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The Influence of Inclusion Classes on the Academic Performance in Language Arts Literacy on Suburban Non-disabled Eleventh Grade Students as Measured by the 2013 New Jersey High School Proficiency Assessment

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by

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Abstract

This study examined the influence of an inclusive secondary language arts classroom setting on the academic performance of Grade 11 general education students in two suburban New Jersey high schools on the Language Arts Literacy section of the 2013 New Jersey High School Proficiency Assessment (NJ HSPA). The sample was selected using Propensity Score Matching, a technique utilized to marginalize the influence of selection bias. The final sample was comprised of 214 students in Grade 11 in a New Jersey suburban, upper middle class district during the years 2010-2013. The variables that were included in this study were gender, ethnicity, socioeconomic status, attendance, length of time in district, past performance as measured by the 2010 New Jersey Assessment of Skills and Knowledge 8 (NJ ASK 8), placement in a secondary inclusion language arts classroom, and number of years placed in a secondary inclusion language arts classroom. Analyses were conducted using multiple regression models, analysis of covariance (ANCOVA), and factorial ANCOVA. Results of this study indicated that placement in an inclusion classroom did have a statistically significant negative influence on the performance of this sample of eleventh grade non-disabled students on the Language Arts Literacy section of the 2013 NJ HSPA. Non-disabled eleventh grade students who were placed in an inclusion language arts classroom for two or more years did not perform as well on the Language Arts Literacy section of the 2013 NJ HSPA as their peers who spent fewer years in an inclusion classroom. Further research is needed in the area of inclusion to determine additional factors that may have contributed to the findings.

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To my dearest husband Gerry, I am so grateful for your constant support. Throughout this process, you have been my biggest cheerleader, encouraging me every step of the way. At times you have had more confidence in me than I had in myself, and I know I would not be here today without you as my partner. Thank you for your patience, understanding, kindness, and loving support. I love you and appreciate you more than you know.

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Dedication

This work is dedicated in loving memory to my grandmother, Dorothy Easley. Grandma, you taught me by example that I can achieve anything through hard work, perseverance, strength, confidence, and courage. You always believed in me and encouraged me to pursue my dreams. I know that you would have been so proud of my achievements, and I am confident that you are with us as we celebrate this special accomplishment.

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CHAPTER I

INTRODUCTION

Introduction

Federal mandates in the United States such as the Individuals with Disabilities Education Improvement Act (IDEIA) of 1975 and No Child Left Behind Act of 2001 (NCLB) have required that students with disabilities be educated in the least restrictive environment. This has resulted in a push for the development of educational programs calling for the inclusion of students with disabilities in the general education classroom to the maximum degree (Kilanowski-Press, Foote, & Rinaldo, 2010). Providing services to students with disabilities in the regular education classroom as opposed to removing them from the learning environment with typical peers is largely viewed as the hallmark of inclusion (Kilanowski-Press et al., 2010). As there has been a great emphasis on providing opportunities for students with disabilities, there has been less of an emphasis on the influence of inclusion on regular education students. This study examines the influence of inclusion programs on the academic achievement of Grade 11 non-disabled students.

An inclusive classroom, according to Daniel and King (1997), is one where all students within a school, regardless of disability, strengths, or weaknesses in any area become active members of the school community. King states that this occurs when students with disabilities attend the same schools as their peers without disabilities and are provided with the necessary support to access the same curriculum (Daniel & King, 1997). With inclusion, students with disabilities are expected to be successful, academically and emotionally, while learning beside their peers without disabilities. They are valued for their exceptional abilities and are included as

important members of the school community (Algozzine & Ysseldyke, 2006; Causton-Theoharis & Theoharis, 2008).

As a result of legislation such as the Individuals with Disabilities Act (IDEA) and No Child Left Behind Act of 2001 (NCLB), the number of students with disabilities being educated in an inclusive classroom setting has greatly increased (Henning & Mitchell, 2002; McCray & McHatton, 2011; Worrell, 2008). In addition to special education legislation, this increase may be attributed to the growing research on the benefits of serving students with developmental disabilities in the general education setting (McDonnell, Mathot-Buckner, Thorson & Fister, 2001). In the past, the majority of special education services had been provided through pull-out services that separated students in special education programs from students in the general education population. According to researchers, removing students from the general education classroom causes students with special needs to be isolated from their non-disabled peers as well as the general education curriculum (Copeland, Hughes, Carter, Guth, Presley, Williams, & Fowler, 2004; Daniel & King, 1997). When students are excluded from mainstream classrooms, they may become marginalized and their individual needs may be overlooked (Ainscow & Kaplan, 2005).

Despite the numerous studies about the practice, there is an ongoing debate regarding the influence of inclusion on regular education student achievement (Ruijs & Peetsma, 2009). While many studies document the benefit of the inclusive classroom on students with special needs, relatively few studies have examined the effect of inclusive environments on students who are not receiving special education services (Daniel & King, 1997; Gattuso, 2008).

Those who support the practice of inclusion contend that including students with disabilities in the general education classroom may be beneficial to students with disabilities as

well as to their non-disabled peers (Idol, 2006; McDonnell et al., 2001). In a study conducted by McDonnell et al. (2003), it was suggested that students with disabilities who receive instruction in an inclusive setting experience improvements in adaptive behavior, which may have a positive impact on all students. In the same study, it was determined that the achievement of general education students was not negatively influenced by the presence of students with disabilities in their classroom (McDonnell et al., 2003). Advocates of inclusion contend that both students with disabilities as well as non-disabled students may benefit from the extra teachers or teacher assistants that are assigned to inclusive classrooms (Ruijs & Peetsma, 2009). It has also been argued that both students with and without disabilities actively engage in classroom activities, develop meaningful friendships, and experience academic gains as result of being in an inclusive classroom setting (Odom, Buysse, & Soukakou, 2011).

