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The Influence and Predictability of Socioeconomic Factors on the 2018 PARCC Middle School ELA Scores in New Jersey

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THE INFLUENCE AND PREDICTABILITY OF SOCIOECONOMIC FACTORS ON THE 2018 PARCC MIDDLE SCHOOL ELA SCORES IN NEW JERSEY

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Abstract

This quantitative study is nonexperimental, utilizing socioeconomic, community, and district data to determine what influence and level of accuracy of prediction is made on standardized testing in New Jersey. This study focuses on middle school students in Grades 6, 7, and 8 in New Jersey's traditional public schools. The study design is a quantitative correlational predictive study design. SES factors for each district were identified using both U.S. Census data and NJDOE district data. Independent variables include percentage of poverty, percentage of single-parent families, education level of parents, percentage of free and reduced price lunch. The dependent variables include: 2018 ELA Grade 6 score, 2018 ELA Grade 7 score, and 2018 ELA Grade 8 score for proficiency (Level 4 + Level 5) results. Hierarchical multiple regression analysis was used for all grade levels, testing for correlation and productiveness between all predictor variables and the student achievement scores as measured by the 2018 PARCC results for middle school students in New Jersey. The two predictor variables, bachelor's degree or higher and free and reduced price lunch (FRPL), were both statistically significant with high correlational values in the study. Nonetheless, using all variables outlined in this study provided the greatest predictability for each grade level. This study also confirmed predictability on average 60% of the results of standardized testing utilizing readily accessible and relevant data for our middle school students. The predictability measure in this study is important, as it will provide meaningful data and information to inform decision-makers about the influence of the socioeconomic, community, and district variables.

Keywords: socioeconomic factors, middle school, academic achievement, ELA, PARCC

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Dedication

I dedicate this dissertation to my late brother, Ronald Eugene Jones, who inspired me to continue to learn, develop, and grow, not only in educational pursuits but also in life and as a mother, daughter, sister, and aunt and to keep family first. His favorite scripture and mine:

Philippians 4:13 *(NKJV)*
"I can do all things through Christ who strengthens me"

I would also like to dedicate this dissertation to my mother, Mrs. Joyce Marion Riddick Jones, and my son, Julian Xavier Jones. Mom, you always told me as a young child to go to college and get a good education, pursuing higher education and teaching students as you did. Julian, I pray that you will be encouraged to strive for excellence and know that I will always be your biggest cheerleader. To my immediate family and friends who gave me constant encouragement, Kimberley, Kadeer, Tiffani, Khalfani, and Quran, I appreciate all of your understanding, patience and positivity. To my grandmother Ernestine Riddick who always told me to continue to learn and stay in school as she did, being the only sibling to achieve secondary school success. To my late father, Charlie Jones, Jr., who gifted me with the talents in math and analytics. To Kim, my big sister, who always gives me great advice and support. To Brittany H., Christina V., Michelle J., and Christina P. who always gave me positive feedback along the way. To Ron, RDL Styles, who helped me in so many ways with time and family support, but most importantly planting the seed to complete this work. To Kadeer, to whom I pass 'this' torch... and Julian... I hope this dissertation inspires you to continue with your academic endeavors to the highest levels you dream to achieve. Never give up! Lastly, I dedicate this to all of my former students of UCTEAMS who showed me the results of being a caring teacher. I pray that each one of you reach your goals! God Bless.

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Chapter 1: Introduction

Statement of the Problem

According to the National Center for Education Statistics (NCES, 2019), the United States' eighth grade reading achievement level has remained relatively flat, with no significant increase or decrease; however, over the past 25 years, there is a significant difference in reading scores between high and low socioeconomic groups. States like New Jersey must demonstrate academic improvement, or their funds are in jeopardy due to low student performance. Predictability data can solve problems of low school performance and risk of funding to the state.

Historically, in 1983, the U.S. Department of Education authorized the report, *A Nation at Risk,* stating standardized test scores in the United States have declined in the 1960s and 1970s; thus, calling for nationwide reform (Dolezalek, 2009; Phelps, 2005). President Reagan wanted less involvement in public education from the federal government and more accountability from the states. States, like New Jersey, were then required to implement more independent educational policies for standardized testing. They felt pressure to adopt new laws and policies surrounding accountability and ways to measure student progress (Boyd, 2018). This pressure, and fear, began to usher in a plethora of educational reform that included assessment-driven educational policies within the next 20 years (Tienken and Orlich, 2013). Prior research conducted affirms there is a significant difference in reading scores between high- and low-poverty groups (McFarland et al., 2019; Murnane, Sawhill, & Snow, 2012). So, is our nation still at risk?

After the launch of Soviet space satellite, Sputnik, on October 4, 1957, Americans began to believe that their educational system was inferior, and this began a wave of

educational reform to this present day (Tienken and Orlich, 2013). In 1965, the Elementary and Secondary Education Act established that schools in all states would get federal funding if they met certain conditions. In the 1980s, the education laws continued to undergo public scrutiny, which set the baseline for an environment vulnerable to the escalation of standardized testing (Dolezalek, 2009; Phelps, 2005). As a result of the reauthorizations of The Elementary and Secondary Education Act (ESEA), standardized tests were required for states to not only gain additional local and federal funding but also to demonstrate student achievement. Regardless of adequate funding, states, like New Jersey, are being held financially responsible and accountable for administering standardized tests in specific grades (3rd–8th), which demonstrate improvement in student academic performance. Eventually, in 2001, the Bush administration passed the No Child Left Behind (NCLB) Act. The key purpose of NCLB was to ensure that all children have a fair and equal opportunity to obtain a high-quality education and reach proficiency on state academic assessments (No Child Left Behind, 2002). The intention was to close the learning gap between advantaged and disadvantaged students, between wealthy and non-wealthy students, and between minority and non-minority students (Diorio, 2019). This was the most sweeping legislation in our nation's history (Diorio, 2019). Proponents of NCLB felt that this type of testing would help states demonstrate academic improvement in student performance while government agencies monitor states' progress by (1) providing scores that help administrators manage their schools, (2) holding teachers accountable, and (3) motivating students. The opposition to NCLB felt that testing (1) takes time in the classroom; (2) is not the best measure of students' skills and abilities; (3) puts unfair demands on students and teachers; and (4) requires states to report test results, a duty that will, at times, involve a conflict of interest and incentivize cheating.

Why would states consider cheating in reporting test results? The widespread opinion and fear of school closings or losing federal funding and overall demands/pressure to meet the requirements set by adequate yearly progress (AYP). AYP was key as it set the stage for states to set up their own goals for schools and increase standardized testing (The Education Trust, 2004). If schools did not meet their AYP progress goals they would be designated as "failing" schools. Thus, students would have the option to transfer to another school. The financial impact of school failure and closure is devastating to students and communities. School expenditures classified by function include instruction, instructional support, administration, student support, operations and maintenance, and transportation and food services. The largest gains in instruction and student support would have a profound impact on students and their families if schools closed as a result of being designated as a "failing" school. Overall, school expenditures per pupil rose consistently during the 20th century and continue to rise in the 21st century (Odden & Picus, 2008). During both good and bad economic times, national educational expenditures have grown even when adjusted for inflation, although there are small improvements in academic performance (Odden & Picus, 2008). Although there is little quantitative research about the effects of school closings, conclusions that researchers can agree on include the negative impact on displaced students and the neighborhoods in which they live (American Bar Association, 2016). The negative impact to students ranged from academics to social–emotional issues. Students with special needs may have services delayed or interrupted for a period of time while the new school has to schedule and begin new evaluation procedures for students with IEPs and 504 Plans. As outlined in the Individuals with Disabilities and Education Act (IDEA) (IDEA, 2004) and the Americans with Disabilities Act (ADA, 1990), students with disabilities have the right to receive predetermined services, and school closings

cause a major disruption of those entitled services. Furthermore, students transferring to a new school may encounter bullying and violence or simple struggles with fitting in to the new school climate and culture. Additionally, teachers of these students are often unprepared to handle the influx of new students, and more time and resources are needed to effectively classroom manage large class sizes. All having a negative impact on student achievement and intensified mobility rates, moving students around due to closings may do more harm than good. The impact of school closing is strongly felt in urban school districts across the nation. Some examples include 23 school closings in Philadelphia in 2013; 49 school closings in Chicago in 2013; and several school closings in Newark, NJ, in recent years. Also, Washington, DC, closed 23 schools in 2008, the largest in history at that time, and more than 20 schools announced as closures just 4 years later, all having a disproportionate impact on communities that serve low-income and minority students. These communities become weak from hurt businesses and reduced property valuations. The districts are left to sell closed school buildings or find alternative means if possible, or they simply remain vacant, where crime and vandalism occur in poor neighborhoods. Therefore, states and districts were expected to make any and all necessary policy changes to prevent school failures. Meeting AYP in full by 2014 was just one of the controversial educational policy changes of NCLB (Dolezalek, 2009; The Education Trust, 2004; Phelps, 2005). This school level accountability measure provided clearly defined goals for schools ensuring they were on target for teaching all students and demanding proficiency on state assessments. Regardless of low SES or high SES, schools were accountable for the success of all students, including low-income students.

Nevertheless, the main opposition to NCLB is that it relied too heavily on standardized testing (Blake, 2010; Dolezalek, 2009). This, combined with the requirements set by AYP,

was the impetus to the standardized testing controversy. With the consequences of students' poor academic performance and possible loss of federal funding and negative reputation, the term *high stakes* testing was born. Historically, standardized testing did not force accountability (e.g., standardized test results were used to improve instruction and not change the course of a student's life). By 2003, all states were involved in some form of high stakes testing (Dolezalek, 2009; Thomas, 2005). By definition high stakes testing is testing in which there are good and bad consequences associated with passing or failing a test for the school and test taker. The outcomes can bear important consequences for schools, students, their parents, and our American society in general. High stakes tests can determine a district's success or future (Thomas, 2005; Tienken and Orlich, 2013).

One of the major factors affecting academic achievement on high stakes tests is socioeconomic status (Berger & Archer, 2016; Coleman et al., 1966; Onder & Uyar, 2018; Sirin, 2005; Stull, 2013; White, 1982; Yelgün & Karaman, 2015). Socioeconomic status (SES) is an economically and sociologically combined total measure of a person's work experience and a person's family economic and social position in relation to others, as well as household income, earner's education and occupation (U.S. Department of Education [USDOE], 1996). Historic research in the past decades has shown there is a direct and indirect link between socioeconomic status and student achievement (Coleman et al., 1966; Cunningham & Sanzo, 2002; Jimenez, 2001; Maylone, 2002; Ramburuth & Härtel, 2010; Valencia & Villarreal, 2003; White, 1982; Wilson, 2009).

Nevertheless, the debate continues as to the effectiveness of high stakes testing (Baker & Johnson, 2010; Thomas, 2005). Although every state is complying with NCLB to have a test in place to measure students' learning, the current research continues to examine the impact of

socioeconomic status (SES) on student achievement. Research conducted over the past 20 years recognizes a relationship between socioeconomic status variables and student achievement (Angelillo, 2015; Berger & Archer, 2016; Caldwell, 2017; Crosnoe, 2009; Maroun, 2018; Maylone, 2002; Önder & Uyar, 2018; Sirin, 2005; Stull, 2013; Tienken et al., 2017; Watson, 2012; Yelgün & Karaman, 2015). These research studies have all explored whether or not there is a positive relationship between specific socioeconomic and community factors and academic achievement as measured by standardized tests in diverse school levels and districts in multiple states.

Reading comprehension is the foundation for all other learning (Readworks, 2019). Therefore, reading comprehension is critical to success for primary learners, particularly middle school students, as they prepare for high school academia. The impact of low socioeconomic status on high stakes testing is greatly seen in language arts literacy results in New Jersey (NJDOE, 2019). Over the past 4 years, NJ Partnership for Assessment of Readiness for College and Careers (PARCC) English language arts (ELA) data have shown a huge disparity between students who are economically disadvantaged and those non-economically disadvantaged students. Current NJ middle school test scores indicate economically disadvantaged students are consistently outperformed by non-economically disadvantaged students in high stakes testing outcomes at the middle level grades (six through eight) in New Jersey (NJDOE, 2019). Likewise, on a national reading level, almost all U.S. students can "read" by third grade, if reading is defined as proficiency in basic procedural word-reading skills (Reardon, Valentino, & Shores, 2012). However, reading for comprehension, the ability to integrate background knowledge and contextual information, and making sense of a text requires more than just word reading skills. Reading for comprehension requires a set of

knowledge-based competencies that are critical when taking English language arts literacy standardized tests.

By the standards used in various large-scale literacy assessments, only about a third of U.S. students in middle school possess the knowledge-based competencies to "read" in this more comprehensive sense (Reardon et al., 2012). By the time U.S. students complete middle school, a large proportion of them will not have mastery of the necessary knowledge-based competencies needed in high school and throughout adulthood (Reardon et al., 2012). Furthermore, on the most recent report from the National Assessment of Educational Progress (NAEP), only 34% of eighth-grade students were able to read and comprehend text proficiently, which is lower compared to 2017 (NCES, 2019). The high number of students who fail to read proficiently, coupled with increasing expectations that students read more complex texts, underscores the pressing need for solutions to our nation's reading comprehension problem (Fogarty et al., 2014).

In 2015, New Jersey's Department of Education (NJDOE) replaced its old high stakes state assessment, NJ Assessment of Skills and Knowledge (NJASK), with the Partnership for Assessment of Readiness for College and Careers (PARCC). PARCC is a consortium made up of 22 states serving approximately 24 million students at its inception. PARCC assessments were the new trend of assessments sweeping the nation as many states adopted the Common Core Curriculum Standards (CCSS) as well. The PARCC assessments are aligned to the Common Core State Standards (CCSS) and were created to measure students' abilities to apply their knowledge of concepts rather than memorizing facts. In English language arts (ELA), students are required to closely read multiple passages and to write essay responses in literary analysis, research tasks, and narrative tasks (NJDOE, 2019).

Proponents of the PARCC highlighted the tests' rigor, international benchmarking appeal, and consistent implementation and test of common curriculum across the board, regardless of geographic or socioeconomic status (NJDOE, 2019). Nevertheless, students from lower socioeconomic backgrounds, with all or some combination of the relevant variables (households in poverty or low income levels, lower parental education, single-parent families, and/or participating in free and reduced price lunch) have not met state expectations for the PARCC exam for over 4 years (NJDOE, 2019).

Notwithstanding the above facts and previous research, this study will determine what influence and predictability, if any, high- and low-socioeconomic communities have on student achievement as measured by the 2018 PARCC ELA scores in Grades 6, 7, and 8 in New Jersey.

Purpose of the Study

The purpose of this correlational, explanatory, and quantitative study was to examine the influence of SES factors, community, and district factors, such as poverty rates, single-parent households' rates, parent education levels, and districts' free and reduced price lunch rates, on middle school student achievement in New Jersey utilizing PARCC data results – ELA in Grades 6 through 8.

Existing research focuses on SES factors in NJ: on Grade 3 NJASK test scores (Turnamian, 2012), on Grade 8 NJASK test scores (Angelillo, 2015), and on Grade 10 ELA and Algebra I assessments of high school PARCC data (Maroun, 2018), but none have reviewed and analyzed SES factors and their influence on middle school grades using PARCC data. These researchers all agree that this is an area of need. Maroun recommended a study utilizing PARCC results in various grade levels to determine which combination of out-of-district

community and family-level demographic variables, if any, predict student performance on the PARCC. Likewise, Wolfe (2016) also recommended a study in New Jersey to determine which combination of community and family-level demographic variables found in the U.S. Census data can combine to best predict PARCC assessment results and if these results would provide any significant information regarding student achievement. Another purpose of this study was to extend the research on socioeconomic factors and middle school achievement of Tienken et al. (2017) that proved language arts outcomes as measured by the NJASK tests from years 2010–2012 in Grades 6 – 8, were influenced by factors outside of school and can be predicted with a good deal of accuracy by family and community demographic factors. The general problems remain that there is a need to increase reading and literacy achievement in the United States; there is a significant divide between disadvantaged and non-disadvantaged students in ELA scores in NJ middle schools; there is an opportunity to identify specific socioeconomic factors that influence student achievement at this level in NJ; and this study will provide the predictability data required to support the administrators, policy makers, teachers, parents, and families in their endeavor to ensure students reach academic success in the 21st century. While we know and understand that SES factors have an impact on student achievement, we do not know the extent of that impact to ELA outcomes for middle school students in NJ. Therefore, the fact that no study of SES impact and influence on middle school students in NJ has been studied using PARCC data for ELA outcomes is a primary concern for this undertaking because it is an area of need. With today's educational climate focusing on student growth outcomes and test results, identifying educational strengths and opportunities of middle school students with language arts needs is critical for educational intervention, particularly, for language arts strategies that may improve academic performance in middle school students.

Research Questions

The research questions and null hypotheses addressed in this study are outlined below. The level of socioeconomic status of the student, the family demographic and parent education level, community and district data are all independent variables. The academic achievement identified by proficiency in PARCC test scores for Grades 6 through 8 English Language Arts (ELA) are the dependent variables in this study.

Research Question 1:

Is there a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 6 and socioeconomic, community, or district variables?

Null Hypotheses 1:

There is no statistically significant or predictive relationship between 2018 New Jersey PARCC test scores in ELA Grade 6 and socioeconomic, community, or district variables.

Research Question 2:

How accurately can socioeconomic, community, or district variables predict a student's performance of Meeting expectations or Exceeding expectations on the 2018 New Jersey PARCC Grade 6 ELA test?

Research Question 3:

Is there a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 7 and socioeconomic, community, or district variables?

Null Hypotheses 2:

There is no statistically significant or predictive relationship between 2018 New Jersey PARCC test scores in ELA Grade 7 and socioeconomic, community, or district variables.

Research Question 4:

How accurately can socioeconomic, community, or district variables predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 7 ELA test?

Research Question 5:

Is there a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 8 and socioeconomic, community, or district variables?

Null Hypotheses 3:

There is no statistically significant or predictive relationship between 2018 New Jersey PARCC test scores in ELA Grade 8 and socioeconomic, community, or district variables.

Research Question 6:

How accurately can socioeconomic, community, or district variables predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 8 ELA test?

Independent Variables

The independent variables in this study include the following socioeconomic factors of a district and community: the poverty percentage level of the district, single-parent families, parental education and district levels of free and reduced price school lunch. These variables are used as inputs into the multiple regression analysis and hierarchical regression analysis, which include the following district level census factors and NJDOE data:

- Percentage of poverty
- Percentage of single-parent households
- Parental education level - no high school diploma
- Parental education level - high school graduate and some college
- Parental education level - bachelor's degree or higher
- Percentage of free and reduced price lunch

Dependent Variables

The dependent variables in this study include 2018 PARCC test scores in ELA for Grades 6, 7, and 8. These data were obtained from the NJ Department of Education website (NJDOE, 2019). These data were downloaded and cleaned to represent only traditional NJ public schools, eliminating any private, charter, regional, or renaissance schools.

Assumptions

There were several assumptions made concerning the NJ PARCC ELA tests for Grades 6,7,8 and their administration by teachers and staff. The assumptions made were: (a) that all scores and test results were accurately reported to NJDOE, (b) that all students were tested in

the same manner under the same conditions, (c) that all teachers taught the required language arts literacy curriculum standards, and (d) that the tests are valid and reliable for measuring student academic achievement. Likewise, similar assumptions are made concerning the ACS Census data such as, the data are accurately tabulated and that the data from resident and community members were furnished accurately to the Census Bureau.

Study Design – Methodology

The study design is a quantitative correlational predictive study design. SES factors for each district were identified in the census data. Regression analysis using the independent variables were tested for correlation and predictiveness to the dependent variables. Only districts with all SES factors available are used to determine the best equation for prediction. The correlational coefficient was analyzed to determine the strength and direction of the relationship between each independent and dependent variable. Then hierarchical multiple regression determined the level of influence of the independent variables on the dependent variables. The study had a high sample size to ensure a stronger more solid predictability.

Significance of the Study

It is known that the socioeconomic level of the family has a profound effect on the success of students (Yelgün & Karaman, 2015). Children of single-parent households, particularly female-headed single-parent families, have the greatest direct impact on academic achievement of adolescents (Watts & Watts, 1992). School districts located in low-socioeconomic communities tend to receive an inferior education versus those in higher SES districts (Turnamian, 2012). Thus, this study tested these factors and analyzed the influence of each in NJ's middle schools utilizing the standardized PARCC test scores.

The findings of this study will benefit the middle school community in several ways. The ELA predictability data will help middle level administrators make more informed decisions about assessments and develop interventions that promote reading and literacy achievement in Grades 6–8. This can be accomplished through shifting resources as needed toward enriched professional development opportunities for district teachers. The ELA predictability data will also help administrators and teachers focus on the need for high-quality, research-based methodologies and programming that have a proven track record for providing effective instruction and curricula designed to build better readers. The ELA predictability data will provide more meaningful evidence to help state and local officials and policy makers with standardized testing decisions and local alternative considerations to improve existing educational practices in assessment. The research conducted herein will provide the necessary data to make a significant contribution to the lives of students in becoming better readers and literary communicators in middle schools in New Jersey.

Limitations and Delimitations

Limitations. The data retrieved from the U.S. Census Community reports and by the New Jersey Department of Education used in this study were limited to the accuracy of those reporting agencies and the standardized tests administration of the PARCC as well as the community member completing the census and forecasters who made future assumptions based on the data. This study examined the relationship between socioeconomic status, community and district factors—utilizing six factors including poverty, single-parenthood, parental education levels, and free and reduced price lunch— and middle school student achievement on the PARCC ELA test in Grades 6, 7, and 8 in New Jersey. No other variables were used in this

study. The PARCC scores are from 2018, the most current year of data available from the test in New Jersey.

Delimitations. This study was delimited to only students participating in the tests for ELA in Grades 6, 7, and 8 in the school districts analyzed. Only traditional public schools were used and not charter schools, private schools, or renaissance schools. Scores reported by schools who participated only in this state standardized test in NJ and no other schools outside the state.

Definition of Terms

- *Adequate Yearly Progress (AYP)* refers to annual goals that schools, districts, or states set for improvement of student test scores established by NCLB (2002).
- *PARCC* refers to the Partnership for Assessment of Readiness for College and Careers, a consortium that implemented a standard set of K–12 assessments in Mathematics and English, based on the Common Core State Standards.
- *Socioeconomic status (SES)* is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position in relation to others based on household income, earners' education, and occupation, as well as combined income, whereas for an individual's SES only their own attributes are assessed (USDOE, 1996).

Organization of the Study

Chapter 1 outlines the overview of the purpose of the study through the problem statement and research questions. Also, Chapter I provides background information regarding standardized testing and the aforementioned socioeconomic factors.

Chapter 2 provides a more comprehensive literature review of the history and context of educational policy, standardized testing, and socioeconomic factors, as well as the theoretical framework as it relates to the approach or system of learning and student achievement.

Chapter 3 explains the methodology and quantitative data analysis goals for this study. In addition, Chapter 3 provides detailed information about the instrumentality and data analysis.

Chapter 4 presents statistical findings of the quantitative analysis in this study. Chapter 5 reports the conclusions and recommendations for policy, practice, and future research with suggestions for educational assessment alternatives and policies/practices that support the theoretical framework.

Chapter 2: Review of the Literature

Introduction

SES is one of the most widely used variables in education research as researchers continue to examine educational processes and student achievement (Sirin, 2005). The first major study of this kind, conducted nearly 40 years ago by White (1982), laid the groundwork for SES studies and academic achievement that later followed. White conducted a meta-analysis to examine measures of socioeconomic status and student achievement. In this meta-analysis of 101 studies, White concluded that the relationship between socioeconomic status and student achievement is statistically significant. Moreover, there is a higher correlation between these variables when aggregated versus using student-level data alone. Since then, many variations of socioeconomic factors and academic achievement measures have been studied. Variation of socioeconomic factors include parent income, parental education, and parental occupation as the three main indicators of SES (Gottfried, 1985).

The meta-analysis by Sirin (2005) attempted to provide a review of studies published from 1990 to 2000. Sirin found a medium correlation between SES and academic achievement but found a strong positive impact on academic achievement from SES-relevant parental factors. These trends are still seen today. Current research examines the relationship between SES factors and academic achievement at different grade levels and wide-ranging standardized test instruments from many states (Angelillo, 2015; Caldwell, 2017; Jimenez, 2001; Maylone, 2002; Pereira, 2011; Watson, 2012; Wolfe, 2016), again, showing a strong nexus between socioeconomic indicators and the learning outcomes of students. Therefore, the goal of this literature review is to identify the gaps or areas of opportunity for further research.

The research recommends the conduction of further tests to examine the complex nature of the relationship of SES with academic achievement. Of the aforementioned studies, those conducted in New Jersey identify specific SES factors that have had a direct, positive correlation with academic achievement at various levels. The specific SES factors range from family characteristics, community characteristics, and school district characteristics. Further research of New Jersey achievement outcomes demonstrated a gap in middle school achievement between economically disadvantaged and non-economically disadvantaged students in ELA test scores (NJDOE, 2019). With reading comprehension being one of the most important 21st century skills, there is clearly a need for an analysis of the relationship between SES factors and middle school ELA assessment.

This study focused on a combination of SES factors not yet coupled together for research at the New Jersey middle level; those being family characteristics (single-parent family structure and parental education levels), combined with community characteristics (poverty level), and school district characteristics (free and reduced price lunch). There is a need for a meaningful analysis of student achievement in ELA in New Jersey middle schools influenced by these specific characteristics.

Literature Review Purpose

The purpose of the literature review is to identify the great amount of research that covers the history to present of the relationship, if any, between socioeconomic status and academic achievement. The literature review also emphasizes the conceptual framework, the history and advantages/disadvantages of testing in America, New Jersey's standardized test, middle school learning environment, and socioeconomic factors used in this study. The research proves that the

variables used in this study, namely, poverty and income, single-parenthood, parental education, and free and reduced price lunch, are recommendations for inclusion.

Literature Review Procedures

This literature review was guided by the research questions. Utilizing search engines, websites, and online archives provide a mass amount of research material for the literature review (Krathwohl & Smith, 2005). The following online databases were used in the search for dissertations and topic-related information: EBSCCOhost, ERIC, and ProQuest. Peer-reviewed scholarly articles, books, dissertations, educational research journals, reports and studies were also reviewed. The word search terms included: *socioeconomic status (SES), socioeconomic factors, academic achievement, student achievement, middle school, junior high, English language arts, ELA, standardized testing, high stakes testing,* and *PARCC.* Google Scholar was also used to conduct general searches on socioeconomic facts and middle school student achievement. References cited by other researchers were used to ensure a comprehensive literature review.

Theoretical Framework

Ecological systems theory (EST) was the primary theoretical framework used in this study. It has been used to explain a range of phenomena including urban adolescent psychological and academic outcomes (Neal & Neal, 2013). The framework can support recommendations to empower teachers, families, and children in the education system. Bronfenbrenner (1994) applies it in the context of complexity with learning and child development as it relates to assessment. Bronfenbrenner defined context as a rich, thick,

multidimensional construct consisting of five layers: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Bronfenbrenner explained that within each layer are developmental processes unique to it. EST first appeared as the philosophical basis for the federal Head Start Program for low-income children (Caldwell, 2017). Cross and Cross (2017) explored this system in greater context to students in various systems and stages in education focusing on the three innermost systems: the individual plus micro- and macro- layers. In this study, however, the distinction of all five layers are made and correlated to the stages of students' external interaction and development.

The microsystem represents a child's family and siblings and immediate physical home environment. The mesosystem represents the neighborhood, school, church, and parks. This addresses the most important context within the child and between child and environment (Aldridge, Sexton, Goldman, Booker, & Werner, 1997). The exosystem represents parent–guardian workplace, fire department, welfare system, police, health care, and other forms of family social support as examples. The macrosystem is the outermost layer and includes the local, state, and national government narratives, ideologies, and social policies. Lastly, the chronosystem is the dimension of time and the changes that occur along the child's life. These systems are all interrelated and interact with the child's learning at a level where socioeconomic factors come into play to shape the child's development and educational achievement (Neal & Neal, 2013).

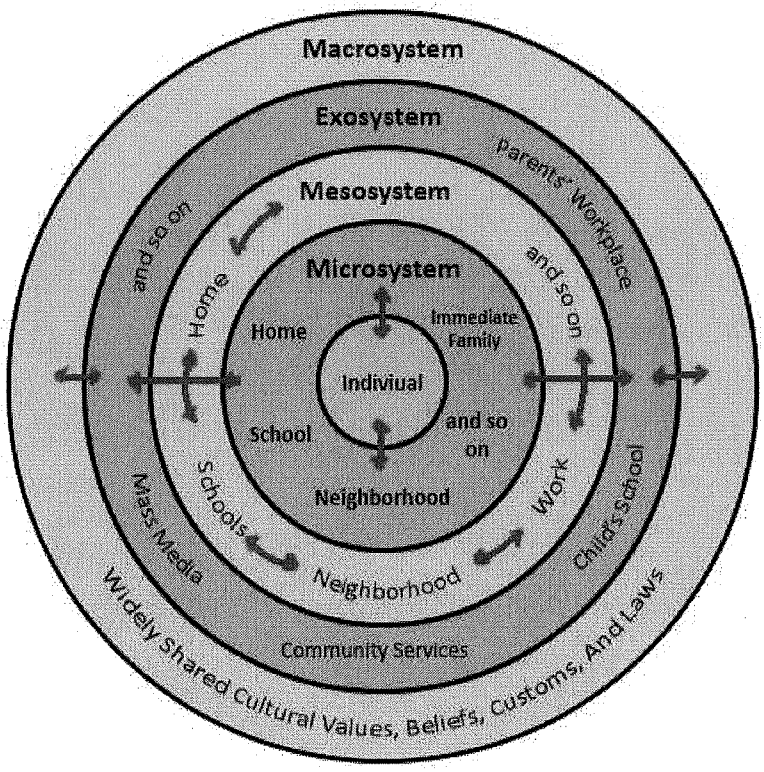


Figure 1[MOU32]. Ecological system of human development.
SOURCE: Model of Ecological Systems Originally Proposed by Bronfenbrenner (1979)
(Picture scanned from Psychology Wiki Bioecological Model, https://psychology.wikia.org/wiki/Bioecological_model#)

With the child at the center of the system, this depiction Figure 1 of Bronfrenbrenner's ecological systems theory illustrates all the supporting subsystems surrounding each student and how the family, school district, community, and education system all interplay to create dynamic interrelationships with the child. The school and home are both part of the child's microsystem and mesosystem as the microsystem refers to the relationship between the child and their immediate environment. This would include the immediate family or parents, and teacher or classmates, for example. However, in the mesosystem, family members, school programs, and the neighborhood are also in play here, which are not immediate to the child but demonstrate the linkages between the individual microsystems. Meanwhile, each subsystem provides a source of learning and support for the child. The socioeconomic factors of influence and predictability

measured in this study will provide meaningful data and dialog with family members, parents, teachers, principals, superintendents, and other key stakeholders on methodologies to increase student achievement.

Middle School History and ELA

Junior high schools originated as far back as the early 1900s due to the desire to improve the organization of elementary and high schools (McGorry, 2009). For more than 50 years, the middle school movement in the United States has endured a painstaking trajectory of student advancement and progress during periods of identity search, pedagogy review, and pressure to compete internationally (Schaefer, Malu, & Yoon, 2016).

The middle school movement, showcased by decades of changes starting from the early 1960s to present day, provide a historical review and analysis of the importance of curriculum, instruction, and assessment. The first decade of the middle school movement, 1963 to 1979, was a time of change from the original junior high school views to a new identity, a new name, and a new definition of what is meant by middle school. This time period focused on identifying and defining middle school in theory and practice. The next decade, 1980 to1989, the middle school movement advanced in regards to policy development. This included unique practices and pedagogy from team teaching, school counseling, block scheduling, student engagement, to interdisciplinary curricula. During this time period, *A Nation At Risk* was introduced, declaring that American schools were failing (USDOE, 1983). As a result, policies and practices were changed at the middle school level as well. The number of middle schools grew from 1,000 to 5,000 from 1968 to the beginning of this decade (Schaefer, Malu, & Yoon, 2016). The report from the commission also called for longer school days, more school days, and high teaching standards (USDOE, 1983). This middle school decade focused on exploring concepts

and new ideas involving interdisciplinary curriculum content, team teaching, and recognition of diverse needs of the students. Some of these concepts included using the computer for learning and instruction, increased professional development for teachers, and continued research in teaching practices and strategies after the commission's report. The next 9 years of the middle school movement, 1990 to 1999, brought hope. During these 9 years, the Elementary and Secondary Schools Act was reauthorized (ESEA, 1965), bringing an increase in funding to help low-income students, increase access to technology, and support schools with accountability. The change in middle school practices primarily in advising, cooperative learning, teaming, and engaging students dominated this decade and continued to be the focus as curriculum was still a controversial issue. Demands for a dynamic curriculum was popular to be highly engaging and integrated with multidisciplinary themes. At the start of the new millennium, from 2000 to 2009, the middle school movement developed a blueprint for high-achieving middle schools. As a result of NCLB and the accountability that came with it—measuring outcomes and increased standardized testing—the middle school movement successfully responded with creating model schools.

