scores. As chronic absenteeism and students with LEP increase, there is a decrease in performance on the Grade 6 through 8 Mathematics NJ ASK. Analysis of the collinearity statistics of Model 2 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low (<1-R^2). For this model R^2 was .438; therefore, 1-R^2 is .562, which was smaller than the tolerance values for all of the predictor variables in the model.

In Model 3, the predictor variable percentage of students with disabilities was added to the model, and the strength of the variables percentage of chronically absent students decreased (from -.418 to -.344) and percentage of students with LEP decreased (from -.436 to -.415). This means that the variable percentage of students with disabilities

has a significant effect on the strength of the percentage of chronically absent students and the percentage of students with LEP. The percentage of chronically absent students continued to be a statistically significant variable (β=-.344, *t*=-6.518, *p*=.000) as well as the percentage of students with LEP (β=-.415, *t*=-8.263, *p*=.000). The percentage of students with disabilities was also a statistically significant predictor of scoring Proficient or above on the Grade 6 through 8 Mathematics NJ ASK (β=-.228 *t*=-4.352, *p*=.000). The negative betas indicate that chronic absenteeism, students with LEP, and students with disabilities have a negative influence on the Grade 6 through 8 Mathematics NJ ASK scores. As chronic absenteeism, students with LEP, and students with disabilities increase, there is a decrease in performance on the Grade 6 through 8 Mathematics NJ ASK. Analysis of the collinearity statistics of Model 3 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low ($<1-R^2$). For this model R^2 was .483; therefore, $1-R^2$ is .517, which was smaller than the tolerance values for all of the predictor variables in the model.

In Model 4, the predictor variable percentage of students with low socioeconomic status was added to the model, and the strength of the variables percentage of chronically absent students decreased (from -.344 to -.073), percentage of students with LEP decreased (from -.415 to -.071), and percentage of students with disabilities decreased (from -.228 to -.156). This means that the variable percentage of students with low socioeconomic status has a significant effect on the strength of the percentage of chronically absent students, percentage of students with LEP, and percentage of students

with disabilities. The two of the three independent variables continued to be statistically significant, which included the percentage of chronically absent students (β=-.073, *t*= -1.992, *p*=.048) and percentage of students with disabilities (β=-.156, *t*=-4.665, *p*=.000). The percentage of students with LEP variable was no longer statistically significant. The percentage of students with low socioeconomic status was also a statistically significant predictor of scoring Proficient or above on the Grade 6 through 8 Mathematics NJ ASK (β=-.751, *t*=-17.922, *p*=.000). The negative betas indicate that chronic absenteeism, students with disabilities, and students with low socioeconomic status have a negative influence on the Grade 6 through 8 Mathematics NJ ASK scores. As chronic absenteeism, students with disabilities, and students with low socioeconomic status increase, there is a decrease in performance on the Grade 6 through 8 Mathematics NJ ASK. Analysis of the collinearity statistics of Model 4 revealed that the average of all VIFs in this model was not significantly greater than 1, which means none of the independent variables share significant collinearity with one another. In addition, the tolerance values were not low ($<1-R^2$). For this model R^2 was .793; therefore, $1-R^2$ is .207, which was smaller than the tolerance values for all of the predictor variables in the model.

The histogram shown in Figure 7 follows a bell-shaped distribution, which indicates that the regression model is valid. “The distribution is very normal: the histogram is symmetrical and approximately bell-shaped” (Field, 2014, p. 349).

Table 35

Mathematics Coefficients and VIF Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	83.196	1.289		64.563	.000					
	ChronicAbsent	-.889	.103	-.505	-8.649	.000	-.505	-.505	-.505	1.000	1.000
2	(Constant)	85.206	1.147		74.259	.000					
	ChronicAbsent	-.735	.091	-.418	-8.046	.000	-.505	-.479	-.409	.960	1.042
	LEP	-1.614	.192	-.436	-8.395	.000	-.520	-.495	-.427	.960	1.042
3	(Constant)	97.136	2.954		32.878	.000					
	ChronicAbsent	-.605	.093	-.344	-6.518	.000	-.505	-.405	-.319	.860	1.163
	LEP	-1.534	.186	-.415	-8.263	.000	-.520	-.490	-.404	.950	1.052
	Disabled	-.805	.185	-.228	-4.352	.000	-.413	-.284	-.213	.873	1.146
4	(Constant)	99.830	1.881		53.068	.000					
	ChronicAbsent	-.129	.065	-.073	-1.992	.048	-.505	-.135	-.062	.714	1.400
	LEP	-.264	.137	-.071	-1.921	.056	-.520	-.130	-.060	.698	1.433
	Disabled	-.551	.118	-.156	-4.665	.000	-.413	-.303	-.145	.860	1.162
	SES	-.437	.024	-.751	-17.922	.000	-.871	-.774	-.556	.549	1.823