In a study that examined the impact of inclusion of students with intellectual disabilities in general education classroom on their non-disabled peers, it was found that the progress of primary students without disabilities is not compromised by the inclusion of students with a mild or moderate disability in their co-taught classroom (Sermier, Dessemontet, & Bless, 2013). These findings are consistent with the findings of Brady (2010), who determined that inclusion did not have a negative impact on the academic achievement of non-disabled sixth and seventh grade students as measured by the New Jersey Assessment of Skills and Knowledge (NJ ASK) in Language Arts Literacy and Math (Brady, 2010).

Those who oppose inclusive classroom settings argue that the inclusive classroom may have a negative influence on the achievement of non-disabled students. Opponents state that children with special needs require more of the teachers' attention, which may have an adverse effect on the other students in the classroom. In addition, those in opposition to inclusion argue

that the standard of education in the classroom may be lowered with the inclusion of students with disabilities (Ruijs & Peetsma, 2009). Although some research has been conducted on the impact of being in an inclusion class on non-disabled primary students, more research on secondary students is warranted.

Statement of the Problem

With value-added measures of teacher and administrator effectiveness at the forefront of a national movement to evaluate, promote, compensate, and dismiss teachers, it is necessary for federal, state, and local policy makers to be informed of effective practices that benefit all students. For almost two decades, a paradigm shift has been occurring in the measurement of teacher effectiveness. The trend has been to measure teacher and administrator effectiveness based on student outcomes, as opposed to teacher input (Corcoran, 2010). Attention to the teacher's impact on student growth has increased because it has been found that the most influential component of an effective school is the individual teachers in the school (Marzano, 2007).

According to Corcoran (2010), recent polices of high-stakes accountability have increased pressure on educators to measure the academic achievement of students. Teacher and administrator evaluations have been linked to student performance on test scores and initiatives. Race to the Top, a four billion dollar competitive government grant program aimed at systemic education reform, requires that teacher evaluation be linked to student progress. In addition, foundations such as the Bill & Melinda Gates Foundation, the Milken Family Foundation, and the Broad Foundation have provided financial support for such teacher evaluation reform efforts (Corcoran, 2010). The primary emphasis of Race to the Top and many educational foundations is student test score growth. States that participate in Race to the Top were required to

demonstrate that they implement evaluation systems that use student growth as a significant factor in evaluating teachers and principals, include student growth in annual evaluations of educators, and measure student individual growth (U.S. Department of Education, n.d.). Race to the Top and its requirements will inevitably lead to discussions among educators, researchers, and policy makers about the importance of ensuring that the necessary tools and environment exist for all students to experience academic growth.

In addition to the requirements of Race to the Top that teachers and administrators be evaluated on the academic performance of students on standardized tests, federal polices such as NCLB and IDEIA require that students with disabilities have access to the same curriculum as their non-disabled peers in the least restrictive environment to the maximum extent possible. In some instances, the least restrictive environment for students with disabilities is in an inclusive setting with non-disabled peers.

School administrators are held accountable by the requirement of NCLB for students to meet proficiency targets on annual assessments. Currently, to meet or exceed the requirements for NCLB, an increasing number of eleventh grade students must receive a score of Proficient or Advanced Proficient on the New Jersey High School Proficiency Assessment (NJ HSPA) each year. During the 2014-2015 school year, the Partnership for the Assessment of Readiness for College and Careers (PARCC) assessment was administered in the state of New Jersey. The PARCC was designed to replace the state assessment in English language arts and mathematics currently mandated by NCLB (Tamayo, 2010). The PARCC assessment will be based upon and implemented in conjunction with the newly developed Common Core State Standards (CCSS). The new standards and assessments will have significant implications for how states and districts work with teachers and administrators to improve student outcomes on assessments. The

assessments, according to Tamayo (2010), will be driven by common standards and assessments designed to prepare students for college and career. The assessment "will require students to demonstrate their skills in reading, writing, and mathematical reasoning on higher order tasks, including research and essay writing, in order to measure students' readiness for college and careers." (Tamayo, p. 2) Assessment standards and cut scores for PARCC will be determined after full administration of the assessment in the 2014-2015 school year. Although the state assessment is transitioning from NJ HSPA to PARCC in the 2014-2015 school year, students and teachers will still be held accountable for achieving a minimum level of performance on the new state assessment.

School leaders are faced with the challenge of developing programs that most appropriately meet the varying academic needs of students so that they may become proficient on state assessments. Therefore, instructional leaders must learn to foster an academic environment that meets the needs of all students. Although NCLB places an emphasis on developing inclusive practices to meet the needs of students with disabilities, it is necessary to ensure that the needs of regular education students are met as well. Many debate whether inclusive settings will be beneficial to all students, including those who do not have a disability; however, principals must determine the appropriate placement for all students, with and without disabilities.