The model or ideal middle school of the 21st century demonstrated all the elements of middle school, not just in name, but in definition. These elements included responsive curriculum, advisory, block scheduling, exploratory courses, and teaming. This shared vision emphasizing curriculum, instruction, assessment, professional development, parenting, and community spread. However, some aspects were not enduring, such as Advisory. Advisory sessions began in middle schools in response to the social and emotional issues faced by adolescents. Advisory was also used to build strong teacher–student relationships. Advisory was a separate curricular session for students where they focused on moral development and moral judgment topics. Students had more opportunities to engage in discussions about their own

feelings and choices and consequences of their actions. In order to build the whole middle school community, middle-level students transitioning to middle level schools participated in Advisory, making the transition a good experience for all. However, Advisory changed in its role supporting students in part due to standardized testing. Pressure from test taking and preparation for standardized tests were on the rise. Thus, the advisory needs spread to various student needs and socio-cognitive needs in classrooms in a decentralized manner.

One popular and positive trend is within the flexibility in the middle school structure where ELA curriculum can be successfully scheduled to a larger block of time in efforts to extend learning activities and integrate reading and English. The goal of the middle school structure is to create a learning environment that matches the developmental abilities and needs of adolescents (Johnson & Johnson, 2008). The research surrounding cooperative learning and literacy instruction in middle level education has provided effective strategies to support student learning of young adolescents by matching instructional techniques to the unique characteristics of students in this age group. This age group desires more control and decision-making. The effective instructional techniques that allow independence, greater peer orientation, and self-consciousness include cooperative grouping. As aforementioned reports show that more needs to be done in literacy and reading in middle school, researchers Maehr and Anderman (1993) have created an exemplary model for redesigning instruction. This Tasks Autonomy Recognition Resources Grouping Evaluation Time (TARRGET) model integrates reading and English classes, whereas the student enhances literacy skills including reading, comprehension, and writing altogether (see Figure 2). Another effective model is the student team reading and writing (STRW) model, which has had success in urban middle school environments. The STRW model was utilized in a study by Stevens (2003) involving five urban districts in the eastern United States with a majority population of minority groups from low-socioeconomic families (Johnson & Johnson, 2008).

The main concepts of instituting STRW included:

Reading Instruction

1. Literature-related activities – using American literature anthology as the source for reading selections
2. Partner reading – students read silently first and then read orally with their partner
3. Comprehension of the selection – provide written activities that focused on comprehension of the structure and content
4. Word mastery activities – provide vocabulary instruction of new or difficult words given prior to students reading the selections
5. Summarizing the main points of the selection – students and their partners summarize main points of the stories to enhance comprehension and retention
6. Selection-related writing – students write extended responses to the story or a part of the story
7. Reading comprehension strategy instruction – the teacher provides direct instruction on reading comprehension strategies and study strategies

Writing Instruction

1. Writing concept lessons – teacher provides instruction and models on styles and techniques of writing
2. Integrated language arts lessons – teacher provides lesson on language mechanics and language usage

The results of the study concluded that students using the STRW program had significantly higher achievement in reading vocabulary, reading comprehension, and language expression than those students who did not participate when measured by the California Achievement Test (CAT; Johnson & Johnson, 2008). The instructional program was developed using the TARRGET model, which was "developmentally appropriate, instructionally engaging and motivationally stimulating" to the middle school students according to the researcher (Johnson & Johnson, 2008).

Figure 2. The TARRGET model for redesigning instruction in cooperative learning.
Source: Maehr, M. L., & Anderman, E. M. (1993). Reinventing the middle school for early adolescents: Emphasizing tasks goals. Elementary School Journal, 93, 593–601.

We continue to see in the current decade, 2010 to present, more research and new pedagogical practices develop. These practices and ongoing research support the need for increased proficiency in language arts. As we investigate the past years of measurement of middle level

students in subjects such as English language arts (ELA), we find differences between international, national, and local standings. The United States joined The International Reading Literacy Study (IEA) in 1989 after the publication of *A Nation at Risk* in 1983. As a result, the U.S. participated in reading literacy studies in comparison to other nations. International standings in the mid-1990s were deemed mediocre at best in reading comprehension, expository comprehension, and narrative comprehension (NCES, 1996). Fast forward 25 years, the 2011 report from The National Center for Education Statistics (NCES, 2011) reported the National Assessment of Educational Progress (NAEP) results. The report showed that 24% of students in both Grades 8 and 12 performed at the proficient level in writing in 2011 (NCES, 2011). Further, 54% of eighth graders performed at the basic level, and only three percent of eighth graders scored advanced proficient (NCES, 2011). More recently, in 2019, NAEP reports the average reading scores for eighth grade students were lower in 2019 compared to 2017 (NCES, 2019). Although there is no significant difference in the scoring trend from a decade ago or from 1998, recent results have decreased (NCES, 2019). Over the long term, higher performing students made gains, while the lower performing students made no significant progress on a national level (NCES, 2019). Therefore, the national statistical data prove there is a widening gap in achievement levels between the high and low achievers as outlined in Figure 3 below. This research will analyze the influence and predictability of several factors that may assist locally, in New Jersey, which is analogous to national concern.

Decreases across performance distribution; greater decreases at the 10th and 25th percentiles.

Year	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2019	213	240	266	289	309
2017	219*	245*	269*	291*	310*
2015	220*	244*	268*	290	308
2013	223*	246*	269*	291*	310
2011	221*	244*	267	289	307*
2009	219*	243*	267	288*	305*
2007	217*	242*	265	287*	305*
2005	216*	240	265*	286*	305*
2003	217*	242*	266	288*	306*
2002	220*	244*	267	288*	305*
1998	216	241	266	288	306*
1998[1]	217*	242	267	288	305*
1994[1]	211	236*	262*	286*	305*
1992[1]	213	237*	262*	285*	305*

Figure 3. Grade 8 Reading.
SOURCE: Grade 8 Reading scores across all performance distributions. From the Nation's Report Card (NAEP, 2019).

Studies continue to show that socioeconomic disparities in literacy skills are growing (Reardon et al., 2012). New Jersey's students labeled socioeconomically disadvantaged continue to lag behind in ELA scores as compared to the non-socioeconomically disadvantaged (NJDOE, 2019). During the transition to the departmentalized structure of Grades 6 through 8, literacy instruction is disconnected from content instruction for many students (Murnane et al., 2012). We must do more to improve the literacy of disadvantaged children in middle school. There is a growing demand for strong literacy skills, and researchers have identified the challenge of improving literacy at the middle school level (Murnane et al., 2012).

Thus, the literature confirms the need for more research in this area between literacy and socioeconomic factors. This study will lend a hand to the need for these revelations in teaching and learning practices of students with academic needs and parental support solutions for

schools in New Jersey that show a significant influence on ELA outcomes due to specific socioeconomic factors.

High Stakes Testing History in the United States

High stakes testing is defined as testing in which there are consequences associated with passing or failing a test for the test taker. The timeline for testing dates back to 2200 BCE when the Chinese first used testing for literacy when identifying the social status in Chinese society and eventually for civil-service exams (Dolezalek, 2009; Thomas, 2005). By the year 1000, early universities and colleges began to require students to pass tests to earn advanced degrees. Universities such as Italy's University of Bologna, England's Oxford University, and Belgium's Louvain University and Cambridge, to name a few, required students to pass oral examinations to determine eligibility for an academic degree (Thomas, 2005). Next, military organizations utilized tests for entrance exams and to test wartime soldiers. By 1865, the achievement-test program of New York State, the Regents examination system, was first administered as a high school entrance exam and 13 years later as a high school end-of-course exam in 1878. In the early 1900s tests just determined whether school children needed more help in school. Later these tests were used to determine high school graduation status and college admission. Due to educational policy changes over the decades and after NCLB, the Regents were reformed to align with current law and curriculum guidelines and administered their first Common Core aligned test in 2013 to Grades 3 to 8 in ELA and Math.

In 1947, Educational Testing Service (ETS) was formed to administer the SAT, the first precollege entrance examination, later followed by American College Testing (ACT) non-profit agency in 1959 (Dolezalek, 2009). Eventually, Congress created laws and policy regarding testing requirements and encouraged states to meet higher educational standards. Our most recent law,

Every Student Succeeds Act (ESSA) passed in 2015 under President Barack Obama and replaced the former, controversial NCLB act. There are some similarities between NCLB and ESSA: They both hold states accountable for goals and targets; however, they differ in how they test, support struggling learners, and report requirements. The ESSA provides more flexibility to states to determine which standardized test would be in place annually, for example.

Thomas (2005) reports that the wake-up call for Americans came when international comparisons of achievement tests began to be made in the late decades of the 20th century. This brought a new educational movement that served as the impetus of the formation of the International Association for the Evaluation of Educational Achievement (IEA). Many nations joined the IEA and began a series of assessments in reading, mathematics, science, literature, civic education, and other foreign language subjects. Students were selected by representative sampling techniques from over 32 countries initially to nine-year-olds and fourteen-year-olds.

Nicknamed "the academic Olympics" the IEA test results received international attention, and the average scores of participants in every participating country were reported (Thomas, 2005). The tests were conducted in the 1960s, 1980s, and 1990s. Forty-one countries and over 500,000 students participated in the Third International Mathematics and Science Study (TIMSS). It was described as the largest, most comprehensive and rigorous of the three (Thomas, 2005).

Unfortunately, the outcomes for the United States were disappointing. It was revealed that American middle-school students only averaged 500 in math and 534 in science, which was far below other leading nations. The general public and political leaders in the United States, being the most powerful country in the world, were disturbed that American students performed badly (Thomas, 2005).

To remedy the problem, high-stakes testing held schools accountable for producing better educated students would be enforced (Diorio, 2019). States began adopting statewide

standards and testing programs quickly in the early years of the 20th century (Diorio, 2019). The big step came when the U.S. Congress authorized a major revision to the 1965 Elementary and Secondary Education Act (ESEA; Diorio, 2019). On January 8, 2002, President George W. Bush signed the revised act into law as his administration's solution, with the motto "No Child Left Behind" (Diorio, 2019; Phelps, 2005). Our most recent law, Every Student Succeeds Act (ESSA) passed in 2015 under President Barack Obama and replaced the former, controversial NCLB act (Every Student Succeeds Act, 2015). There are some similarities between NCLB and ESSA: They both hold states accountable for goals and targets; however, they differ in how they test, support struggling learners, and report requirements. The ESSA, for example, provides more flexibility to states to determine which standardized test would be in place annually. Laws and new policies shaped ongoing educational reform in the United States more than ever before (Blake, 2010).

Advantages and Disadvantages of Standardized Testing

States are under pressure to implement assessment programs that meet NCLB legislation and ESEA reauthorizations. The stipulations are that all students in Grades 3 through 8, and in high school must be tested annually in reading and mathematics. Blake (2010) argues that these assessments lack sufficient accuracy in identifying meaningful growth in the content standards, which they are supposedly tied to. Further, with this limitation, the assessments are questionable on their merit to use annually. Therefore, Blake continues, the use of assessments for accountability is questionable.

Moreover, the classification of test results is basic, proficient, and advanced. This differs from many educational settings, which classify results as failing/needs improvement. These differences in reporting results is another controversial issue because they lead to ambiguity. The labeling does not support students' performance-level classifications and are unclear labels of the

student's real performance level. The disparity in reporting test results among varied groups of students with low socioeconomic status, minority groups, special and diverse needs, demonstrate a lack of consistency across students. Eventually these inconsistencies reach state levels, and low performers in the proficient category cause the states that are perceived as having low-performing students, as evaluated both nationally and locally at low levels, to risk reduced funding. There are other considerations in the standardized testing policies that are controversial such as peer evaluations of state assessment programs (Blake, 2010; Tienken & Orlich, 2013).

Former President Barack Obama introduced Race to the Top (RTTT) in the ESSA (USDOE, 2009). RTTT is a $4.35 billion federal competitive investment in school reform in the United States (USDOE, 2009). Through RTTT, the Department of Education asked states to advance reforms around four specific areas by: (a) adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy; (b) building data systems that measure student growth and success, informing teachers and principals about how they can improve instruction; (c) recruiting, developing, rewarding, and retaining effective teachers and principals, especially where they are needed most; and (d) turning around our lowest achieving schools (USDOE, 2009).

Awards in RTTT went to states that were leading the way with ambitious yet achievable plans for implementing coherent, compelling, and comprehensive education reform. The winners helped usher in reforms and provide leading examples for states and local districts to follow. With ESSA requirements of adopting new and rigorous academic standards, many states adopted the Common Core State Standards (CCSS) to meet the requirements set forth in the RTTT grant applications (USDOE, 2009). This competitive grant process provided states with the opportunity to gain federal funds while adopting a new curriculum standard that was standardized across the nation, introducing and implementing a new assessment system: Partnership for Assessment of

Readiness for College and Careers (PARCC) and re-evaluating evaluations system for teachers and principals (USDOE, 2009).

History of PARCC and High Stakes Testing in New Jersey

PARCC is a consortium of states working together to develop a set of assessments that measure whether students are on track to be successful in college and careers (NJDOE, 2019; Phelps, 2005). In response to the passing of No Child Left Behind Act of 2001 (NCLB), New Jersey also implemented changes. Under NCLB, states were required to test students in Grades 3 through 8 and at least once in high school. The NJ Department of Education submitted a waiver for application to the U.S. Department of Education to increase its own accountability system by providing support and intervention to the state's lowest performing schools and those with the largest subgroup gaps (NJDOE, 2019). Due to the new testing requirements of NCLB, New Jersey's State Board of Education adopted the Common Core State Standards (CCSS) in English language arts/literacy and mathematics in 2010 (NJDOE, 2019). In the subsequent year, New Jersey joined the Partnership for Assessment of Readiness for College and Careers (PARCC) consortium (NJDOE, 2019). The next 3 years of preparation for the PARCC allowed officials, administrators, and teachers the time needed to prepare resources and augment test practices.

New Jersey's response to this change in assessment for all districts in New Jersey came with a new change in the assessment tool and in its delivery. The new PARCC tests were relatively electronic in nature; expected to have high rigor; and were based on new content standards that would assess student achievement in language arts literacy, mathematics, and specific grade levels in science. Although this new next generation of assessment was met with controversy, it was implemented in the 2014-2015 academic year across the state. In 2015, New Jersey revised its state curriculum standards to achieve higher expectations for all students. The next year, the state Board

of Education adopted the revised mathematics and English language arts standards and changed the name of all to become the NJ Student Learning Standards (NJDOE, 2019).

The PARCC assessments, now in place for New Jersey, are aligned to high-level thinking skills and were created to measure students' ability to increase application of their knowledge and skills to concepts. In English language arts (ELA), students are required to perform at a higher level involving more literary analysis and perform research and narrative tasks (NJDOE, 2019). The ELA and math scores for provided and scaled according to the five performance levels below (PARCC, 2019).

The performance level needed to reach Performance Level 2 is 700, for Performance Level 3 is 725, and for Performance Level 4 is 750 for all grade levels/courses in both ELA and mathematics. The scaled score needed to reach Performance Level 5 varies. Students performing at Levels 4 and 5 met or exceeded expectations have demonstrated readiness for the next grade level/course. The ELA constructs measured include reading comprehension, written expression, and knowledge of language and conventions. Results are communicated to students, parents, and school officials, locally and state-wide by the New Jersey Department of Education.

Level 1 – Did not yet meet expectations

Level 2 – Partially met expectations

Level 3 – Approached expectations

Level 4 – Met expectations

Level 5 – Exceeded expectations

In this study, students scoring at Levels 4 and 5 combined are measured to determine overall proficiency in ELA in Grades 6, 7, and 8 for each school district represented. According to federal

and state regulations, New Jersey produces and distributes School Performance Reports annual for each school and district in the state. The Performance Reports reflect the NJ Department of Education's efforts to engage with students, parents, and school communities by sharing school performance information. The March 2019 issuance of reports provide the 2018 NJ School Performance data that are used in this study. Overall, the NJDOE states that their goal in providing school performance data is for communities to learn more, start conversations, and engage with the data and their respective school districts (NJDOE, 2019). The expectation is that these data will help lower performing schools plan and implement strategies for improvement and close student achievement gaps while maximizing performance in high-achieving districts as well.

A review and analysis was conducted in preparation for this study. After careful review of the NJ PARCC performance reports over the last 4 years, the patterns indicate a significant gap in student achievement between economically disadvantaged students and non-economically disadvantaged students (NJDOE, 2019). The following were evaluated from this analysis:

1. All students are increasing in average proficiency annually.
2. Economically disadvantaged students consistently perform below state average annually.
3. Non-economically disadvantaged students consistently perform higher than state average annually.
4. Non-economically disadvantaged students perform on average 31% better on Level 4 and 73% better on Level 5 than economically disadvantaged students.

NJ ELA PARCC Performance 2014-2018 - 4-year comparison

2014-2015	ALL STUDENTS			ECONOMICALLY DISADVANTAGED			NON-ECONOMICALLY DISADVANTAGED		
Grade	Level 4	Level 5	Total	Level 4	Level 5	Total	Level 4	Level 5	Total
6	40	9	49	26	2	28	48	13	61
7	34	18	52	26	6	32	39	24	63
8	39	13	52	29	4	33	45	17	62
Average	37.7	13.3	51.0	27.0	4.0	31.0	44.0	18.0	62.0

2015-2016	ALL STUDENTS			ECONOMICALLY DISADVANTAGED			NON-ECONOMICALLY DISADVANTAGED		
Grade	Level 4	Level 5	Total	Level 4	Level 5	Total	Level 4	Level 5	Total
6	41	11	52	29	4	33	48	16	64
7	36	21	57	29	8	37	40	28	68
8	41	15	56	32	5	37	45	20	65
Average	39.3	15.7	55.0	30.0	5.7	35.7	44.3	21.3	65.7

2016-2017	ALL STUDENTS			ECONOMICALLY DISADVANTAGED			NON-ECONOMICALLY DISADVANTAGED		
Grade	Level 4	Level 5	Total	Level 4	Level 5	Total	Level 4	Level 5	Total
6	41	12	53	30	4	34	48	17	65
7	35	24	59	30	10	40	38	31	69
8	41	19	60	33	7	40	44	25	69
Average	39.0	18.3	57.3	31.0	7.0	38.0	43.3	24.3	67.7

2017-2018	ALL STUDENTS			ECONOMICALLY DISADVANTAGED			NON-ECONOMICALLY DISADVANTAGED		
Grade	Level 4	Level 5	Total	Level 4	Level 5	Total	Level 4	Level 5	Total
6	45	15	60	32	5	37	47	21	68
7	34	29	63	31	13	44	36	38	74
8	40	20	60	34	8	42	43	27	70
Average	39.7	21.3	61.0	32.3	8.7	41.0	42.0	28.7	70.7

* Data taken from the NJDOE Performance Reports, NJDOE website, nj.gov/education

Figure 4. NJ PARCC ELA score patterns over 4 years.

Source: NJ PARCC patterns over 4 years (NJDOE, 2019).

Therefore, a further look into this disparity concerning economically disadvantaged results and the potential factors that influence the results is within the confines of this study. This study is also an attempt to open the doors for solutions and discussions of equity at the NJDOE level.

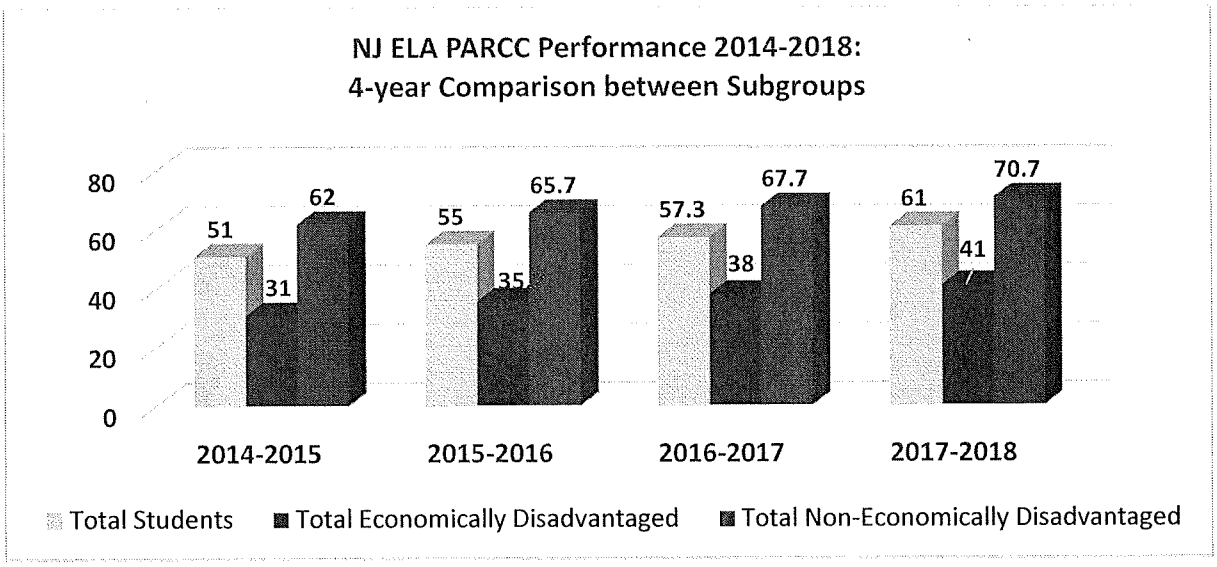


Figure 5. NJ PARCC ELA 4-year comparison between subgroups.

Source: NJ PARCC patterns over 4 years (NJDOE, 2019).

Socioeconomic, Community, and District Factors

Poverty, income and free and reduced price lunch. The prominence of socioeconomic status (SES) in education and its perceived impact on achievement goes back approximately 100 years (Harwell, Maeda, Bishop, & Xie, 2017). The family characteristic that is the most powerful predictor of school performance is socioeconomic status (SES): the higher the SES of the student's family, the higher his/her academic achievement. This relationship has been documented in multiple studies (Dale, 2013; Pelt, 2008; White, 1982) and seems to hold no matter what measure of status is used (occupation of principal breadwinner, family income, parent's education, or some combination of these; Harwell et al., 2017). The socioeconomic status of a family is sometimes measured by education levels of family members, their purchasing power and spending, social circles, their home environment, the number of individuals in the family, and so on (Yelgün & Karaman, 2015). Family income has also been found to be a significant predictor of educational attainment (Watson, 2012).

A study by Harwell et al. (2017) added to the literature by characterizing the adequacy of SES measures to increase statistical power, and the strength of, both, SES measures in identifying a comprehensive set of moderators and the relationship between SES and achievement and whether this relationship has changed over time. Harwell et al. also controlled for the effects of SES, enhanced causality arguments in analyses of achievement data.

The most important finding was that the SES–achievement relationship, assuming a random-effect model, was relatively weak. Thus, the results generally confirm White's (1982) conclusion that the average SES–achievement correlation is weak. However, Harwell et al.'s (2017) findings also suggested that the SES–achievement relationship has, on average, strengthened since 1980 and highlighted with reports from Sirin (2005).

Although the aforementioned studies demonstrate a strong correlation with academic achievement, there are some theories against claiming that SES is a reason for low performance (Armor, Marks, & Malatinszky, 2018). Researchers may find differing results based on the school district, community, and specific socioeconomic family variables used in their particular study. This confirms that ongoing studies using SES factors are needed and relative to the specific purpose of the research questions at hand. Identifying the dimensions of socioeconomic status sheds light on variances. The dimensions can include geographic location, relational factors, parent status, parent education, employment, income, parent occupation and educational attainment, family wealth and ethnicity, school achievement, student attitudes and aspirations (Ramburuth & Härtel, 2010). Significant effects of school socioeconomic composition SES on achievement after controlling for individual student SES were found in a study conducted for North Carolina, South Carolina, and Arkansas. Additional studies of the relationship between SES and academic achievement conducted in Texas have proven a strong direct relationship (Pitts, 2016; Smith, 2018).

Furthermore, another study claims that intelligence predicts scholastic achievement irrespective of SES factors. Colom and Flores-Mendoza (2007) explored whether or not intelligence tests' scores predict individual differences in scholastic achievement irrespective of SES factors such as parents' income and education. Based in Brazil, students participated in both fluid (Progressive Matrices Test) and crystallized (Verbal IQ measured by the WISC-III) tests. This study confirmed that parents' income and education do not predict their children's scholastic achievement. The children's intelligence predicts their own scholastic achievement irrespective of parent income and education. This study also demonstrated low correlation between SES factors and intelligence as well as between SES factors and scholastic achievement. The correlations for the fluid intelligence (Progressive Matrices Test) ranged from .69 to .27. These findings are not

surprising given that the correlations among SES factors and children's intelligence are generally nonsignificant across samples, ranging from .12 to .20 for fluid intelligence. Therefore, more research is recommended to determine the influence and predictability of SES factors on academic achievement as wide-ranging studies and results exist for this phenomenon.

Furthermore, studies performed including free and reduced price lunch as a socioeconomic variable have proven there is a direct correlation with student achievement (Berrios, 2013; Jimenez, 2001; Plotts, 2011). The percentage of students who qualify for free and reduced price lunch are the percentage of the total student population who, based on family income levels, meet federal guidelines for reduced prices for school lunches/meals (Plotts, 2011). In addition, students categorized as economically disadvantaged in New Jersey have been identified as such using the state formula for free and reduced price lunch eligibility (Berrios, 2013). Moreover, the National Center for Education Statistics (NCES) published reports on educational outcomes in reading and math focusing on subgroups where free and reduced price lunch is an indicator of socioeconomic status (Bell, 2014).

The New Jersey Department of Education (NJDOE) follows the United States Department of Agriculture income eligibility guidelines annually to determine student eligibility for free and reduced price lunch. These federal guidelines are based on federal income poverty data. For example, to qualify for free breakfast in the 2018-2019 school year, a family of four could earn no more $32,630 per year and earn no more than $46,435 for a reduced price meal (Hunger Free New Jersey, 2019).

NJ School Breakfast Statewide Snapshot	2010	2018	Change (# or %)
Total Student Enrollment	1,364,495	1,369,715	5,220
Total Students Eligible for Free/Reduced Price Meals	448,306	537,602	20%
% Eligible for Free/Reduced Price Meals	33%	39%	18%
Total Low-Income Students NOT served Breakfast	312,493	313,189	696

Figure 6. NJ School Lunch Program enrollment, eligibility, and service change over 8 years

Source: NJDOE October enrollment counts 2009-10, 2017-18 years, NJ Department of Agriculture participation data from October 2010, and October 2018 and eligibility data from October 2018. Totals include all public schools, including vocational technical, special needs and charter schools.

New Jersey has nearly 540,000 students living in families eligible for free or reduced price meals (NJDOE, 2019). Because of this high number, the New Jersey state legislature enacted a law in May 2018 requiring that all schools with 70% or more students eligible for free and/or reduced price meals implement an "after-the-bell" breakfast program (Hunger Free New Jersey, 2019). This school-level socioeconomic factor has a strong correlation to academic performance (Caldwell, 2017; Pereira, 2011; Sirin, 2005). Therefore, this study will include free and reduced price lunch as a school socioeconomic factor as provided by the school's NJDOE performance reports. This indicator considers family income and family size whereas census data for poverty and income levels do not take into account family size, only income levels.

Single-parent households and parental education. Today's demographic and family structure is ever-changing in the United States (Finn & Owings, 1994; U.S. Census Bureau, 2010). According to the recent census, two-parent families are still the majority in the United States (U.S. Census Bureau, 2010). In the United States, today, there are nearly 13.6 million single parents raising over 21 million children (U.S. Census Bureau, 2010). This is a 50% increase from, or 7 million children more than, 20 years earlier (Finn & Owings, 1994; Yelgün & Karaman, 2015). Some researchers have called student achievement with single parents a national tragedy. In particular, Shreeve (1986) feels that single-parenthood can adversely affect a child's school achievement. Shreeve's study revealed that students of single parents scored lower than their two-parent counterparts on California Achievement Tests administered to middle through high school students in a rural Washington State school district in 1984. He reported that single-parent students consistently performed less well than children of two-parent homes (Shreeve, 1986).

Single-parent children have a higher drop-out rate, undergo more discipline referrals, and are more prone to suicide and drug and alcohol abuse than children from two-parent households. Working single parents often have less time to spend interacting with their children with things such as homework, or simply reading to their children (Jaskolka, 1995). Barbee (2010) points out that parent involvement in student education declines when children transition to the middle school level. At this level, and high school, more involvement is needed to support adolescent behaviors and learning (Cappella, Schwartz, Hill, Kim, & Seidman, 2019; Ho Sui-Chu & Willms, 1996).

Parental involvement is clearly a key to success for students. Parents who play an active role in their child's educational activities consistently see results in higher school performance (Barbee, 2010; Blank, 2016; Shreeve, 1986). One study in particular emphasizes this point further. Jaskolka (1995) investigated the relationship between specific status and process variables within single-parent household and the academic achievement of the single-parent children. The study

examined several variables within single-parent household such as parenting style, parent income and education levels, number of children within the household, and job satisfaction of the single parent. It investigated whether a relationship existed between these variables and what effect, if any, these variables had on the academic achievement of the single-parent children.

Single parents, or dual-parent households alike, offer children an environment where education may or may not prioritize educational activities. If parents provide a supportive learning environment for their child, the child will have a more positive outcome with learning at home (Davis-Kean, 2005). Still, a review of the literature overall revealed that single-parent children are not as successful academically as children from two-parent families. More research is recommended in this area as many positive examples of single-parent households have strong meaningful relationships to student outcomes.

Many studies have examined the role that family income include a child's education, yet parent education plays a key role in a child's education as well (Davis-Kean, 2005). Literature on achievement has also shown that the education level of parents is important in predicting children's academic achievement. Research has indicated a positive relationship between education level of the parents and student performance. Also, variables closely related to level of parental education such as income and occupation have been shown to have a positive association with a student's mathematics achievement (Watson, 2012).

Parents' education does influence a child's achievement indirectly through the beliefs and stimulating home behavior of the parent. Single parents, or dual-parent households alike, offer children an environment where education may or may not prioritize educational activities. If parents provide a supportive learning environment for their child, the child will have a more positive outcome with learning at home (Davis-Kean, 2005). Among the SES factors, the second highest is mother's education, then father's occupation (Harwell et al., 2017). This places more

emphasis on the mother playing a pivotal role in the child's education and providing a supportive home environment. If the mother, or parent(s), does not provide a supportive home environment, the child may not have a positive outcome for homework, school projects, or completing basic assignments such as reading. Parental behaviors such as modeling and encouraging literacy and math skills at home enhance the child's experience at home (Harwell et al., 2017). Further, parental beliefs in education and their experiences lay the foundation for setting educational expectations for their children. For example, parents will set high educational expectations for their children when they have a strong belief in the education system and in their school district. If parents experienced educational activities such as going to museums or libraries, they will encourage similar academic expectations with their children and their schools. A study conducted by Davis-Kean (2005) revealed that the amount of parent education has a direct impact on the home environment as well as how the parent interacts with the child in promoting academic achievement. Poverty levels and racial backgrounds also play a factor, which can be an area of future study. In this study, the parental education levels in addition to district poverty levels are examined to further investigate the relationship to academic achievement with influence and predictability in New Jersey middle schools. This study includes three key variables of interest of parent education as measured by the census. The three parental educational levels include no high school diploma, high school graduate and some college, and bachelor's degree or higher.

Summary

The review of the literature explores the history of education policies in America and the implementation of high stakes testing and ongoing controversy. Socioeconomic factors are at the forefront of most research and discussion as it pertains to explaining student academic achievement. The theoretical framework, ecological systems theory, supports the notion that multiple learning environments and systems are sources of impacts to positive student learning and academic achievement in a micro- and macro-systemic view (Bronfenbrenner, 1994). As there are several key factors in the home, community, and in schools, the research primarily attributes socioeconomic indicators, parent education and family structure of single-parent households, as critical. Further testing and analysis of these factors in this study, with recommendations, will provide a glimpse of middle school student outcomes in New Jersey and some areas of opportunity with predictability. This will be a significant step for New Jersey toward increasing middle school student achievement in ELA as the level of influence is analyzed for potential future intervention and strategic implementation of curriculum, instruction, assessment, professional development, parent support, and middle school community engagement.

Chapter 3: Methods of Research

This quantitative study is nonexperimental utilizing socioeconomic, community, and district data to determine what influence and level of accuracy of prediction is made on standardized testing in New Jersey. This study focuses on middle school students in Grades 6, 7, and 8 in New Jersey's traditional public schools in 2018.

Design

The study design is a quantitative correlational predictive study design. SES factors for each district were identified in the census data. Regression analysis will involve three regression models (6, 7, 8) using these independent variables, which are tested for correlation and predictiveness to the dependent variable, student achievement scores as measured by the 2018 PARCC results for middle school students in New Jersey. Only districts with all SES factors available are used to determine the best equation for prediction. The correlational coefficient will be analyzed to determine the strength and direction of the relationship of each variable (Witte & Witte, 2010). Then hierarchical multiple regression will determine the level of influence of the independent variables on the dependent variable.

The multiple linear regression will yield an equation in which the independent variables are used to predict the dependent variable. The equation used to determine the amount of variability that the independent variables predict on the dependent variable is:

$Y = a + b_1X_1 + b_2X_2 + b_3X_3$ (Babo & Elovitz, 2015).

The strength of the relationship will be measured as indicated by R-square. The predictability measure in this study is important as it will provide meaningful data and information to inform decision-makers about the influence of the variables.

Research Questions

The research questions and null hypotheses addressed in this study are outlined below. The level of socioeconomic status of the student, the community/family demographics, and district data are all independent variables. The academic achievement identified by proficiency in PARCC test scores for English language arts (ELA) is the dependent variable in this study.

Research Question 1:

Is there a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 6 and socioeconomic, community, or district variables?

Null Hypotheses 1:

There is no statistically significant or predictive relationship between 2018 New Jersey PARCC test scores in ELA Grade 6 and socioeconomic, community, or district variables.