a. Dependent Variable: Math

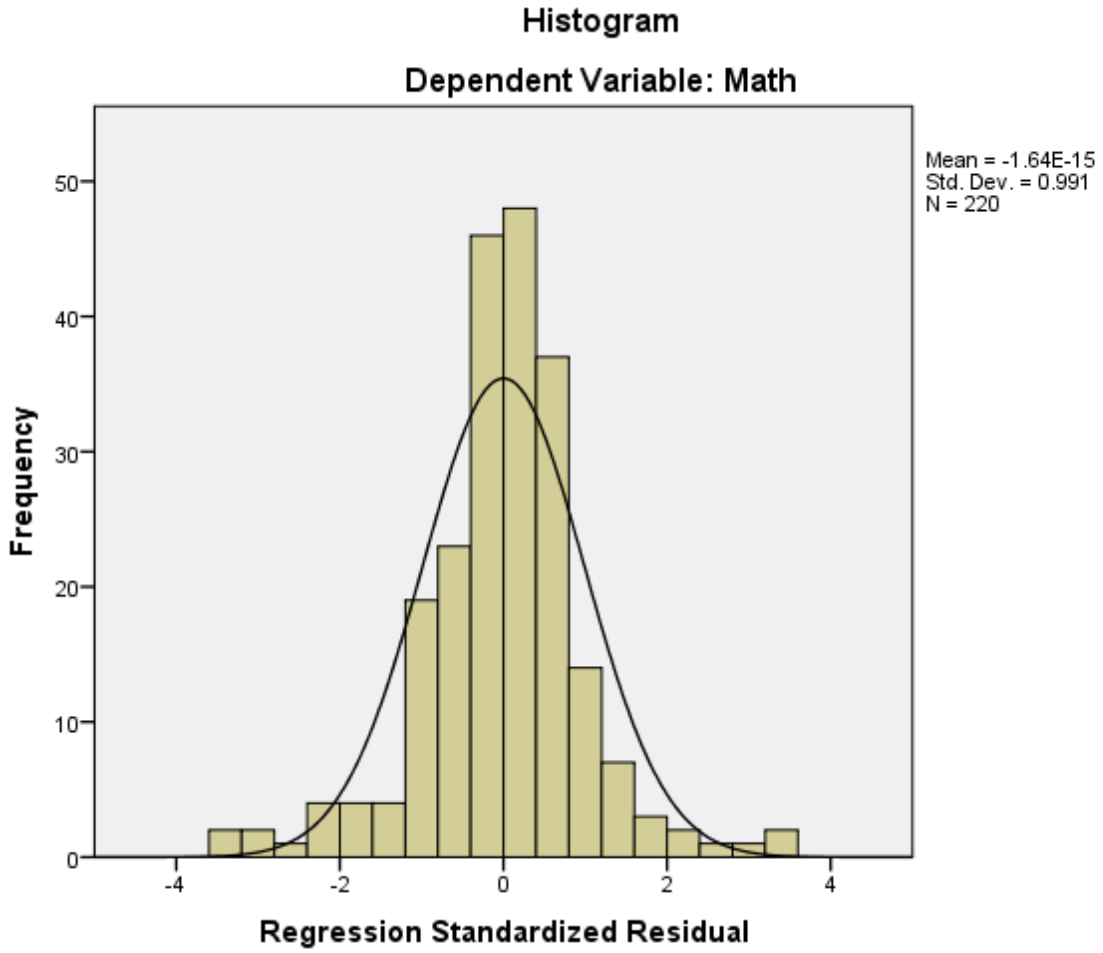

Figure 7. Mathematics histogram of regression residuals.

Further analysis of Model 4 of the hierarchical regression showed, when the variable percentage of students with low socioeconomic status was added to the model, the strength of the variable percentage of chronically absent students was severely diminished, which means two things: (1) the percentage of chronically absent students is most likely correlated with the percentage of students with low socioeconomic status; if a student is on free and reduced-price lunch, he or she is more likely to miss time from school and (2) the percentage of students with low socioeconomic status could quite possibly be acting as a suppressor variable and influencing the overall influence of

chronically absent students. However, the partial correlation differences are not as great here as they are with ELA.

Binary Logistic Regression

Binary logistic regression was used in this study to assess whether the predictor variables (school size, percentage of students with disabilities, percentage of students with low socioeconomic status, percentage of students with LEP, percentage of chronically absent students, and length of school day) significantly predicted whether or not schools were Proficient or above on the Grade 6 through 8 Mathematics NJ ASK.

The Mathematics Block 0 Classification Table (see Table 36) shows that the null model (only the constant is in the model) correctly classifies 51.8% of the cases. If it were predicted that no schools were Proficient or above on the Mathematics NJ ASK, the prediction would be correct 51.8% of the time. The Mathematics Block 1 Classification Table (see Table 37) shows that the fitted/full model correctly classifies 71.8% of the cases, which is an improvement of 20% over the null model. Based on the full model, 67.5% of the schools who were not Proficient or above on the Mathematics NJ ASK were predicted correctly with this model, while 76.4% of the schools who were Proficient or above on the NJ ASK Mathematics were also predicted correctly with this model.

Table 36

Mathematics Block 0 Classification Table

Classification Table[a,b]

	Observed		Predicted		
			ProfMath		
			Not Met	Met	Percentage Correct
Step 0	ProfMath	Not Met	114	0	100.0
		Met	106	0	.0
	Overall Percentage				51.8

a. Constant is included in the model.

b. The cut value is .500

Table 37

Mathematics Block 1 Classification Table

Classification Table[a]

	Observed		Predicted		
			ProfMath		
			Not Met	Met	Percentage Correct
Step 1	ProfMath	Not Met	77	37	67.5
		Met	25	81	76.4
	Overall Percentage				71.8

a. The cut value is .500

The Mathematics Block 0 Variables in the Equation Table (see Table 38) shows that if one predicted that all schools would not be Proficient or above on the Mathematics NJ ASK, the odds of a successful prediction was not statistically significant. The Mathematics Block 0 Variables not in the Equation Table (see Table 39) shows that four of the six predictor variables (percentage of students with disabilities, percentage of students with low socioeconomic status, percentage of students with LEP, and percentage of chronically absent students) were, individually, significant predictors of whether or not

schools were Proficient or above on the Mathematics NJ ASK. School size and length of school day were not significant predictors.

Table 38

Mathematics Block 0 Variables in the Equation

Variables in the Equation

		B	S.E.	Wald	*df*	Sig.	Exp(B)
Step 0	Constant	-.073	.135	.291	1	.590	.930

Table 39

Mathematics Block 0 Variables not in the Equation

Variables not in the Equation

			Score	*df*	Sig.
Step 0	Variables	SchoolSize	.435	1	.509
		PercentDis	4.597	1	.032
		PercentSES	46.062	1	.000
		PercentLEP	9.471	1	.002
		PercentChronic	12.326	1	.000
		SchoolDay	2.570	1	.109
	Overall Statistics		48.566	6	.000

The Mathematics Omnibus Tests of Model Coefficients Table (see Table 40) shows the model chi-square and tests for statistical significance of the full model. The full model with all six variables entered compared to the constant-only model was statistically significant (χ^2 (6) = 54.873, p<.000). The results show that the full model was able to distinguish between the schools that were Proficient or above on the Mathematics NJ ASK and those that were not Proficient or above on the Mathematics NJ ASK.

Table 40

Mathematics Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

		Chi-square	*df*	Sig.
Step 1	Step	54.873	6	.000
	Block	54.873	6	.000
	Model	54.873	6	.000

The Model Summary Table (see Table 41) shows the -2 Log likelihood for the full model and two pseudo R^2 estimates (Cox & Snell and Nagelkerke). The -2 Log likelihood was 249.820 for the full model and this statistic is used to assess the overall fit of the full model. Approximately 22.1% to 29.4% of the variance associated with schools being Proficient or above on the Mathematics NJ ASK can be explained by the model with Cox and Snell R^2 = .221 and Nagelkerke R^2 = .294.