Studies exploring the influence of inclusion on the non-disabled students' academic performance yield varying results (Daniel & King, 1997; Idol, 2006; McDonnell et al., 2003). A large portion of quantitative evidence suggests that students with disabilities experience academic and social benefits from participating in an inclusive setting. However, a smaller body of research exists that addresses the effect of being in an inclusive environment on students

without disabilities. Within the research that exists, additional variables that may impact the academic achievement of regular education students in inclusive classrooms are rarely identified. Such variables include ethnicity, socioeconomic status, gender, attendance, and eligibility for free or reduced lunch (Daniel & King, 1997).

With the increased accountability measures for school leaders and increase in student academic diversity, it is becoming more important for educators to identify the most appropriate setting that will allow all students to become successful. School leaders have access to an abundance of research addressing the impact of inclusion classes on students with disabilities but have access to minimal resources addressing the impact of such environments on regular education students when making decisions about student placement. Researchers and policy makers also tend to focus on the benefits of inclusion on students with special needs; however, with the variety of learning needs present in most classrooms, it is necessary to identify the impact that inclusion has on all students, including the general education student. This study will examine the effects of placing a regular education student in an inclusion setting and will also explore the impact of an inclusion setting on specific subgroups within that population. This study will provide information to practitioners and policy makers to use when determining the most appropriate setting for general education students. Providing appropriate learning environments for all students may help to increase student achievement as well as to prevent negative consequences for administrators and school.

Purpose of the Study

The purpose of this research was to investigate the influence of an inclusive secondary classroom setting on the academic performance of general education students on the Language Arts Literacy section of the 2013 NJ HSPA. In addition, this study examines the dependent

variable of performance on the Language Arts Literacy section of the 2013 NJ HSPA , while controlling for the student variables of socioeconomic status (SES) as measured by eligibility for free and reduced lunch, ethnicity, gender, attendance, past academic performance, time in district, placement in an inclusive language arts classroom setting, and number of years in an inclusive language arts classroom setting. As more emphasis is placed on the Common Core State Standards and high stakes testing, it is necessary to provide all students with access to environments in which they will attain the most academic success; therefore, providing an environment that promotes the success of all students will become increasingly more important to educators with the introduction of value-added and student growth models. There has been a great emphasis by legislators, policy makers, and educators on providing opportunities for students with disabilities to be successful; however, there has been a minimal focus on regular education students. As teachers and administrators are held more accountable for the academic growth of all students, more emphasis may need to be placed on providing the most supportive environment for not only special education students, but for all students.

Theoretical Framework

This research is grounded in two theories, Justice and Caring in Strategic Leadership, which has a strong commitment to inclusive practices (Glanz, 2010) and Vygotsky's Zone of Proximal Development. Inclusion, according to Glanz's Justice and Caring in Strategic Leadership Theory (2010), is a process that provides access to high quality education for all students. The author states that with the increased accountability of schools and administrators, the focus has shifted from the child to the organization. Glanz contends, "Caring about the worth and need of the individual student, not necessarily the needs of the school as an organization, is of utmost concern to educators who work from an ethic of caring and justice." (Glanz, p. 75)

With the enactment of laws that require students with special needs to be included in regular education settings to the greatest extent possible, it is important to keep in mind that all students are entitled to learn at their own pace with respect, dignity, and success, including regular education students. Glanz argues that schools that neither acknowledge nor address differences among the learning needs of students are morally bankrupt. Glanz (2010) adopts what he refers to as a moral vision based on a commitment to inclusion and a belief that all students can learn at their own developmentally appropriate level. This may be accomplished through differentiated instruction, according to the author. Differentiated instruction ensures justice, opportunity, and equity for all students. When strategic leadership is successful, a culture of achievement for all students, not only students with special needs, is achieved and maintained (Glanz, 2010). In alignment with this theory, Obiakor, Harris, Mutua, Rotatori, and Algozzine (2012) mention that social justice is a basic principle of inclusion because it supports respect, care, recognition, and empathy and challenges the ideas of marginalization and exclusion (Obiakor, Harris, Mutua, Rotatori, & Algozzine, 2012). The authors also state that when practices of inclusion are in place, all students are provided with equal opportunity to achieve success in education (Obiakor et al., 2012).

The second theory related to this study is Vygotsky's Zone of Proximal Development (ZPD). In 1978, Lev Vygotzky, a Russian psychologist, developed a theory of cognitive development that focused on students' current level of development and their ability to learn socially relevant tools and culturally based signs (Doolittle, 1995). Vygotsky's ZPD is described as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more knowledgeable others" (Vygotzky, p. 86).

Vygotsky suggested that while working with a tutor or more capable peer, a student will gain the skills, knowledge, and attitudes necessary to solve more complicated problems that he or she would not have been able to solve on his or her own (Kavensky & Geake, 2004). Vygotsky also suggested that from birth, children are socialized into their culture by interacting with more capable adults and children (Doolittle, 1995). As a child is exposed to tasks in the higher end of the zone of proximal development, he or she requires a great deal of assistance to complete the tasks. The child's cognitive skills develop as the child learns to complete the task with less assistance and eventually no assistance (Doolittle, 1995).

Vygotsky's ZPD may support the idea of inclusive education because it allows students with disabilities to interact with their non-disabled peers in an academic setting. Students with disabilities who are taught in an inclusive setting are provided with opportunities to learn from students, teachers, and additional support staff while in a supportive classroom setting. According to ZPD, children learn from their interactions with such individuals by internalizing knowledge and skills to guide their own behavior and learning (Doolittle, 1995). This theory supports the idea that inclusion may lead to the improvement of education and social life of students with special needs (Grum, 2012).