Research Question 2:

How accurately can socioeconomic, community, or district variables predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 6 ELA test?

Research Question 3:

Is there a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 7 and socioeconomic, community, or district variables?

Null Hypotheses 2:

There is no statistically significant or predictive relationship between 2018 New Jersey PARCC test scores in ELA Grade 7 and socioeconomic, community, or district variables.

Research Question 4:

How accurately can socioeconomic, community, or district variables predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 7 ELA test?

Research Question 5:

Is there a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 8 and socioeconomic, community, or district variables?

Null Hypotheses 3:

There is no statistically significant or predictive relationship between 2018 New Jersey PARCC test scores in ELA Grade 8 and socioeconomic, community, or district variables.

Research Question 6:

How accurately can socioeconomic, community, or district variables predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 8 ELA test?

Population and Sample

The population for this study is all middle school students in Grades 6, 7, and 8, in New Jersey in 2017-2018 academic year where testing took place at the end of the academic year, in 2018. Only traditional public-school data were used. This excludes charter schools, private schools, regional schools, or renaissance schools. Also, schools with no data for this testing year were excluded from the study and schools whose data were not too small for reporting. There are over 250 middle school districts with Grades 6, 7, and 8, in New Jersey, which are available for use in this study.

Independent and Dependent Variables

The dependent variables in this study include 2018 PARCC test results in ELA for Grades 6, 7, and 8. These data were obtained from the NJ Department of Education website. These data were downloaded and cleaned to represent only traditional public schools, eliminating any private, charter, regional, or renaissance schools. These data were further scrubbed to include schools with only middle level grades.

The independent variables in this study include the following socioeconomic, community, and district factors: the poverty percentage level of the district, lone-parent families, parent education levels, and district levels of free and reduced price lunch. These variables are used as inputs into the regression analysis are the following district level census factors:

- Percentage of poverty
- Percentage of single-parent households = percentage of female households with no male, percentage of male households with no female, & total "lone" parent household
- Parental educational levels = no high school diploma, high school graduate and some college, bachelor's degree or higher

- Percentage of free and reduced price school lunch

These variables are provided by the Census Bureau (ACS) and the NJDOE.

Reliability and Validity

Reliability and validity are two concepts that apply to all types of tests (Phelps, 2005). Reliability refers to the degree to which test scores are consistent, whereas validity refers to the soundness and suitability of the conclusions made based on the test scores. The most vital aspects of test quality is its transparency in being reliable and valid (Phelps, 2005). Educators, researchers, and psychometricians developed the PARCC tests over a span of several years (New Jersey Department of Education, 2016). New Jersey joined the PARCC consortium in 2010 and implemented the use of the PARCC tests state-wide in 2014-2015, confirming both the reliability and validity of the tests, which is reviewed annually.

Instrumentation and Data Collection

The independent and dependent variables in this study came from the New Jersey Department of Education's School Performance Report for the 2017-2018 academic year for middle school ELA PARCC scores reported. The percentage of free and reduced price lunch rate for each school is also included in each school district's performance report. A performance report is available for each school as well as an Excel file downloadable for all test scores. The downloadable Excel file for each of the grade levels is cleaned for use, which includes a process of organizing the data to remove unnecessary or unwanted data not used in this study. Cleaning the data file also consists of sorting by district name, deleting all subgroup rows, keeping only *Total* rows, sorting and keeping all students' total results, removing schools that are not participating in this study (i.e., removing charter schools, regional schools, and renaissance schools), deleting districts with low participation rates, and focusing on the score results for Met Expectations and

Exceeded Expectations (Levels 4 and 5, respectively). Final step of the cleaning process is to match district information with the census municipality district names so that accurate comparisons can be made with data and uploading can occur into SPSS system.

Likewise, the independent variables data, poverty levels, single-parent data, and parent education levels will be downloaded in Excel (comma delimited files) from the U.S. Census reports, American Community Survey (ACS) as reported by factfinder.census.gov. These data were organized and cleaned so that only necessary columns/rates are shown for each school district included in the study. Non-participating districts in rows will be deleted; rows and unnecessary columns will be deleted as well. All data collected by the researcher will be maintained in Excel files and then uploaded into the Statistical Package for Social Sciences (SPSS, Version 25) statistical analysis software for analysis.

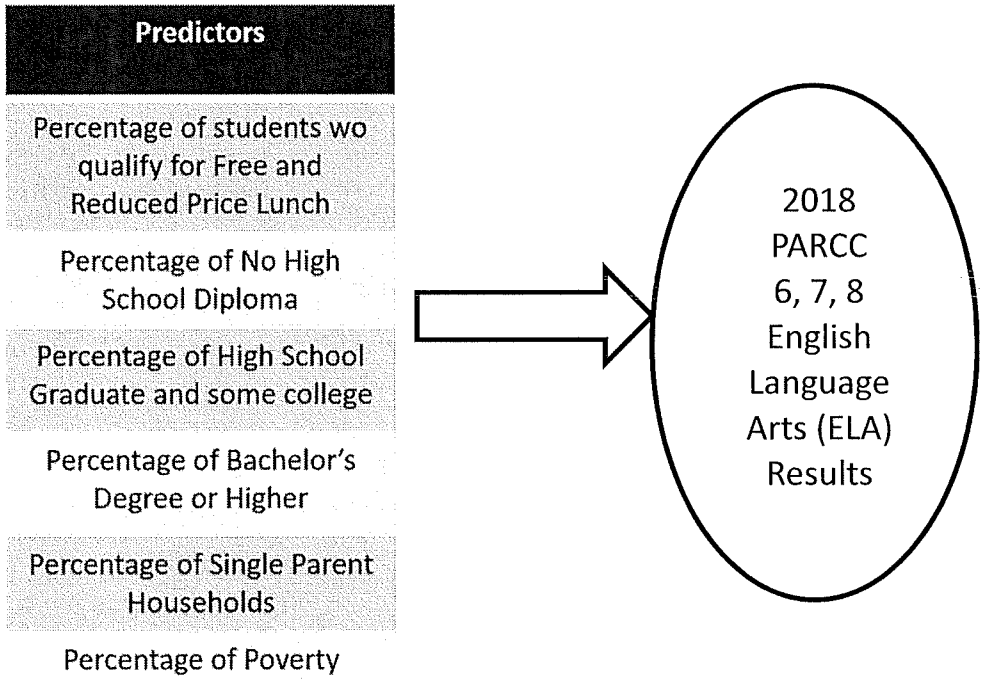


Figure 7. Regression model, all grade levels.

Data Analysis

After all the collected data are uploaded into the Statistical Package for Social Sciences (SPSS, Version 25) statistical software, Pearson correlational matrices will be run for an initial review of the relationships and strength of the relationships between the variables. Hierarchical multiple regression models will be run next to determine the statistical significance of each variable as they are entered in models with one another. Reviewing the correlation matrix and VIF factor will help determine if any multicollinearity issues exist. Ranking the predictor variables in order using beta coefficients from strongest to weakest will lend itself to running the hierarchical regression thereafter. Final calculations will consist of identifying the percentage of 2018 middle school ELA scores that are accurately predicted from each regression model. In order for this study to have prediction capability, a sample size of $104 + k$ where k is the number of predictor variables is needed. See Figure 7 for a listing of predictor variables. Further, a minimum sample size for this study of $50 = 8(k)$ where k is the number of predictor variables in the study is also necessary. This study meets this qualification with more than 200 schools.

Chapter Summary

Chapter 3 provides an overview of the quantitative study details. The research questions, population and samples, reliability and validity, instrumentation/data collection, and data analysis were outlined above. All were provided to demonstrate the level of analysis expected for all available middle schools in the State of New Jersey. Further analysis and recommendations will be presented in subsequent chapters with data interpretation of the regression analysis of the influence and predictability of socioeconomic, community, and district factors on middle school student achievement on the 2018 PARCC ELA scores for sixth, seventh, and eighth grade students in New Jersey.

Chapter 4: Analysis of the Data

Introduction

The purpose of this study was to examine the influence of socioeconomic factors, such as: district poverty rates, single-parent household rates, parent education levels, and districts' free and reduced price lunch rates on middle school student academic achievement in New Jersey as measured by the PARCC ELA scores. Further, a goal of this study was to examine the predictability of these socioeconomic factors on middle school student academic achievement in New Jersey as measured by the PARCC ELA results of Grades 6, 7, and 8.

Multiple regression models were used to analyze the data in order to determine which socioeconomic variables, if any, proved to have a statistically significant relationship with middle school student academic achievement. Specifically, hierarchical multiple regression was selected not only to examine the relationships between the predictors and the independent variable but also to predict academic achievement levels of the PARCC in each grade level in the study. Before running multiple regressions, statistical assumptions of linear regression were tested to ensure reliability and validity of the data. These assumptions included tests of linearity, multicollinearity, normality, homoscedasticity, and independence of the residuals, which were analyzed for each grade level. The results of the assumptions are detailed in each section of the grade level results below.

Dependent Variables

The most recent PARCC ELA scores released at the time of this study included the 2018 ELA results, which are available on the NJ Department of Education's website. The

files were downloaded by grade level and proficiency levels above 750; Level 4 (meeting expectations) and Level 5 (exceeding expectations) were incorporated in this study. Districts' data of Levels 1 through Level 3 were not used in this study as they do not represent proficiency in this analysis.

Independent Variables

The independent variables outlined below were used in the analysis with the dependent variables of 2018 PARCC ELA 6, 7, and 8. This study is limited to these specific variables as recommended in the extant literature.

- Percentage of poverty – U.S. Census data: the percentage of families in poverty for 12 months with children under 18 years
- Percentage of single parents – U.S. Census data: male householder, no wife present & female householder, no husband present; total lone-parent households
- Parental education level – U.S. Census data: the percentage of the population 25 years or older, no high school diploma
- Parental education level – U.S. Census data: the percentage of the population 25 years or older high school graduate with some college
- Parental education level – U.S. Census data: the percentage of the population 25 years or older, bachelor's degree or higher
- Percentage of free and reduced price lunch – NJDOE district data

As discussed in the Methods of Research section, the sample sizes for each grade level

exceeded the minimum sample size required to conduct multiple regressions. The sample sizes for each of the independent variables listed above are 283, 276, and 277 for Grades 6, 7, and 8 respectively.

Procedure

First, I created a working file in SPSS to display all the variables and their properties in a variable information table. Next, descriptive statistics were run for all variables for all grade levels. These data provided the mean values, standard deviations, and totals for each variable. A correlations table was created and analyzed to determine the strength and direction of the relationship between the independent and dependent variables as identified by the Pearson correlation coefficient. Effect size is a statistical concept that measures the strength of the relationship between two variables on a numeric scale. In this study, the correlation coefficient is measured. The levels of correlation identify the strength and direction of the relationships based on the sign (negative or positive) and numerical value. The more closely a value of r approaches either -1.00 or + 1.00, the stronger the relationship. Conversely, the more closely the value approaches 0, the weaker the relationship (Witte & Witte, 2010).

Next, hierarchical multiple regressions were run for all grade levels. The coefficient of determination, R square, was interpreted as the proportion of the variance in the dependent variables (PARCC ELA) for all grade levels that is attributed to each independent variable (FRPL, poverty level, single-parent household, and parent education level). Statistical significance was determined by the p-value $< .05$. The t statistic can also determine if the independent variable has any statistical effect on the dependent variable. The standardized coefficients beta in the table were used to compare the strength of each independent variable on

the dependent variables. Running the hierarchical multiple regression helps to identify the variable combinations that have the highest *R* square, which explains the most variance.

Next, models of best fit were created and used to predict the number of districts scoring Proficient (meeting + exceeding, Levels 4 & 5) for all grade levels. The unstandardized B (or beta) in the table identifies the coefficient in the best fit model for each variable. Proficiency is measured by the combined percentage of students who scored in the categories of Meeting Expectations and Exceeding Expectations. Lastly, graphs of scatterplots (see Appendix D) with each independent variable vs. the dependent variable for each grade level, were created to show the linear relationships between them.

In the last part of analysis, several school districts were randomly selected as samples at each grade level to analyze the predictiveness of the model. Using the predictive formula below, calculations were made for the respective school districts.

$$Ai\ (Xi\ ) + Aii\ (Xii) + Aiii\ (Xiii)\ldots + Constant = Y$$

The difference between the predicted score and the actual score was reviewed within the standard error of the model. This determined if the predictions were accurate if they fell within the margin of error. All middle school districts' predictions were calculated, and a final computation was made of the percentage of school districts with accurate predictions based on the model in this study.

The next sections outline the guiding six research questions with discussion provided using hierarchical multiple regression to determine the influence and predictability of socioeconomic variables on middle school student academic achievement as measured by the 2018 state's standardized assessment.

Research Question 1 & Research Question 2

2018 PARCC ELA Grade 6. The research questions and null hypotheses addressed in this study are related to the examination of socioeconomic, community, and district variables and their influence on middle school student academic achievement. The researcher is seeking an answer to whether these dependent variables—poverty, single-parent households, parental education, and free and reduced price school lunch—make a statistically significant impact on the student's proficiency levels as measured by the 2018 PARCC ELA scores among sixth grade students in New Jersey. The level of socioeconomic status of the student, the family demographic, and community data are all independent variables. The academic achievement identified by proficiency in PARCC test scores for Grade 6 English language arts (ELA) is the dependent variable in this analysis.

Descriptive statistics – PARCC ELA Grade 6. The descriptive statistics for Grade 6 are shown in Table 1. The PARCC ELA Grade 6 sample includes 283 school districts. On the 2018 PARCC ELA standardized test for Grade 6, New Jersey districts met and exceeded proficiency on average 57.2%. Also, across New Jersey, 33.8% of districts with Grade 6 have households that qualify for free and reduced price lunch. With respect to the parental education variables, of this same population, 37.2% on average have bachelor's degree or higher; 17% are high school graduate and some college; and 9.9% do not have a high school diploma. Additionally, the poverty levels average 10.7%. Lastly, in these Grade 6 districts, there was an average of 7.9% single-parent households.

Table 1

Descriptive Statistics for all Variables - Grade 6

	M	*SD*
ELA 6 - Combined Meeting/Exceeding (Level 4 + Level 5)	57.18%	20.21
Poverty level	10.70%	9.84
Single-parent household	7.87%	4.95
No high school diploma	9.92%	7.05
High school graduate and some college	16.96%	4.33
Bachelor's degree or higher	37.22%	17.95
FRPL	33.75%	25.25

Note. $N = 283$.

The first research question asked if there was a statistically significant relationship between PARCC scores in ELA Grade 6 and socioeconomic, community, or district variables. The results indicated a statistically significant relationship does exist between all independent variables and the independent variable ($r = .780$; $p = .000$) in Model 6 of the regression. Therefore, the null is rejected. With the exception of the independent variable, high school graduate and some college ($r = -0.47$), all other independent variables had a strong correlation with Grade 6 PARCC ELA: poverty level ($r = -0.61$), single-parent household ($r = -0.60$), no high school diploma ($r = -0.62$), bachelor's degree or higher ($r = 0.71$), and FRPL ($r = -0.72$). See Table 3.

The pertinent assumptions of hierarchical multiple regression were tested prior to conducting the hierarchical multiple regression. For ELA Grade 6, a sample size of 283 was sufficient given the six independent variables included in the analysis. First, the assumption of linearity was met as the relationship between the independent variables and the dependent variable is characterized by a straight line. The scatterplot graphs (see Appendix D) showing

each of these relationships are all linear. Second, the assumption that there is no multicollinearity in the data was tested. The VIF scores are all well below 10; however, the tolerance scores are all above 0.2 except the variable bachelor's degree or higher as shown in Model 6 below at 0.158 (see Table 2). Further, the correlations between the predictors also show that all correlations are less than 0.8 (see Table 3).

Next, the third assumption, which states the values of the residuals are independent was tested using the Durbin-Watson statistic. This assumption was met as the Durbin-Watson statistic at 2.088, ranged between 0 and 4, and close to 2, as recommended (Witte & Witte, 2010). Next, the variance of the residuals appears to be constant. Based on the graph models for the assumption of homoscedasticity is similar at each point of the model. Viewing the graphical plot shows randomness. Further, the fifth assumption of normality was also met based on the review of the P-P plot graphical depictions. Lastly, assumption Number 6 was met as the Cook's distance values were all under 1.0. See output data file for the COO_1 values, signifying individual cases were not improperly influencing the model.

Table 2

Collinearity Statistics for all Variables – Grade 6

	Tolerance	VIF
Poverty level	0.30	3.32
Single-parent household	0.34	2.96
No high school diploma	0.21	4.75
High school graduate and some college	0.29	3.41
Bachelor's degree or higher	0.16	6.33
FRPL	0.28	3.59

A six-stage hierarchical multiple regression was conducted with ELA Grade 6 PARCC scores of meeting plus exceeding combined (Level 4 + Level 5). Poverty level was entered in the first model of the regression to control for poverty percentage in the community. In the second model, single-parenthood percentage was entered, followed by the three levels of parental education (no high school diploma, high school graduate and some college, bachelor's degree or higher) identified in this study. Intercorrelations between the multiple regression variables were reported in Table 3, and the regression statistics are in Table 4.

Table 3

Correlations for all Variables - Grade 6

	ELA 6 - Combined Meeting/ Exceeding (Level 4 + Level 5)	Poverty level	Single - parent house hold	No high School diploma	High school graduat e and some college	Bachelor' s degree or higher	FRPL
ELA 6 - Combined Meeting/ Exceeding (Level 4 + Level 5)	-						
Poverty level	-0.61	-					
Single-parent household	-0.60	0.77	-				
No high School diploma	-0.62	0.73	0.72	-			
High school graduate and some college	-0.47	0.22	0.26	0.19	-		
Bachelor's degree or higher	0.71	-0.57	-0.60	-0.70	-0.72	-	
FRPL	-0.72	0.77	0.73	0.76	0.37	-0.69	-

Note. $N = 283$.

Table 4

Hierarchical Multiple Regression Analysis – Grade 6

Predictor	B	Std. Error	β	*t*	R^2	Adjusted R^2
Step 1					0.37	0.36
Poverty level %	-1.24	0.10	-0.61**	-12.74		
Step 2					0.41	0.41
Poverty level %	-0.71	0.15	-0.35**	-4.83		
Single-parent HH %	-1.37	0.29	-0.34**	-4.69		
Step 3					0.45	0.44
Poverty level %	-0.44	0.16	-0.21**	-2.83		
Single-parent HH %	-0.89	0.30	-0.22**	-2.92		
Total % - no high school diploma	-0.88	0.20	-0.31**	-4.40		
Step 4					0.56	0.55
Poverty level %	-0.40	0.14	-0.20**	-2.88		
Single-parent HH %	-0.59	0.28	-0.14*	-2.13		
Total % - no high school diploma	-0.88	0.18	-0.31**	-4.92		
Total % - high school graduate and some college	-1.56	0.19	-0.33**	-8.09		
Step 5					0.57	0.56
Poverty level %	-0.40	0.14	-0.20**	-2.91		
Single-parent HH %	-0.52	0.27	-0.13	-1.92		
Total % - no high school diploma	-0.37	0.23	-0.13	-1.60		
Total % - high school graduate and some college	-0.66	0.33	-0.14	-1.96		
Total % - bachelor's degree or higher	0.37	0.11	0.33**	3.29		

	Predictor	B	Std. Error	β	*t*	R^2	Adjusted R^2
Step 6					0.61	0.60	
Poverty level %	-0.15	0.14	-0.07	-1.06			
Single-Parent HH %	-0.31	0.26	-0.08	-1.16			
Total % - No High School Diploma	-0.02	0.24	-0.01	-0.09			
Total % - High school graduate and some college	-0.40	0.32	-0.09	-1.24			
Total % - Bachelor's Degree or Higher	0.34	0.11	0.30**	3.19			
% FRPL	-0.29	0.06	-0.36**	-5.06			

Note. $N = 276$; B = Unstandardized coefficient; Std. Error = Standard Error; β = Standardized Coefficient;
** $p < .001$, * $p < .05$

The hierarchical multiple regression revealed that at Stage 1, poverty level contributed significantly to the regression model and accounted for 36.6% of the variability in Grade 6 ELA PARCC scores. At the second level, single-parent households added another 4.6% of variation explained in this model following by no high school diploma with a 3.8% change. The largest change occurs with Model 4 entering high school graduate and some college with 10.5% additional variation in the Grade 6 ELA PARCC scores. When entering all parental education levels together in one model, the greatest change in *R* square was 16% with statistical significance. Therefore, all parental education levels were entered into the model one at a time. When all six independent variables were included in Model 6, the total variation accounted for 60.8% which is profoundly significant and every move from one model to the next was statistically significant. We can see that free and reduced price lunch added an additional explanation of the variance by 3.6% to the entire model of 60.8%.

Predictability of PARCC ELA Grade 6 . The second research question asked if socioeconomic, community, or district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 6 ELA test. Based on this analysis, the socioeconomic, community, or district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 6 ELA test within 60.8% within 12.8 standard error points. In fact, results indicate that 55% of district scores were predicted in this analysis.

The two-predictor variables, FRPL and bachelor's degree or higher, were proven to have the most significance. FRPL ($\beta = -0.36, p = .000$) and bachelor's degree or higher ($\beta = 0.30, p = .000$) are selected to predict PARCC ELA test scores for Grade 6 among the New Jersey school districts in Model 6. Although in Models 2 through 5, the entry of predictor variables resulted in varied significance levels

at each stage, it was the last step (Model 6), which resulted in the highest variability explained of 60.8% overall. The remaining predictors, poverty level ($\beta = -0.07$, $p = .29$); single-parent household ($\beta = -0.08$, $p = .25$); no high school diploma ($\beta = -0.01$, $p = .93$); high school graduate and some college ($\beta = -0.09$, $p = .21$) were not significant individually in Model 6, although the entire model itself is statistically significant.

Predictive Power for the Dependent variable of PARCC ELA – Grade 6. The unstandardized betas having the most predictive power can use be used as the independent variables in the prediction equation. The predicted percentage of students scoring proficiency (Level 4 + Level 5) on the 2018 PARCC ELA Grade 6 standardized assessment was determined using the standard regression algorithm used by Maylone (2002).

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

I applied the unstandardized betas for the two variables with the highest influence, FRPL and bachelor's or higher, to complete the prediction formula as follows for Grade 6 in Table 5. See Table 4 for unstandardized betas of Model 6. Applying the prediction equation to three random districts in this grade level, Morris School District (Morris County), Summit School District (Union County), and Piscataway School District (Middlesex County), provided the results outlined in Table 5.

Table 5

Predictive Power Examples – Grade 6

DISTRICT NAME	CONSTANT	Regression Algorithm - Coefficient for Variable i (A_i)	Regression Algorithm - Coefficient for Variable ii (A_{ii})	Regression Algorithm - Variable i (X_i)	Regression Algorithm - Variable ii (X_{ii})	ALGORITHM - Ai (Xi) + Aii (Xii) ... + Constant = Y	ELA 6 - Combined Meeting/ Exceeding (Level 4 + Level 5)	Difference in Predictive Value vs. REAL SCORE	Within error of Estimate
GRADE 6	*CONSTANT*	*FRPL - SPSS*	*BACHELORS - SPSS*	*FRPL - CENSUS*	*BACHELORS - CENSUS*	*PREDICTION (Y)*	*PARCC (4+5) ACTUAL*	*DIFFERENCE*	*"Yes" if within 12.8 standard error*
MORRIS SCHOOL DISTRICT, NEW JERSEY	65.351	-0.289	0.341	34.11	61.30	76.40	66.3	10.10	Yes
SUMMIT CITY SCHOOL DISTRICT, NEW JERSEY	65.351	-0.289	0.341	13.91	69.80	85.13	78.8	6.33	Yes
PISCATAWAY TOWNSHIP SCHOOL DISTRICT, NEW JERSEY	65.351	-0.289	0.341	35.66	50.50	72.27	60.2	12.07	Yes

Where:
Ai = coefficient for variable i
Xi = unstandardized beta for predictor i
Aii = coefficient for variable ii
Xii = unstandardized beta for predictor ii
Y = predicted percentage of students scoring proficient or above (Level 4 + Level 5)

Example 1: Morris School District (Morris County). In the Morris School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 34.11%

Xii - Bachelor's Degree or Higher – 61.30%

These values were included in the equation (see Table 5), which resulted in a predicted score of 76.40. As the actual result for the 2018 PARCC ELA Grade 6 Meeting Expectations + Exceeding Expectations is 66.3%, our model is 10.10 points within standard error (76.40 – 66.30 = 10.10).

Example 2: Summit City School District (Union County). In the Summit City School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 13.91%

Xii - Bachelor's Degree or Higher – 69.80%

These values were included in the equation (see Table 5), which resulted in a predicted score of 85.13%. As the actual result for the 2018 PARCC ELA Grade 6 Meeting Expectations + Exceeding Expectations is 78.8%, our model is 6.33 points within standard error (85.13 – 78.8 = 6.33).

Example 3: Piscataway Township School District (Middlesex County). In the Piscataway Township School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 35.66%

Xii - Bachelor's Degree or Higher – 50.50%

These values were included in the equation (see Table 5), which resulted in a predicted score of 72.27%. As the actual result for the 2018 PARCC ELA Grade 6 Meeting Expectations + Exceeding Expectations is 60.2%, our model is 12.07 points within standard error (72.27 – 60.2 = 12.07).

Research Question 3 & Research Question 4

2018 PARCC ELA Grade 7. The research questions and null hypotheses addressed in this study are related to the examination of socioeconomic, community, and district variables and their influence on middle school student academic achievement. The researcher is seeking an answer to whether these independent variables—poverty, single-parent households, parental education, and free and reduced price school lunch—make a statistically significant impact on the student's proficiency levels as measured by the 2018 PARCC ELA scores among seventh grade students in New Jersey. The level of socioeconomic status of the student, the family demographic, and community data are all independent variables. The academic achievement identified by

proficiency in PARCC test scores for Grade 7 English language arts (ELA) is the dependent variable in this analysis.

Descriptive statistics – PARCC ELA Grade 7. The descriptive statistics for Grade 7 are shown in Table 6. The PARCC ELA Grade 7 sample includes 276 school districts. On the 2018 PARCC ELA standardized test for Grade 7, New Jersey districts met and exceeded proficiency on average 62.2%. Also, across New Jersey, 33.6% of districts with Grade 7 have households that qualify for free and reduced price lunch. With respect to the parental education variables, of this same population, 37.3% on average have bachelor's degree or higher; 17% are high school graduate and some college; and 9.9% do not have a high school diploma. Additionally, the poverty levels average 10.7%. Lastly, in these Grade 7 districts there was an average of 7.9% single-parent households.

Table 6

Descriptive Statistics for all Variables - Grade 7

	M	*SD*
ELA 7 - Combined Meeting/Exceeding (Level 4 + Level 5)	62.17%	19.67
Poverty level	10.74%	9.87
Single-parent household	7.92%	4.97
No high school diploma	9.86%	6.86
High school graduate and some college	16.98%	4.33
Bachelor's degree or higher	37.27%	17.96
FRPL	33.62%	25.20

Note. $N = 276$.

The third research question asked if there was a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 7 and socioeconomic, community, or district

variables. The results indicated a statistically significant relationship does exist between all independent variables and the dependent variable ($r = .778$; $p = .000$) in Model 6 of the regression. Therefore, the null is rejected. With the exception of the independent variable, high school graduate and some college ($r = -0.44$), all other independent variables had a strong correlation with Grade 7 PARCC ELA: poverty level ($r = -0.62$), single-parent household ($r = -0.58$), no high school diploma ($r = -0.59$), bachelor's degree or higher ($r = 0.68$), and FRPL ($r = -0.73$).

The pertinent assumptions of this hierarchical multiple regression were tested prior to conducting the hierarchical multiple regression. For ELA Grade 7, a sample size of 276 was sufficient given the six independent variables included in the analysis. First, the assumption of linearity was met as the relationship between the independent variables and the dependent variable is characterized by a straight line. The scatterplot graphs (see Appendix D) showing each of these relationships are all linear. Second, the assumption that there is no multicollinearity in the data was tested. The VIF scores are all well below 10; however, the tolerance scores are all above 0.2 except the variable bachelor's degree or higher as shown in Model 6 below at 0.160. Further, the correlations between the predictors also show that all correlations are less than 0.8 (see Table 7).

Next, the third assumption, which states the values of the residuals are independent was tested using the Durbin-Watson statistic. This assumption was met as the Durbin-Watson statistic at 1.878, ranged between 0 and 4, and close to 2, as recommended (Witte & Witte, 2010). Next, the variance of the residuals appears to be constant. Based on the graph, models for the assumption of homoscedasticity is similar at each point of the model. Viewing the graphical plot shows randomness. Further, the fifth assumption of normality was also met based on the review of the P-P plot graphical depictions. Lastly, assumption Number 6 was met as the Cook's distance values were all under 1.0. See output data file for the COO_1 values signifying individual cases were not improperly influencing the model.

Table 7

Collinearity Statistics for all Variables - Grade 7

	Tolerance	VIF
Poverty level	0.30	3.33
Single-parent household	0.33	3.06
No high school diploma	0.21	4.67
High school graduate and some college	0.30	3.36
Bachelor's degree or higher	0.16	6.25
FRPL	0.28	3.52

Table 8

Correlations for all Variables - Grade 7

	ELA 7 - Combined Meeting/Exceeding (Level 4 + Level 5)	Poverty Level	Single-Parent Household	No High School Diploma	High school graduate and some college	Bachelor's Degree or Higher	FRPL
ELA 7 - Combined Meeting/Exceeding (Level 4 + Level 5)	-						
Poverty Level	-0.62	-					

Single-Parent Household	-0.58	0.77	-				
No High School Diploma	-0.59	0.73	0.73	-			
High school graduate and some college	-0.44	0.23	0.26	0.22	-		
Bachelor's Degree or Higher	0.68	-0.58	-0.60	-0.70	-0.72	-	
FRPL	-0.73	0.76	0.73	0.76	0.38	-0.69	-

Note: N=276

Table 9

Hierarchical Multiple Regression Analysis - Grade 7

Predictor	B	Std. Error	β	*t*	R^2	Adjusted R^2
Step 1					0.39	0.39
Poverty level %	-1.24	0.09	-0.62**	-13.24		
Step 2					0.42	0.41
Poverty level %	-0.86	0.15	-0.43**	-5.90		
Single-parent HH %	-0.99	0.29	-0.25**	-3.44		
Step 3					0.44	0.43
Poverty level %	-0.67	0.16	-0.34**	-4.32		
Single-parent HH %	-0.63	0.31	-0.16*	-2.03		
Total % - no high school diploma	-0.64	0.21	-0.22**	-3.09		
Step 4					0.52	0.51
Poverty level %	-0.64	0.14	-0.32**	-4.42		
Single-parent HH %	-0.40	0.29	-0.10	-1.39		
Total % - no high school diploma	-0.62	0.19	-0.22**	-3.20		

Total % - high school graduate and some college	-1.33	0.20	-0.29**	-6.69		
Step 5					0.55	0.54
Poverty level %	-0.63	0.14	-0.31**	-4.49		
Single-parent HH %	-0.32	0.28	-0.08	-1.15		
Total % - no high school diploma	0.09	0.24	0.03	0.36		
Total % - high school graduate and some college	-0.08	0.34	-0.02	-0.25		
Total % - bachelor's degree or higher	0.51	0.11	0.46**	4.54		
Step 6					0.61	0.60
Poverty level %	-0.33	0.14	-0.16*	-2.36		
Single-parent HH %	-0.05	0.27	-0.01	-0.17		
Total % - no high school diploma	0.49	0.24	0.17*	2.07		
Total % - high school graduate and some college	0.21	0.32	0.05	0.67		
Total % - bachelor's degree or higher	0.47	0.10	0.43**	4.52		
FRPL	-0.35	0.06	-0.44**	-6.17		

Note. $N = 276$, B = Unstandardized coefficient, Std. Error = Standard Error, β = Standardized Coefficient.
** $p < .001$, * $p < .05$.

A six-stage hierarchical multiple regression was conducted with ELA Grade 7 PARCC scores of meeting plus exceeding combined (Level 4 + Level 5). Poverty level was entered in the first model of the regression to control for poverty percentage in the community. In the second model, single-parenthood percentage was entered, followed by the three levels of parental education (no high school diploma, high school graduate and some college, bachelor's degree or higher) identified in this study. Intercorrelations between the variables were reported in Table 8 and the regression statistics are in Table 9.

The hierarchical multiple regression revealed that at Stage 1, poverty level contributed significantly to the regression model and accounted for 39% of the variability in Grade 7 ELA PARCC scores. At the fifth level, bachelor's degree or higher added another 3.4% of variation explained in this model and FRPL with a 5.6% change in the last model. The largest change occurs with Model 4 entering high School graduate and some college with 8% additional variation in the Grade 7 ELA PARCC scores. Each parental education level was entered into the model one at a time. When all six independent variables were included in Model 6, the total variation accounted for 60.5% which is profoundly significant and every move from one model to the next was statistically significant (see Table 9).

Predictability of PARCC ELA Grade 7. The fourth research question asked if socioeconomic, community, and district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 7 ELA test. Based on this analysis, the socioeconomic, community, and district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 7 ELA test within 61% within the 12.5 standard error points. In fact, results indicate that 70% of districts' scores were predicted in this analysis.