Table 41

Model Summary - Mathematics

Model Summary

Step	-2 Log likelihood	Cox & Snell *R* Square	Nagelkerke *R* Square
1	249.820[a]	.221	.294

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

The binary logistic regression results (see Table 42) indicate that the only statistically significant predictor variable was the percentage of students with low socioeconomic status. The percentage of students with low socioeconomic status predictor variable had an odds ratio of .957 (95% CI between .940 & .974), which indicates the odds of schools being Proficient or above on the Mathematics NJ ASK decrease .957 times for each unit increase in students with low socioeconomic status. In

other words, a one (1) unit increase in a school's low socioeconomic population reduces the probability of meeting proficiency on the NJ ASK Mathematics by 4.3%. The percentage of chronically absent students' variable was not statistically significant.

Table 42

Mathematics Logistic Regression Results

Variables in the Equation

		B	S.E.	Wald	*df*	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	95% C.I.for EXP(B) Upper
Step 1[a]	SchoolSize	-.001	.001	1.770	1	.183	.999	.998	1.000
	PercentDis	-.028	.042	.435	1	.510	.973	.896	1.056
	PercentSES	-.044	.009	23.035	1	.000	.957	.940	.974
	PercentLEP	.028	.059	.221	1	.638	1.028	.915	1.156
	PercentChronic	-.008	.022	.117	1	.732	.992	.950	1.036
	SchoolDay	.006	.009	.401	1	.527	1.006	.988	1.025
	Constant	-.197	3.816	.003	1	.959	.821		

a. Variable(s) entered on step 1: SchoolSize, PercentDis, PercentSES, PercentLEP, PercentChronic, SchoolDay.

Overall Conclusions

The percentage of students with low socioeconomic status accounted for the greatest amount of variance in students who were Proficient or above in both ELA NJ ASK (62.6%) and Mathematics NJ ASK (56.4%). This was demonstrated in the Model 4 hierarchical regression. The percentage of chronically absent students was moderately correlated with the percentage of students with low socioeconomic status (r = .485), the percentage of students who were Proficient or above on the ELA NJ ASK (r = -.540), and the percentage of students who were proficient or above on the Mathematics NJ ASK (r = -.505). Only .9% of the variance in the percentage of students who were Proficient or above in ELA NJ ASK and .5% of the variance in the percentage of students who were

Proficient or above in Mathematics NJ ASK can be explained by the percentage of chronically absent students based on the results of the Model 4 hierarchical regression. The predictive powers of the ELA simultaneous multiple regression model were higher than those for the Mathematics model. The overall R^2 value for the ELA model (88.6%) was approximately 10 points higher than the R^2 value for the Mathematics model (79%).

In both the ELA and Mathematics hierarchical regression models the percentage of students with low socioeconomic status had the largest predictive contribution to the percentage of students who were Proficient or above in ELA NJ ASK (R^2 change = 34.3%) and Mathematics NJ ASK (R^2 change = 31%). In addition to the percentage of students with low socioeconomic status, the other statistically significant variables included the percentage of chronically absent students, percentage of students with LEP, and percentage of students with disabilities. Although the percentage of chronically absent students was a statistically significant predictor in all models, the R^2 contribution of this variable was consistently small (29.2% for ELA and 25.5% for Mathematics).

When predicting whether six predictor variables significantly predicted the odds of whether or not students were Proficient or above in ELA NJ ASK, the predictor variables school size and percentage of students with low socioeconomic status were the only statistically significant predictor variables. The results suggest that the odds of students scoring Proficient or above on the ELA NJ ASK are reduced as the school size (odds ratio = .998) and percentage of students with low socioeconomic status (odds ratio = .935) increase. When predicting whether six predictor variables significantly predicted the odds of whether or not students were Proficient or above in Mathematics NJ ASK, the predictor variable percentage of students with low socioeconomic status was the only

statistically significant predictor variable. The results suggest that the odds of students scoring Proficient or above on the Mathematics NJ ASK are reduced as the percentage of students with low socioeconomic status (odds ratio = .957) increases.

The results of the study suggest that there are factors that school administrators cannot control, such as the percentage of students with low socioeconomic status, that affect student performance on the Grade 6 through 8 ELA NJ ASK and Mathematics NJ ASK.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The results of this study add to the existing base of literature and can support school administrators in making decisions about the factors that influence student achievement. School administrators can establish effective policies and practices for chronic absenteeism based on the reported effect sizes on the Grades 6 through 8 ELA NJ ASK and Mathematics NJ ASK. My study found that chronic absenteeism influences Grade 6, 7, and 8 ELA and Mathematics NJ ASK performance, in the aggregate, when controlling for other influential student and school demographic variables. Chronic absenteeism is also, individually, a significant predictor of whether students scored Proficient or above on the Grade 6, 7, and 8 ELA and Mathematics NJ ASK. However, in both cases the analysis completed here indicates that chronic absenteeism is an extremely weak predictor variable of student academic performance.

The New Jersey public school system has had statewide assessments since the 1970s. Over the years these assessments have evolved into more rigorous expectations used to measure student achievement. In order for students to successfully meet the requirements set by the state of New Jersey, students must attend school regularly. Research indicates that chronic absenteeism can lead to low academic achievement, school dropout, and delinquency. Chronic absenteeism also sets the stage for the inability to successfully maintain academic skills to do grade-level work. The compulsory education law (N.J.S.A. 18A:38-28 through 31) and the attendance regulations law (N.J.A.C. 6A:16-7.6) have led school districts to develop and implement strict attendance

policies to prevent chronic absenteeism (NJDOE, 2015b). While chronic absenteeism is an accountability measure, no empirical quantitative evidence exists on the relationship or possible relative influence of chronic absenteeism on the Grade 6 through 8 ELA NJ ASK and Mathematics NJ ASK performance.