Research Questions

The following research questions guided this study:

Research Question 1: What influence, if any, does placement in an inclusive language arts classroom setting have on Grade 11 non-disabled students' academic performance in Language Arts Literacy as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 1: Placement in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Research Question 2: What influence, if any, does the number of years placed in an inclusive language arts classroom setting have on the academic performance in Language Arts Literacy of Grade 11 non-disabled students as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 2: The number of years placed in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Research Question 3: What effect, if any, does the number of years placed in an inclusive language arts classroom setting have on the Language Arts Literacy performance of Grade 11 non-disabled students, as measured by the 2013 NJ HSPA Language Arts Literacy section, when controlling for student academic past performance?

Null Hypothesis 3: There is no statistically significant difference in Language Arts Literacy academic performance, as measured by the 2013 NJHSPA Language Arts Literacy section, based on the number of years non-disabled Grade 11 students are placed in an inclusive language arts classroom when controlling for student academic past performance.

Research Question 4: What, if any, type of interaction exists between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance, as measured by the 2013 NJ HSPA Language Arts Literacy section, when also controlling for student academic past performance?

Null Hypothesis 4: There is no statistically significant interaction between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance, as measured by the 2013 NJ HSPA Language Arts Literacy section, when also controlling for student academic past performance.

Study Design - Population

The participants of this study were selected from a suburban PreK-12 school district located in central New Jersey. The township is approximately 42 square miles with a population of approximately 66,000 people. According to the New Jersey School Performance Report, the district is comprised of about 10,000 students who attend 12 elementary schools, three middle schools, and two high schools. The high schools in the district, MTN and MTS, service students in Grades 9-12. The population of MTS is 1,364 and the population of MTN is 1,474. The average general education class size at both high schools is 20 students. According to the New Jersey School Performance Report, over 99% of the students in the district are classified as Caucasian non-Hispanic. The remaining students are of Chinese, Albanian, Russian, Latino, Bengali, and Italian descent. The District Factor Group (DFG) is reported as GH. The DFG is labeled from A (lowest) to J (highest) and is an indicator of the socioeconomic status of the residents living within the school district. The original sample of participants in this study consisted of 639 eleventh grade students enrolled in inclusive and non-inclusive language arts and mathematics courses in MTS and MTN.

Students in the study were scheduled in inclusive and non-inclusive classrooms based on recommendations from current teachers, school counselors, and child study team members (if the student was classified as needing special education services). In addition, school counselors referenced prior standardized test scores to determine course levels. Standardized tests were administered to students in the district each year. In Grade 9, students took New Jersey Proficiency Assessment of State Standards (NJPASS); in Grade 10, students took a Pre-High School Proficiency Assessment and the Preliminary Scholastic Aptitude Test (PSAT); and in Grade 11, students took the PSAT as well as the NJ HSPA.

In this school district, an inclusion classroom is one in which general education students are taught alongside their peers who are classified. No more than ten classified students were placed in a particular section of a course, with up to 20 non-disabled students. The course was co-taught by a regular education teacher highly qualified in the subject being taught and a special education teacher. Both regular education and special education students were exposed to the same curriculum and assessments.

This study examined the effects of regular education students being placed in an inclusive classroom for zero years, one year, two years, or three years. The influence of being in an inclusive classroom was determined by performance on the 2010 NJ ASK 8 in Grade 8 and 2013 NJ HSPA in Grade 11. In addition, this study determined if differences exist between subgroups of students. The variables included qualification for free or reduced lunch, gender, ethnicity, placement in an inclusion English language arts class, previous academic performance, and attendance.

Significance of the Study

Students with special needs are spending increasingly more time in the general education classroom; therefore, the inclusive classroom requires teachers, students, support staff, and administrators to evaluate programs and methods of instruction that will most adequately meet the needs of diverse and exceptional learners. Although it appears that inclusive settings provide many benefits to students with developmental disabilities, many opponents argue that the inclusive environment may have negative effects on the academic achievement of students who do not have special education needs (Latshaw, 1997; Lieberman, James, & Ludwa, 2004). Researchers have suggested that establishing effective models of inclusive education will require that educators develop an understanding of how the implementation of instructional strategies designed to support students with developmental disabilities in general education classes will affect the academic performance of students without disabilities (McDonnell, Mathhot-Buckner, Thorson, & Fister, 2001).

Schools across the country will need to examine their practices as more states adopt the Common Core Standards. Currently, 45 states have adopted the Common Core State Standards, which were designed to prepare all students to leave school prepared for college and career (ASCD, 2012). In order for diverse learners to accomplish this goal and to reach their maximum potential, educators must be aware of the factors that may hinder students from mastering the standards and must develop strategies for students to overcome any obstacles they may face. Some factors that educators may consider while preparing students for college and career readiness may include ethnicity, gender, free and reduced lunch status, and attendance.