The two-predictor variables, FRPL and bachelor's degree or higher, were proven to have the most significance. FRPL ($\beta = -0.44$, $p = .000$) and bachelor's degree or higher ($\beta = 0.43$, $p = .000$) are selected to predict PARCC ELA test scores for Grade 7 among the New Jersey school districts in Model 6. Although in Models 2 through 5, the entry of predictor variables resulted in varied significance levels at each stage, it was the last step (Model 6), which resulted in the highest variability explained of 61% overall. Two more predictors were statistically significant, poverty level ($\beta = -0.16$, $p = .02$) and no high school diploma ($\beta = -0.17$, $p = .04$); however, their significant statistic was 2nd and 3rd highest among the predictors. The remaining two predictors, single-parent household ($\beta = -0.01$, $p = .86$) and high school graduate and some college ($\beta = -0.05$, $p = .50$) were not significant individually in Model 6, although the entire model itself is statistically significant (see Table 9).

Predictive Power for the dependent variable of PARCC ELA – Grade 7. The unstandardized betas having the most predictive power can use be used as the independent variables in the prediction equation. The predicted percentage of students scoring Proficiency (Level 4 + Level 5) on the 2018 PARCC ELA Grade 7 standardized assessment was determined using the standard regression algorithm used by Maylone (2002).

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

I applied the unstandardized betas for the two variables with the highest influence, FRPL and bachelors or higher, to complete the prediction formula as follows for Grade 7 in Table 10. See Table 9 for unstandardized betas of Model 6. Applying the prediction equation to three random districts in this grade level, Holmdel Township School District (Monmouth County), Atlantic City School District (Atlantic County), and East Orange School District (Essex County), provided the results outlined in Table 10.

Table 10

Predictive Power Examples – Grade 7

DISTRICT NAME	CONSTANT (enter from Simult. regression model - Unstandardized B)	Regression Algorithm - Coefficient for Variable i (A_i)	Regression Algorithm - Coefficient for Variable ii (A_{ii})	Regression Algorithm - Variable i (X_i)	Regression Algorithm - Variable ii (X_{ii})	ALGORITHM - Ai (Xi) + Aii (Xii) ... + Constant = Y	ELA 7 - Combined Meeting/ Exceeding (Level 4 + Level 5)	Difference in Predictive Value vs. REAL SCORE
GRADE 7	*CONSTANT*	*FRPL - SPSS*	*BACHELORS - SPSS*	*FRPL - CENSUS*	*BACHELORS - CENSUS*	*PREDICTION (Y)*	*PARCC (4+5) ACTUAL*	*DIFFERENCE*
HOLMDEL TOWNSHIP SCHOOL DISTRICT, NEW JERSEY	51.521	-0.346	0.474	3.64	64.70	80.93	84.5	-3.57
ATLANTIC CITY SCHOOL DISTRICT, NEW JERSEY	51.521	-0.346	0.474	91.96	16.30	27.43	34.6	-7.17
EAST ORANGE SCHOOL DISTRICT, NEW JERSEY	51.521	-0.346	0.474	62.29	18.80	38.88	42.2	-3.32

Where:
Ai = coefficient for variable i
Xi = unstandardized beta for predictor i
Aii = coefficient for variable ii
Xii = unstandardized beta for predictor ii
Y = predicted percentage of students scoring proficient or above (Level 4 + Level 5)

Example 4: Holmdel Township School District (Monmouth County). In the Holmdel School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 3.64%

Xii - Bachelor's Degree or Higher – 64.7%

These values were included in the equation (see Table 10), which resulted in a predicted score of 80.93%. As the actual result for the 2018 PARCC ELA Grade 7 Meeting Expectations + Exceeding Expectations is 84.5%, our model is 3.57 points within standard error (80.93 – 84.5 = -3.57).

Example 5: Atlantic City School District (Atlantic County). In the Atlantic City School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 91.96%

Xii - Bachelor's Degree or Higher – 16.3%

These values were included in the equation (see Table 10), which resulted in a predicted score of 27.43%. As the actual result for the 2018 PARCC ELA Grade 7 Meeting Expectations + Exceeding Expectations is 34.6%, our model is 7.17 points within standard error (27.43 – 34.6 = -7.17).

Example 6: East Orange School District (Essex County). In the East Orange School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 62.29%

Xii - Bachelor's Degree or Higher – 18.80%

These values were included in the equation (see Table 10), which resulted in a predicted score of 38.88%. As the actual result for the 2018 PARCC ELA Grade 7 Meeting Expectations + Exceeding Expectations is 42.2%, our model is 3.32 points within standard error (38.88 – 42.2 = -3.32).

Research Question 5 & Research Question 6

2018 PARCC ELA Grade 8. The research questions and null hypotheses addressed in this study are related to the examination of socioeconomic, community, and district variables and their influence on middle school student academic achievement. The researcher is seeking an answer to whether these independent variables—poverty, single-parent households, parental education, and free and reduced price school lunch—make a statistically significant impact on the student's proficiency levels as measured by the 2018 PARCC ELA scores among eighth grade students in New Jersey. The level of socioeconomic status of the

student, the family demographic, and community data are all independent variables. The academic achievement identified by proficiency in PARCC test scores for Grades 8 English language arts (ELA) is the dependent variable in this analysis.

Descriptive statistics – PARCC ELA Grade 8. The descriptive statistics for Grade 8 are shown in Table 11. The PARCC ELA Grade 8 sample includes 277 school districts. On the 2018 PARCC ELA standardized test for Grade 8, New Jersey districts met and exceeded proficiency on average 60%. Also, across New Jersey, 33.6% of districts with Grade 8 have households that qualify for free and reduced price lunch. With respect to the parental education variables, of this same population, 37.3% on average have a bachelor's degree or higher; 17% are high school graduate and some college; and 9.9% do not have a high school diploma. Additionally, the poverty levels average 10.7%. Lastly, in these Grade 8 districts there was an average of 7.9% single-parent households.

The fifth research question asked if there was a statistically significant relationship between 2018 New Jersey PARCC test scores in ELA Grade 8 and socioeconomic, community, or district variables. The results indicated a statistically significant relationship does exist between all independent variables and the dependent variable ($r = .780$, $p = .000$) in Model 6 of the regression. Therefore, the null is rejected. With the exception of the independent variable, high school graduate and some college ($r = -0.47$), all other independent variables had a strong correlation with Grade 8 PARCC ELA: poverty level ($r = -0.64$), single-parent household ($r = -0.60$), no high school diploma ($r = -0.62$), bachelor's degree or higher ($r = 0.68$), and FRPL ($r = -0.73$).

Table 11

Descriptive Statistics for all Variables - Grade 8

	M	*SD*
ELA 8 - Combined Meeting/Exceeding (Level 4 + Level 5)	59.99%	18.64
Poverty level	10.71%	9.86
Single-parent household	7.92%	4.96
No high school diploma	9.85%	6.85
High school graduate and some college	16.99%	4.32
Bachelor's degree or higher	37.26%	17.93
FRPL	33.63%	25.15

Note. $N = 277$.

The pertinent assumptions of hierarchical multiple regression were tested prior to conducting the hierarchical multiple regression. For ELA Grade 8, a sample size of 277 was sufficient given the six independent variables included in the analysis. First, the assumption of linearity was met as the relationship between the independent variables and the dependent variable is characterized by a straight line. The scatterplot graphs (see Appendix D) showing each of these relationships are all linear. Second, the assumption that there is no multicollinearity in the data was tested. The VIF scores are all well below 10; however, the tolerance scores are all above 0.2, except the variable bachelor's degree or higher as shown in Model 6 at 0.160. Further, the correlations between the predictors also show that all correlations are less than 0.8 (see Table 13).

Next, the third assumption, which states the values of the residuals are independent was tested using the Durbin-Watson statistic. This assumption was met as the Durbin-Watson statistic at 2.033, ranged between 0 and 4, and close to 2, as recommended (Witte & Witte, 2010). Next, the variance of the residuals appears to be constant. Based on the graph, models for the assumption of

homoscedasticity are similar at each point of the model. Viewing the graphical plot shows randomness. Further, the fifth assumption of normality was also met based on the review of the P-P plot graphical depictions. Lastly, assumption Number 6 was met as the Cook's distance values were all under 1.0. See output data file for the COO_1 values, signifying individual cases were not improperly influencing the model.

Table 12

Collinearity Statistics for all Variables - Grade 8

	Tolerance	VIF
Poverty level	0.30	3.32
Single-parent household	0.33	3.05
No high school diploma	0.21	4.66
High school graduate and some college	0.30	3.36
Bachelor's degree or higher	0.16	6.24
FRPL	0.28	3.51

Table 13

Correlations for all Variables - Grade 8

	ELA 8 - Combined Meeting/Exceeding (Level 4 + Level 5)	Poverty Level	Single-Parent Household	No High School Diploma	High school graduate and some college	Bachelor's Degree or Higher	FRPL
ELA 8 - Combined Meeting/Exceeding (Level 4 + Level 5)	-						
Poverty Level	-0.64	-					
Single-Parent Household	-0.60	0.77	-				
No High School Diploma	-0.62	0.73	0.73	-			
High school graduate and some college	-0.47	0.23	0.26	0.21	-		
Bachelor's Degree or Higher	0.68	-0.57	-0.60	-0.70	-0.72	-	
FRPL	-0.73	0.76	0.73	0.76	0.38	-0.69	-

Note. $N = 277$.

Table 14

Hierarchical Multiple Regression Analysis - Grade 8

	B	Std. Error	β	*t*	R^2	Adjusted R^2
Step 1					0.41	0.40
Poverty level %	-1.21	0.09	-0.64**	-13.72		
Step 2					0.44	0.43
Poverty level %	-0.80	0.13	-0.42**	-5.94		
Single-parent HH %	-1.04	0.27	-0.28**	-3.87		
Step 3					0.46	0.46
Poverty level %	-0.59	0.14	-0.31**	-4.15		
Single-parent HH %	-0.63	0.28	-0.17*	-2.23		
Total % - no high school diploma	-0.72	0.19	-0.26**	-3.73		
Step 4					0.56	0.55
Poverty level %	-0.56	0.13	-0.30**	-4.31		
Single-parent HH %	-0.39	0.26	-0.11	-1.52		
Total % - no high school diploma	-0.69	0.17	-0.25**	-3.96		
Total % - high school graduate and some college	-1.37	0.18	-0.32**	-7.59		
Step 5					0.57	0.56
Poverty level %	-0.56	0.13	-0.29**	-4.30		
Single-parent HH %	-0.35	0.26	-0.09	-1.36		
Total % - no high school diploma	-0.33	0.23	-0.12	-1.44		
Total % - high school graduate and some college	-0.72	0.31	-0.17*	-2.30		
Total % - bachelor's degree or higher	0.26	0.10	0.25*	2.54		

					0.61	0.60
Step 6						
Poverty level %	-0.32	0.13	-0.17*	-2.44		
Single-parent HH %	-0.13	0.25	-0.03	-0.52		
Total % - no high school diploma	0.00	0.22	0.00	-0.02		
Total % - high school graduate and some college	-0.48	0.30	-0.11	-1.59		
Total % - bachelor's degree or higher	0.24	0.10	0.23*	2.39		
% FRPL	-0.28	0.05	-0.37**	-5.22		

Note. $N = 277$, B = Unstandardized coefficient, Std. Error = Standard Error, β = Standardized Coefficient.
* $p < .001$, ** $p < .05$.

A six-stage hierarchical multiple regression was conducted with ELA Grade 8 PARCC scores of meeting plus exceeding combined (Level 4 + Level 5). Poverty level was entered in the first model of the regression to control for poverty percentage in the community. In the second model, single-parenthood percentage was entered, followed by the three levels of parental education (no high school diploma, high school graduate and some college, bachelor's degree or higher) identified in this study. Intercorrelations between the multiple regression variables were reported in Table 13 and the regression statistics are in Table 14.

The hierarchical multiple regression revealed that at Stage 1, poverty level contributed significantly to the regression model and accounted for 40.6% of the variability in Grade 8 ELA PARCC scores. At the second level, single-parent households added another 4.4% of variation explained in this model following by no high school diploma with a 4.6% change. The largest change occurs with Model 4 entering bachelor's degree or higher with 5.7% additional variation in the Grade 8 ELA PARCC scores. All parental education levels were entered into the model, one at a time. When all six independent variables were included in Model 6, the total variation accounted for 60.8% which is profoundly significant and every move from one model to the next was statistically significant.

Predictability of PARCC ELA Grade 8. The sixth research question asked if socioeconomic, community, and district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 8 ELA test. Based on this analysis, the socioeconomic, community, and district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC Grade 8 ELA test within 61% within the 11.8 standard error points. In fact, results indicate that 51.6% of districts scores were predicted in this analysis.

The two predictor variables, FRPL and bachelor's degree or higher were proven to have the most significance. FRPL ($\beta = -0.37, p = .000$) and bachelor's degree or higher ($\beta = 0.23, p = .02$) are selected to predict PARCC ELA test scores for Grade 8 among the New Jersey school districts in Model 6. Although in Models 2 through 5, the entry of predictor variables resulted in varied significance levels at each stage, it was the last step (Model 6), which resulted in the highest variability explained of 61% overall. Another predictor variable was statistically significant, poverty level ($\beta = -0.17, p = .02$); however, it was not selected as a predictor for further analysis of district examples because its beta was not as large as bachelor's degree or higher. The remaining

three predictors, no high school diploma ($\beta = -0.00$, $p = .98$), single-parent household ($\beta = -0.03$, $p = .61$), and high school graduate and some college ($\beta = -0.11$, $p = .11$) were not significant individually in Model 6, although the entire model itself is statistically significant (see Table 14).

Predictive power for the dependent variable of PARCC ELA – Grade 8. The unstandardized betas having the most predictive power can use be used as the independent variables in the prediction equation. The predicted percentage of students scoring Proficiency (Level 4 + Level 5) on the 2018 PARCC ELA Grade 8 standardized assessment was determined using the standard regression algorithm used by Maylone (2002).

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

I applied the unstandardized betas for the two variables with the highest influence, FRPL and bachelor's or higher, to complete the prediction formula as follows for Grade 8 in Table 15. See Table 14 for unstandardized betas of Model 6. Applying the prediction equation to three random districts in this grade level, Ocean City School District (Ocean County), Paramus Borough School District (Bergen County), and Wayne Township School District (Passaic County), provided the results outlined below in Table 15.

Table 15

Predictive Power Examples – Grade 8

DISTRICT NAME	CONSTANT (enter from Simult. regression model - Unstandardized B)	Regression Algorithm - Coefficient for Variable i (A_i)	Regression Algorithm - Coefficient for Variable ii (A_{ii})	Regression Algorithm - Variable i (X_i)	Regression Algorithm - Variable ii (X_{ii})	ALGORITHM Ai (Xi) + Aii (Xii) ... + Constant = Y	ELA 8 - Combined Meeting/ Exceeding (Level 4 + Level 5)	Difference in Predictive Value vs. REAL SCORE
GRADE 8	*CONSTANT*	*FRPL - SPSS*	*BACHELORS - SPSS*	*FRPL - CENSUS*	*BACHELORS - CENSUS*	*PREDICTION (Y)*	*PARCC (4+5)*	*DIFFERENCE*
OCEAN CITY SCHOOL DISTRICT, NEW JERSEY	73.123	-0.276	0.237	21.16	48.60	78.80	77.8	1.00
PARAMUS BOROUGH SCHOOL DISTRICT, NEW JERSEY	73.123	-0.276	0.237	7.18	46.90	82.26	75.7	6.56
WAYNE TOWNSHIP SCHOOL DISTRICT, NEW JERSEY	73.123	-0.276	0.237	9.28	51.00	82.65	80.3	2.35

Where:
Ai = coefficient for variable i
Xi = unstandardized beta for predictor i
Aii = coefficient for variable ii
Xii = unstandardized beta for predictor ii
Y = predicted percentage of students scoring proficient or above (Level 4 + Level 5)

Example 7: Ocean City School District (Cape May County). In the Ocean City School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 21.16%

Xii - Bachelor's Degree or Higher – 48.60%

These values were included in the equation (see Table 15), which resulted in a predicted score of 78.8%. As the actual result for the 2018 PARCC ELA Grade 8 Meeting Expectations + Exceeding Expectations is 77.8%, our model is 1.0 point within standard error (78.8 – 77.8 = 1.0).

Example 8: Paramus Borough School District (Bergen County). In the Paramus Borough School District, we used both FRPL and bachelor's degree or higher as the predictors for the regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 7.18%

Xii - Bachelor's Degree or Higher – 46.9%

These values were included in the equation (see Table 15), which resulted in a predicted score of 82.26%. As the actual result for the 2018 PARCC ELA Grade 8 Meeting Expectations + Exceeding Expectations is 75.7%, our model is 6.56 points within standard error (82.26 – 75.7 = 6.56).

Example 9: Wayne Township School District (Passaic County). In the Wayne Township School District, we used both FRPL and bachelor's degree or higher as the predictors for the

regression algorithm. This district's reported values as per the district (NJDOE) and the census were:

Xi - FRPL – 9.28%

Xii - Bachelor's Degree or Higher – 51.0%

These values were included in the equation (see Table 15), which resulted in a predicted score of 82.65%. As the actual result for the 2018 PARCC ELA Grade 8 Meeting Expectations + Exceeding Expectations is 80%, our model is 2.35 points within standard error (82.65 – 80 = 2.35). Overall, the percentage of districts that were predicted accurately and within the margin of error for the model is 54.8% for Grade 6, 70.0% for Grade 7, and 51.6% for Grade 8 (see Table 16).

Table 16

Predictability of Study for all Grades 6, 7, 8

Grade level	Total predicted within standard error	Total # districts in study	Percentage of districts predicted based on model (6)
6	155	283	54.8%
7	193	276	70.0%
8	143	277	51.6%

Chapter Summary

This chapter provided an analysis of the data in this study. First, the independent variables and dependent variables were discussed followed by the procedures taken to prepare files and perform regression analysis on the all variables. For each research question, this chapter highlighted the descriptive statistics and their meaning in describing the population of each district in New Jersey where middle school students reside. Each research question was answered based on the

statistical analysis performed in SPSS using hierarchical multiple regression. As a result of the statistical analysis, the null hypotheses were all rejected because evidence was provided to confirm influence between independent and dependent variables at a level of 60% for each grade level. This means that 60% of the variability in test scores can be explained by this statistical model containing these six independent variables: poverty, single-parent households, free and reduced price lunch, and parent education represented by the three variables no high school diploma, high school graduate and some college, and bachelor's degree or higher education level.

The purpose of this study was to examine the influence and predictability of select socioeconomic variables on student academic achievement in Grades 6, 7, and 8 as measured by PARCC in English language arts (ELA). This study focused on the relationship between several family, school district, and community variables, and student academic achievement. Based on the statistical analysis performed, there is a statistically significant relationship between these socioeconomic, community, and district factors and NJ PARCC ELA scores in New Jersey for the population of middle school students. Further, the study provided statistical evidence of predictability. Exactly 54.8% of Grade 6 districts, 70% of Grade 7 districts, and 51.6% of Grade 8 districts all demonstrated predictive power, that is, the ability to predict academic achievement for students in districts given high school graduate and some college data in addition to free and reduced price school lunch data, all within standard error. These two predictor variables, high school graduate and some college, and FRPL (free and reduced price lunch) were both statistically significant with the highest correlational values in the study. Surprisingly, single-parent households was not a statistically significant predictor for students' academic achievement. Based on this study, it was not highly correlated to student achievement. Several factors could explain this such as positive parental involvement, economic resources, spirituality, parental employment, and income levels. The composition of the family—female or male head of single-family household—

does not alter the academic achievements of middle school students in this study. Recommendations for future research in this area will be noted in Chapter 5. Nonetheless, using all variables outlined in this study provided the greatest predictability for each grade level.

This study provides evidence that could benefit the middle school community and assist decision making at the administrative levels of school districts and in the policy-making arena in the state Department of Education in New Jersey. Knowing that we can predict on average 60% of the results of standardized testing utilizing readily accessible and relevant data for our middle school students is valuable and imminent for use in the future. The next chapter provides a discussion regarding the results and proposes some recommendations for policy, practice, and future research.

Chapter 5: Conclusions and Recommendations

Introduction

Students in middle school face a myriad of challenges academically, physically, socially, and emotionally. Academically, middle school achievement results in ELA across the nation have been dismal reporting low eighth grade reading levels for more than 25 years (NAEP, 2019). Only about a third of U.S. students in middle school possess the knowledge-based competencies to "read" in this more comprehensive sense (Reardon et al., 2012). The overall area of need to increase reading and literacy achievement in the United States is not just an issue in this country but an international concern. Nations around the world seek to improve their schools in order to enhance the skills and employability of their youth (OECD, 2010). Furthermore, in New Jersey, middle school students from disadvantaged backgrounds have continued to be low performers on the state standardized tests for many years, in part due to their low socioeconomic status. The literature confirms the need for more research in this area examining the relationship between socioeconomic factors and literacy (Murnane et al., 2012). As a nation, as a state, as a district and local community, we must do more to improve the literacy skills and abilities of low socioeconomic students in middle school, specifically in New Jersey, where the average non-economically disadvantaged students report scores more than 40% higher than economically disadvantaged students in the same grade levels (NJDOE, 2019).

There is also an effect of education on economic growth (OECD, 2010). With rapid technological changes and improvements in productivity in the workforce, our students need to be prepared as analytical thinkers, engaged learners, and entrepreneurial achievers to effect change in the future. Thus, language arts mastery coupled with cognitive skills are ingredients for success of our future workforce. Middle school students are at the heart of academic change from elementary to high school where critical reading skills are developed and improved. In order to reach the

necessary heights of achievement, the child's environment and its surrounding influences are part of their overall development (Bronfenbrenner, 1979). The summary of findings, recommendations for policy and practice, and proposals for future research are discussed in this chapter. Through examination of the influence and predictability of specific socioeconomic, community, and school district factors in middle schools in New Jersey, we can provide clear and more meaningful discussion regarding policy and practice to support students in need. As reading is fundamental to student achievement in middle school, high school, and for long-term success, the need for this study and outcomes is even more critical in understanding the relationship between the predictors of success and academic achievement.

Summary of Findings

The purpose of this study was to examine the influence and predictability of socioeconomic, community, and district factors on the middle school academic achievement in New Jersey utilizing the 2018 PARCC ELA scores. The overall conclusions of this study confirm that standardized testing results are influenced by socioeconomic, community, and district factors and that outcomes can be predicted to a great extent (~ 60%) by these factors. The evidence resulting from this study demonstrates that family and external factors play a significant role in the development of each child and their academic achievement in middle school. Existing research focuses on SES factors in New Jersey on various grade levels and varied standardized test instruments (Angelillo, 2015; Maroun, 2018; Tienken et al., 2017; Turnamian, 2012). This is the first study to explore several SES factors and their influence and predictability on middle school grades using PARCC data.

The first, third, and fifth research questions asked if there was a statistically significant relationship between PARCC scores in ELA Grades 6, 7, and 8 and socioeconomic, community, or district variables. The results indicated there is a statistically significant relationship between

all independent variables and the dependent variables. For all grade levels, there were noteworthy correlations between the independent variables and the PARCC ELA test scores, both positive and negative. Most notable were the independent variables: poverty level, single-parent household, no high school diploma, bachelor's degree or higher, and free and reduced price lunch (FRPL).

The hierarchical multiple regression confirmed that the best model to explain the highest variability in New Jersey's PARCC ELA middle school test scores was Model 6, which contained all of the independent variables. A six-stage hierarchical multiple regression was conducted with ELA PARCC scores for all grade levels, meeting plus exceeding combined (Level 4 + Level 5), resulting in an average variability explanation of approximately 60% for all grade levels at the level of statistical significance.

The second, fourth, and sixth research questions asked if socioeconomic, community, or district variables can predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC ELA tests. Again, the analysis confirmed that the socioeconomic, community, or district variables could predict a student's performance of meeting expectations or exceeding expectations on the 2018 New Jersey PARCC ELA tests. Evidence of predictability in each grade was as follows: 54.8% of Grade 6 districts, 70% of Grade 7 districts, and 51.6% of Grade 8 districts. Given data for the variables, high school graduate and some college coupled with free and reduced price lunch, predictive power was demonstrated. There was no surprise that free and reduced price lunch (FRPL) is a strong SES factor as it measures both income and family household size. Several studies have found significant, adverse effects of FRPL on academic achievement in standardized test scores in New Jersey and other states (Angelillo, 2015; Caldwell, 2017; Maroun, 2018; Tienken et al., 2017; Turnamian, 2012).

Other SES and community variables such as poverty level, single-parent households, and parental education levels were assumed statistically significant by the researcher at any level of

testing; however, they were not statistically significant. For example, single-parent households, high school graduate and some college, and no high school diploma were not statistically significant at various levels in the hierarchical regression models for every grade level, based on the mix of variables in each model.

For all grade levels in this study, the 2018 PARCC ELA results and the six independent SES factors involving parental structure, parent education, the district, and community were examined through hierarchical linear regression. This model enabled the researcher to view various levels of regression adding each independent variable into the model to determine the model of best fit. Using the model of best fit, the regression equation for predictability enabled the researcher to compute predictions for all middle school districts in this study. Coupling the variables bachelor's degree and higher with free and reduced price lunch provided the greatest prediction results using the regression algorithm. This was proven in computing the predictability for all 836 middle school districts in the study. The predictability of 491 school districts, within the standard of error, confirms that 59% can be predicted, which is substantial. The remaining 41% of the variability in explaining test score results unaccounted for in this model is large and can be influenced by other variables not used in this particular study such as income levels of parents, employment rates in the community, or other SES variables listed in recommendations for future research.

Recommendations for Policy

At a critical time in their K–12 education, middle school students are faced with the pressure to achieve academically and socially. Academically, the need to possess the knowledge-based competencies to "read" in a more comprehensive sense is essential, as only about a third of U.S. students are meeting standards at this level (Reardon et al., 2012). This reading comprehension competency is needed in high school and throughout adulthood, particularly when students enter

higher education institutions or the workforce. As proven by the most recent report from the National Assessment of Educational Progress (NAEP), the remaining 66% of students who were not able to read and comprehend text proficiently will have a difficult time achieving success at the next levels. Due to the high number of students who fail to read proficiently, policy solutions that are not only equitable but also feasible are needed. These may include the consideration of alternative assessments, improving early childhood education and improving equity.

Curriculum policies in New Jersey are reviewed on an ongoing basis. Most recently, all core subjects except English language arts and mathematics standards were reviewed for improvement changes. However, English language arts and math standards are not up for review for another 2 years, which includes the review of standardized testing policies in New Jersey. Although state and federal laws have required New Jersey to administer statewide assessments in public schools for over 40 years, there are more effective and efficient assessment strategies that may be employed to assess student learning on a local level. The current curriculum standards and assessment law (N.J.A.C., 2019) outlines the ELA requirements and most recent changes influencing current middle school students.

Unfortunately, "Children from middle and upper class environments who enter preschool at age 4 have heard approximately 45 million words compared to a child from a family on welfare who has heard only 16 million words during his first four years of life" (Tienken, 2012). In a state where all students have the right to a thorough and efficient education, New Jersey can continue to improve its advances toward improving early childhood education. In recent years, over $56M have been poured into the Pre-K programs to either implement new schools or improve existing schools across the state. This funding will support the very early learners with reading and language arts skills needed to comply with curriculum standards and read on grade level by the time they reach middle school.

Parental involvement policies in education span the globe. In New Jersey, several policies address parent involvement, another key indicator in the academic success of students. Policies include parental consent for student survey data, applications for charter schools, funding programs that require strong parent involvement components, student safety and violence prevention programs, allowance for unpaid leave for parents of a school-aged child, and more. District and census data can be used to expand this study to predict academic outcomes of the growing Latinx students, particularly those who do not speak English. More resources, such as translators or Spanish-language materials, may be necessary to ensure equity in education for English Language Learners (ELLs). Parental policies support these learners as well. For example, each school district must notify by mail the parents of the pupils of limited English-speaking ability of the fact that their child has been identified as eligible for enrollment in a program of bilingual education. Notices must inform the parents of the option of declining enrollment in a bilingual program, and parents must be given an opportunity to decline enrollment if they so choose. The board must provide for the maximum practicable involvement of parents of children of limited English-speaking ability in the development and review of program objectives and dissemination of information to and from the local school districts and communities served by the bilingual education program within existing state law (New Jersey Revised Statutes Title 18A – Education, 2013).

Implementing policies that specifically address Bronfenbrenner's (1979) mesosystems, exosystems, and macrosystems are crucial in support of the child's development. Implementing policies that encourage PTO meetings for parents and faith-based initiatives in the community are examples of policies aimed to support the mesosystem development of the students. Local policies created by superintendents and administrators, with school board approval, targeted to provide increased academic enrichment for students during alternative school hours is an example at the exosystem level. Overall, on a macrosystem level, the federal and state mandated educational

policies and laws that govern Title I funding ensure appropriate budget allocations to states and districts and continually invest in K–12 education programs directly support academic achievement strategic planning. Recommendations include grants that improve teacher quality, professional development, reading programs, intervention support, and job growth and employment issues.

Recommendations for Practice

Using predictability data highlighted in this study gives administrators and school leaders specific information about issues that have statistically significant impact on their academic outcomes. Districts do not want low school performance as it is not only a risk to students and the community but also to their funding and future of the schools. Program interventions at the local level are identified to support the Bronfenbrenner (1979) theoretical framework, particularly microsystems and chronosystems, which directly impact the child's learning and have the most influence on their development. Supporting the microsystem of immediate family members, teachers, and peers, for example, within the district means developing relevant initiatives on a continual basis. With respect to the chronosystem, technology has a most significant impact on youth today, growing up in a period of rapid technological growth and heightened use of technology. Teachers and administrators must equip themselves with the technological tools that support this generation's learning style and social skills and use technology to their advantage in classrooms. Additionally, programs that support teachers, principals, or building administrators, parent advocacy, and community involvement in local education are necessary. These programs not only support students from socioeconomically disadvantaged districts but all students to achieve ELA academic achievement in middle school.

This study revealed the unacceptable truth concerning the socioeconomic impact of ELA outcomes for New Jersey students in Grades 6, 7, and 8. Research has demonstrated that

improving principal and teacher quality has a clear positive impact on student academic performance for students from disadvantaged districts. Programs in New Jersey such as New Leaders for New Schools and NJ EXCEL have benefited school leaders with professional development and training opportunities to help manage student performance from diverse backgrounds. To support parents and guardians of middle school students, programs that provide wrap-around services before-and-after-school hours as well as summer provide ongoing learning opportunities. One example of a summer program includes Upward Bound, which caters to middle school students (and eventually high school) as they prepare for high school and then college, by providing them with academic learning and tutoring support. Engaging parents of single-parent households is also important. Research provided in this study confirmed that parent engagement is a primary source of encouragement and motivation for student growth and development. Based on Bronfenbrenner's theoretical framework (Bronfenbrenner, 1979), "it takes a village" to raise a child, and parent, school, and community are the recipe for success. One example of parent opportunity is in North Carolina where some employers support parent engagement by allowing the parents time off from their place of work to participate in their child's schooling (Vaughan, 2019). The term *urban traumatic stress disorder* coined by Dr. Dale Caldwell (Caldwell, 2017) refers to policy-related trauma and the stress that may attribute to the academic achievement gap. Students with low socioeconomic factors from poor communities may suffer from this type of violent and poverty-driven trauma. District leaders and teachers are encouraged to provide emotional support for these students through routine social work activities and undergo training and sensitivity awareness when working with students impacted by this added stress.

Many administrators and district leaders have implemented local practices that prove effective such as portfolios and other similar methods to ensure that students are making progress with curriculum standards. By mandating alternative assessment strategies, New Jersey can

transition funds toward local school districts for needed resources and freeing up funds for more effective and age-appropriate learning strategies that can be used across the state and nation as there is a need to improve middle school language arts literacy. The STRW program that uses theory-based TARRGET modeling to combine reading and English instruction through cooperative learning processes is a great tool for middle school classrooms (Johnson & Johnson, 2008). Exemplary programs such as this and other similar research-based methods of ELA instruction equip teachers with instructional tools to ensure student success reaching their educational goals.

Recommendations for Future Research

While the purpose of the research performed in this study was to examine the influence and predictability of socioeconomic factors related to income and household (poverty and FRPL) and family structure (single parents and parental education) all within the districts, this study cannot offer all solutions that impact SES factors on academic achievement. These concepts should be used to inform and continue the dialogue of how to determine correlations with student academic performance and measures for improvement. The following recommendations for future research include:

1. Recreate this study utilizing PARCC math results for New Jersey middle schools. Examining the same socioeconomic, community, and district variables and their influence and predictability on middle school student achievement in New Jersey may provide data to compare and contrast with PARCC ELA scores. This would also provide research about math performance in middle schools in New Jersey and specific issues that need to be addressed in math curriculum.
2. Recreate this study in other states that utilize the PARCC as a state assessment. As many states left the PARCC consortium in recent years, few remain. A study examining the

outcomes of the same middle school grade levels in another state may offer another perspective on the socioeconomic impact to student academic achievement.

3. Conduct a qualitative case study on single-parent households and their impact to student performance and interventions for students who performed low on standardized tests. A case study that includes single-parent households would provide significant information regarding parental needs and/or resources that may lead to strategies that will increase student achievement.
4. Recreate this study including household income and community workforce data as an impact to student achievement in New Jersey. Including household income and community workforce data as additional dependent variables in this study may explain more of the influence on student academic achievement. Using this community and parent data, more information regarding household resources can be provided to support student-learning outcomes. In addition, utilizing the census data for community occupation data will shed some light on the impact of demographics and socio-psychology support of families in diverse districts.