The Washington Post reported on chronic absenteeism in 2015 and stated that the Obama administration will begin publishing data on chronic absenteeism rates at schools nationwide. An estimated 5 million to 7.5 million students are chronically absent each school year. Many schools throughout the nation are failing to effectively handle the issue of chronic absenteeism. Researchers support the publication of chronic absenteeism rates and think it will force superintendents and principals to begin focusing on a problem that has been ignored for too long (Brown, 2015). When it comes to improving K-12 academic performance in New Jersey, especially in economically distressed communities, it is challenging because of the fact that approximately 125,000 students in New Jersey are chronically absent (Zalkind, 2015). *The Star Ledger* reported on the Advocates for Children of New Jersey report in 2015 that found chronic absenteeism to be a potent predictor of academic failure.

Summary of Findings

The study provides evidence that no matter how much emphasis is placed on monitoring chronic absenteeism, this reform has minimal influence on improving the passing percentage rate of the Grade 6 through 8 ELA and Mathematics NJ ASK. For both ELA and Mathematics, chronic absenteeism was a statistically significant variable although it was a weak contributor. Analysis of both Grades 6 through 8 ELA and Mathematics NJ ASK scores shows that the percentage of students with low

socioeconomic status had the greatest influence on students scoring Proficient and above on the NJ ASK. This was demonstrated in the hierarchical regression models, where in Model 4 the percentage of students with low socioeconomic status had the largest contribution—62.6% for ELA and 56.4% for Mathematics— in the total variance that can be explained in ELA and Mathematics performance. The percentage of chronically absent students had less of an influence on students scoring Proficient and above on the Grades 6 through 8 ELA and Mathematics NJ ASK. This was demonstrated in the hierarchical regression models, where in Model 4 the percentage of chronically absent students had a weak contribution—.9% for ELA and .5% for Mathematics—in the total variance that can be explained in ELA and Mathematics performance.

School size and the percentage of students with low socioeconomic status were the only statistically significant predictors of the odds to determine whether or not students would score Proficient or above on the Grades 6 through 8 ELA NJ ASK. This was demonstrated in the ELA binary logistic regression model where school size had an odds ratio of .998, which indicates the odds of schools being Proficient or above on the ELA NJ ASK decrease .998 times for each unit increase in school size. In other words, a one (1) unit increase in a school's size reduces the probability of meeting proficiency on the NJ ASK ELA by .2%. The percentage of students with low socioeconomic status had an odds ratio of .935, which indicates the odds of schools being Proficient or above on the ELA NJ ASK decrease .935 times for each unit increase in students with low socioeconomic status. In other words, a one (1) unit increase in a school's population of students with low socioeconomic status reduces the probability of meeting proficiency on the NJ ASK ELA by 6.5%. The percentage of students with low socioeconomic status

was the only statistically significant predictor of the odds to determine whether or not students would score Proficient or above on the Grades 6 through 8 Mathematics NJ ASK. This was demonstrated in the Mathematics binary logistic regression model where the percentage of students with low socioeconomic status had an odds ratio of .957, which indicates the odds of schools being Proficient or above on the Mathematics NJ ASK decrease .957 times for each unit increase in a school's population of students with low socioeconomic status. In other words, a one (1) unit increase in students with low socioeconomic status reduces the probability of meeting proficiency on the NJ ASK Mathematics by 4.3%. The percentage of chronically absent students was not statistically significant for Grades 6 through 8 ELA or Mathematics NJ ASK.

The results of this study are supported by existing literature that has found socioeconomic status to have a large influence on student achievement. Sirin (2005) found that socioeconomic status at the student level is strongly correlated with academic performance and socioeconomic status at the school level is an even stronger correlation. Huang's (2015) research shows that increasing learning time and persistence are not likely to resolve the socioeconomic status constraint on achievement for a majority of students with a low socioeconomic status. According to Duncan and Magnuson (2005), lack of socioeconomic resources has led to achievement gaps between White students and minority students. The achievement gap for standardized tests is approximately 8 points with a standard deviation of 15. Yet the policy implications remain unclear because socioeconomic status cannot be controlled by a school district (Duncan & Magnuson, 2005). Socioeconomic status is also related to school size. As school size increases, the average achievement costs for schools with a large population of students with low

socioeconomic status becomes more burdensome. Therefore the achievement in schools with less advantaged students decreases as school size increases (Bickel, 1999).

Existing literature has found chronic absenteeism to have an influence on student achievement. Romero and Lee's (2007) research shows that chronic absenteeism in middle school is a problem with highly visible consequences for students during their youth and into their employable adulthood. "Chronic school absenteeism has been identified as a precursor to undesirable outcomes in adolescence, including academic failure, school dropout, and juvenile delinquency" (McCluskey, Bynum, & Patchin, 2004, p. 214). The negative effect of chronic absenteeism on student achievement is heightened for students with low socioeconomic status. Chronic absenteeism also raises sociological, health, and economic concerns. Sociologically, students who are chronically absent more frequently have greater behavioral issues that include disengagement and alienation. Health concerns for chronically absent students are due to their engagement in health-risk behaviors, such as smoking, alcohol, and drugs. Economically, chronically absent students tend to face future economic hardships, such as unemployment (Gottfried, 2014). Some successful practices to reduce chronic absenteeism include communicating with families about attendance, celebrating good attendance, and connecting chronically absent students with community mentors (Sheldon & Epstein, 2004).

Response to Research Questions

Research Question 1: What is the strength and direction of the relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables?

The results of the Pearson Correlation show there was a statistically significant (p<.000) moderate negative relationship between chronically absent students and Grade 6-8 ELA NJ ASK scores (r = -.540). This indicates that as the percentage of chronically absent students increases, there is a decrease in Grade 6 through 8 ELA NJ ASK scores.

When controlling for student and school characteristics using simultaneous multiple regression, the model summary provides an R^2 of .886, which indicates that 88.6% of the variance in Grade 6 through 8 ELA NJ ASK scores can be explained by the student and school characteristics which include length of school day, percentage of chronically absent students, school size, percentage of students with LEP, percentage of students with disabilities, and percentage of students with low socioeconomic status. The percentage of students with low socioeconomic status contributed 61.6% of the explained variance to the overall model, which was the largest contribution. The percentage of disabled students contributed 1.6% of the explained variance to the overall model. The percentage of students with LEP contributed only .8% of the explained variance to the overall model. The percentage of chronically absent students contributed .9% of the explained variance to the overall model, which was a weak contribution. The predictor variables school size and length of school day were not statistically significant.