Limitations

There are several limitations relative to this study:

1. The study was limited to two high schools in a suburban school district in central New Jersey, which lack cultural and socioeconomic diversity. The majority of students that were included in the study were middle class to upper middle class Caucasian students.
2. The study may be potentially limited by the change in structure of the master schedule at the high schools. Students and teachers were introduced to a block schedule model with 80 minutes of instruction per class every other day, where in the past they worked within a traditional schedule which provided 48 minutes of instruction per class every day.
3. In addition, the College Prep I and College Prep II courses were merged into one College Prep level at the onset of the 2012-2013 school year. Previously, students who scored Proficient or Advanced Proficient on standardized tests were placed in the College Prep I level. Students who struggled academically (as determined by teacher and school counselor), received a score of Partially Proficient on standardized tests, or classified students who were assigned to an inclusion classroom were placed in the College Prep II level.
4. Regular education students who were placed in an inclusive English classroom setting or a non-inclusive setting were not randomly assigned to classes. Randomly assigning students in a school setting to classes is not always practical and at times may be unethical. This limitation was addressed by using propensity score

matching. Propensity score matching is a method of reducing selection bias in samples, and is further discussed in Chapter IV

Assumptions

The following assumptions were made during this research study:

1. It is assumed that the 2010 NJ ASK 8 and the 2013 NJ HSPA are reliable and valid measures of academic success. The assessments are criterion-referenced standards-based assessments. It is also assumed that all students who took the assessment took it under the same testing conditions.
2. It is assumed that all students were placed in academic levels based on the same criteria. Inherent in this assumption is that all teachers utilized the same grading scales and criteria for making student recommendations. In addition, it is assumed that counselors had access to all relevant data for making decisions regarding student academic levels and that the information was consistently utilized to place all students.
3. It is assumed that teachers in co-taught classes have equal level of training in co-teaching models as well as an equal role in classroom instruction. It is also assumed that the teachers placed in co-taught classes are equally qualified and certified to teach in such a setting. The expectation is that teachers are utilizing research-based best practices for effective teaching models.
4. It is assumed that regular education students placed in inclusion classes are receiving the same level of instruction and exposure to the curriculum as regular education students in a non-inclusion class.

Definition of Terms

Academic Achievement — For the purpose of this study, academic achievement is measured by individual student outcomes on the 2013 NJ HSPA for Grade 11 in Language Arts Literacy and Mathematics. The NJ HSPA assesses students' knowledge and achievement in the New Jersey Core Curriculum Content Standards.

Classroom Setting — Classroom setting in this study refers to student placement, which may be in an inclusive setting where students with disabilities are taught in the same environment as non-disabled students or a general education setting, which consists of students who have not been classified with a disability.

Co-Teaching — Conderman and Hedin (2012) describe co-teaching as two professionals sharing responsibilities for all students within a common location. According to the researchers, co-teaching promotes and supports the varied needs of students through collaboration and differentiated instruction. This model of instruction allows educators to meet the diverse needs of students in a classroom by combining their expertise and by developing common instructional goals for all students (Conderman & Hedin, 2012).

Free and Appropriate Public Education (FAPE) — A requirement of the Individuals with Disabilities Education Act that a child with disabilities is entitled to an educational program that is individually tailored to meet his or her unique needs (Katsiyannis, Yell, & Bradley, 2001).

Free and Reduced Lunch — For the purpose of this study, socioeconomic status will be determined by receipt of free or reduced lunch. Although Harwell and LeBeau (2010) believe that lunch eligibility is a poor measure of a student's socioeconomic status, they state that the use of a student's free or reduced lunch status is the most common measure used by education researchers of a student's socioeconomic status. Harwell and LeBeau (2010) report that

"students are eligible for a reduced price lunch if their household income is less than 185% of the federal poverty guidelines and for a free lunch if their household income is less than 130% of the poverty guidelines" (Harwell & LeBeau, p. 122).

General Education Teacher — A general education teacher is one who holds either a provisional or standard certification, issued by the New Jersey State Board of Examiners (N.J.A.C. 6A: 9-12.1, 2009).

Inclusive Class — An inclusive class is a general education classroom where students with a disability and non-disabled students are educated together by two certified teachers.

Inclusion — The term inclusion has been defined in a variety of ways. For the purpose of this study, inclusion is defined as students with disabilities receiving all or some of their instruction in a general education classroom with a general education teacher teaching in concert with a special education teacher (McCray & Alvarez McHatton, 2011).

Individualized Education Program (IEP) — An IEP is a written plan that includes present levels of a student's academic achievement and functional performance, measurable annual goals, and short-term objectives. The IEP describes a student's individually designed instructional activities and related services necessary to achieve stated goals and objectives. The plan provides rationale for the educational placement and serves as the basis for program implementation (N.J.A.C. 6A: 14-1.3, 2009).

Least Restrictive Environment (LRE)-- The IDEA mandates that students with disabilities be educated with their non-disabled peers to the greatest extent possible. The IDEA states that students will be educated in inclusive settings and will be removed to separate classes or schools only if they are unable to receive an appropriate education in a general education classroom with supplemental services and accommodations (Katsiyannis et al., 2001).

***New Jersey Assessment of Skills and Knowledge 8 (NJ ASK 8)* —** The NJ ASK 8 is a criterion-referenced standards-based test designed to measure the level to which all students in Grade 8 have attained proficiency in the New Jersey Core Curriculum Content Standards in Language Arts Literacy, Mathematics, and science (NJDOE, 2011).

***New Jersey High School Proficiency Assessment (NJ HSPA)* —** The NJ HSPA is the New Jersey statewide standards-based assessment that students take in March of their 11th grade year. The assessment is aligned with the New Jersey Core Curriculum Content Standards (NJCCCS) and measures whether the students have acquired the skills contained in the NJCCCS in order to graduate from high school. The test covers Math and English Language Arts and is broken into three proficiency levels for each section, Partially Proficient, Proficient, and Advanced Proficient. Students scoring at the lowest level, Partially Proficient, are considered to be below the state level of proficiency and may not graduate without passing an Alternative assessment (NJDOE, 2012).