Conclusion

Our ultimate goal as educators is to effectively and efficiently teach and reach students in learning, developing, and growing to their fullest potential. Bronfenbrenner's ecological model (1979) is a complex interwoven system demonstrating all interrelated layers and levels of a child's development including family, parents, teachers, schools, local and national government policies, and social and cultural practices. In providing the right policies, the right practices, and having meaningful conversations to enact these educational policies and practices, our society would flourish with student achievement. One of the key themes emerging from this study is parental

education at the bachelor's degree or higher level. The academic success of the parent(s) is directly linked to the academic success of the child. Although many students in New Jersey are labeled as low SES status, recommended policies and practices in this study can provide a means to support them in their quest for learning and achievement.

The results of this study will be used in several ways to support the improvement of academic achievement for middle school students in NJ. First, the results will be shared with specific districts with low socioeconomic factors to create meaningful dialogue and plans of action to support middle school students, teachers and staff, as well as the parents involved in the respective communities. Second, a reading resource will be recommended for districts in need of supplemental services in these populations. The supplemental reading resource will provide online diagnostic assessments and adaptive learning solutions for educators. This resource will provide individualized instruction in foundational reading skills for middle school students. In addition, instant and objective reporting for educators on the progress monitoring for each student is part of recommended platform. The platform is also ideal for English Language Leaners and varied ESL programs in middle schools across the state. Third, the results of this study will be communicated to the education community at large in New Jersey, including education leaders, policymakers, researchers and interested parents. Through presentations and publication, the researcher is interested in taking immediate action to improve the academic achievement for students where socioeconomic status plays a significant role in their educational opportunities and outcomes.

References

ADA. (1990) Americans with Disabilities Act of 1990, Pub. L. No. 101-336, § 2, 104 Stat. 328

Aldridge, J., Sexton, D., Goldman, R., Booker, B., & Werner, M. (1997). Examining contributions of child development theories to early childhood education, *College Student Journal*, *31*, 453–459.

American Bar Association. (2016). School closings: *Challenges for students, communities, and litigators*. https://www.americanbar.org/groups/litigation/committees/childrens-rights

Angelillo, C. J. (2015). *An analysis of the influence that community demographic data have on student performance on 2012 NJ ASK 8 language arts and mathematics.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3704450)

Armor, D. J., Marks, G. N., & Malatinszky, A. (2018). The impact of school SES on student achievement: Evidence from U.S. statewide achievement data. *Educational Evaluation & Policy Analysis*, *40*(4), 613.

Babo, G., & Elovitz, L. H. (2015). *Quantitative data analysis using Microsoft® Excel: A school administrator's guide*. Ypsilanti, MI: National Council of Professors of Educational Administration.

Baker, M., & Johnson, P. (2010), The impact of socioeconomic status on high stakes testing reexamined, *Journal of Instructional Psychology*, *37*, 3.

Barbee, M. W. (2010). *A handbook for educators: Encouraging parent involvement in low SES middle schools.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3406502)

Battle, J. (1997). The relative effects of married versus divorced family configuration and

socioeconomic status on the educational achievement of African American middle-grade students. *The Journal of Negro Education*, *66*(1), 29–42.

Bell, P. J. (2014). *The effect of social normative expectations on academic achievement in an urban middle school.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3667333)

Berger, N., & Archer, J. (2016). School socio-economic status and student socio-academic achievement goals in upper secondary contexts. *Social Psychology of Education: An International Journal*, *19*(1), 175–194.

Berrios, M. (2013). *Bridging the achievement gap for low socioeconomic students through literacy intervention.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3569863)

Blake, J. E. (2010). Collateral damage: How high-stakes testing corrupts America's schools. *Education Review*, *1*,1–7.

Blank, M. L. (2016). The impact of parental involvement on academic achievement in children. (Doctoral Dissertation).

Boyd, J. (2018). A nation at risk: The imperative for educational reform. An open letter to the American people. A report to the nation and the secretary of education. *Salem Press Encyclopedia.*

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Bronfenbrenner, U. (1994). Ecological models of human development. *International Encyclopedia of Education* (Vol. 3, 2nd. Ed.), Oxford: Elsevier.

Caldwell, D. G. (2017). *The influence of socioeconomic, parental, and district factors on the*

2013 MCAS Grade 4 language arts and mathematics scores. (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 10268014)

Cappella, E., Schwartz, K., Hill, J., Kim, H. Y., & Seidman, E. (2019). A national sample of eighth-grade students: The impact of middle grade schools on academic and psychosocial competence. *Journal of Early Adolescence*, *39*(2), 167.

Coleman, J. S., Campbell, E. Q., Hobson, C. L., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Ann Arbor, MI: Inter-University Consortium for Political and Social Research.

Colom, R., & Flores-Mendoza, C. E. (2007). Intelligence predicts scholastic achievement irrespective of SES factors: Evidence from Brazil. *Intelligence*, *35*(3), 243–251.

Crosnoe, R. (2009). Low-income students and the socioeconomic composition of public high schools. *American Sociological Review*, *74*(5), 709–730.

Cross, W. E., & Cross, W. E., Jr. (2017). Ecological factors in human development. *Child Development, 88*(3), 767–769.

Cunningham, W. G., & Sanzo, T. D. (2002). Is high-stakes testing harming lower socioeconomic status schools? National Association of Secondary School Principals. *NASSP Bulletin*, *86*(631), 62–62+.

Dale, P. A. (2013). *The effect of ACT preparatory classes on secondary school students' academic achievement.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3587517)

Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology*, *19*(2), 294–304.

Diorio, G. L. (2019). No Child Left Behind Act of 2001. *Salem Press Encyclopedia.*

Dolezalek, H. (2009). *Standardized testing in schools*. Edina, MN: ABDO.

The Education Trust. (2004). *The ABCs of "AYP": Raising achievement for all students.* Retrieved from www.edtrust.org

Elementary and Secondary Education Act (ESEA) of 1965. Pub. L. No. 89-110, § 64, Stat. 1100. (1965). Retrieved from https://www.govtrack.us/congress/bills/89/hr2362

Every Student Succeeds Act (ESSA) of 2015. Pub. L. No. 114-195. 1177 – 114th Congress. (2015). Retrieved from https://www.govtrack.us/congress/bills/114/s117

Finn, J. D., & Owings, M. F. (1994). Family structure and school performance in eighth grade. *The Journal of Research and Development in Education*, *27*(3), 176–187.

Fogarty, M., Oslund, E., Simmons, D., Davis, J., Simmons, L., Anderson, L., Roberts, G. (2014). Examining the effectiveness of a multicomponent reading comprehension intervention in middle schools: A focus on treatment fidelity. *Educational Psychology Review*, 26(3), 425-449.

Gottfried, A. W. (1985). Measures of socioeconomic status in child development research: Data and recommendations. *Merrill-Palmer Quarterly*, *31*(1), 85–92.

Harwell, M., Maeda, Y., Bishop, K., & Xie, A. (2017). The surprisingly modest relationship between SES and educational achievement. *Journal of Experimental Education*, *85*(2), 197.

Ho Sui-Chu, E., & Willms, J. D. (1996). Effects of parental involvement on eighth-grade achievement: A magazine of theory and practice. *Sociology of Education*, *69*(2), 126.

Hunger Free New Jersey. (2019). A program of Center for Food Action. Retrieved from Hungerfreenj.org

IDEA. (2004). Individuals with Disabilities Education Act, 20 U.S.C. § 1400

Jaskolka, D. L. (1995). *The relationship of single-parent households and student academic Achievement.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 9600197)

Jimenez, G. M. (2001). *The relationship between socioeconomic status and student achievement of middle school children.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 1407550)

Johnson, D. W., & Johnson, R. T. (2008). *The teacher's role in implementing cooperative learning in the classroom* (Vol. 7). New York, NY: Springer.

Krathwohl, D. R., & Smith, N. L. (2005). *How to prepare a dissertation proposal: Suggestions for students in education & the social and behavioral sciences*. Syracuse, NY: Syracuse University Press.

Maehr, M. L., & Anderman, E. M. (1993). Reinventing the middle school for early adolescents: Emphasizing tasks goals. *Elementary School Journal, 93*, 593–601

Maroun, J. (2018). *The predictive power of out-of-school community and family level demographic factors on district level student performance on the new jersey PARCC in algebra 1 and grade 10 English language Arts/Literacy* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 10793936)

Maylone, N. J. (2002). *The relationship of socioeconomic factors and district scores on the Michigan educational assessment program tests: An analysis.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3092066)

McFarland, J., Hussar, B., Zhang, J., Wang, X., Wang, K., Hein, S., Diliberti, M., Forrest Cataldi, E., Bullock Mann, F., & Barmer, A. (2019). The condition of education 2019. National Center for Education Statistics. www.nces.ed.gov

McGorry, G. (2009). *High stakes, high scores and student achievement: A middle school case study.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3387419)

Murnane, R. J., Sawhill, I., & Snow, C. (2012). Literacy challenges for the twenty-first century: Introducing the issue. *The Future of Children*, *22*(2), 3-15.

NAEP. National Assessment of Educational Progress (2019). The nation's report card. *National Center for Education Statistics (NCES).* Retrieved from https://www.nces.ed.gov/nationsreportcard/

NCES. National Center for Education Statistics. (2019). How did U.S. students perform on the most recent assessments? Retrieved from https://www.nationsreportcard.gov/

NCES. National Center for Education Statistics. (2011). NAEP Report card: See how U.S. students performed in reading. Retrieved from https://www.nationsreportcard.gov/

NCES. National Center for Education Statistics. (1996). NAEP Report card: See how U.S. students performed in reading. Retrieved from https://www.nationsreportcard.gov/

Neal, J. W., & Neal, Z. P. (2013). Nested or networked? Future directions for ecological systems theory. *Social Development*, *22*(4), 722–737.

NJDOE. New Jersey Department of Education. (2019). http://www.nj.gov/education

New Jersey Department of Education. (2016). *Assessment. Historical context: Overview of New Jersey's statewide testing program.* Retrieved from http://www.state.nj.us/education/assessment/history.shtml

New Jersey Revised Statutes Title 18A – Education. (2013). Section 18A:35-22 – Notification of parents; involvement in programs. *https://law.justia.com/codes/new-jersey/2013/title-18a/section-18a-35-22/*

N.J.A.C. (2019). *6A:8, Standards and Assessment.* *https://www.state.nj.us/education/code/current/title6a/chap8.pdf*

No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425. (2002). Retrieved from https://www.govtrack.us/congress/bills/107/hr1

Odden, A. R., & Picus, L. O. (2008). *School finance: A policy perspective* (4th ed.). New York, NY: McGrawHill.

OECD. Organisation for Economic Co-operation and Development., & Centre for Educational Research and Innovation. (2010). Education at a glance: OECD indicators. Paris: Organisation for Economic Co-operation and Development.

Önder, E., & Uyar, Ş. (2018). Factors affecting the academic achievement in socioeconomically disadvantaged students. *Journal of Education and Instruction*, *8*(2), 253–280.

Partnership for Assessment of readiness for College and Careers. (2019). Retrieved from https://parcc-assessment.org

Pelt, J. (2008). *The relationship between self-regulated learning and academic achievement in middle school students: A cross-cultural perspective.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3351700)

Pereira, M. A. (2011). *The influence of student and school variables on student performance on the New Jersey assessment of skills and knowledge in grade 8.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3452491)

Phelps, R. P. (2005). *Defending standardized testing*. Mahwah, NJ: Psychology Press.

Pitts, K. (2016). *The relationship of socioeconomic factors and district scores on the Texas*

assessment of knowledge and skills grade 8 mathematics test (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 10152764)

Plotts, T. (2011). *A multiple regression analysis of factors concerning superintendent longevity and continuity relative to student achievement*. Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3472699)

Pychology Wiki. (2020). Retrieved from https://psychology.wikia.org/wiki/Bioecological_model#

Ramburuth, P., & Härtel, C. E. J. (2010). Understanding and meeting the needs of students from low socioeconomic status backgrounds. *Multicultural Education & Technology Journal*, *4*(3), 153–162.

Readworks. (2019). *The crisis*. Retrieved from Readworks.org

Reardon, S. F., Valentino, R. A., & Shores, K. A. (2012). Patterns of literacy among U.S. students. *The Future of Children*, *22*(2), 17–37.

Schaefer, M., Malu K., & Yoon, B. (2016). An historical overview of the middle school movement, 1963–2015. Research in Middle Level Education, *39*(5).

Shreeve, W. (1986). Single parents and students achievements – A national tragedy. *Early child Development and Care*, *23*, 175–184.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*(3), 417–453.

Smith, J. L. (2018). *A phenomenological study of factors contributing to top ten percent academic achievement in one rural Texas high school with at least seventy percent low socioeconomic population*. Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 10812547)

Stevens, R. J. (2003). Student team reading and writing: A cooperative learning approach to middle school literacy instruction. *Educational Research and Evaluation, 9*(2), 137–160.

Stull, J. C. (2013). Family socioeconomic status, parent expectations, and a child's achievement. *Research in Education, 90*, 53–67.

Thomas, R. M. (2005). *High-stakes testing: Coping with collateral damage*. Mahwah, NJ: Routledge.

Tienken, C. H., Colella, A., Angelillo, C., Fox, M., McCahill, K. R., & Wolfe, A. (2017). Predicting middle level state standardized test results using family and community demographic data. *RMLE Online*, *40*(1), 1–13.

Tienken, C. H., & Orlich, D. C. (2013). *The school reform landscape: Fraud, myth, and lies*. Lanham, MD: Rowman & Littlefield Publishers.

Tienken, C. H. (2012). Poverty Matters. *AASA Journal of Scholarship and Practice*. Volume 9, No. 1, Spring 2012.

Turnamian, P. G. (2012). *The value of NJ school district demographic data in explaining school district NJ ASK grade 3 language arts and mathematics scores.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3510714)

U.S. Census Bureau. (2010). American factfinder. Retrieved from http://www.data.census.gov/

U. S. Department of Education. (1983). *A nation at risk: The imperative for educational reform*. Retrieved from www.ed.gov.pubsNatATRisk.index.html

U.S. Department of Education. (2009). *Program: Race to the Top funds.* https://www2.ed.gov/programs/racetothetop/index.html

U.S. Department of Education, National Center for Education Statistics. (1996). Reading literacy in the United States: Findings from the IEA Reading Literacy Study. Office of Educational Research and Improvement, NCES 96-258.

Valencia, R. R., & Villarreal, B. J. (2003). Improving students' reading performance via standards-based school reform: A critique. *The Reading Teacher*, *56*(7), 612–621.

Vaughan, K. (2019*). The effect of parental involvement and its associated policies on student outcomes.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 13858225)

Watson, C. N. (2012). *Using factors of socioeconomic status, family support, and academic preparation to explain the black-white gap in mathematics achievement and participation.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 3512366)

Watts, D. S., & Watts, K. M. (1992). The impact of female-headed single parent families on academic achievement. *Journal of Divorce & Remarriage*, *17*(1/2), 97–114.

White, K. R. (1982). The relation between socioeconomic status and academic achievement. *Psychological Bulletin, 913*, 461–481.

Wilson, C. M. (2009). The relation among parental factors and achievement of African American urban youth. *The Journal of Negro Education*, *78*(2), 102–113.

Witte, R. S., & Witte, J. S. (2010). *Statistics* (9th ed.). Hoboken, NJ: John Wiley & Sons.

Wolfe, A. (2016). *The predictive influence of family and community demographic variables on grade 7 student achievement in language arts and mathematics.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Accession Order No. 10107662)

Yelgün, A., & Karaman, I. (2015). What are the factors reducing the academic achievement in a primary school located in a neighborhood with a low socioeconomic status? *Education and Science*, *40*(179), 251–268.

APPENDIX A – PREDICTIONS: PARCC ELA GRADE 6

DISTRICT NAME	Regression Algorithm - **Variable i (X_i)**	Regression Algorithm - **Variable ii (X_{ii})**	**ALGORITHM - Ai (Xi) + Aii (Xii) ... + Constant = Y**	**ELA 6 - Combined Meeting/Exceeding (Level 4 + Level 5)**	**Difference in Predictive Value vs. REAL SCORE**	**Within error of Estimate**
GRADE 6	***FRPL – NJDOE***	***BACHELORS - CENSUS***	***PREDICTION (Y)***	***PARCC (4+5) ACTUAL***	***DIFFERENCE***	***"Yes" if within 12.8 standard error***
ABSECON CITY SCHOOL DISTRICT	47.37	30.90	62.20	59.1	3.10	Yes
ALLAMUCHY TOWNSHIP SCHOOL DISTRICT	8.51	46.40	78.71	43.5	35.21	No
ALLOWAY TOWNSHIP SCHOOL DISTRICT	14.76	24.70	69.51	70.8	-1.29	Yes
ALPHA BOROUGH SCHOOL DISTRICT	36.54	18.40	61.07	42.4	18.67	No
ASBURY PARK CITY SCHOOL DISTRICT	58.95	23.30	56.26	8	48.26	No
AUDUBON BOROUGH SCHOOL DISTRICT	24.56	31.30	68.93	67.5	1.43	Yes
AVON BOROUGH SCHOOL DISTRICT	11.97	58.60	81.87	58.3	23.57	No
BARNEGAT TOWNSHIP SCHOOL DISTRICT	35.63	24.30	63.34	48.1	15.24	No
BARRINGTON BOROUGH SCHOOL DISTRICT	25.44	32.60	69.12	38.6	30.52	No
BAY HEAD BOROUGH SCHOOL DISTRICT	-	64.10	87.21	100	-12.79	Yes
BEDMINSTER TOWNSHIP SCHOOL DISTRICT	9.37	67.20	85.56	74.2	11.36	Yes
BELLEVILLE TOWN SCHOOL DISTRICT	61.85	26.60	56.55	46.4	10.15	Yes
BELMAR BOROUGH SCHOOL DISTRICT	58.61	51.50	65.97	54.4	11.57	Yes
BELVIDERE TOWN SCHOOL DISTRICT	17.02	29.20	70.39	44.4	25.99	No

BERGENFIELD BOROUGH SCHOOL DISTRICT	38.11	42.20	68.73	57.5	11.23	Yes
BERKELEY HEIGHTS TOWNSHIP SCHOOL DISTRICT	1.87	66.90	87.62	83.1	4.52	Yes
BERLIN TOWNSHIP SCHOOL DISTRICT	10.29	21.10	69.57	64.3	5.27	Yes
BERNARDS TOWNSHIP SCHOOL DISTRICT	1.64	73.10	89.80	83.3	6.50	Yes
BEVERLY CITY SCHOOL DISTRICT	51.71	18.00	56.54	54.3	2.24	Yes
BLOOMINGDALE BOROUGH SCHOOL DISTRICT	23.32	35.30	70.65	61.4	9.25	Yes
BOGOTA BOROUGH SCHOOL DISTRICT	45.25	28.80	62.09	80	-17.91	No
BOONTON TOWN SCHOOL DISTRICT	30.65	47.30	72.62	49.2	23.42	No
BOONTON TOWNSHIP SCHOOL DISTRICT	1.87	64.10	86.67	87.3	-0.63	Yes
BOUND BROOK BOROUGH SCHOOL DISTRICT	48.32	19.60	58.07	24.3	33.77	No
BRADLEY BEACH BOROUGH SCHOOL DISTRICT	68.77	43.60	60.34	66.7	-6.36	Yes
BRANCHBURG TOWNSHIP SCHOOL DISTRICT	6.05	58.10	83.41	83.8	-0.39	Yes
BRIELLE BOROUGH SCHOOL DISTRICT	4.67	64.60	86.03	85.7	0.33	Yes
BRIGANTINE CITY SCHOOL DISTRICT	49.57	34.30	62.72	38.4	24.32	No
BROOKLAWN BOROUGH SCHOOL DISTRICT	57.62	19.20	55.25	50	5.25	Yes
BURLINGTON CITY SCHOOL DISTRICT	60.49	18.20	54.08	50.5	3.58	Yes
BURLINGTON TOWNSHIP SCHOOL DISTRICT	26.16	34.10	69.42	55.2	14.22	No
BUTLER BOROUGH SCHOOL DISTRICT	21.18	36.90	71.81	75.7	-3.89	Yes
CALDWELL-WEST CALDWELL SCHOOL DISTRICT	8.09	50.10	80.10	56.8	23.30	No
CAPE MAY CITY SCHOOL DISTRICT	45.14	48.50	68.84	78.9	-10.06	Yes
CARTERET BOROUGH SCHOOL DISTRICT	71.96	26.20	53.49	50.4	3.09	Yes
CEDAR GROVE TOWNSHIP SCHOOL DISTRICT	1.84	48.90	81.49	71.7	9.79	Yes
CINNAMINSON TOWNSHIP SCHOOL DISTRICT	13.52	40.60	75.29	65.5	9.79	Yes

CLARK TOWNSHIP SCHOOL DISTRICT	5.09	43.10	78.58	80.6	-2.02	Yes
CLAYTON BOROUGH SCHOOL DISTRICT	46.85	26.20	60.75	40.5	20.25	No
CLEMENTON BOROUGH SCHOOL DISTRICT	33.33	19.50	62.37	71.8	-9.43	Yes
CLIFTON CITY SCHOOL DISTRICT	56.42	32.30	60.06	46.2	13.86	No
COLLINGSWOOD BOROUGH SCHOOL DISTRICT	35.94	43.80	69.90	54.4	15.50	No
COMMERCIAL TOWNSHIP SCHOOL DISTRICT	58.30	8.20	51.30	0	51.30	No
CRESSKILL BOROUGH SCHOOL DISTRICT	0.49	65.90	87.68	78.2	9.48	Yes
DEAL BOROUGH SCHOOL DISTRICT	10.91	29.00	72.09	81	-8.91	Yes
DELANCO TOWNSHIP SCHOOL DISTRICT	41.60	32.40	64.38	40	24.38	No
DELRAN TOWNSHIP SCHOOL DISTRICT	22.98	39.70	72.25	43.6	28.65	No
DENNIS TOWNSHIP SCHOOL DISTRICT	29.78	24.20	65.00	37.8	27.20	No
DOWNE TOWNSHIP SCHOOL DISTRICT	44.69	11.10	56.22	40	16.22	No
DUNELLEN BOROUGH SCHOOL DISTRICT	46.40	30.00	62.17	54.7	7.47	Yes
EAST BRUNSWICK TOWNSHIP SCHOOL DISTRICT	17.01	53.00	78.51	76.7	1.81	Yes
EAST NEWARK BOROUGH SCHOOL DISTRICT	64.20	18.80	53.21	26.5	26.71	No
EDGEWATER BOROUGH SCHOOL DISTRICT	10.67	67.60	85.32	63.5	21.82	No
EDGEWATER PARK TOWNSHIP SCHOOL DISTRICT	48.36	21.80	58.81	49.4	9.41	Yes
EGG HARBOR CITY SCHOOL DISTRICT	80.37	15.20	47.31	4.3	43.01	No
ELMWOOD PARK SCHOOL DISTRICT	44.84	29.10	62.32	46.4	15.92	No
ELSINBORO TOWNSHIP SCHOOL DISTRICT	50.79	18.50	56.98	66.7	-9.72	Yes
EMERSON BOROUGH SCHOOL DISTRICT	8.34	42.20	77.33	70.6	6.73	Yes
ENGLEWOOD CITY SCHOOL DISTRICT	65.84	45.80	61.94	43.2	18.74	No
ESTELL MANOR CITY SCHOOL DISTRICT	25.00	25.90	66.96	76.2	-9.24	Yes
EWING TOWNSHIP SCHOOL DISTRICT	44.89	35.50	64.48	44.5	19.98	No
FAIRVIEW BOROUGH SCHOOL DISTRICT	56.89	21.70	56.31	40.1	16.21	No

FLORENCE TOWNSHIP SCHOOL DISTRICT	25.24	31.60	68.83	36.8	32.03	No
FOLSOM BOROUGH SCHOOL DISTRICT	29.82	20.40	63.69	42.1	21.59	No
GARWOOD BOROUGH SCHOOL DISTRICT	17.33	39.80	73.91	59.6	14.31	No
GLEN RIDGE BOROUGH SCHOOL DISTRICT	0.05	70.90	89.51	85.6	3.91	Yes
GLEN ROCK BOROUGH SCHOOL DISTRICT	0.80	72.90	89.98	86.8	3.18	Yes
GLOUCESTER CITY SCHOOL DISTRICT	69.12	19.40	51.99	56.8	-4.81	Yes
GREEN BROOK TOWNSHIP SCHOOL DISTRICT	3.21	58.10	84.24	65.7	18.54	No
GREEN TOWNSHIP SCHOOL DISTRICT	5.56	44.70	78.99	83.8	-4.81	Yes
GUTTENBERG TOWN SCHOOL DISTRICT	81.73	28.70	51.52	55.6	-4.08	Yes
HACKENSACK CITY SCHOOL DISTRICT	64.08	34.50	58.60	40.2	18.40	No
HACKETTSTOWN SCHOOL DISTRICT	27.18	32.40	68.54	71.4	-2.86	Yes
HADDON TOWNSHIP SCHOOL DISTRICT	16.36	44.70	75.87	53.6	22.27	No
HADDONFIELD BOROUGH SCHOOL DISTRICT	1.14	74.70	90.49	66.5	23.99	No
HAMMONTON TOWN SCHOOL DISTRICT	41.30	24.20	61.67	49.5	12.17	Yes
HARDING TOWNSHIP SCHOOL DISTRICT	0.97	75.50	90.82	93.3	-2.48	Yes
HARMONY TOWNSHIP SCHOOL DISTRICT	10.28	23.20	70.29	37.9	32.39	No
HARRISON TOWN SCHOOL DISTRICT	80.85	37.20	54.67	55	-0.33	Yes
HASBROUCK HEIGHTS BOROUGH SCHOOL DISTRICT	16.09	43.10	75.40	59.7	15.70	No
HAWTHORNE BOROUGH SCHOOL DISTRICT	24.09	34.70	70.22	55.2	15.02	No
HIGHLAND PARK BOROUGH SCHOOL DISTRICT	34.99	68.40	78.56	63.9	14.66	No
HILLSBOROUGH TOWNSHIP SCHOOL DISTRICT	8.76	56.60	82.12	71.5	10.62	Yes
HILLSIDE TOWNSHIP SCHOOL DISTRICT	64.18	23.20	54.72	32.3	22.42	No
HO HO KUS BOROUGH SCHOOL DISTRICT	-	78.60	92.15	91.2	0.95	Yes
HOLMDEL TOWNSHIP SCHOOL DISTRICT	3.64	64.70	86.36	86.6	-0.24	Yes

HOPATCONG SCHOOL DISTRICT	26.14	28.70	67.58	35.2	32.38	No
HOPE TOWNSHIP SCHOOL DISTRICT	16.55	36.50	73.01	65	8.01	Yes
JAMESBURG BOROUGH SCHOOL DISTRICT	58.21	31.70	59.34	28.1	31.24	No
JEFFERSON TOWNSHIP SCHOOL DISTRICT	11.09	40.20	75.85	46.4	29.45	No
KEANSBURG BOROUGH SCHOOL DISTRICT	43.39	19.10	59.32	17.5	41.82	No
KENILWORTH BOROUGH SCHOOL DISTRICT	25.34	26.60	67.10	54.9	12.20	Yes
KEYPORT BOROUGH SCHOOL DISTRICT	51.28	25.60	59.26	31.9	27.36	No
KINNELON BOROUGH SCHOOL DISTRICT	4.07	61.30	85.08	74.6	10.48	Yes
LACEY TOWNSHIP SCHOOL DISTRICT	27.82	27.80	66.79	44.3	22.49	No
LAKEHURST BOROUGH SCHOOL DISTRICT	51.34	14.50	55.46	14.3	41.16	No
LAKEWOOD TOWNSHIP SCHOOL DISTRICT	86.32	28.20	50.02	26.2	23.82	No
LAUREL SPRINGS BOROUGH SCHOOL DISTRICT	25.82	35.00	69.82	73.3	-3.48	Yes
LAVALLETTE BOROUGH SCHOOL DISTRICT	10.96	45.60	77.73	88.2	-10.47	Yes
LAWNSIDE BOROUGH SCHOOL DISTRICT	98.11	28.40	46.68	55.2	-8.52	Yes
LEONIA BOROUGH SCHOOL DISTRICT	16.22	58.30	80.54	77.5	3.04	Yes
LINCOLN PARK BOROUGH SCHOOL DISTRICT	17.27	36.90	72.94	77.4	-4.46	Yes
LINDENWOLD BOROUGH SCHOOL DISTRICT	82.07	14.90	46.71	28.7	18.01	No
LITTLE FERRY BOROUGH SCHOOL DISTRICT	41.34	29.60	63.50	48.6	14.90	No
LIVINGSTON TOWNSHIP SCHOOL DISTRICT	1.84	69.00	88.35	85.8	2.55	Yes
LODI BOROUGH SCHOOL DISTRICT	53.88	22.30	57.39	80.3	-22.91	No
LOGAN TOWNSHIP SCHOOL DISTRICT	18.27	36.70	72.59	69.3	3.29	Yes
LONG BRANCH CITY SCHOOL DISTRICT	85.08	29.30	50.75	30.5	20.25	No

LOPATCONG TOWNSHIP SCHOOL DISTRICT	13.44	36.70	73.98	45.2	28.78	No
LOWER ALLOWAYS CREEK SCHOOL DISTRICT	25.15	14.90	63.16	30	33.16	No
MADISON BOROUGH SCHOOL DISTRICT	6.65	67.70	86.52	82.4	4.12	Yes
MAHWAH TOWNSHIP SCHOOL DISTRICT	9.95	56.90	81.88	77.3	4.58	Yes
MANASQUAN BOROUGH SCHOOL DISTRICT	13.83	57.90	81.10	70.1	11.00	Yes
MANCHESTER TOWNSHIP SCHOOL DISTRICT	34.63	21.20	62.57	49.3	13.27	No
MANNINGTON TOWNSHIP SCHOOL DISTRICT	26.32	21.60	65.11	71.4	-6.29	Yes
MANVILLE BOROUGH SCHOOL DISTRICT	48.56	15.70	56.67	51.2	5.47	Yes
MAPLE SHADE TOWNSHIP SCHOOL DISTRICT	46.08	26.40	61.04	41.7	19.34	No
MARGATE CITY SCHOOL DISTRICT	10.41	48.90	79.02	90	-10.98	Yes
MAURICE RIVER TOWNSHIP SCHOOL DISTRICT	41.67	5.10	55.05	33.3	21.75	No
MAYWOOD BOROUGH SCHOOL DISTRICT	11.84	37.30	74.65	70.8	3.85	Yes
MERCHANTVILLE BOROUGH SCHOOL DISTRICT	29.78	31.80	67.59	36.4	31.19	No
METUCHEN BOROUGH SCHOOL DISTRICT	6.84	59.50	83.66	80.9	2.76	Yes
MIDDLE TOWNSHIP SCHOOL DISTRICT	47.80	27.30	60.84	52	8.84	Yes
MIDDLESEX BOROUGH SCHOOL DISTRICT	32.31	25.30	64.64	54.6	10.04	Yes
MIDLAND PARK BOROUGH SCHOOL DISTRICT	5.44	49.40	80.62	90.4	-9.78	Yes
MILLBURN TOWNSHIP SCHOOL DISTRICT	1.27	84.40	93.76	83.4	10.36	Yes
MILLSTONE TOWNSHIP SCHOOL DISTRICT	5.09	50.40	81.07	69.3	11.77	Yes
MILLTOWN BOROUGH SCHOOL DISTRICT	10.59	35.60	74.43	60	14.43	No
MILLVILLE CITY SCHOOL DISTRICT	70.71	16.70	50.61	29	21.61	No
MINE HILL TOWNSHIP SCHOOL DISTRICT	27.35	30.90	67.98	67.5	0.48	Yes

MONTAGUE TOWNSHIP SCHOOL DISTRICT	36.99	18.10	60.83	80	-19.17	No
MONTGOMERY TOWNSHIP SCHOOL DISTRICT	3.75	77.80	90.80	77.8	13.00	No
MONTVILLE TOWNSHIP SCHOOL DISTRICT	2.58	63.00	86.09	76.7	9.39	Yes
MOONACHIE BOROUGH SCHOOL DISTRICT	50.79	20.30	57.60	67.6	-10.00	Yes
MOORESTOWN TOWNSHIP SCHOOL DISTRICT	10.30	61.10	83.21	71.3	11.91	Yes
MORRIS PLAINS BOROUGH SCHOOL DISTRICT	5.79	60.10	84.17	74.2	9.97	Yes
MORRIS SCHOOL DISTRICT	34.11	61.30	76.40	66.3	10.10	Yes
MOUNT ARLINGTON BOROUGH SCHOOL DISTRICT	18.98	41.40	73.98	86	-12.02	Yes
MOUNT EPHRAIM BOROUGH SCHOOL DISTRICT	31.38	21.20	63.51	45.4	18.11	No
MOUNT OLIVE TOWNSHIP SCHOOL DISTRICT	13.75	43.90	76.35	81	-4.65	Yes
MOUNTAIN LAKES BOROUGH SCHOOL DISTRICT	2.35	86.10	94.03	93.3	0.73	Yes
MOUNTAINSIDE BOROUGH SCHOOL DISTRICT	2.61	53.60	82.88	83	-0.12	Yes
NEPTUNE CITY SCHOOL DISTRICT	59.66	24.40	56.43	35.8	20.63	No
NEPTUNE TOWNSHIP SCHOOL DISTRICT	50.78	30.60	61.11	24.3	36.81	No
NEW HANOVER TOWNSHIP SCHOOL DISTRICT	44.92	22.80	60.14	36.4	23.74	No
NEW MILFORD BOROUGH SCHOOL DISTRICT	16.70	42.40	74.98	72.6	2.38	Yes
NEWTON TOWN SCHOOL DISTRICT	33.86	25.20	64.16	53.8	10.36	Yes
NORTH ARLINGTON BOROUGH SCHOOL DISTRICT	19.54	33.90	71.26	59.1	12.16	Yes
NORTH BRUNSWICK TOWNSHIP SCHOOL DISTRICT	42.53	47.90	69.39	55.2	14.19	No
NORTH PLAINFIELD BOROUGH SCHOOL DISTRICT	66.99	23.90	54.14	27.8	26.34	No