The hierarchical regression model measured the influence of each of the predictor variables on the Grade 6 through 8 ELA NJ ASK scores separately. In Model 4, the final model, the percentage of students with low socioeconomic status had a significant effect on the contribution of the percentage of chronically absent students (decreased from 14.3% in Model 3 to .9% in Model 4), percentage of students with LEP (decreased from 20.4% in Model 3 to .8% in Model 4), and percentage of students with disabilities (from

4.2% in Model 3 to 1.7% in Model 4). The percentage of students with low socioeconomic status contributed 62.6% to Model 4.

The null hypothesis was rejected because there was a statistically significant relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in ELA when controlling for student and school variables. Rejecting the null hypothesis leads to the conclusion that even though chronic absenteeism significantly influences student achievement on the ELA NJ ASK, the influence is weak. School administrators should pay attention to chronic absenteeism, but expensive initiatives to reduce chronic absenteeism should not be implemented.

Research Question 2: What is the strength and direction of the relationship between chronic absenteeism and Grade 6, 7, and 8 school-level aggregate NJ ASK scores in Mathematics when controlling for student and school variables?

The results of the Pearson Correlation show there was a statistically significant (p<.000) moderate negative relationship between chronically absent students and Grade 6 - 8 Mathematics NJ ASK scores (r = -.505). This indicates that as the percentage of chronically absent students increases, there is a decrease in Grade 6 through 8 Mathematics NJ ASK scores.

When controlling for student and school characteristics using simultaneous multiple regression, the model summary provides an R^2 of .796, which indicates that 79.6% of the variance in Grade 6 through 8 Mathematics NJ ASK scores can be explained by the student and school characteristics of length of school day, percentage of chronically absent students, school size, percentage of students with LEP, percentage of students with disabilities, and percentage of students with low socioeconomic status. The

percentage of students with low socioeconomic status contributed 55.6% of the explained variance to the overall model, which was the largest contribution. The percentage of disabled students contributed 2% of the explained variance to the overall model. The percentage of students with LEP contributed only .5% of the explained variance to the overall model. The percentage of chronically absent students contributed .6% of the explained variance to the overall model, which was a weak contribution. The predictor variables school size and length of school day were not statistically significant.

The hierarchical regression model measured the influence of each of the predictor variables on the Grade 6 through 8 Mathematics NJ ASK scores separately. In Model 4, the final model, the percentage of students with low socioeconomic status has a significant effect on the contribution of the percentage of chronically absent students (decreased from 11.8% in Model 3 to .5% in Model 4), percentage of students with LEP (decreased from 17.2% in Model 3 to .5% in Model 4), and percentage of students with disabilities (from 5.2% in Model 3 to 2.4% in Model 4). The percentage of students with low socioeconomic status contributed 56.4% to Model 4.

The null hypothesis was rejected because there was a statistically significant relationship between chronic absenteeism and Grade 6, 7, and 8 school level aggregate NJ ASK scores in Mathematics when controlling for student and school variables. Rejecting the null hypothesis leads to the conclusion that even though chronic absenteeism significantly influences student achievement on the Mathematics NJ ASK, the influence is weak. School administrators should pay attention to chronic absenteeism, but expensive initiatives to reduce chronic absenteeism should not be implemented.

Research Question 3: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

When the six predictor variables (school size, percentage of students with disabilities, percentage of students with low socioeconomic status, percentage of students with LEP, percentage of chronically absent students, and length of school day) were considered together, the percentage of chronically absent students' variable was not statistically significant. School size (odds ratio .998) was a statistically significant predictor variable, which indicates a one (1) unit increase in school size reduces the probability of meeting proficiency on the NJ ASK ELA by .2%. The percentage of students with low socioeconomic status (odds ratio .935) was also a statistically significant predictor variable, which indicates a one (1) unit increase in a school's low socioeconomic population reduces the probability of meeting proficiency on the NJ ASK ELA by 6.5%.

The null hypothesis was retained because the probability of a school meeting state- required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant. Retaining the null hypothesis leads to the conclusion that while chronic absenteeism is a factor school administrators need to be aware of, the probability of a school meeting state- required Grade 6, 7, and 8 aggregate ELA proficiency levels if their reported chronic absenteeism levels meet the preferred state levels cannot be determined.

Research Question 4: What is the probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels?

When the six predictor variables (school size, percentage of students with disabilities, percentage of students with low socioeconomic status, percentage of students with LEP, percentage of chronically absent students, and length of school day) were considered together, the percentage of chronically absent students' variable was not statistically significant. The percentage of students with low socioeconomic status (odds ratio .957) was the only statistically significant predictor variable, which indicates a one (1) unit increase in a school's low socioeconomic population reduces the probability of meeting proficiency on the NJ ASK Mathematics by 4.3%.

The null hypothesis was retained because the probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels is not statistically significant. Retaining the null hypothesis leads to the conclusion that while chronic absenteeism is a factor school administrators must pay attention to, the probability of a school meeting state-required Grade 6, 7, and 8 aggregate Mathematics proficiency levels if their reported chronic absenteeism levels meet the preferred state levels cannot be determined.

Recommendations for Policy

The single most influential factor, and in fact the only one that has any significant effect on a school's level of academic achievement based on the findings reported here, is the socioeconomic level of the school's student body (Coleman et al., 1966). Based on

research over several decades, the achievement gap due to low socioeconomic status has remained a problem in the U.S. education system. A growing concern for the low socioeconomic status of students has not provided solutions to the problem in schools across the country. The socioeconomic status achievement gap is a societal problem rather than an individual one (Huang, 2015).

Race continues to be a critical factor in academic achievement in the United States. On average, minority students lag behind their White peers in academic achievement. The minority students that tend to have low academic achievement are more likely to live in low-income households, attend schools that are underfunded, and have parents that are less educated. All of these factors are linked to socioeconomic status and academic achievement (Sirin, 2005). According to Lam (2014), students in families whose income is less than one-half of the poverty level, score between 6 and 13 points lower on standardized tests. This research and a myriad of previous research continue to confirm the fact that society is failing to provide equal educational opportunities for students with low socioeconomic status. To improve the academic achievement of students with low socioeconomic status, policy decisions at the local, state, and federal levels must aim at providing more support for this at-risk group of students. One means of increased support for at-risk students includes providing more financing to schools in urban areas that have a high concentration of students with low socioeconomic status (Sirin, 2005).