***No Child Left Behind Act of 2001* —** The No Child Left Behind Act of 2001 provided an overhaul of the education system and requires states to establish challenging academic standards for all schools, to test students regularly to ensure they are meeting those standards, and to employ teachers who are highly qualified. (NCLB, 2001).

Non-inclusive or General Education Class — A non-inclusive or general education class is an educational setting that is comprised only of regular education, non-disabled students.

***Special Education Class* —** According to Hannon (1997), a special education class is defined as specially designed instruction that is designed to meet the unique needs of a child with a disability through a program set forth in an IEP.

***Special Education Teacher* —** A special education teacher in the state of New Jersey is one who holds either a provisional or standard certification issued by the State Board of Examiners, with an endorsement to teach special education students (N.J.A.C. 6A: 9-11.3, 2009).

***Student with a Disability* —** A student with a disability is one who has been found eligible for special education and related services (N.J.A.C. 6A: 14-1.3, 2002).

Organization of the Dissertation

Chapter I provides a brief overview of special education policy and the current practices in special education in the United States of America. Terms such as inclusion and non-inclusion are defined and the debate over the effectiveness of the practice of educating disabled and non-disabled students in the same setting is discussed. In addition, the statement of the problem is presented, the purpose of the study is introduced, and the theoretical frameworks upon which the research is based are explained. Finally, the four research questions are introduced, and an overview of the sample population is provided, along with the limitations, assumptions, and definition terms.

Chapter II provides the criteria for research and literature search procedures. In addition, a review of the historical development of inclusion, including historical cases as well as legislative changes and their impact on the educational rights of children in the United States, is provided. This is followed by a discussion of the influence of school and student variables on student academic achievement.

Chapter III provides information about the research design of this study. The methods section also provides demographic information about the population that was included in the study as well as the assessment instruments that were utilized. The chapter concludes with an explanation of the data collection and analysis procedures.

Chapter IV re-states the research questions and null hypotheses and provides the results of the statistical analyses. This is followed by a brief summary of the results that were found during the analyses.

Chapter V provides a synthesis of the all of the results as well as recommendations for policy and future research on the topic of inclusion.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

As schools and educators experience increased accountability measures due to legislation such as the TEACHNJ Act and No Child Left Behind, there is more pressure to provide all students with an appropriate placement so they may be deemed Proficient on state standardized tests. Students with special needs are spending increasingly more time in the general education classroom. The inclusive classroom requires teachers, students, support staff, and administrators to evaluate programs and methods of instruction that will most adequately meet the needs of diverse and exceptional learners. Although it appears that inclusive settings provide many benefits to students with developmental disabilities, it is unclear at this time how inclusive programs affect the academic achievement of students without disabilities at the secondary level (McDonnell et al., 2003).

School leaders rely on current research to make informed decisions on the placement of all students, not only students with special educational needs. Current policy requires that students be placed in the least restrictive environment (LRE), which for students with special needs is often an inclusion setting. It is important for educators and policy makers to understand the influence of such an environment on all students, not only students with special needs.

Many factors in addition to an inclusive setting may have an influence on student achievement. Such variables may include socioeconomic status (SES), gender, ethnicity, and attendance. It is possible that the combination of these variables in addition to placement in an inclusive setting may have an influence on student achievement. This study provides additional research to add to the small body that exists on the factors that may influence the academic

achievement of regular education students. It is important to explore this area because federal law requires that students be educated within the regular education classroom when appropriate. In addition, with the increased accountability for educators to ensure that students receive scores of Proficient on standardized tests, research on the effects of inclusive practices must be conducted and understood by those in the field.

The purpose of this study was to identify factors that may influence the academic achievement of regular education students. A statistical analysis was conducted to examine the independent variables of student placement in an inclusive setting—SES, time in district, academic past performance, attendance, ethnicity, gender, placement in an inclusive classroom setting, number of years in an inclusive classroom setting—and their influence on the dependent variable academic achievement, as measured by performance on the English language arts section of the 2013 NJ HSPA.

This chapter provides an overview of the literature search procedures as well as the criteria for research. A review of the historical development of inclusion is provided, citing historical cases as well as legislative changes and their impact on the educational rights of children in the United States. The historical overview begins with the introduction of compulsory education laws and concludes with the current changes to legislation in the United States and their impact on students with disabilities. Finally, school and student variables are explored. Included in this chapter is a review of empirical evidence on the effect of inclusion on students with and without disabilities. Student variables such as ethnicity, gender, attendance, academic past performance, and socioeconomic status and their relationship to student achievement are reviewed.

Literature Search Procedures

A thorough search of all relevant literature was conducted for this study. This included a review of dissertations, relevant historical texts, and peer reviewed research articles that pertain to the topic of this study. Electronic resources were obtained through databases such as ERIC, ProQuest, EBSCO Host, and Seton Hall Dissertations and Theses. Advanced search parameters were utilized to ensure that literature was obtained from peer reviewed journals and periodicals. General web-based searches were conducted via Google Scholar, ed.gov, and the New Jersey Department of Education. Keywords that were used to conduct searches included inclusion, academic achievement, academic performance, poverty and academic achievement, gender and academic achievement, socio-economic status and academic achievement, ethnicity and academic achievement, influence of inclusion on special education students, influence of inclusion on regular education students, history of special education, history of inclusion, history of special education in the United States, special education law, New Jersey HSPA, NJ ASK, and achievement gap. The aforementioned key words and phrases were used in combination or individually to ensure comprehensive results.