NORTH WILDWOOD CITY SCHOOL DISTRICT	63.16	23.20	55.01	25.9	29.11	No
OAKLYN BOROUGH SCHOOL DISTRICT	34.25	34.50	67.22	56.1	11.12	Yes
OCEAN CITY SCHOOL DISTRICT	21.16	48.60	75.81	56.4	19.41	No
OLDMANS TOWNSHIP SCHOOL DISTRICT	23.36	24.90	67.09	73.5	-6.41	Yes
OXFORD TOWNSHIP SCHOOL DISTRICT	13.52	23.20	69.35	68.2	1.15	Yes
PALISADES PARK SCHOOL DISTRICT	51.34	43.20	65.25	44.3	20.95	No
PALMYRA BOROUGH SCHOOL DISTRICT	41.25	28.20	63.04	52.8	10.24	Yes
PAULSBORO SCHOOL DISTRICT	89.78	14.10	44.21	20.6	23.61	No
PEMBERTON TOWNSHIP SCHOOL DISTRICT	37.30	13.30	59.11	25.6	33.51	No
PENNSAUKEN TOWNSHIP SCHOOL DISTRICT	65.83	20.00	53.15	31.1	22.05	No
PEQUANNOCK TOWNSHIP SCHOOL DISTRICT	4.49	45.40	79.54	72.7	6.84	Yes
PHILLIPSBURG TOWN SCHOOL DISTRICT	54.33	18.30	55.89	36	19.89	No
PINE HILL BOROUGH SCHOOL DISTRICT	56.79	20.20	55.83	35.8	20.03	No
PITMAN BOROUGH SCHOOL DISTRICT	19.94	31.80	70.43	42.6	27.83	No
PITTSGROVE TOWNSHIP SCHOOL DISTRICT	33.85	27.30	64.88	70	-5.12	Yes
PLEASANTVILLE CITY SCHOOL DISTRICT	88.13	12.30	44.08	22.4	21.68	No
PLUMSTED TOWNSHIP SCHOOL DISTRICT	18.03	21.30	67.40	63.5	3.90	Yes
POHATCONG TOWNSHIP SCHOOL DISTRICT	0.32	26.80	74.40	46.9	27.50	No
POINT PLEASANT BEACH BOROUGH SCHOOL DISTRICT	16.98	52.30	78.28	80.9	-2.62	Yes
POINT PLEASANT BOROUGH SCHOOL DISTRICT	13.21	41.80	75.79	54.6	21.19	No
POMPTON LAKES BOROUGH SCHOOL DISTRICT	19.75	34.30	71.34	74.9	-3.56	Yes
PRINCETON PUBLIC SCHOOLS SCHOOL DISTRICT	13.07	79.60	88.72	80.5	8.22	Yes
QUINTON TOWNSHIP SCHOOL DISTRICT	36.81	17.60	60.71	65.8	-5.09	Yes

RAMSEY BOROUGH SCHOOL DISTRICT	6.61	66.80	86.22	82.6	3.62	Yes
RANDOLPH TOWNSHIP SCHOOL DISTRICT	8.10	62.90	84.46	68.1	16.36	No
RIDGEFIELD BOROUGH SCHOOL DISTRICT	31.23	35.80	68.53	69.3	-0.77	Yes
RIDGEWOOD VILLAGE SCHOOL DISTRICT	1.73	76.10	90.80	82.2	8.60	Yes
RIVERDALE BOROUGH SCHOOL DISTRICT	15.62	49.30	77.65	71	6.65	Yes
RIVERSIDE TOWNSHIP SCHOOL DISTRICT	58.19	18.30	54.77	14.9	39.87	No
ROCHELLE PARK TOWNSHIP SCHOOL DISTRICT	19.29	34.10	71.41	61.9	9.51	Yes
ROSELLE BOROUGH SCHOOL DISTRICT	77.00	18.30	49.34	34.6	14.74	No
ROSELLE PARK BOROUGH SCHOOL DISTRICT	37.20	37.50	67.39	38.5	28.89	No
ROXBURY TOWNSHIP SCHOOL DISTRICT	14.97	42.40	75.48	70.5	4.98	Yes
RUTHERFORD BOROUGH SCHOOL DISTRICT	4.56	54.30	82.55	78.4	4.15	Yes
SALEM CITY SCHOOL DISTRICT	78.57	9.40	45.85	22.9	22.95	No
SAYREVILLE BOROUGH SCHOOL DISTRICT	36.48	32.10	65.75	54.5	11.25	Yes
THE CHATHAMS SCHOOL DISTRICT	1.64	75.60	90.66	78.4	12.26	Yes
SECAUCUS TOWN SCHOOL DISTRICT	27.51	45.50	72.92	55.2	17.72	No
SOMERVILLE BOROUGH SCHOOL DISTRICT	28.91	38.00	69.95	44.8	25.15	No
SOUTH AMBOY CITY SCHOOL DISTRICT	41.98	27.60	62.63	47.1	15.53	No
SOUTH BOUND BROOK SCHOOL DISTRICT	40.27	21.50	61.04	38.1	22.94	No
SOUTH HACKENSACK TOWNSHIP SCHOOL DISTRICT	35.42	14.70	60.13	91.3	-31.17	No
SOUTH PLAINFIELD BOROUGH SCHOOL DISTRICT	25.13	35.20	70.09	63.1	6.99	Yes
SOUTH RIVER BOROUGH SCHOOL DISTRICT	45.42	23.60	60.27	46.6	13.67	No
SPARTA TOWNSHIP SCHOOL DISTRICT	4.64	55.60	82.97	75.6	7.37	Yes
SPOTSWOOD BOROUGH SCHOOL DISTRICT	14.73	26.70	70.20	56.1	14.10	No

SPRING LAKE HEIGHTS BOROUGH SCHOOL DISTRICT	4.45	52.40	81.93	91.6	-9.67	Yes
SUMMIT CITY SCHOOL DISTRICT	13.91	69.80	85.13	78.8	6.33	Yes
TENAFLY BOROUGH SCHOOL DISTRICT	2.05	79.20	91.77	83.1	8.67	Yes
ATLANTIC CITY SCHOOL DISTRICT	91.96	16.30	44.33	29.8	14.53	No
BAYONNE CITY SCHOOL DISTRICT	58.60	33.60	59.87	60.4	-0.53	Yes
BLOOMFIELD TOWNSHIP SCHOOL DISTRICT	41.24	39.90	67.04	57.7	9.34	Yes
BRICK TOWNSHIP SCHOOL DISTRICT	32.74	28.20	65.51	61	4.51	Yes
BRIDGETON CITY SCHOOL DISTRICT	64.51	5.00	48.41	19.1	29.31	No
CAMDEN CITY SCHOOL DISTRICT	65.02	8.30	49.39	11.7	37.69	No
CHERRY HILL TOWNSHIP SCHOOL DISTRICT	19.36	55.10	78.55	68.7	9.85	Yes
CITY OF ORANGE TOWNSHIP SCHOOL DISTRICT	71.38	21.60	52.09	38.4	13.69	No
CLIFFSIDE PARK BOROUGH SCHOOL DISTRICT	57.79	42.90	63.28	75.6	-12.32	Yes
CRANFORD TOWNSHIP SCHOOL DISTRICT	3.30	52.80	82.40	78.2	4.20	Yes
DEPTFORD TOWNSHIP SCHOOL DISTRICT	42.61	22.10	60.57	45.7	14.87	No
DOVER TOWN SCHOOL DISTRICT	76.43	15.00	48.38	69.2	-20.82	No
DUMONT BOROUGH SCHOOL DISTRICT	9.61	43.70	77.48	71.1	6.38	Yes
EAST ORANGE SCHOOL DISTRICT	62.29	18.80	53.76	38.9	14.86	No
EDISON TOWNSHIP SCHOOL DISTRICT	20.45	54.80	78.13	78.3	-0.17	Yes
EGG HARBOR TOWNSHIP SCHOOL DISTRICT	46.86	31.30	62.48	57.3	5.18	Yes
ELIZABETH CITY SCHOOL DISTRICT	80.92	12.40	46.19	46.1	0.09	Yes
FAIR LAWN BOROUGH SCHOOL DISTRICT	10.57	52.50	80.20	77.5	2.70	Yes
FORT LEE BOROUGH SCHOOL DISTRICT	17.72	59.60	80.55	83.2	-2.65	Yes
FRANKLIN TOWNSHIP SCHOOL DISTRICT	33.95	49.90	72.56	51.8	20.76	No
GLOUCESTER TOWNSHIP SCHOOL DISTRICT	41.19	26.80	62.59	50.6	11.99	Yes

GREENWICH TOWNSHIP SCHOOL DISTRICT	36.51	33.20	66.12	91.6	-25.48	No
HADDON HEIGHTS BOROUGH SCHOOL DISTRICT	12.49	55.20	80.56	84.7	-4.14	Yes
HAMILTON TOWNSHIP SCHOOL DISTRICT	45.84	27.30	61.41	48.7	12.71	Yes
HAZLET TOWNSHIP SCHOOL DISTRICT	19.00	32.90	71.08	74.6	-3.52	Yes
HOBOKEN CITY SCHOOL DISTRICT	53.29	78.20	76.62	70.1	6.52	Yes
IRVINGTON TOWNSHIP SCHOOL DISTRICT	82.84	15.10	46.56	22.7	23.86	No
JACKSON TOWNSHIP SCHOOL DISTRICT	23.71	30.60	68.93	56.4	12.53	Yes
JERSEY CITY SCHOOL DISTRICT	69.97	44.60	60.34	46.8	13.54	No
KEARNY TOWN SCHOOL DISTRICT	54.82	24.40	57.83	47.3	10.53	Yes
LINDEN CITY SCHOOL DISTRICT	56.62	21.90	56.46	41.8	14.66	No
LYNDHURST TOWNSHIP SCHOOL DISTRICT	21.45	33.60	70.61	62	8.61	Yes
MIDDLETOWN TOWNSHIP SCHOOL DISTRICT	11.37	45.30	77.51	65.6	11.91	Yes
MONTCLAIR TOWN SCHOOL DISTRICT	16.76	70.10	84.41	63.9	20.51	No
NEW BRUNSWICK CITY SCHOOL DISTRICT	48.21	20.70	58.48	33.1	25.38	No
NEW PROVIDENCE BOROUGH SCHOOL DISTRICT	2.28	68.00	87.88	88.1	-0.22	Yes
NEWARK CITY SCHOOL DISTRICT	84.68	14.40	45.79	33.8	11.99	Yes
NORTH BERGEN TOWNSHIP SCHOOL DISTRICT	54.86	25.80	58.29	50.5	7.79	Yes
NUTLEY TOWN SCHOOL DISTRICT	14.15	47.70	77.53	78.7	-1.17	Yes
OLD BRIDGE TOWNSHIP SCHOOL DISTRICT	24.93	38.20	71.17	54.6	16.57	No
PARAMUS BOROUGH SCHOOL DISTRICT	7.18	46.90	79.27	70.9	8.37	Yes
PARK RIDGE BOROUGH SCHOOL DISTRICT	4.97	56.70	83.25	76.9	6.35	Yes
PARSIPPANY-TROY HILLS TOWNSHIP SCHOOL DISTRICT	14.81	54.80	79.76	68.7	11.06	Yes
PASSAIC CITY SCHOOL DISTRICT	98.72	15.00	41.94	32.9	9.04	Yes

PATERSON CITY SCHOOL DISTRICT	76.26	10.30	46.82	28.3	18.52	No
PERTH AMBOY CITY SCHOOL DISTRICT	90.06	14.50	44.27	37	7.27	Yes
PISCATAWAY TOWNSHIP SCHOOL DISTRICT	35.66	50.50	72.27	60.2	12.07	Yes
PLAINFIELD CITY SCHOOL DISTRICT	80.15	17.20	48.05	18.6	29.45	No
RAHWAY CITY SCHOOL DISTRICT	55.74	28.10	58.82	42	16.82	No
RIDGEFIELD PARK TOWNSHIP SCHOOL DISTRICT	38.96	42.70	68.65	62.5	6.15	Yes
SADDLE BROOK TOWNSHIP SCHOOL DISTRICT	18.23	32.90	71.30	57	14.30	No
SOUTH BRUNSWICK TOWNSHIP SCHOOL DISTRICT	12.45	61.60	82.76	68.7	14.06	No
SOUTH ORANGE-MAPLEWOOD SCHOOL DISTRICT	17.17	65.40	82.69	64.9	17.79	No
SPRINGFIELD TOWNSHIP SCHOOL DISTRICT	18.06	33.70	71.62	79.3	-7.68	Yes
TEANECK TOWNSHIP SCHOOL DISTRICT	40.47	55.80	72.68	55.3	17.38	No
TRENTON PUBLIC SCHOOL DISTRICT	88.28	12.20	44.00	17.6	26.40	No
UNION CITY SCHOOL DISTRICT	88.59	19.90	46.54	58.9	-12.36	Yes
UNION TOWNSHIP SCHOOL DISTRICT	3.07	56.10	83.59	71.7	11.89	Yes
VINELAND CITY SCHOOL DISTRICT	58.04	17.50	54.54	26.9	27.64	No
WAYNE TOWNSHIP SCHOOL DISTRICT	9.28	51.00	80.06	70.8	9.26	Yes
WEST MILFORD TOWNSHIP SCHOOL DISTRICT	15.52	34.50	72.63	55.7	16.93	No
WEST NEW YORK TOWN SCHOOL DISTRICT	80.28	26.50	51.19	47	4.19	Yes
WESTFIELD TOWN SCHOOL DISTRICT	2.45	71.00	88.85	74.1	14.75	No
WINSLOW TOWNSHIP SCHOOL DISTRICT	31.10	26.00	65.23	39.5	25.73	No
WOODBRIDGE TOWNSHIP SCHOOL DISTRICT	33.51	35.10	67.64	48.5	19.14	No
UNION BEACH SCHOOL DISTRICT	32.96	24.10	64.04	63.8	0.24	Yes
UPPER PITTSGROVE TOWNSHIP SCHOOL DISTRICT	1.19	26.70	74.11	50	24.11	No
UPPER TOWNSHIP SCHOOL DISTRICT	13.32	41.60	75.69	85.3	-9.61	Yes

VENTNOR CITY SCHOOL DISTRICT	63.76	29.20	56.88	56.6	0.28	Yes
VERNON TOWNSHIP SCHOOL DISTRICT	17.88	31.30	70.86	60	10.86	Yes
WALL TOWNSHIP SCHOOL DISTRICT	10.06	48.20	78.88	77.6	1.28	Yes
WALLINGTON BOROUGH SCHOOL DISTRICT	30.33	27.90	66.10	57.8	8.30	Yes
WATERFORD TOWNSHIP SCHOOL DISTRICT	26.27	24.40	66.08	52.6	13.48	No
WEEHAWKEN TOWNSHIP SCHOOL DISTRICT	33.28	55.70	74.73	65.9	8.83	Yes
WEST DEPTFORD TOWNSHIP SCHOOL DISTRICT	27.89	32.70	68.44	53.1	15.34	No
WEST ORANGE TOWN SCHOOL DISTRICT	42.69	51.40	70.54	61.1	9.44	Yes
WHITE TOWNSHIP SCHOOL DISTRICT	17.54	24.40	68.60	75	-6.40	Yes
WILDWOOD CITY SCHOOL DISTRICT	69.64	16.20	50.75	9.3	41.45	No
WILDWOOD CREST BOROUGH SCHOOL DISTRICT	33.45	36.40	68.10	60	8.10	Yes
WILLINGBORO TOWNSHIP SCHOOL DISTRICT	65.59	24.80	54.85	21.4	33.45	No
WOODBINE BOROUGH SCHOOL DISTRICT	100.00	6.40	38.63	25	13.63	No
WOODBURY CITY SCHOOL DISTRICT	65.64	30.10	56.64	34.1	22.54	No
WOODLYNNE BOROUGH SCHOOL DISTRICT	88.28	7.60	42.43	18.9	23.53	No
WOOD-RIDGE BOROUGH SCHOOL DISTRICT	16.15	37.80	73.57	70.7	2.87	Yes

APPENDIX B – PREDICTIONS: PARCC ELA GRADE 7

DISTRICT NAME	Regression Algorithm - Variable i (X_i)	Regression Algorithm - Variable ii (X_{ii})	ALGORITHM - Ai (Xi) + Aii (Xii) ... + Constant = Y	ELA 7 - Combined Meeting/Exceeding (Level 4 + Level 5)	Difference in Predictive Value vs. REAL SCORE	Within error of Estimate
GRADE 7	*FRPL - CENSUS*	*BACHELORS - CENSUS*	*PREDICTION (Y)*	*PARCC (4+5) ACTUAL*	*DIFFERENCE*	*"Yes" if within 12.5 standard error*
ABSECON CITY SCHOOL DISTRICT	47.37	30.90	49.78	64.1	-14.32	No
ALLAMUCHY TOWNSHIP SCHOOL DISTRICT	8.51	46.40	70.57	73.3	-2.73	Yes
ALLOWAY TOWNSHIP SCHOOL DISTRICT	14.76	24.70	58.12	64.6	-6.48	Yes
ALPHA BOROUGH SCHOOL DISTRICT	36.54	18.40	47.60	83.3	-35.70	No
ASBURY PARK CITY SCHOOL DISTRICT	58.95	23.30	42.17	17.7	24.47	No
AUDUBON BOROUGH SCHOOL DISTRICT	24.56	31.30	57.86	55.8	2.06	Yes
AVON BOROUGH SCHOOL DISTRICT	11.97	58.60	75.16	95.2	-20.04	No
BARNEGAT TOWNSHIP SCHOOL DISTRICT	35.63	24.30	50.71	55.5	-4.79	Yes
BARRINGTON BOROUGH SCHOOL DISTRICT	25.44	32.60	58.17	66.2	-8.03	Yes
BAY HEAD BOROUGH SCHOOL DISTRICT	-	64.10	81.90	86.7	-4.80	Yes
BEDMINSTER TOWNSHIP SCHOOL DISTRICT	9.37	67.20	80.13	84.6	-4.47	Yes
BELLEVILLE TOWN SCHOOL DISTRICT	61.85	26.60	42.73	46.7	-3.97	Yes
BELMAR BOROUGH SCHOOL DISTRICT	58.61	51.50	55.65	72.3	-16.65	No
BELVIDERE TOWN SCHOOL DISTRICT	17.02	29.20	59.47	38.5	20.97	No
BERGENFIELD BOROUGH SCHOOL DISTRICT	38.11	42.20	58.34	76.4	-18.06	No
BERKELEY HEIGHTS TOWNSHIP SCHOOL DISTRICT	1.87	66.90	82.58	87.7	-5.12	Yes
BERLIN TOWNSHIP SCHOOL DISTRICT	10.29	21.10	57.96	67.4	-9.44	Yes
BERNARDS TOWNSHIP SCHOOL DISTRICT	1.64	73.10	85.60	80.9	4.70	Yes
BEVERLY CITY SCHOOL DISTRICT	51.71	18.00	42.16	82.8	-40.64	No
BLOOMINGDALE BOROUGH SCHOOL DISTRICT	23.32	35.30	60.18	60.3	-0.12	Yes
BOGOTA BOROUGH SCHOOL DISTRICT	45.25	28.80	49.52	67.8	-18.28	No
BOONTON TOWN SCHOOL DISTRICT	30.65	47.30	63.34	80	-16.66	No
BOONTON TOWNSHIP SCHOOL DISTRICT	1.87	64.10	81.26	86.3	-5.04	Yes
BOUND BROOK BOROUGH SCHOOL DISTRICT	48.32	19.60	44.09	35.4	8.69	Yes
BRADLEY BEACH BOROUGH SCHOOL DISTRICT	68.77	43.60	48.39	48.6	-0.21	Yes

BRANCHBURG TOWNSHIP SCHOOL DISTRICT	6.05	58.10	76.97	74.1	2.87	Yes
BRIELLE BOROUGH SCHOOL DISTRICT	4.67	64.60	80.52	86.9	-6.38	Yes
BRIGANTINE CITY SCHOOL DISTRICT	49.57	34.30	50.63	59.4	-8.77	Yes
BROOKLAWN BOROUGH SCHOOL DISTRICT	57.62	19.20	40.69	16.1	24.59	No
BURLINGTON CITY SCHOOL DISTRICT	60.49	18.20	39.22	38.3	0.92	Yes
BURLINGTON TOWNSHIP SCHOOL DISTRICT	26.16	34.10	58.63	56.7	1.93	Yes
BUTLER BOROUGH SCHOOL DISTRICT	21.18	36.90	61.68	83.9	-22.22	No
CALDWELL-WEST CALDWELL SCHOOL DISTRICT	8.09	50.10	72.47	76.5	-4.03	Yes
CARTERET BOROUGH SCHOOL DISTRICT	71.96	26.20	39.04	39.6	-0.56	Yes
CEDAR GROVE TOWNSHIP SCHOOL DISTRICT	1.84	48.90	74.06	79.8	-5.74	Yes
CINNAMINSON TOWNSHIP SCHOOL DISTRICT	13.52	40.60	66.09	78.1	-12.01	Yes
CLARK TOWNSHIP SCHOOL DISTRICT	5.09	43.10	70.19	82.1	-11.91	Yes
CLAYTON BOROUGH SCHOOL DISTRICT	46.85	26.20	47.73	54.4	-6.67	Yes
CLEMENTON BOROUGH SCHOOL DISTRICT	33.33	19.50	49.23	80.8	-31.57	No
CLIFTON CITY SCHOOL DISTRICT	56.42	32.30	47.31	52.1	-4.79	Yes
COLLINGSWOOD BOROUGH SCHOOL DISTRICT	35.94	43.80	59.85	50.7	9.15	Yes
COMMERCIAL TOWNSHIP SCHOOL DISTRICT	58.30	8.20	35.24	31.4	3.84	Yes
CRESSKILL BOROUGH SCHOOL DISTRICT	0.49	65.90	82.59	87.5	-4.91	Yes
DEAL BOROUGH SCHOOL DISTRICT	10.91	29.00	61.49	54.6	6.89	Yes
DELANCO TOWNSHIP SCHOOL DISTRICT	41.60	32.40	52.48	36.5	15.98	No
DELRAN TOWNSHIP SCHOOL DISTRICT	22.98	39.70	62.39	61.8	0.59	Yes
DENNIS TOWNSHIP SCHOOL DISTRICT	29.78	24.20	52.69	49	3.69	Yes
DOWNE TOWNSHIP SCHOOL DISTRICT	44.69	11.10	41.32	18.8	22.52	No
DUNELLEN BOROUGH SCHOOL DISTRICT	46.40	30.00	49.69	53.5	-3.81	Yes
EAST BRUNSWICK TOWNSHIP SCHOOL DISTRICT	17.01	53.00	70.76	81.4	-10.64	Yes
EAST NEWARK BOROUGH SCHOOL DISTRICT	64.20	18.80	38.22	32.1	6.12	Yes
EDGEWATER PARK TOWNSHIP SCHOOL DISTRICT	48.36	21.80	45.12	39	6.12	Yes
EGG HARBOR CITY SCHOOL DISTRICT	80.37	15.20	30.92	6.8	24.12	No
ELMWOOD PARK SCHOOL DISTRICT	44.84	29.10	49.80	55.1	-5.30	Yes
ELSINBORO TOWNSHIP SCHOOL DISTRICT	50.79	18.50	42.72	25	17.72	No
EMERSON BOROUGH SCHOOL DISTRICT	8.34	42.20	68.64	83.5	-14.86	No
ENGLEWOOD CITY SCHOOL DISTRICT	65.84	45.80	50.45	48.5	1.95	Yes
ESTELL MANOR CITY SCHOOL DISTRICT	25.00	25.90	55.15	42.9	12.25	Yes
EWING TOWNSHIP SCHOOL DISTRICT	44.89	35.50	52.82	52.5	0.32	Yes
FAIRVIEW BOROUGH SCHOOL DISTRICT	56.89	21.70	42.12	39.8	2.32	Yes

FLORENCE TOWNSHIP SCHOOL DISTRICT	25.24	31.60	57.77	45	12.77	Yes
FOLSOM BOROUGH SCHOOL DISTRICT	29.82	20.40	50.87	47.8	3.07	Yes
GARWOOD BOROUGH SCHOOL DISTRICT	17.33	39.80	64.39	56.4	7.99	Yes
GLEN RIDGE BOROUGH SCHOOL DISTRICT	0.05	70.90	85.11	77.3	7.81	Yes
GLEN ROCK BOROUGH SCHOOL DISTRICT	0.80	72.90	85.80	88.2	-2.40	Yes
GLOUCESTER CITY SCHOOL DISTRICT	69.12	19.40	36.80	40.9	-4.10	Yes
GREEN BROOK TOWNSHIP SCHOOL DISTRICT	3.21	58.10	77.95	82.7	-4.75	Yes
GREEN TOWNSHIP SCHOOL DISTRICT	5.56	44.70	70.79	95.6	-24.81	No
GUTTENBERG TOWN SCHOOL DISTRICT	81.73	28.70	36.85	63	-26.15	No
HACKENSACK CITY SCHOOL DISTRICT	64.08	34.50	45.70	45.3	0.40	Yes
HACKETTSTOWN SCHOOL DISTRICT	27.18	32.40	57.47	85.5	-28.03	No
HADDON TOWNSHIP SCHOOL DISTRICT	16.36	44.70	67.05	69.6	-2.55	Yes
HADDONFIELD BOROUGH SCHOOL DISTRICT	1.14	74.70	86.53	79.9	6.63	Yes
HAMMONTON TOWN SCHOOL DISTRICT	41.30	24.20	48.70	55.1	-6.40	Yes
HARDING TOWNSHIP SCHOOL DISTRICT	0.97	75.50	86.97	97.1	-10.13	Yes
HARMONY TOWNSHIP SCHOOL DISTRICT	10.28	23.20	58.96	34.6	24.36	No
HARRISON TOWN SCHOOL DISTRICT	80.85	37.20	41.18	55.6	-14.42	No
HASBROUCK HEIGHTS BOROUGH SCHOOL DISTRICT	16.09	43.10	66.38	74.7	-8.32	Yes
HAWTHORNE BOROUGH SCHOOL DISTRICT	24.09	34.70	59.63	59.7	-0.07	Yes
HIGHLAND PARK BOROUGH SCHOOL DISTRICT	34.99	68.40	71.83	67.8	4.03	Yes
HILLSBOROUGH TOWNSHIP SCHOOL DISTRICT	8.76	56.60	75.32	73.7	1.62	Yes
HILLSIDE TOWNSHIP SCHOOL DISTRICT	64.18	23.20	40.31	46.7	-6.39	Yes
HO HO KUS BOROUGH SCHOOL DISTRICT	-	78.60	88.78	90.9	-2.12	Yes
HOLMDEL TOWNSHIP SCHOOL DISTRICT	3.64	64.70	80.93	84.5	-3.57	Yes
HOPATCONG SCHOOL DISTRICT	26.14	28.70	56.08	47.3	8.78	Yes
HOPE TOWNSHIP SCHOOL DISTRICT	16.55	36.50	63.10	50.1	13.00	No
JAMESBURG BOROUGH SCHOOL DISTRICT	58.21	31.70	46.41	30.6	15.81	No
JEFFERSON TOWNSHIP SCHOOL DISTRICT	11.09	40.20	66.74	55.7	11.04	Yes
KEANSBURG BOROUGH SCHOOL DISTRICT	43.39	19.10	45.56	36.2	9.36	Yes
KENILWORTH BOROUGH SCHOOL DISTRICT	25.34	26.60	55.36	56.8	-1.44	Yes
KEYPORT BOROUGH SCHOOL DISTRICT	51.28	25.60	45.91	77	-31.09	No
KINNELON BOROUGH SCHOOL DISTRICT	4.07	61.30	79.17	78	1.17	Yes
LACEY TOWNSHIP SCHOOL DISTRICT	27.82	27.80	55.07	71.2	-16.13	No
LAKEHURST BOROUGH SCHOOL DISTRICT	51.34	14.50	40.63	37	3.63	Yes
LAKEWOOD TOWNSHIP SCHOOL DISTRICT	86.32	28.20	35.02	29.3	5.72	Yes
LAVALLETTE BOROUGH SCHOOL DISTRICT	10.96	45.60	69.34	84.7	-15.36	No
LAWNSIDE BOROUGH SCHOOL DISTRICT	98.11	28.40	31.04	56.7	-25.66	No

LEONIA BOROUGH SCHOOL DISTRICT	16.22	58.30	73.54	78.8	-5.26	Yes
LINCOLN PARK BOROUGH SCHOOL DISTRICT	17.27	36.90	63.04	84.2	-21.16	No
LINDENWOLD BOROUGH SCHOOL DISTRICT	82.07	14.90	30.19	17.3	12.89	No
LITTLE FERRY BOROUGH SCHOOL DISTRICT	41.34	29.60	51.25	72.1	-20.85	No
LIVINGSTON TOWNSHIP SCHOOL DISTRICT	1.84	69.00	83.59	86.7	-3.11	Yes
LODI BOROUGH SCHOOL DISTRICT	53.88	22.30	43.45	84.3	-40.85	No
LOGAN TOWNSHIP SCHOOL DISTRICT	18.27	36.70	62.60	76.7	-14.10	No
LONG BRANCH CITY SCHOOL DISTRICT	85.08	29.30	35.97	46.9	-10.93	Yes
LOPATCONG TOWNSHIP SCHOOL DISTRICT	13.44	36.70	64.27	76.1	-11.83	Yes
LOWER ALLOWAYS CREEK SCHOOL DISTRICT	25.15	14.90	49.88	72.7	-22.82	No
MADISON BOROUGH SCHOOL DISTRICT	6.65	67.70	81.31	86.3	-4.99	Yes
MAHWAH TOWNSHIP SCHOOL DISTRICT	9.95	56.90	75.05	85.5	-10.45	Yes
MANASQUAN BOROUGH SCHOOL DISTRICT	13.83	57.90	74.18	81.5	-7.32	Yes
MANCHESTER TOWNSHIP SCHOOL DISTRICT	34.63	21.20	49.59	61.2	-11.61	Yes
MANNINGTON TOWNSHIP SCHOOL DISTRICT	26.32	21.60	52.65	62.5	-9.85	Yes
MANVILLE BOROUGH SCHOOL DISTRICT	48.56	15.70	42.16	64	-21.84	No
MAPLE SHADE TOWNSHIP SCHOOL DISTRICT	46.08	26.40	48.09	52.6	-4.51	Yes
MARGATE CITY SCHOOL DISTRICT	10.41	48.90	71.10	95	-23.90	No
MAURICE RIVER TOWNSHIP SCHOOL DISTRICT	41.67	5.10	39.52	67.7	-28.18	No
MAYWOOD BOROUGH SCHOOL DISTRICT	11.84	37.30	65.11	84.4	-19.29	No
MERCHANTVILLE BOROUGH SCHOOL DISTRICT	29.78	31.80	56.29	51.1	5.19	Yes
METUCHEN BOROUGH SCHOOL DISTRICT	6.84	59.50	77.36	83.7	-6.34	Yes
MIDDLE TOWNSHIP SCHOOL DISTRICT	47.80	27.30	47.92	53.9	-5.98	Yes
MIDDLESEX BOROUGH SCHOOL DISTRICT	32.31	25.30	52.33	69.6	-17.27	No
MIDLAND PARK BOROUGH SCHOOL DISTRICT	5.44	49.40	73.05	64.2	8.85	Yes
MILLBURN TOWNSHIP SCHOOL DISTRICT	1.27	84.40	91.09	87.2	3.89	Yes
MILLSTONE TOWNSHIP SCHOOL DISTRICT	5.09	50.40	73.65	79.8	-6.15	Yes
MILLTOWN BOROUGH SCHOOL DISTRICT	10.59	35.60	64.73	68	-3.27	Yes
MILLVILLE CITY SCHOOL DISTRICT	70.71	16.70	34.97	30.8	4.17	Yes
MONTAGUE TOWNSHIP SCHOOL DISTRICT	36.99	18.10	47.30	66.7	-19.40	No
MONTGOMERY TOWNSHIP SCHOOL DISTRICT	3.75	77.80	87.10	81.8	5.30	Yes
MONTVILLE TOWNSHIP SCHOOL DISTRICT	2.58	63.00	80.49	86.6	-6.11	Yes
MOONACHIE BOROUGH SCHOOL DISTRICT	50.79	20.30	43.57	83.7	-40.13	No