In the United States, family socioeconomic status determines school financing because nearly half of all school funding is based on property taxes within a school district. Districts with limited local funds are compensated within the state, but the

additional financial support still fails to create financial equity between school districts. The current school financing policies create a situation where students who come from families with low socioeconomic status are likely to attend schools that are financially inferior to schools in wealthier school districts. Implementing a policy to provide financial equity among all schools does not solve the problem because students with low socioeconomic status do not live under circumstances that are positive comparable to wealthier students. Students who live in poor school districts are typically exposed to violence, homelessness, illegal drug trafficking, and limited social services (Parrish, Matsumoto, & Fowler, 1995). "To address these social and educational inequalities, policymakers should focus on adequacy—that is, sufficient resources for optimal academic achievement—rather than equity as a primary education policy goal" (Clune, 1994, p. 390). New Jersey has been progressive in implementing policies to address the unequal funding issue through the School Funding Reform Act in 2008, which is reviewed every three years. Currently the Governor of New Jersey has proposed an increase in statewide support for education to ensure that no school district will receive less state aid in 2016 than the amount received during the school year 2014-2015 (NJDOE, 2016).

In Huang's (2015) research on socioeconomic status, the researcher "found that increased school-allocated learning time was significantly related to higher student achievement in mathematics and science, and that better learning climate predicted better achievement in all three subjects—mathematics, science, and reading" (p. 25). School administrators should consider implementing a policy to lengthen the learning time for key subjects, especially in schools with a large population of students with low

socioeconomic status. Increased learning time may also provide the additional support needed for students who are chronically absent. School administrators must also work with the school community to provide a learning climate suited for better academic achievement.

Socioeconomically disadvantaged students also lose ground academically during the summer, while wealthier students make academic gains. The cumulative effect of summer learning loss, more than any other factor, creates a wider achievement gap between students with different socioeconomic backgrounds. The disparity is so large that school-year education reforms cannot correct the problem. Policymakers should focus on providing funding for summer academic programs in addition to the academic programs offered during the school year. The national, state, and local policymakers must view education as a year-round commitment (Leefatt, 2015).

Even though research shows that socioeconomic status is a strong factor that influences student achievement, it is not the only factor that influences student achievement. According to Gottfried (2014) stakeholders agree that chronic absenteeism is highly correlated with educational decline. Chronic absenteeism is a problem that can be fixed with analysis of the right data and an early start at identifying the students who are at risk (Chang & Jordan, 2011). Currently, schools put a lot of effort into collecting metrics that track schoolwide attendance rates and student level attendance. The presence of chronic absenteeism can easily be hidden by high schoolwide attendance rates (Chang, 2010).

> Suppose, for example, a school has 100 students, and, on average, 95 percent show up every day. In other words, on any given day, five

> students are absent while 95 are in class. The same five students, however, are not absent for all 180 days. Rather, it is quite possible that the school is serving 30 students who take turns being absent. But added up for each student, those absences could equal each one missing a month or more of school over the course of the school year. If this is the case, then 30 percent of the students are chronically absent, even though the average daily attendance rate is relatively high (Chang, 2010, p. 48).

School administrators should implement a policy that requires the continued use of attendance data, but in conjunction with the collection of information on the reason behind chronic absences. Gathering more detailed information will allow policymakers to better monitor students who are at risk of facing the negative consequences associated with chronic absenteeism (Gottfried, 2014). Examining chronic absenteeism by grade and classroom can provide information to use to target specific students for intervention.

Attendance has been shown to be a predictor of academic achievement levels. Specifically, higher attendance rates are associated with higher achievement levels, while lower attendance rates are associated with lower achievement levels (Finck, 2015). Regular school attendance is foundational to student success, but chronic absenteeism remains a common and serious problem (Kearney & Graczyk, 2013). Research shows that in the year 2015 about 10% of New Jersey's K-12 population were chronically absent (Zalkind, Coogan, & Sterling, 2015). To address the issue, policymakers should reconsider the definition of school attendance to incorporate chronic absenteeism, which is when a student is not present for 10% of the school year for any reason (includes unexcused and excused absences). Monitoring chronic absenteeism provides a unique

and critical perspective on the overall spread of attendance in schools (Gottfried, 2014). The research-based threshold for students being absent for 10% of the school year to be considered chronically absent allows for easy comparisons across districts and promotes earlier identification of students to trigger intervention (Data Quality Campaign, 2014). Historically, New Jersey school administrators viewed absenteeism primarily through their districts' and schools' average daily attendance. It is important to continue to monitor average daily attendance; however, this average can mask the scope of the absenteeism problem because it fails to identify the population of students who are chronically absent (Zalkind et al., 2015). Based on the definition of chronic absence, missing 10% of the school year, chronic absenteeism can also be a misleading metric to monitor. For example, if 25% of the students in a school miss 15 days out of a 180 day school year, these students are not considered chronically absent and the school will meet the state-mandated target of having 6% or less of the student body chronically absent. Yet missing 15 days of schools can also lead to lower student achievement.

In the 2011-2012 school year, the chronic absenteeism metric was collected and reported on the NJ School Performance Reports for elementary and middle schools for the first time (NJDOE, 2013). In New Jersey for the school year 2013-2014 approximately 14% of high schoolers were chronically absent, which indicates that chronic absenteeism is also a problem for high schools; yet the NJDOE has chosen not to report chronic absenteeism at the high school level (Zalkind et al., 2015). A chronic absenteeism rate of 6% or less was chosen by the NJDOE as the target all schools must meet on their NJ School Performance Report. But the NJDOE does not state how the chronic absenteeism rate of 6% or less was chosen as a target. The 6% or less chronic

absenteeism rate may not be the optimal rate that predicts the point at which student performance is impacted.

Chronic absenteeism not only impacts students, but it also impacts teacher performance. Chronically absent students place a burden on the teacher to catch the student up on missed lessons and assignments while still advancing other students in class. While chronic absenteeism impacts all teachers across subjects and grade levels, it is most challenging for math and reading teachers. In math, concepts build upon one another in a logical way so that a student must master one concept that will then support learning a future concept. In reading, some chronically absent students lack the resources at home to continue developing their reading skills when they are absent. Chronic absenteeism not only places constraints on teachers' instructional time but it impacts teacher effectiveness. Yet, measures of teacher effectiveness neglect to take into consideration student attendance. All student scores, including the scores of chronically absent students, are included in the evaluation of teacher effectiveness. Chronic absenteeism can impact teacher performance evaluations and inform decisions school administrators make regarding assignments, professional development, and growth/improvement plans (Finck, 2015). School administrators should consider implementing a policy for taking the level of chronic absenteeism into consideration when evaluating teachers.