Criteria for Research

Criteria for studies used in this literature review included the following:

1. The studies involved elementary (Grades pre K-5), middle school (Grades 6-8), high school (Grades 9-12). The studies took place in the United States as well as throughout the world.
2. International studies were used only if translated into English or if they were readily available in English.
3. Non peer-reviewed resources were referenced only for historical or legal purposes.

Historical Development of Inclusion

Contrary to popular belief, the Unites States Constitution does not guarantee individuals a free public education. The Tenth Amendment of the Unites States Constitution states, "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people" (U.S. Constitution, Amendment 10). Although it is not explicitly stated, the Tenth Amendment of the U.S. Constitution implies that public education is the responsibility of the states (Yell et al., 1998). The Supreme Court has not declared that education is a fundamental interest; therefore, states have plenary power in the area of education. (Dennis, 2000).

In 1840, Rhode Island was the first state to pass a compulsory education law in America, and by 1918 compulsory education laws were in place in all states (LaNear & Frattura, 2007; Yell et al., 1998). The benefit of this legislation was that it compelled children of designated ages to attend school and to experience the privilege of receiving a state-funded education. The drawback of compelling children of certain ages to attend school was that the state sanctioned the classification of children with special needs, which eventually led to innumerable injustices in the school system (LaNear & Frattura, 2007). States were responsible for providing an education to students; however, children with disabilities continued to be excluded from school.

With the introduction of compulsory education, a framework for identifying students with special needs began to emerge. In the case of *Beattie v. Board of Education* (Beattie v. Board of Education, 1919), an early case that was tried before the Wisconsin Supreme Court in 1919, Merritt Beattie was refused access to an education because of his disabilities. The court described Beattie as a defective child who had an unclean appearance due to his inability to control the flow of saliva from his mouth. The court ultimately supported the school board's

decision not to provide this student with a public education because his presence would "produce a depressing and nauseating effect upon the teachers and school children" (LaNear & Frattura, 2007, p. 91). The court also contended that Beattie's presence in the classroom would absorb an undue portion of the teacher's time and attention and create a distraction for students. It was argued that allowing Beattie to receive his education among non-disabled students was not in the best interest of the school (LaNear & Frattura, 2007). Although Merritt Beattie was able to compete academically with his peers, the court supported the decision of the school board to reassign him to an institution for students with hearing and speech disabilities. States continued to make similar rulings for several decades to follow (LaNear & Frattura, 2007; Yell, Rogers, & Rogers, 1998).

The civil rights movement in the 1950s and 1960s brought attention to the rights of minorities and led to litigation and changes in legislation. In 1954, the landmark case of *Brown v. Board of Education* took place. In *Brown v. Board of Education* (1954), the U.S. Supreme Court ruled that segregation in public schools denied equal opportunity to individuals and was in turn a violation of the 14th Amendment of the United States Constitution. The 14th Amendment states, "No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws." In other words, a state may not deny any person within its jurisdiction equal protection under the law. Based on this amendment, if a state provides an education to its citizens, then it must do so for all citizens on an equal basis (Katsiyannis et al., 2001). The law provided educational rights to all children; however, children with disabilities were continually denied the right to a public education. Children with mild disabilities were able to receive their

education in a regular education classroom as long as they were able to participate in the learning without accommodations. Students with moderate disabilities were required to attend programs in segregated settings (Goldman, 1994).

By the early 1970s advocates used the language of *Brown v. Board of Education* (1954) to justify educating children with disabilities. Although this case was decided in the context of racial inequality, advocacy groups suggested that it was applicable to students who were denied their rights to education due to a disability (Yell, Rogers, & Lodge, 1998). In 1970, the first law that specifically addressed students with disabilities, the Education of the Handicapped Act (EHA), was passed. This law allowed grants to be developed to create programs and the training of teachers to provide appropriate instruction to students with disabilities (Katsiyannis et al., 2001). Advocates argued that students with disabilities were entitled to the same equal access to education that was afforded Black children (Goldman, 1994). In 1972, two federal cases, *Pennsylvania Association for Retarded Children (PARC) v. Pennsylvania,* and *Mills v. Board of Education* were decided. These two federal cases determined that children with disabilities were entitled to a public education as well as due process. These early cases laid the groundwork for the Education for All Handicapped Children Act of 1975 (EAHCA), the first major legislation that ensured a Free and Appropriate Public Education (FAPE) to students with disabilities (Katsiyannis et al., 2001). This legislation would later evolve into what is now known as the Individuals with Disabilities Education Act (IDEA) (Goldman, 1994).

Pennsylvania statutes allowed school officials to turn away students who did not have the "mental capacity of a typical five-year-old," and to exclude from the public schools children who were deemed "uneducable and untrainable" (Hannon, 1997, p. 715). On January 7, 1971, a suit was filed by the parents of 13 mentally retarded school aged children against the Commonwealth

of Pennsylvania, the Secretary of the Department of Education, the State Board of Education, the Secretary of the Department of Public Welfare, and 13 school districts (*Pennsylvania Association for Retarded Children v. Pennsylvania*, 1972; Yell et al., 1998; Zettel, 1977). In the *Pennsylvania Association for Retarded Children v. The Commonwealth of Pennsylvania* (PARC) case, parents and advocates of children with mental retardation challenged state statutes that relieved the state board of education of educating students with disabilities (LaNear and Frattura, 2007). The plaintiffs argued that the public education of students with mental retardation was being postponed or denied, thus violating the students' rights under the Equal Protection of the Laws clause of the Fourteenth Amendment to the U.S. Constitution (*Pennsylvania Association for Retarded Children v. Pennsylvania*, 1972). Advocates argued that students with mental retardation were able to benefit from an educational program and that no children are uneducable. They also contended that educational programs are not solely comprised of academic experiences, but also of life skills activities, and that the state could not deny some children of the Commonwealth of Pennsylvania access to a free public education and training if it was providing such services to other children (Yell et al., 1998). Finally, according to Yell et al. (1998), it was argued that the earlier students with disabilities were provided with an education, the greater the amount of learning could be accomplished.