MOORESTOWN TOWNSHIP SCHOOL DISTRICT	10.30	61.10	76.92	76.1	0.82	Yes
MORRIS PLAINS BOROUGH SCHOOL DISTRICT	5.79	60.10	78.01	93.3	-15.29	No
MORRIS SCHOOL DISTRICT	34.11	61.30	68.78	76.6	-7.82	Yes
MOUNT ARLINGTON BOROUGH SCHOOL DISTRICT	18.98	41.40	64.58	85	-20.42	No
MOUNT EPHRAIM BOROUGH SCHOOL DISTRICT	31.38	21.20	50.71	38.5	12.21	Yes
MOUNT OLIVE TOWNSHIP SCHOOL DISTRICT	13.75	43.90	67.57	91	-23.43	No
MOUNTAIN LAKES BOROUGH SCHOOL DISTRICT	2.35	86.10	91.52	92.9	-1.38	Yes
MOUNTAINSIDE BOROUGH SCHOOL DISTRICT	2.61	53.60	76.03	85.3	-9.27	Yes
NEPTUNE CITY SCHOOL DISTRICT	59.66	24.40	42.45	37.9	4.55	Yes
NEPTUNE TOWNSHIP SCHOOL DISTRICT	50.78	30.60	48.46	38.8	9.66	Yes
NEW HANOVER TOWNSHIP SCHOOL DISTRICT	44.92	22.80	46.79	33.4	13.39	No
NEW MILFORD BOROUGH SCHOOL DISTRICT	16.70	42.40	65.84	81.2	-15.36	No
NEWTON TOWN SCHOOL DISTRICT	33.86	25.20	51.75	46.4	5.35	Yes
NORTH ARLINGTON BOROUGH SCHOOL DISTRICT	19.54	33.90	60.83	76.9	-16.07	No
NORTH BRUNSWICK TOWNSHIP SCHOOL DISTRICT	42.53	47.90	59.51	55.3	4.21	Yes
NORTH PLAINFIELD BOROUGH SCHOOL DISTRICT	66.99	23.90	39.67	36.1	3.57	Yes
NORTH WILDWOOD CITY SCHOOL DISTRICT	63.16	23.20	40.67	39.1	1.57	Yes
OAKLYN BOROUGH SCHOOL DISTRICT	34.25	34.50	56.02	42.9	13.12	No
OCEAN CITY SCHOOL DISTRICT	21.16	48.60	67.24	67.3	-0.06	Yes
OLDMANS TOWNSHIP SCHOOL DISTRICT	23.36	24.90	55.24	73	-17.76	No
OXFORD TOWNSHIP SCHOOL DISTRICT	13.52	23.20	57.84	53.2	4.64	Yes
PALISADES PARK SCHOOL DISTRICT	51.34	43.20	54.23	58	-3.77	Yes
PALMYRA BOROUGH SCHOOL DISTRICT	41.25	28.20	50.61	51.4	-0.79	Yes
PAULSBORO SCHOOL DISTRICT	89.78	14.10	27.14	12.3	14.84	No
PEMBERTON TOWNSHIP SCHOOL DISTRICT	37.30	13.30	44.92	37.5	7.42	Yes
PENNSAUKEN TOWNSHIP SCHOOL DISTRICT	65.83	20.00	38.22	33.1	5.12	Yes
PEQUANNOCK TOWNSHIP SCHOOL DISTRICT	4.49	45.40	71.49	78.6	-7.11	Yes
PHILLIPSBURG TOWN SCHOOL DISTRICT	54.33	18.30	41.40	56.5	-15.10	No
PINE HILL BOROUGH SCHOOL DISTRICT	56.79	20.20	41.45	43.3	-1.85	Yes
PITMAN BOROUGH SCHOOL DISTRICT	19.94	31.80	59.70	41.7	18.00	No
PITTSGROVE TOWNSHIP SCHOOL DISTRICT	33.85	27.30	52.75	58.6	-5.85	Yes
PLEASANTVILLE CITY SCHOOL DISTRICT	88.13	12.30	26.86	30.9	-4.04	Yes
PLUMSTED TOWNSHIP SCHOOL DISTRICT	18.03	21.30	55.38	64.1	-8.72	Yes

POHATCONG TOWNSHIP SCHOOL DISTRICT	0.32	26.80	64.11	70	-5.89	Yes
POINT PLEASANT BEACH BOROUGH SCHOOL DISTRICT	16.98	52.30	70.43	89.8	-19.37	No
POINT PLEASANT BOROUGH SCHOOL DISTRICT	13.21	41.80	66.76	75.1	-8.34	Yes
POMPTON LAKES BOROUGH SCHOOL DISTRICT	19.75	34.30	60.94	83.3	-22.36	No
PRINCETON PUBLIC SCHOOLS SCHOOL DISTRICT	13.07	79.60	84.73	84.3	0.43	Yes
QUINTON TOWNSHIP SCHOOL DISTRICT	36.81	17.60	47.13	57.1	-9.97	Yes
RAMSEY BOROUGH SCHOOL DISTRICT	6.61	66.80	80.90	83.2	-2.30	Yes
RANDOLPH TOWNSHIP SCHOOL DISTRICT	8.10	62.90	78.53	80.1	-1.57	Yes
RIDGEFIELD BOROUGH SCHOOL DISTRICT	31.23	35.80	57.68	85	-27.32	No
RIDGEWOOD VILLAGE SCHOOL DISTRICT	1.73	76.10	86.99	83.8	3.19	Yes
RIVERDALE BOROUGH SCHOOL DISTRICT	15.62	49.30	69.49	84.8	-15.31	No
RIVERSIDE TOWNSHIP SCHOOL DISTRICT	58.19	18.30	40.06	37.5	2.56	Yes
ROCHELLE PARK TOWNSHIP SCHOOL DISTRICT	19.29	34.10	61.01	74.5	-13.49	No
ROSELLE BOROUGH SCHOOL DISTRICT	77.00	18.30	33.55	41.2	-7.65	Yes
ROSELLE PARK BOROUGH SCHOOL DISTRICT	37.20	37.50	56.43	59.5	-3.07	Yes
ROXBURY TOWNSHIP SCHOOL DISTRICT	14.97	42.40	66.44	59	7.44	Yes
RUTHERFORD BOROUGH SCHOOL DISTRICT	4.56	54.30	75.68	70.7	4.98	Yes
SALEM CITY SCHOOL DISTRICT	78.57	9.40	28.79	11.3	17.49	No
SAYREVILLE BOROUGH SCHOOL DISTRICT	36.48	32.10	54.11	60.3	-6.19	Yes
THE CHATHAMS SCHOOL DISTRICT	1.64	75.60	86.79	83.5	3.29	Yes
SECAUCUS TOWN SCHOOL DISTRICT	27.51	45.50	63.57	57.9	5.67	Yes
SOMERVILLE BOROUGH SCHOOL DISTRICT	28.91	38.00	59.53	61.2	-1.67	Yes
SOUTH AMBOY CITY SCHOOL DISTRICT	41.98	27.60	50.08	39	11.08	Yes
SOUTH BOUND BROOK SCHOOL DISTRICT	40.27	21.50	47.78	48.6	-0.82	Yes
SOUTH HACKENSACK TOWNSHIP SCHOOL DISTRICT	35.42	14.70	46.23	85.7	-39.47	No
SOUTH PLAINFIELD BOROUGH SCHOOL DISTRICT	25.13	35.20	59.51	66	-6.49	Yes
SOUTH RIVER BOROUGH SCHOOL DISTRICT	45.42	23.60	46.99	36.6	10.39	Yes
SPARTA TOWNSHIP SCHOOL DISTRICT	4.64	55.60	76.27	76	0.27	Yes
SPOTSWOOD BOROUGH SCHOOL DISTRICT	14.73	26.70	59.08	69.6	-10.52	Yes
SPRING LAKE HEIGHTS BOROUGH SCHOOL DISTRICT	4.45	52.40	74.82	85.7	-10.88	Yes
SUMMIT CITY SCHOOL DISTRICT	13.91	69.80	79.79	85.7	-5.91	Yes
TENAFLY BOROUGH SCHOOL DISTRICT	2.05	79.20	88.35	92.3	-3.95	Yes
ATLANTIC CITY SCHOOL DISTRICT	91.96	16.30	27.43	34.6	-7.17	Yes
BAYONNE CITY SCHOOL DISTRICT	58.60	33.60	47.17	64.9	-17.73	No
BLOOMFIELD TOWNSHIP SCHOOL DISTRICT	41.24	39.90	56.16	67.4	-11.24	Yes

BRICK TOWNSHIP SCHOOL DISTRICT	32.74	28.20	53.56	67.7	-14.14	No
BRIDGETON CITY SCHOOL DISTRICT	64.51	5.00	31.57	24.5	7.07	Yes
CAMDEN CITY SCHOOL DISTRICT	65.02	8.30	32.96	12.9	20.06	No
CHERRY HILL TOWNSHIP SCHOOL DISTRICT	19.36	55.10	70.94	74.2	-3.26	Yes
CITY OF ORANGE TOWNSHIP SCHOOL DISTRICT	71.38	21.60	37.06	55.9	-18.84	No
CLIFFSIDE PARK BOROUGH SCHOOL DISTRICT	57.79	42.90	51.86	60	-8.14	Yes
CRANFORD TOWNSHIP SCHOOL DISTRICT	3.30	52.80	75.41	81.8	-6.39	Yes
DEPTFORD TOWNSHIP SCHOOL DISTRICT	42.61	22.10	47.25	66.2	-18.95	No
DOVER TOWN SCHOOL DISTRICT	76.43	15.00	32.19	73.2	-41.01	No
DUMONT BOROUGH SCHOOL DISTRICT	9.61	43.70	68.91	78.5	-9.59	Yes
EAST ORANGE SCHOOL DISTRICT	62.29	18.80	38.88	42.2	-3.32	Yes
EDISON TOWNSHIP SCHOOL DISTRICT	20.45	54.80	70.42	80.7	-10.28	Yes
EGG HARBOR TOWNSHIP SCHOOL DISTRICT	46.86	31.30	50.14	54.9	-4.76	Yes
ELIZABETH CITY SCHOOL DISTRICT	80.92	12.40	29.40	57.8	-28.40	No
FAIR LAWN BOROUGH SCHOOL DISTRICT	10.57	52.50	72.75	74.8	-2.05	Yes
FORT LEE BOROUGH SCHOOL DISTRICT	17.72	59.60	73.64	72.2	1.44	Yes
FRANKLIN TOWNSHIP SCHOOL DISTRICT	33.95	49.90	63.43	73.8	-10.37	Yes
GLOUCESTER TOWNSHIP SCHOOL DISTRICT	41.19	26.80	49.97	60.5	-10.53	Yes
HADDON HEIGHTS BOROUGH SCHOOL DISTRICT	12.49	55.20	73.36	82.1	-8.74	Yes
HAMILTON TOWNSHIP SCHOOL DISTRICT	45.84	27.30	48.60	53.6	-5.00	Yes
HAZLET TOWNSHIP SCHOOL DISTRICT	19.00	32.90	60.54	62.9	-2.36	Yes
HOBOKEN CITY SCHOOL DISTRICT	53.29	78.20	70.15	38.8	31.35	No
IRVINGTON TOWNSHIP SCHOOL DISTRICT	82.84	15.10	30.02	37.2	-7.18	Yes
JACKSON TOWNSHIP SCHOOL DISTRICT	23.71	30.60	57.82	64	-6.18	Yes
JERSEY CITY SCHOOL DISTRICT	69.97	44.60	48.45	55.8	-7.35	Yes
KEARNY TOWN SCHOOL DISTRICT	54.82	24.40	44.12	38.1	6.02	Yes
LINDEN CITY SCHOOL DISTRICT	56.62	21.90	42.31	45.3	-2.99	Yes
LYNDHURST TOWNSHIP SCHOOL DISTRICT	21.45	33.60	60.03	78.4	-18.37	No
MIDDLETOWN TOWNSHIP SCHOOL DISTRICT	11.37	45.30	69.06	74.5	-5.44	Yes
MONTCLAIR TOWN SCHOOL DISTRICT	16.76	70.10	78.95	66.2	12.75	No
NEW BRUNSWICK CITY SCHOOL DISTRICT	48.21	20.70	44.65	42.1	2.55	Yes
NEW PROVIDENCE BOROUGH SCHOOL DISTRICT	2.28	68.00	82.97	83	-0.03	Yes
NEWARK CITY SCHOOL DISTRICT	84.68	14.40	29.05	39.3	-10.25	Yes
NORTH BERGEN TOWNSHIP SCHOOL DISTRICT	54.86	25.80	44.77	57.6	-12.83	No
NUTLEY TOWN SCHOOL DISTRICT	14.15	47.70	69.24	78.2	-8.96	Yes
OLD BRIDGE TOWNSHIP SCHOOL DISTRICT	24.93	38.20	61.00	70.6	-9.60	Yes

PARAMUS BOROUGH SCHOOL DISTRICT	7.18	46.90	71.27	77.2	-5.93	Yes
PARK RIDGE BOROUGH SCHOOL DISTRICT	4.97	56.70	76.68	81.1	-4.42	Yes
PARSIPPANY-TROY HILLS TOWNSHIP SCHOOL DISTRICT	14.81	54.80	72.37	75.7	-3.33	Yes
PASSAIC CITY SCHOOL DISTRICT	98.72	15.00	24.47	35.7	-11.23	Yes
PATERSON CITY SCHOOL DISTRICT	76.26	10.30	30.02	40.9	-10.88	Yes
PERTH AMBOY CITY SCHOOL DISTRICT	90.06	14.50	27.23	44.7	-17.47	No
PISCATAWAY TOWNSHIP SCHOOL DISTRICT	35.66	50.50	63.12	61.2	1.92	Yes
PLAINFIELD CITY SCHOOL DISTRICT	80.15	17.20	31.94	29.8	2.14	Yes
RAHWAY CITY SCHOOL DISTRICT	55.74	28.10	45.55	59.9	-14.35	No
RIDGEFIELD PARK TOWNSHIP SCHOOL DISTRICT	38.96	42.70	58.28	63.4	-5.12	Yes
SADDLE BROOK TOWNSHIP SCHOOL DISTRICT	18.23	32.90	60.81	82.2	-21.39	No
SOUTH BRUNSWICK TOWNSHIP SCHOOL DISTRICT	12.45	61.60	76.41	75.5	0.91	Yes
SOUTH ORANGE-MAPLEWOOD SCHOOL DISTRICT	17.17	65.40	76.58	73.4	3.18	Yes
SPRINGFIELD TOWNSHIP SCHOOL DISTRICT	18.06	33.70	61.25	64.1	-2.85	Yes
TEANECK TOWNSHIP SCHOOL DISTRICT	40.47	55.80	63.97	63	0.97	Yes
TRENTON PUBLIC SCHOOL DISTRICT	88.28	12.20	26.76	20.5	6.26	Yes
UNION CITY SCHOOL DISTRICT	88.59	19.90	30.30	65.8	-35.50	No
UNION TOWNSHIP SCHOOL DISTRICT	3.07	56.10	77.05	78.6	-1.55	Yes
VINELAND CITY SCHOOL DISTRICT	58.04	17.50	39.73	28.5	11.23	Yes
WAYNE TOWNSHIP SCHOOL DISTRICT	9.28	51.00	72.48	84.3	-11.82	Yes
WEST MILFORD TOWNSHIP SCHOOL DISTRICT	15.52	34.50	62.50	58	4.50	Yes
WEST NEW YORK TOWN SCHOOL DISTRICT	80.28	26.50	36.31	47.8	-11.49	Yes
WESTFIELD TOWN SCHOOL DISTRICT	2.45	71.00	84.33	74.2	10.13	Yes
WINSLOW TOWNSHIP SCHOOL DISTRICT	31.10	26.00	53.09	41.5	11.59	Yes
WOODBRIDGE TOWNSHIP SCHOOL DISTRICT	33.51	35.10	56.57	48.5	8.07	Yes
UNION BEACH SCHOOL DISTRICT	32.96	24.10	51.54	54.6	-3.06	Yes
UPPER PITTSGROVE TOWNSHIP SCHOOL DISTRICT	1.19	26.70	63.76	75	-11.24	Yes
UPPER TOWNSHIP SCHOOL DISTRICT	13.32	41.60	66.63	65.3	1.33	Yes
VENTNOR CITY SCHOOL DISTRICT	63.76	29.20	43.30	69.9	-26.60	No
VERNON TOWNSHIP SCHOOL DISTRICT	17.88	31.30	60.17	64.8	-4.63	Yes
WALL TOWNSHIP SCHOOL DISTRICT	10.06	48.20	70.89	75.2	-4.31	Yes
WALLINGTON BOROUGH SCHOOL DISTRICT	30.33	27.90	54.25	41.8	12.45	Yes
WEEHAWKEN TOWNSHIP SCHOOL DISTRICT	33.28	55.70	66.41	71.8	-5.39	Yes
WEST DEPTFORD TOWNSHIP SCHOOL DISTRICT	27.89	32.70	57.37	76.5	-19.13	No
WEST ORANGE TOWN SCHOOL DISTRICT	42.69	51.40	61.11	64.8	-3.69	Yes

WHITE TOWNSHIP SCHOOL DISTRICT	17.54	24.40	57.02	74.3	-17.28	No
WILDWOOD CITY SCHOOL DISTRICT	69.64	16.20	35.10	22.9	12.20	Yes
WILDWOOD CREST BOROUGH SCHOOL DISTRICT	33.45	36.40	57.20	63.4	-6.20	Yes
WILLINGBORO TOWNSHIP SCHOOL DISTRICT	65.59	24.80	40.58	30	10.58	Yes
WOODBURY CITY SCHOOL DISTRICT	65.64	30.10	43.08	40	3.08	Yes
WOODLYNNE BOROUGH SCHOOL DISTRICT	88.28	7.60	24.58	63	-38.42	No
WOOD-RIDGE BOROUGH SCHOOL DISTRICT	16.15	37.80	63.85	59.1	4.75	Yes

APPENDIX C – PREDICTIONS: PARCC ELA GRADE 8

DISTRICT NAME	Regression Algorithm - Variable i (X_i)	Regression Algorithm - Variable ii (X_{ii})	ALGORITHM - Ai (Xi) + Aii (Xii) ... + Constant = Y	ELA 8 - Combined Meeting/Exceeding (Level 4 + Level 5)	Difference in Predictive Value vs. REAL SCORE	Within error of Estimate
GRADE 8	*FRPL - CENSUS*	*BACHELORS - CENSUS*	*PREDICTION (Y)*	*PARCC (4+5) ACTUAL*	*DIFFERENCE*	*"Yes" if within 11.8 standard error*
ABSECON CITY SCHOOL DISTRICT	47.37	30.90	67.37	56.5	10.87	Yes
ALLAMUCHY TOWNSHIP SCHOOL DISTRICT	8.51	46.40	81.77	61.4	20.37	No
ALLOWAY TOWNSHIP SCHOOL DISTRICT	14.76	24.70	74.90	74.4	0.50	Yes
ALPHA BOROUGH SCHOOL DISTRICT	36.54	18.40	67.40	59.1	8.30	Yes
ASBURY PARK CITY SCHOOL DISTRICT	58.95	23.30	62.37	9.5	52.87	No
AUDUBON BOROUGH SCHOOL DISTRICT	24.56	31.30	73.76	47.9	25.86	No
AVON BOROUGH SCHOOL DISTRICT	11.97	58.60	83.71	100	-16.29	No
BARNEGAT TOWNSHIP SCHOOL DISTRICT	35.63	24.30	69.05	56.3	12.75	Yes
BARRINGTON BOROUGH SCHOOL DISTRICT	25.44	32.60	73.83	66.2	7.63	Yes
BAY HEAD BOROUGH SCHOOL DISTRICT	-	64.10	88.31	85	3.31	Yes
BEDMINSTER TOWNSHIP SCHOOL DISTRICT	9.37	67.20	86.46	79.3	7.16	Yes
BELLEVILLE TOWN SCHOOL DISTRICT	61.85	26.60	62.36	42.4	19.96	No
BELMAR BOROUGH SCHOOL DISTRICT	58.61	51.50	69.15	68.2	0.95	Yes

BELVIDERE TOWN SCHOOL DISTRICT	17.02	29.20	75.35	46.5	28.85	No
BERGENFIELD BOROUGH SCHOOL DISTRICT	38.11	42.20	72.61	71.7	0.91	Yes
BERKELEY HEIGHTS TOWNSHIP SCHOOL DISTRICT	1.87	66.90	88.46	82.7	5.76	Yes
BERLIN TOWNSHIP SCHOOL DISTRICT	10.29	21.10	75.28	62.5	12.78	Yes
BERNARDS TOWNSHIP SCHOOL DISTRICT	1.64	73.10	90.00	83.8	6.20	Yes
BEVERLY CITY SCHOOL DISTRICT	51.71	18.00	63.12	61.5	1.62	Yes
BLOOMINGDALE BOROUGH SCHOOL DISTRICT	23.32	35.30	75.05	76.6	-1.55	Yes
BOGOTA BOROUGH SCHOOL DISTRICT	45.25	28.80	67.46	59.6	7.86	Yes
BOONTON TOWN SCHOOL DISTRICT	30.65	47.30	75.87	65.5	10.37	Yes
BOONTON TOWNSHIP SCHOOL DISTRICT	1.87	64.10	87.80	94.8	-7.00	Yes
BOUND BROOK BOROUGH SCHOOL DISTRICT	48.32	19.60	64.43	37.1	27.33	No
BRADLEY BEACH BOROUGH SCHOOL DISTRICT	68.77	43.60	64.48	51.3	13.18	No
BRANCHBURG TOWNSHIP SCHOOL DISTRICT	6.05	58.10	85.22	81.6	3.62	Yes
BRIELLE BOROUGH SCHOOL DISTRICT	4.67	64.60	87.14	68.4	18.74	No
BRIGANTINE CITY SCHOOL DISTRICT	49.57	34.30	67.57	66.6	0.97	Yes
BROOKLAWN BOROUGH SCHOOL DISTRICT	57.62	19.20	61.77	25	36.77	No
BURLINGTON CITY SCHOOL DISTRICT	60.49	18.20	60.74	45.2	15.54	No
BURLINGTON TOWNSHIP SCHOOL DISTRICT	26.16	34.10	73.99	51.9	22.09	No
BUTLER BOROUGH SCHOOL DISTRICT	21.18	36.90	76.02	66.7	9.32	Yes
CALDWELL-WEST CALDWELL SCHOOL DISTRICT	8.09	50.10	82.76	58.3	24.46	No
CARTERET BOROUGH SCHOOL DISTRICT	71.96	26.20	59.47	47.8	11.67	Yes
CEDAR GROVE TOWNSHIP SCHOOL DISTRICT	1.84	48.90	84.20	61.8	22.40	No
CINNAMINSON TOWNSHIP SCHOOL DISTRICT	13.52	40.60	79.01	71.1	7.91	Yes
CLARK TOWNSHIP SCHOOL DISTRICT	5.09	43.10	81.93	67.5	14.43	No
CLAYTON BOROUGH SCHOOL DISTRICT	46.85	26.20	66.40	41.9	24.50	No
CLEMENTON BOROUGH SCHOOL DISTRICT	33.33	19.50	68.54	85.3	-16.76	No
CLIFTON CITY SCHOOL DISTRICT	56.42	32.30	65.21	48.2	17.01	No
COLLINGSWOOD BOROUGH SCHOOL DISTRICT	35.94	43.80	73.59	65	8.59	Yes

COMMERCIAL TOWNSHIP SCHOOL DISTRICT	58.30	8.20	58.98	34.7	24.28	No
CRESSKILL BOROUGH SCHOOL DISTRICT	0.49	65.90	88.61	77.3	11.31	Yes
DEAL BOROUGH SCHOOL DISTRICT	10.91	29.00	76.99	56.3	20.69	No
DELANCO TOWNSHIP SCHOOL DISTRICT	41.60	32.40	69.32	52.1	17.22	No
DELRAN TOWNSHIP SCHOOL DISTRICT	22.98	39.70	76.19	62.6	13.59	No
DENNIS TOWNSHIP SCHOOL DISTRICT	29.78	24.20	70.64	53.1	17.54	No
DOWNE TOWNSHIP SCHOOL DISTRICT	44.69	11.10	63.42	43.8	19.62	No
DUNELLEN BOROUGH SCHOOL DISTRICT	46.40	30.00	67.43	47	20.43	No
EAST BRUNSWICK TOWNSHIP SCHOOL DISTRICT	17.01	53.00	80.99	77.6	3.39	Yes
EAST NEWARK BOROUGH SCHOOL DISTRICT	64.20	18.80	59.86	35.7	24.16	No
EDGEWATER PARK TOWNSHIP SCHOOL DISTRICT	48.36	21.80	64.94	55.4	9.54	Yes
EGG HARBOR CITY SCHOOL DISTRICT	80.37	15.20	54.54	13.8	40.74	No
ELMWOOD PARK SCHOOL DISTRICT	44.84	29.10	67.64	52.2	15.44	No
ELSINBORO TOWNSHIP SCHOOL DISTRICT	50.79	18.50	63.49	53.8	9.69	Yes
EMERSON BOROUGH SCHOOL DISTRICT	8.34	42.20	80.82	76.9	3.92	Yes
ENGLEWOOD CITY SCHOOL DISTRICT	65.84	45.80	65.81	44.8	21.01	No
ESTELL MANOR CITY SCHOOL DISTRICT	25.00	25.90	72.36	62.9	9.46	Yes
EWING TOWNSHIP SCHOOL DISTRICT	44.89	35.50	69.15	42.7	26.45	No
FAIRVIEW BOROUGH SCHOOL DISTRICT	56.89	21.70	62.57	37.4	25.17	No
FLORENCE TOWNSHIP SCHOOL DISTRICT	25.24	31.60	73.65	28.4	45.25	No
FOLSOM BOROUGH SCHOOL DISTRICT	29.82	20.40	69.73	51	18.73	No
GARWOOD BOROUGH SCHOOL DISTRICT	17.33	39.80	77.77	61.9	15.87	No
GLEN RIDGE BOROUGH SCHOOL DISTRICT	0.05	70.90	89.91	86	3.91	Yes
GLEN ROCK BOROUGH SCHOOL DISTRICT	0.80	72.90	90.18	85.8	4.38	Yes
GLOUCESTER CITY SCHOOL DISTRICT	69.12	19.40	58.64	70.4	-11.76	Yes
GREEN BROOK TOWNSHIP SCHOOL DISTRICT	3.21	58.10	86.01	74.7	11.31	Yes
GREEN TOWNSHIP SCHOOL DISTRICT	5.56	44.70	82.18	90.7	-8.52	Yes
GUTTENBERG TOWN SCHOOL DISTRICT	81.73	28.70	57.37	62.4	-5.03	Yes

HACKENSACK CITY SCHOOL DISTRICT	64.08	34.50	63.61	51.9	11.71	Yes
HACKETTSTOWN SCHOOL DISTRICT	27.18	32.40	73.30	83	-9.70	Yes
HADDON TOWNSHIP SCHOOL DISTRICT	16.36	44.70	79.20	67.4	11.80	Yes
HADDONFIELD BOROUGH SCHOOL DISTRICT	1.14	74.70	90.51	80.1	10.41	Yes
HAMMONTON TOWN SCHOOL DISTRICT	41.30	24.20	67.46	63.7	3.76	Yes
HARDING TOWNSHIP SCHOOL DISTRICT	0.97	75.50	90.75	90	0.75	Yes
HARMONY TOWNSHIP SCHOOL DISTRICT	10.28	23.20	75.79	71.4	4.39	Yes
HARRISON TOWN SCHOOL DISTRICT	80.85	37.20	59.62	55.8	3.82	Yes
HASBROUCK HEIGHTS BOROUGH SCHOOL DISTRICT	16.09	43.10	78.90	62.5	16.40	No
HAWTHORNE BOROUGH SCHOOL DISTRICT	24.09	34.70	74.70	64.2	10.50	Yes
HIGHLAND PARK BOROUGH SCHOOL DISTRICT	34.99	68.40	79.68	55.4	24.28	No
HILLSBOROUGH TOWNSHIP SCHOOL DISTRICT	8.76	56.60	84.12	77.3	6.82	Yes
HILLSIDE TOWNSHIP SCHOOL DISTRICT	64.18	23.20	60.91	37.3	23.61	No
HO HO KUS BOROUGH SCHOOL DISTRICT	-	78.60	91.75	92.6	-0.85	Yes
HOLMDEL TOWNSHIP SCHOOL DISTRICT	3.64	64.70	87.45	85.3	2.15	Yes
HOPATCONG SCHOOL DISTRICT	26.14	28.70	72.71	39.6	33.11	No
HOPE TOWNSHIP SCHOOL DISTRICT	16.55	36.50	77.21	53.8	23.41	No
JAMESBURG BOROUGH SCHOOL DISTRICT	58.21	31.70	64.57	62.9	1.67	Yes
JEFFERSON TOWNSHIP SCHOOL DISTRICT	11.09	40.20	79.59	62.5	17.09	No
KEANSBURG BOROUGH SCHOOL DISTRICT	43.39	19.10	65.67	25.6	40.07	No
KENILWORTH BOROUGH SCHOOL DISTRICT	25.34	26.60	72.43	55.9	16.53	No
KEYPORT BOROUGH SCHOOL DISTRICT	51.28	25.60	65.04	65.3	-0.26	Yes
KINNELON BOROUGH SCHOOL DISTRICT	4.07	61.30	86.53	78.7	7.83	Yes
LACEY TOWNSHIP SCHOOL DISTRICT	27.82	27.80	72.03	56	16.03	No
LAKEHURST BOROUGH SCHOOL DISTRICT	51.34	14.50	62.39	32.4	29.99	No
LAKEWOOD TOWNSHIP SCHOOL DISTRICT	86.32	28.20	55.98	28	27.98	No
LAVALLETTE BOROUGH SCHOOL DISTRICT	10.96	45.60	80.91	81	-0.09	Yes
LAWNSIDE BOROUGH SCHOOL DISTRICT	98.11	28.40	52.78	48.4	4.38	Yes
LEONIA BOROUGH SCHOOL DISTRICT	16.22	58.30	82.46	69.1	13.36	No

LINCOLN PARK BOROUGH SCHOOL DISTRICT	17.27	36.90	77.10	74.5	2.60	Yes
LINDENWOLD BOROUGH SCHOOL DISTRICT	82.07	14.90	54.00	20.8	33.20	No
LITTLE FERRY BOROUGH SCHOOL DISTRICT	41.34	29.60	68.73	46.2	22.53	No
LIVINGSTON TOWNSHIP SCHOOL DISTRICT	1.84	69.00	88.97	90.7	-1.73	Yes
LODI BOROUGH SCHOOL DISTRICT	53.88	22.30	63.54	73.8	-10.26	Yes
LOGAN TOWNSHIP SCHOOL DISTRICT	18.27	36.70	76.78	77.3	-0.52	Yes
LONG BRANCH CITY SCHOOL DISTRICT	85.08	29.30	56.58	47.1	9.48	Yes
LOPATCONG TOWNSHIP SCHOOL DISTRICT	13.44	36.70	78.11	59.4	18.71	No
LOWER ALLOWAYS CREEK SCHOOL DISTRICT	25.15	14.90	69.71	52.4	17.31	No
MADISON BOROUGH SCHOOL DISTRICT	6.65	67.70	87.33	82	5.33	Yes
MAHWAH TOWNSHIP SCHOOL DISTRICT	9.95	56.90	83.86	76.2	7.66	Yes
MANASQUAN BOROUGH SCHOOL DISTRICT	13.83	57.90	83.03	71.3	11.73	Yes
MANCHESTER TOWNSHIP SCHOOL DISTRICT	34.63	21.20	68.59	47.6	20.99	No
MANNINGTON TOWNSHIP SCHOOL DISTRICT	26.32	21.60	70.98	61.1	9.88	Yes
MANVILLE BOROUGH SCHOOL DISTRICT	48.56	15.70	63.44	52.8	10.64	Yes
MAPLE SHADE TOWNSHIP SCHOOL DISTRICT	46.08	26.40	66.66	40.3	26.36	No
MARGATE CITY SCHOOL DISTRICT	10.41	48.90	81.84	85	-3.16	Yes
MAURICE RIVER TOWNSHIP SCHOOL DISTRICT	41.67	5.10	62.83	65.2	-2.37	Yes
MAYWOOD BOROUGH SCHOOL DISTRICT	11.84	37.30	78.70	76	2.70	Yes
MERCHANTVILLE BOROUGH SCHOOL DISTRICT	29.78	31.80	72.44	41.4	31.04	No
METUCHEN BOROUGH SCHOOL DISTRICT	6.84	59.50	85.34	77.2	8.14	Yes
MIDDLE TOWNSHIP SCHOOL DISTRICT	47.80	27.30	66.40	47.9	18.50	No
MIDDLESEX BOROUGH SCHOOL DISTRICT	32.31	25.30	70.20	71.1	-0.90	Yes
MIDLAND PARK BOROUGH SCHOOL DISTRICT	5.44	49.40	83.33	77	6.33	Yes
MILLBURN TOWNSHIP SCHOOL DISTRICT	1.27	84.40	92.78	89.5	3.28	Yes
MILLSTONE TOWNSHIP SCHOOL DISTRICT	5.09	50.40	83.66	73.4	10.26	Yes
MILLTOWN BOROUGH SCHOOL DISTRICT	10.59	35.60	78.64	69.2	9.44	Yes
MILLVILLE CITY SCHOOL DISTRICT	70.71	16.70	57.57	27.8	29.77	No
MONTAGUE TOWNSHIP SCHOOL DISTRICT	36.99	18.10	67.20	69.6	-2.40	Yes