Policymakers should require local officials to designate funding to local universities to research best practices for handling chronic absenteeism. The barriers to school attendance should also be identified by researchers. Local officials should require schools to have an attendance team that focuses on improving the attendance of at-risk

students. One example of these initiatives is the work done in the Baltimore public school system, where the mayor provided funding to the American Civil Liberties Union of Maryland and the Charles Hamilton Houston Institute for Race and Justice at Harvard University Law School for research. Attendance teams were also created in the Baltimore school districts known as the Baltimore Attendance Initiative (Chang & Jordan, 2011).

Recommendations for Practice

The community, teachers, school administrators, and students must begin to think about education differently. Education should be considered a privilege and not a right. Parents and educators must instill in students appreciation for the opportunity to attend school. The Coleman Report clearly states that the attitudes and values students learn from home, their peers, and the environment are more dominant in their lives than the attitudes and values learned in school. If the community could influence our children to have the mind-set that schooling is a privilege, a gift to be cherished, teachers and school administrators can do a better job of educating students (Towers, 1992). In order to meet the needs of all students, schools may need to take some of the focus off the academic side and "college readiness" rhetoric and begin to look more closely at vocational skills.

Research shows that students with low socioeconomic status in the early school years face long-lasting negative consequences. As students with low socioeconomic status get older, the situation tends to worsen. Some of the long-term consequences include unsuccessful attempts to enter the job market or post-secondary education institutions (White, 1982). Unfortunately students with low socioeconomic status routinely attend the weakest, overcrowded, and segregated schools. In urban schools that have a majority of students with low socioeconomic status, student achievement is low.

In urban schools, two-thirds or more of students perform below the basic level on national tests (Jackson & Davis, 2000).

> As a nation . . . we face a paradox of our own making. We have created an economy that seeks literate, technically trained, and committed workers, while simultaneously we produce many young men and women who are semi-literate or functionally illiterate, unable to think critically and untrained in technical skills, hampered by high-risk lifestyles, and alienated from the social mainstream (Jackson & Davis, 2000, p. 10).

Research shows that many students who attend urban schools have double-digit absentee rates, with approximately 8% of these students labeled as chronically absent. School-based intervention is key to reducing chronic absenteeism. Research shows that school districts that have a plan to deal with chronic absenteeism are more effective at reducing chronic absenteeism (Teasley, 2004). School administrators should address the attendance issue by implementing activities focused on involvement, not negative punitive activities. Investing in strategies that promote regular attendance of all students can be effective, such as cultivating a school culture in which every student is expected to attend school regularly. Conducting parent workshops that explain the importance of attendance can also be effective by facilitating open communication between school administrators and parents. Another non-punitive activity is to intervene with students who are at risk of chronic absence by initiating phone calls to parents to learn about attendance barriers and develop a plan to improve attendance. For students who are chronically absent, individualized and intensified support is necessary by integrating community-based services and resources (Finck, 2015). Out-of-school activities targeted

towards chronically absent students that engage students in before- and after-school programs can improve school attendance. In some cases students who are chronically absent require the school to make a connection with social services and case management to resolve issues related to their chronic absence (Attendance Works, 2014).

Students with higher socioeconomic status reach higher levels of academic achievement. Having peers with higher socioeconomic status does not benefit each student equally. Students with high socioeconomic status may share some resources (i.e., technological items) publicly, but they commonly share most resources privately. Students with high socioeconomic status have the financial, human, social, and cultural resources that lead to learning opportunities beyond what the school system can provide for students. Unfortunately, simply placing students with low socioeconomic status amongst students with high socioeconomic status is not a solution to the lower academic achievement of students with low socioeconomic status (Chiu & Chow, 2015). School administrators should consider diversity when implementing school programs, so that all students are exposed to positive social and cultural learning opportunities as a standard school practice.

Research shows that chronic absenteeism has a negative impact on student achievement, high school graduation, and college attainment rates, and ultimately impacts the social and economic vitality of students, families, and communities (Finck, 2015). School administrators should involve parents and the community in supporting the improvement of student achievement. Schools and parents must collaborate to establish effective communication between home and school (Jackson & Davis, 2000). Reforms to increase academic achievement that focused exclusively on the school have had limited

success, which raises the possibility that educational deficits may be related to factors in the home (Fishel & Ramirez, 2005). City agencies, volunteer organizations, church groups, foundations, and parents can all support schools in reducing chronic absenteeism. Mayors can even provide support by creating task forces that work to bring the community together (Chang & Jordan, 2011). Reducing chronic absenteeism requires a comprehensive, community approach that involves business leaders, social service, health, community representatives, and families working in tandem with school administrators (Finck, 2015). It is imperative that school administrators make community involvement a school practice.

Many school districts are making an effort to reduce chronic absenteeism through intervention. One example is the school district in Paterson, New Jersey. The school district developed a community action plan that focused on implementing best practices for attendance. The main actions that took place included getting mentors, implementing a walk-to-school program, and student and classroom attendance incentives. The school district was able to decrease chronic absenteeism by 76%. Reducing chronic absenteeism must be a community effort that includes school administrators, teachers, and parents. Each member of the community is important and can make a difference in students' overall school success (Zalkind et al., 2015).

School, family, and community support can decrease absenteeism. Communicating with families about attendance, celebrating good attendance, and connecting chronically absent students with community mentors measurably reduces chronic absenteeism (Sheldon & Epstein, 2004). One model of a mentoring program that school administrators can use is the School-Based Mentoring Program for At-Risk

Middle School Youth that was created by the National Institute of Justice. The program is aimed at reducing unexcused absences among at-risk middle school students. The program holds weekly one-on-one mentoring sessions over 18 weeks during nonacademic times in the school setting (NIJ, 2016). Another model of a mentoring program that was announced February 19, 2016, is the My Brother's Keeper (MBK) Success Mentors initiative. The Department of Education and Johns Hopkins University are working together to reduce chronic absenteeism by providing at-risk students with mentors. The initiative will begin with 10 participating cities, with the closest participating city to New Jersey being New York. The mentoring model is expected to succeed because of its use of research and data to drive the initiative (Office of the Press Secretary, 2016).