MONTGOMERY TOWNSHIP SCHOOL DISTRICT	3.75	77.80	90.53	79.9	10.63	Yes
MONTVILLE TOWNSHIP SCHOOL DISTRICT	2.58	63.00	87.34	78.8	8.54	Yes
MOONACHIE BOROUGH SCHOOL DISTRICT	50.79	20.30	63.92	66.6	-2.68	Yes
MOORESTOWN TOWNSHIP SCHOOL DISTRICT	10.30	61.10	84.76	79.2	5.56	Yes
MORRIS PLAINS BOROUGH SCHOOL DISTRICT	5.79	60.10	85.77	87.3	-1.53	Yes
MORRIS SCHOOL DISTRICT	34.11	61.30	78.24	75.4	2.84	Yes
MOUNT ARLINGTON BOROUGH SCHOOL DISTRICT	18.98	41.40	77.70	83.7	-6.00	Yes
MOUNT EPHRAIM BOROUGH SCHOOL DISTRICT	31.38	21.20	69.49	41.3	28.19	No
MOUNT OLIVE TOWNSHIP SCHOOL DISTRICT	13.75	43.90	79.73	82.6	-2.87	Yes
MOUNTAIN LAKES BOROUGH SCHOOL DISTRICT	2.35	86.10	92.88	93.2	-0.32	Yes
MOUNTAINSIDE BOROUGH SCHOOL DISTRICT	2.61	53.60	85.11	81.7	3.41	Yes
NEPTUNE CITY SCHOOL DISTRICT	59.66	24.40	62.44	51.3	11.14	Yes
NEPTUNE TOWNSHIP SCHOOL DISTRICT	50.78	30.60	66.36	26.7	39.66	No
NEW HANOVER TOWNSHIP SCHOOL DISTRICT	44.92	22.80	66.13	54.6	11.53	Yes
NEW MILFORD BOROUGH SCHOOL DISTRICT	16.70	42.40	78.56	82	-3.44	Yes
NEWTON TOWN SCHOOL DISTRICT	33.86	25.20	69.75	57.8	11.95	Yes
NORTH ARLINGTON BOROUGH SCHOOL DISTRICT	19.54	33.90	75.76	56.8	18.96	No
NORTH BRUNSWICK TOWNSHIP SCHOOL DISTRICT	42.53	47.90	72.74	60.1	12.64	Yes
NORTH PLAINFIELD BOROUGH SCHOOL DISTRICT	66.99	23.90	60.30	44.5	15.80	No
NORTH WILDWOOD CITY SCHOOL DISTRICT	63.16	23.20	61.19	73.4	-12.21	Yes
OAKLYN BOROUGH SCHOOL DISTRICT	34.25	34.50	71.85	11.5	60.35	No
OCEAN CITY SCHOOL DISTRICT	21.16	48.60	78.80	77.8	1.00	Yes
OLDMANS TOWNSHIP SCHOOL DISTRICT	23.36	24.90	72.58	66.7	5.88	Yes
OXFORD TOWNSHIP SCHOOL DISTRICT	13.52	23.20	74.89	36.3	38.59	No
PALISADES PARK SCHOOL DISTRICT	51.34	43.20	69.19	47	22.19	No
PALMYRA BOROUGH SCHOOL DISTRICT	41.25	28.20	68.42	38.9	29.52	No
PAULSBORO SCHOOL DISTRICT	89.78	14.10	51.69	12.3	39.39	No
PEMBERTON TOWNSHIP SCHOOL DISTRICT	37.30	13.30	65.98	41.6	24.38	No
PENNSAUKEN TOWNSHIP SCHOOL DISTRICT	65.83	20.00	59.69	33.6	26.09	No

PEQUANNOCK TOWNSHIP SCHOOL DISTRICT	4.49	45.40	82.64	78.7	3.94	Yes
PHILLIPSBURG TOWN SCHOOL DISTRICT	54.33	18.30	62.46	34.5	27.96	No
PINE HILL BOROUGH SCHOOL DISTRICT	56.79	20.20	62.24	64.9	-2.66	Yes
PITMAN BOROUGH SCHOOL DISTRICT	19.94	31.80	75.16	56.1	19.06	No
PITTSGROVE TOWNSHIP SCHOOL DISTRICT	33.85	27.30	70.25	65	5.25	Yes
PLEASANTVILLE CITY SCHOOL DISTRICT	88.13	12.30	51.71	18.9	32.81	No
PLUMSTED TOWNSHIP SCHOOL DISTRICT	18.03	21.30	73.20	63.4	9.80	Yes
POHATCONG TOWNSHIP SCHOOL DISTRICT	0.32	26.80	79.39	81.3	-1.91	Yes
POINT PLEASANT BEACH BOROUGH SCHOOL DISTRICT	16.98	52.30	80.83	89.5	-8.67	Yes
POINT PLEASANT BOROUGH SCHOOL DISTRICT	13.21	41.80	79.38	66.5	12.88	No
POMPTON LAKES BOROUGH SCHOOL DISTRICT	19.75	34.30	75.80	76.8	-1.00	Yes
PRINCETON PUBLIC SCHOOLS SCHOOL DISTRICT	13.07	79.60	88.38	92.5	-4.12	Yes
QUINTON TOWNSHIP SCHOOL DISTRICT	36.81	17.60	67.13	47	20.13	No
RAMSEY BOROUGH SCHOOL DISTRICT	6.61	66.80	87.13	83.1	4.03	Yes
RANDOLPH TOWNSHIP SCHOOL DISTRICT	8.10	62.90	85.79	80.3	5.49	Yes
RIDGEFIELD BOROUGH SCHOOL DISTRICT	31.23	35.80	72.99	74.3	-1.31	Yes
RIDGEWOOD VILLAGE SCHOOL DISTRICT	1.73	76.10	90.68	81.3	9.38	Yes
RIVERDALE BOROUGH SCHOOL DISTRICT	15.62	49.30	80.50	76.9	3.60	Yes
RIVERSIDE TOWNSHIP SCHOOL DISTRICT	58.19	18.30	61.40	18.3	43.10	No
ROCHELLE PARK TOWNSHIP SCHOOL DISTRICT	19.29	34.10	75.88	72	3.88	Yes
ROSELLE BOROUGH SCHOOL DISTRICT	77.00	18.30	56.21	44.3	11.91	No
ROSELLE PARK BOROUGH SCHOOL DISTRICT	37.20	37.50	71.74	56.7	15.04	No
ROXBURY TOWNSHIP SCHOOL DISTRICT	14.97	42.40	79.04	70.6	8.44	Yes
RUTHERFORD BOROUGH SCHOOL DISTRICT	4.56	54.30	84.73	62.4	22.33	No
SALEM CITY SCHOOL DISTRICT	78.57	9.40	53.67	22.6	31.07	No
SAYREVILLE BOROUGH SCHOOL DISTRICT	36.48	32.10	70.66	50.4	20.26	No
THE CHATHAMS SCHOOL DISTRICT	1.64	75.60	90.59	82.4	8.19	Yes
SECAUCUS TOWN SCHOOL DISTRICT	27.51	45.50	76.31	77.3	-0.99	Yes
SOMERVILLE BOROUGH SCHOOL DISTRICT	28.91	38.00	74.15	58.6	15.55	No

SOUTH AMBOY CITY SCHOOL DISTRICT	41.98	27.60	68.08	29.6	38.48	No
SOUTH BOUND BROOK SCHOOL DISTRICT	40.27	21.50	67.10	44.8	22.30	No
SOUTH HACKENSACK TOWNSHIP SCHOOL DISTRICT	35.42	14.70	66.83	72.7	-5.87	Yes
SOUTH PLAINFIELD BOROUGH SCHOOL DISTRICT	25.13	35.20	74.53	57.1	17.43	No
SOUTH RIVER BOROUGH SCHOOL DISTRICT	45.42	23.60	66.18	52.1	14.08	No
SPARTA TOWNSHIP SCHOOL DISTRICT	4.64	55.60	85.02	72.1	12.92	No
SPOTSWOOD BOROUGH SCHOOL DISTRICT	14.73	26.70	75.39	71	4.39	Yes
SPRING LAKE HEIGHTS BOROUGH SCHOOL DISTRICT	4.45	52.40	84.31	92.7	-8.39	Yes
SUMMIT CITY SCHOOL DISTRICT	13.91	69.80	85.83	80.7	5.13	Yes
TENAFLY BOROUGH SCHOOL DISTRICT	2.05	79.20	91.33	84.7	6.63	Yes
ATLANTIC CITY SCHOOL DISTRICT	91.96	16.30	51.60	39.1	12.50	No
BAYONNE CITY SCHOOL DISTRICT	58.60	33.60	64.91	57.6	7.31	Yes
BLOOMFIELD TOWNSHIP SCHOOL DISTRICT	41.24	39.90	71.20	54.7	16.50	No
BRICK TOWNSHIP SCHOOL DISTRICT	32.74	28.20	70.77	66.1	4.67	Yes
BRIDGETON CITY SCHOOL DISTRICT	64.51	5.00	56.50	32.5	24.00	No
CAMDEN CITY SCHOOL DISTRICT	65.02	8.30	57.15	13.9	43.25	No
CHERRY HILL TOWNSHIP SCHOOL DISTRICT	19.36	55.10	80.84	72	8.84	Yes
CITY OF ORANGE TOWNSHIP SCHOOL DISTRICT	71.38	21.60	58.54	34.6	23.94	No
CLIFFSIDE PARK BOROUGH SCHOOL DISTRICT	57.79	42.90	67.34	57.5	9.84	Yes
CRANFORD TOWNSHIP SCHOOL DISTRICT	3.30	52.80	84.73	77.2	7.53	Yes
DEPTFORD TOWNSHIP SCHOOL DISTRICT	42.61	22.10	66.60	75.5	-8.90	Yes
DOVER TOWN SCHOOL DISTRICT	76.43	15.00	55.58	69.1	-13.52	No
DUMONT BOROUGH SCHOOL DISTRICT	9.61	43.70	80.83	79.5	1.33	Yes
EAST ORANGE SCHOOL DISTRICT	62.29	18.80	60.39	44.3	16.09	No
EDISON TOWNSHIP SCHOOL DISTRICT	20.45	54.80	80.47	80.8	-0.33	Yes
EGG HARBOR TOWNSHIP SCHOOL DISTRICT	46.86	31.30	67.61	60.2	7.41	Yes
ELIZABETH CITY SCHOOL DISTRICT	80.92	12.40	53.73	51.6	2.13	Yes
FAIR LAWN BOROUGH SCHOOL DISTRICT	10.57	52.50	82.65	71.9	10.75	Yes

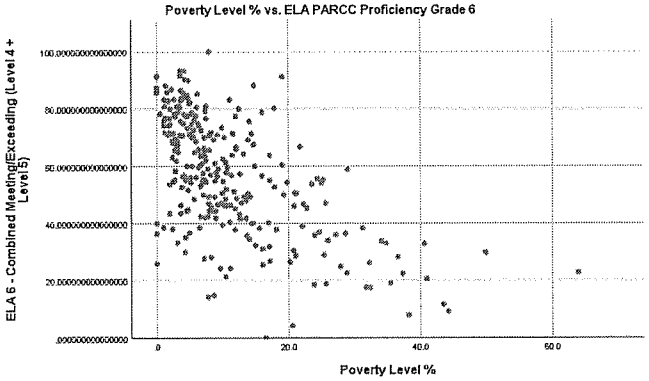
FORT LEE BOROUGH SCHOOL DISTRICT	17.72	59.60	82.36	70.3	12.06	No
FRANKLIN TOWNSHIP SCHOOL DISTRICT	33.95	49.90	75.58	58.2	17.38	No
GLOUCESTER TOWNSHIP SCHOOL DISTRICT	41.19	26.80	68.11	48.7	19.41	No
GREENWICH TOWNSHIP SCHOOL DISTRICT	36.51	33.20	70.92	60	10.92	Yes
HADDON HEIGHTS BOROUGH SCHOOL DISTRICT	12.49	55.20	82.76	58.3	24.46	No
HAMILTON TOWNSHIP SCHOOL DISTRICT	45.84	27.30	66.94	53	13.94	No
HAZLET TOWNSHIP SCHOOL DISTRICT	19.00	32.90	75.68	56.4	19.28	No
HOBOKEN CITY SCHOOL DISTRICT	53.29	78.20	76.95	36.2	40.75	No
IRVINGTON TOWNSHIP SCHOOL DISTRICT	82.84	15.10	53.84	32.5	21.34	No
JACKSON TOWNSHIP SCHOOL DISTRICT	23.71	30.60	73.83	66	7.83	Yes
JERSEY CITY SCHOOL DISTRICT	69.97	44.60	64.38	49.9	14.48	No
KEARNY TOWN SCHOOL DISTRICT	54.82	24.40	63.78	32.2	31.58	No
LINDEN CITY SCHOOL DISTRICT	56.62	21.90	62.69	44.5	18.19	No
LYNDHURST TOWNSHIP SCHOOL DISTRICT	21.45	33.60	75.17	64.5	10.67	Yes
MIDDLETOWN TOWNSHIP SCHOOL DISTRICT	11.37	45.30	80.72	66.5	14.22	No
MONTCLAIR TOWN SCHOOL DISTRICT	16.76	70.10	85.11	62.3	22.81	No
NEW BRUNSWICK CITY SCHOOL DISTRICT	48.21	20.70	64.72	32.5	32.22	No
NEW PROVIDENCE BOROUGH SCHOOL DISTRICT	2.28	68.00	88.61	87.2	1.41	Yes
NEWARK CITY SCHOOL DISTRICT	84.68	14.40	53.17	37.2	15.97	No
NORTH BERGEN TOWNSHIP SCHOOL DISTRICT	54.86	25.80	64.10	48.9	15.20	No
NUTLEY TOWN SCHOOL DISTRICT	14.15	47.70	80.52	64.7	15.82	No
OLD BRIDGE TOWNSHIP SCHOOL DISTRICT	24.93	38.20	75.30	53.7	21.60	No
PARAMUS BOROUGH SCHOOL DISTRICT	7.18	46.90	82.26	75.7	6.56	Yes
PARK RIDGE BOROUGH SCHOOL DISTRICT	4.97	56.70	85.19	80.2	4.99	Yes
PARSIPPANY-TROY HILLS TOWNSHIP SCHOOL DISTRICT	14.81	54.80	82.02	79.8	2.22	Yes
PASSAIC CITY SCHOOL DISTRICT	98.72	15.00	49.43	36.6	12.83	No
PATERSON CITY SCHOOL DISTRICT	76.26	10.30	54.52	35.4	19.12	No
PERTH AMBOY CITY SCHOOL DISTRICT	90.06	14.50	51.70	39.1	12.60	No

PISCATAWAY TOWNSHIP SCHOOL DISTRICT	35.66	50.50	75.25	57.8	17.45	No
PLAINFIELD CITY SCHOOL DISTRICT	80.15	17.20	55.08	34.4	20.68	No
RAHWAY CITY SCHOOL DISTRICT	55.74	28.10	64.40	46	18.40	No
RIDGEFIELD PARK TOWNSHIP SCHOOL DISTRICT	38.96	42.70	72.49	58.4	14.09	No
SADDLE BROOK TOWNSHIP SCHOOL DISTRICT	18.23	32.90	75.89	68.4	7.49	Yes
SOUTH BRUNSWICK TOWNSHIP SCHOOL DISTRICT	12.45	61.60	84.29	71.1	13.19	No
SOUTH ORANGE-MAPLEWOOD SCHOOL DISTRICT	17.17	65.40	83.88	66.4	17.48	No
SPRINGFIELD TOWNSHIP SCHOOL DISTRICT	18.06	33.70	76.13	68.6	7.53	Yes
TEANECK TOWNSHIP SCHOOL DISTRICT	40.47	55.80	75.18	70.3	4.88	Yes
TRENTON PUBLIC SCHOOL DISTRICT	88.28	12.20	51.65	21.2	30.45	No
UNION CITY SCHOOL DISTRICT	88.59	19.90	53.39	61.8	-8.41	Yes
UNION TOWNSHIP SCHOOL DISTRICT	3.07	56.10	85.57	82.8	2.77	Yes
VINELAND CITY SCHOOL DISTRICT	58.04	17.50	61.25	29.2	32.05	No
WAYNE TOWNSHIP SCHOOL DISTRICT	9.28	51.00	82.65	80.3	2.35	Yes
WEST MILFORD TOWNSHIP SCHOOL DISTRICT	15.52	34.50	77.02	59.9	17.12	No
WEST NEW YORK TOWN SCHOOL DISTRICT	80.28	26.50	57.25	50.7	6.55	Yes
WESTFIELD TOWN SCHOOL DISTRICT	2.45	71.00	89.27	79.1	10.17	Yes
WINSLOW TOWNSHIP SCHOOL DISTRICT	31.10	26.00	70.70	43.7	27.00	No
WOODBRIDGE TOWNSHIP SCHOOL DISTRICT	33.51	35.10	72.19	49.7	22.49	No
UNION BEACH SCHOOL DISTRICT	32.96	24.10	69.74	65.6	4.14	Yes
UPPER PITTSGROVE TOWNSHIP SCHOOL DISTRICT	1.19	26.70	79.12	63.2	15.92	No
UPPER TOWNSHIP SCHOOL DISTRICT	13.32	41.60	79.31	49.3	30.01	No
VENTNOR CITY SCHOOL DISTRICT	63.76	29.20	62.45	74.3	-11.85	No
VERNON TOWNSHIP SCHOOL DISTRICT	17.88	31.30	75.61	71.5	4.11	Yes
WALL TOWNSHIP SCHOOL DISTRICT	10.06	48.20	81.77	64.2	17.57	No
WALLINGTON BOROUGH SCHOOL DISTRICT	30.33	27.90	71.37	53.4	17.97	No
WEEHAWKEN TOWNSHIP SCHOOL DISTRICT	33.28	55.70	77.14	51.7	25.44	No

WEST DEPTFORD TOWNSHIP SCHOOL DISTRICT	27.89	32.70	73.18	59.3	13.88	No
WEST ORANGE TOWN SCHOOL DISTRICT	42.69	51.40	73.52	62.7	10.82	Yes
WHITE TOWNSHIP SCHOOL DISTRICT	17.54	24.40	74.07	85.7	-11.63	Yes
WILDWOOD CITY SCHOOL DISTRICT	69.64	16.20	57.74	22.4	35.34	No
WILDWOOD CREST BOROUGH SCHOOL DISTRICT	33.45	36.40	72.52	61.1	11.42	Yes
WILLINGBORO TOWNSHIP SCHOOL DISTRICT	65.59	24.80	60.90	29.7	31.20	No
WOODBURY CITY SCHOOL DISTRICT	65.64	30.10	62.14	49	13.14	No
WOODLYNNE BOROUGH SCHOOL DISTRICT	88.28	7.60	50.56	27	23.56	No
WOOD-RIDGE BOROUGH SCHOOL DISTRICT	16.15	37.80	77.62	48.4	29.22	No

Appendix D – Scatterplots

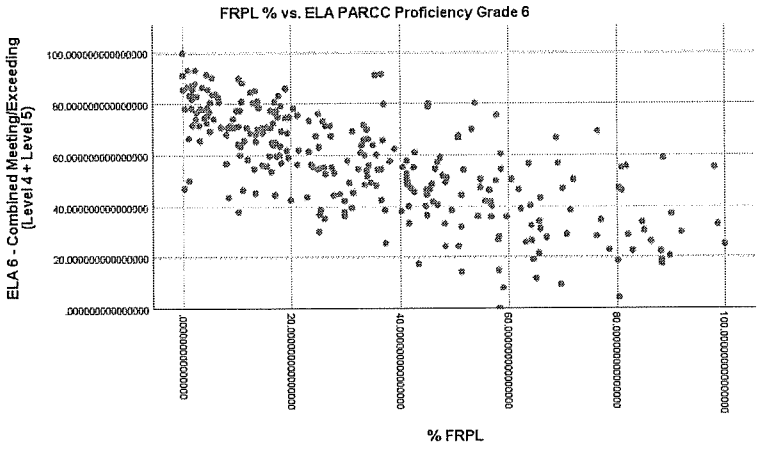
Scatterplot of Poverty Level % vs. ELA PARCC Proficiency – Grade 6



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 6 standardized assessment and the percentage of poverty in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower poverty levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that reducing poverty levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

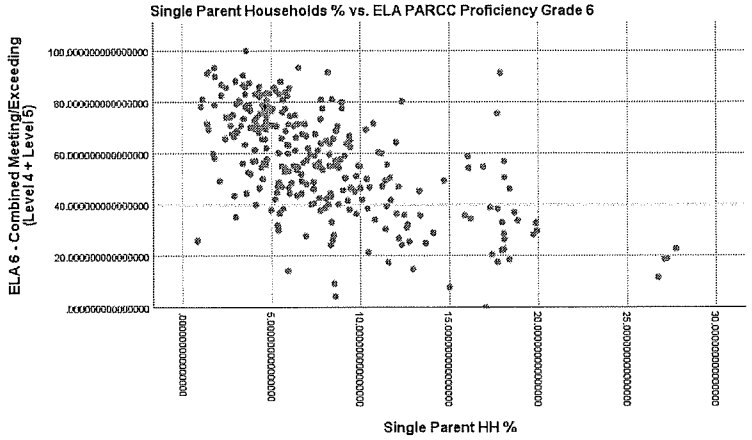
Scatterplot of FRPL % vs. ELA PARCC Proficiency – Grade 6



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 6 standardized assessment and the percentage of free and FRPL in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower FRPL levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that reducing FRPL levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

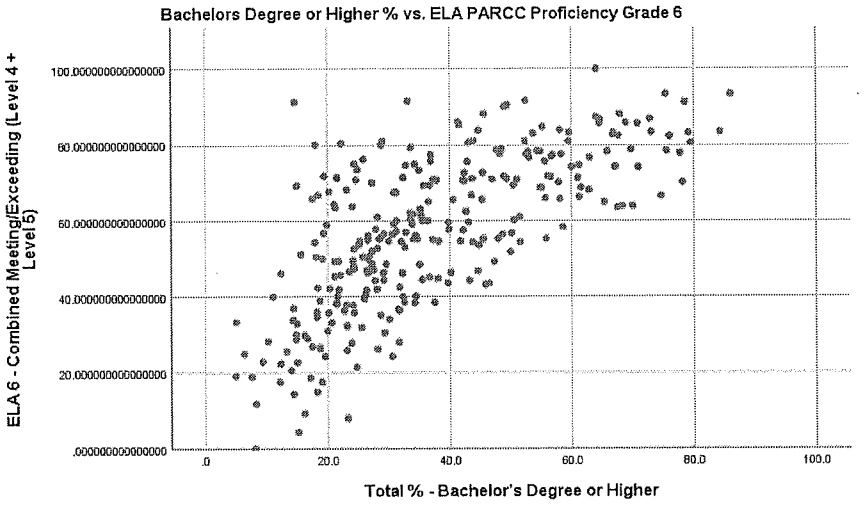
Scatterplot of Single-Parent Households % vs. ELA PARCC Proficiency – Grade 6



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 6 standardized assessment and the percentage of free and single-parent households in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower single-parent household levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that providing more academic support for single-parent household levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

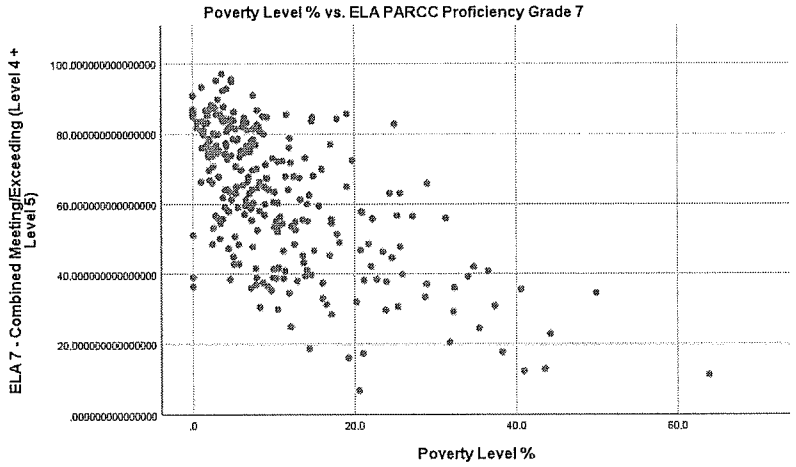
Scatterplot of bachelor's degree or Higher % vs. ELA PARCC Proficiency – Grade 6



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 6 standardized assessment and the percentage of bachelor's degree or higher in the school districts. The scatterplot reveals that the pattern of data runs from the bottom left of the graph to the upper right which means the relationship between these two variables has a positive direction. The higher bachelor's degree or Higher levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that increasing bachelor's degree and higher levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

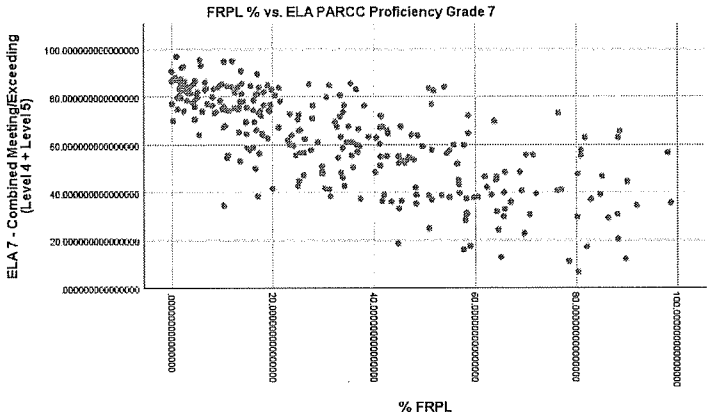
Scatterplot of Poverty Level % vs. ELA PARCC Proficiency – Grade 7



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 7 standardized assessment and the percentage of poverty in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower poverty levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that reducing poverty levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

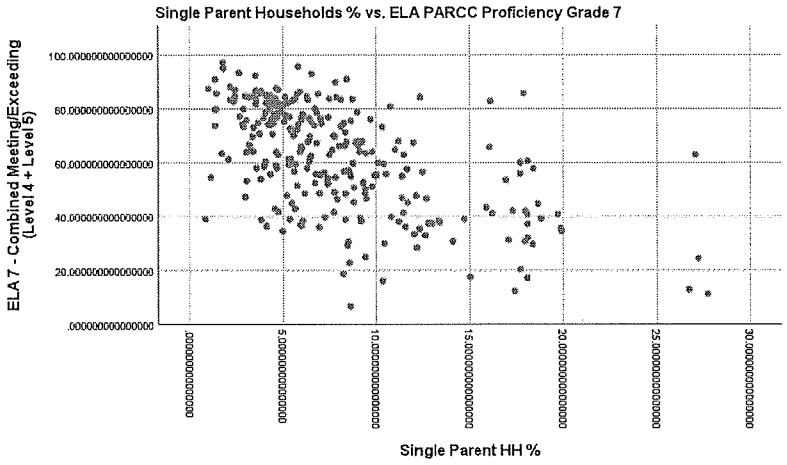
Scatterplot of FRPL % vs. ELA PARCC Proficiency – Grade 7



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 7 standardized assessment and the percentage of free and FRPL in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower FRPL levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that reducing FRPL levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

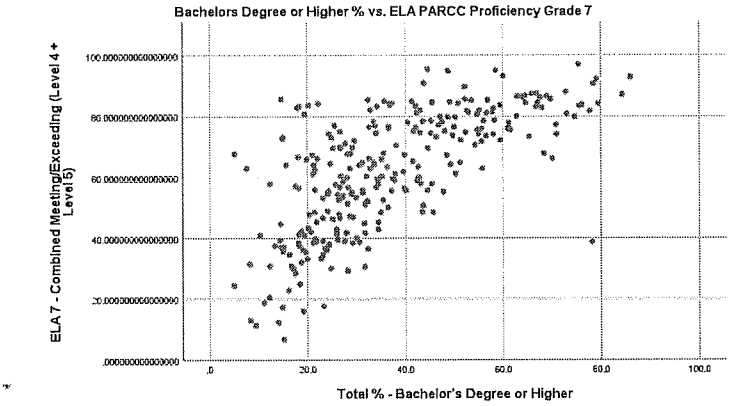
Scatterplot of Single-Parent Households % vs. ELA PARCC Proficiency – Grade 7



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 7 standardized assessment and the percentage of free and single-parent households in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower single-parent household levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that providing more academic support for single-parent household levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

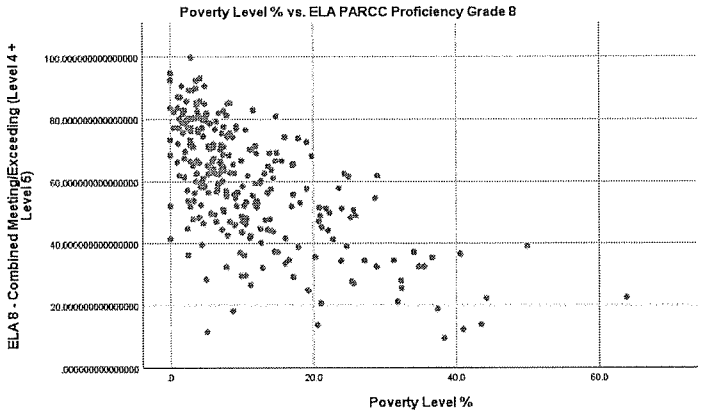
Scatterplot of bachelor's degree or Higher % vs. ELA PARCC Proficiency – Grade 7



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 7 standardized assessment and the percentage of bachelor's degree or higher in the school districts. The scatterplot reveals that the pattern of data runs from the bottom left of the graph to the upper right which means the relationship between these two variables has a positive direction. The higher bachelor's degree or Higher levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that increasing bachelor's degree and higher levels in school districts may increase ELA standardized test scores

Appendix D – Scatterplots

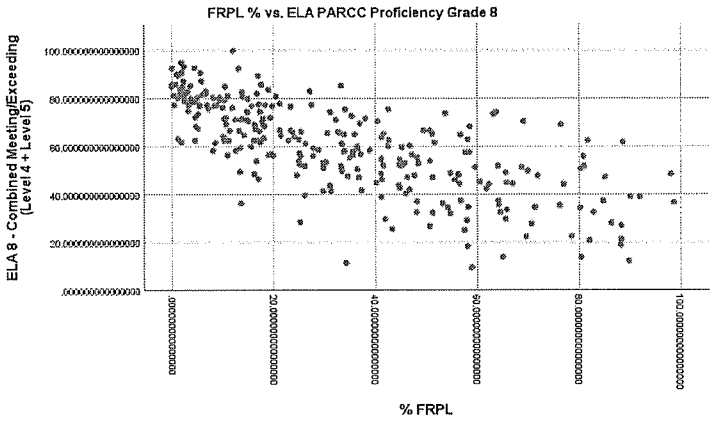
Scatterplot of Poverty Level % vs. ELA PARCC Proficiency – Grade 8



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 8 standardized assessment and the percentage of poverty in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower poverty levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that reducing poverty levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

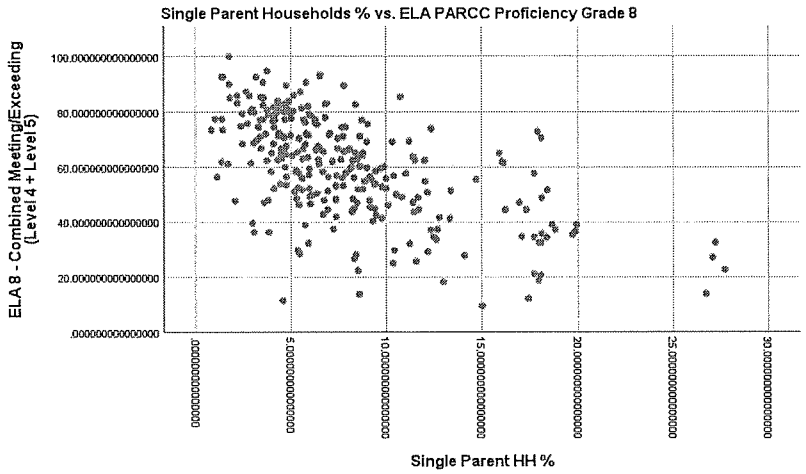
Scatterplot of FRPL % vs. ELA PARCC Proficiency – Grade 8



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 8 standardized assessment and the percentage of free and FRPL in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower FRPL levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that reducing FRPL levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

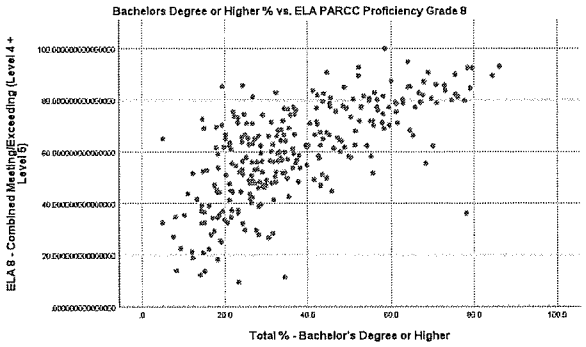
Scatterplot of Single-Parent Households % vs. ELA PARCC Proficiency – Grade 8



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 8 standardized assessment and the percentage of free and single-parent households in the school districts. The scatterplot reveals that the pattern of data runs from the upper left of the graph to the lower right which means the relationship between these two variables has a negative direction. The lower single-parent household levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that providing more academic support for single-parent household levels in school districts may increase ELA standardized test scores.

Appendix D – Scatterplots

Scatterplot of bachelor's degree or Higher % vs. ELA PARCC Proficiency – Grade 8



This scatterplot diagram shows the relationship between the percentage of students scoring Proficient levels (Level 4 + Level 5) on the 2018 PARCC ELA Grade 8 standardized assessment and the percentage of bachelor's degree or higher in the school districts. The scatterplot reveals that the pattern of data runs from the bottom left of the graph to the upper right which means the relationship between these two variables has a positive direction. The higher bachelor's degree or Higher levels generally score higher on the standardized test. There is a fairly strong linear relationship between the variables. This supports the findings and conclusion that increasing bachelor's degree and higher levels in school districts may increase ELA standardized test scores