Implementing a schoolwide system of incentives and rewards for good attendance is another tool that can be used to reduce chronic absenteeism. Incentives must be part of a comprehensive approach focused on creating a schoolwide culture that emphasizes attendance and academic achievement. The incentives do not have to be costly. Simply recognizing only good attendance amongst peers through assemblies and certificates can be a powerful motivator. School administrators should avoid only recognizing good attendance by also recognizing improved attendance. Rewarding an entire class for the best monthly attendance with a pizza party, for example, is a way to encourage students to feel accountable to each other for attendance. Interclass competition can also prove to be a powerful motivator (Attendance Works, 2016). For students with a history of chronic absence, a personalized welcome to school can also be a powerful motivator (Attendance Works, 2014).

Healthy lifestyles and academic achievement are related; improvement in health leads to improvement in academic achievement. School administrators should focus on providing a safe and healthy school environment as part of improving academic performance. Schools, in partnership with the community, should support the physical and mental health of the students by providing a safe and caring environment (Jackson & Davis, 2000). Students who feel safe and cared for will be more likely to attend school regularly.

Absenteeism not only affects individual students but can impact all students in the classroom. As teachers work to provide additional support to students that missed too many school days, other students receive less attention and the educational pace can slow down (Zalkind et al., 2015). For students with a history of chronic absence, school administrators can assign them an "attendance buddy," which can be a staff member or community volunteer. The attendance buddy can be used to check in with the student daily, call home when the student is absent, and refer families to needed resources when necessary (Attendance Works, 2014). When practical, school administrators should also consider providing extra support in classrooms where high rates of chronic absenteeism exist among the students.

To change the course of chronic absenteeism, school administrators need to think differently. Using data to drive decisions and practices is a critical part of addressing chronic absenteeism. Data can be used to identify chronically absent students as well as students who are at risk of missing too much school (Zalkind et al., 2015). Ginsburg et al.'s (2014) research shows that school districts should send chronic absenteeism data—broken down by grade, school, and other indicators—to principals and teachers regularly

so that they can address barriers to attendance and reach out to students who are chronically absent. School administrators should be able to respond to the findings from the data and implement preventive strategies to improve attendance.

Recommendations for Future Research

This research served to look at the influence of chronic absenteeism on the Grade 6, Grade 7, and Grade 8 school-level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables. This study cannot provide all of the answers related to chronic absenteeism and student achievement. Future studies are required to enhance the literature. Recommendations for future studies are listed below.

1. Design a study to survey school personnel to get their opinions concerning the cause of chronic absenteeism.
2. Design a study to survey students to get their opinions concerning the causes of chronic absenteeism.
3. Design a case study on school districts that have exceptional student attendance to determine how they maintain high student attendance rates.
4. Design a study to survey parental attitudes toward student attendance.
5. Design a study to examine additional variables that may impact student attendance; i.e., student aptitude, student age, and parent education.
6. Design a study to examine student perceptions that may impact student attendance; i.e., perceived relationships with teachers and perceived value of attending school.

7. Design a longitudinal study that includes data for elementary, middle, and high school students to examine the impact of student attendance on current and future academic performance early in students' education experience.
8. Design a study to examine both the ability to influence attendance and the cost of attendance intervention programs.
9. Replicate this study to examine the influence of chronic absenteeism on other elements such as dropout rate.
10. Design a similar study that incorporates a multi-level modeling design where school level data would be considered Level 1 of the analysis and a socioeconomic grouping factor (i.e., DFG, peer grouping, etc.) would be used for Level 2 of the analysis.
11. Replicate this study in other states taking into consideration other states "chronic absenteeism" threshold in comparison to New Jersey's 6% threshold.
12. Replicate this study at the high school level where graduation rate serves as the dependent/outcome variable.
13. Replicate this study at other grade levels (i.e., elementary, high school, etc.) in New Jersey and other U.S. states.

Conclusions

Based on the literature reviewed, research, and statistical analysis conducted in this study, socioeconomic status is the most significant factor that influences academic achievement on the Grade 6, 7, and 8 school level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables. Unfortunately, socioeconomic status is a problem that school administrators cannot control.

Chronic absenteeism was found to also influence academic achievement on the Grade 6, 7, and 8 school level aggregate NJ ASK scores in ELA and Mathematics when controlling for student and school variables; however, that influence or association based on the findings reported here was found to be weak. In the 2013-2014 school year nearly 1.3 million K-12 students attending New Jersey public schools were chronically absent. In New Jersey school districts that had high rates of absenteeism, the average rate of chronic absenteeism was 16%, which is much higher than the target of 6% or less. The high percentage of chronically absent students in New Jersey has led the NJDOE to monitor this statistic; but based on the results of this study, monitoring chronic absenteeism can be misleading. Schools that meet the 6% or less target for chronic absenteeism may still have a large population of students who miss school regularly. Further research should be done to determine the optimal rate, which may be different from 6% or less, at which chronic absenteeism has a stronger impact on student performance on the Grade 6-8 ELA and Mathematics NJ ASK.

Students with low socioeconomic status in New Jersey represented 55% of chronically absent students in the 2013-2014 school year. This study also found there is a moderate relationship between the percentage of chronically absent students and the percentage of students with low socioeconomic status. The absences of students from low-income families are attributed to the challenges of their everyday life, such as unstable housing, community violence, exposure to drug use, and inadequate health services (Zalkind et al., 2015). Since there is a relationship between chronic absenteeism and socioeconomic status (an uncontrollable factor) eliminating chronic absenteeism is challenging.

Research shows that schools can predict which students will be chronically absent early in the school year. Chronic absence in a previous year is a signal that a student will be chronically absent again. Research also shows that poor attendance in the first month of school can also predict chronic absence for the school year. Preventing chronic absenteeism is challenging, but there are strategies that school administrators can implement to reduce chronic absenteeism. When school administrators examine chronic absenteeism, they should make it a priority to focus on at-risk students in grades, schools, and neighborhoods with high levels of chronic absenteeism. Identifying chronically absent students early in the school year is important to the success of reducing chronic absenteeism. Schools need to connect with students and families to promote preventive, supportive approaches to handling chronic absenteeism. Support from the community is also necessary to motivate students to show up for school. Offering students and families a role in improving attendance is essential to engage students with school and promote positive relationships within the school community (Attendance Works, 2014).

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