At the conclusion of the PARC case, it was decided by the Federal District Court "that all mentally retarded persons are capable of benefiting from a program of education and training; that the greatest number of retarded persons, given such education and training, are capable of achieving self-sufficiency, and the remaining few, with such education and training, are capable of achieving some degree of self-care." The Court also ruled in favor of the plaintiff that "the Commonwealth of Pennsylvania may not deny any mentally retarded child access to a free

public program of education and training" (*Pennsylvania Association for Retarded Citizens v. Pennsylvania*, 1972). The ruling called for the education of children with mental retardation in regular, rather than segregated, classrooms (Horrocks, White, & Roberts, 2008). The parties reached a settlement agreeing to place each child in a free public education program that was appropriate to the child's capacity (LaNear & Frattura, 2007). In addition, parents were entitled to due process, written notice of a change to their child's placement, the opportunity to appeal unfavorable school decisions in due process hearings, and access to their child's academic records (Hannon, 1997; Pittenger & Kuriloff, 1982).

An additional landmark case during this time was the case of *Mills v. Board of Education* (1972). Soon after the PARC case, the parents and guardians of seven children with a variety of disabilities filed a class action suit against the District of Columbia's board of education. The children who were excluded from school were considered to be mentally retarded, emotionally disturbed, physically handicapped, hyperactive, and to have behavioral problems (LaNear & Frattura, 2007). The plaintiffs challenged the statute that permitted the board of education to exclude a child from mandatory school attendance if he was "unable mentally or physically to profit from attendance at school" (Hannon, p. 719). This case was similar to PARC in that the improper exclusion of exceptional children from school was argued to be a violation of their 14th Amendment rights and due process of law (Yell et al., 1998). According to Zettel (1977), the children who had been excluded from school lived in public residential facilities that did not provide educational services and the remaining students resided with their families when they were denied a public education.

Mills v. Board of Education (1972) resulted in a judgment against the defendant that required that the board provide a public education to all children with a disability. The court also

clearly defined due process procedures for the placement, exclusion, and labeling of students with disabilities (Yell et al., 1998). The defendants in the case claimed that they would be unable to comply with the mandate unless Congress appropriated increased funds for the purpose of educating exceptional students (Zettel, 1977). In response, the Court decided that if sufficient funds were not available to provide services for all children, funds must be expended equitably so that no child is excluded entirely from a publically supported education (Zettel, 1977). The procedural safeguards included "the right to a hearing with representation, a record, and an impartial hearing officer; the right to appeal; the right to have access to records; and the requirement of written notice at all stages of the process" (Yell et al., p. 223). The outcome of the PARC and Mills cases laid the groundwork for future legislation, including the Elementary and Secondary Education Act of 1965 and the Education for All Handicapped Children Act of 1975. The Elementary and Secondary Education Act of 1965 was the earliest effort to provide funding at the federal level to states for educational purposes (Katsiyannis et al., 2001). According to Katsiyannis et al., (2001), the law also provided federal dollars to improve the quality of education for students who attended state schools for the blind, deaf and retarded. The stipulations of the Act were that if states wanted to access the Federal funding available through the law, they were responsible for providing all school-aged children with access to a free public education (Katsiyannis et al., 2001).

Following the Elementary and Secondary Education Act of 1965, came the Education of the Handicapped Act of 1970 (EHA), the first law that exclusively pertained to students with disabilities. With the EHA, grants were offered to institutions of higher learning to develop programs to appropriately train instructors of students with disabilities. The EHA was amended in 1974 to include a regulation that required states that received Federal money to provide a free,

appropriate public education and that school districts be provided with financial assistance to provide equal access to the curriculum for students with disabilities. In addition, school districts were required to evaluate all students with a disability and create an educational program that would be similar to that of students without disabilities (Robinson, 2012).

In November of 1975, President Gerald Ford signed into law The Education for All Handicapped Children Act (EAHCA), which was often referred to as P.L. 94-142. The law was enacted to ensure that states provide a free, appropriate public education (FAPE) to all students without regard to disabling condition by providing states support in protecting the educational rights of students with disabilities (Darrow, 2007; Katsiyannis, 2001; Keogh, 2007; Yell et al., 1998). In addition, the Act required that FAPE be provided in the least restricted environment (LRE) (Pittenger & Kuriloff, 2001). The law defined the type of educational placement that the child should receive and set forth due process procedures for the protection of student rights (Darrow, 2007). In order to access the federal funding, states were required to submit a state plan that laid out policies and procedures to be put in place to educate students with disabilities in accordance with EAHCA. Once the plan was accepted by the Bureau of Education, the state was obligated to guarantee students with disabilities a "free and appropriate public education" (FAPE), in return for the federal funding (Yell et al., 1998). P.L. 94-142 also ensured that each child was afforded the right to have a due process hearing, the right to appeal to either state or federal courts, nondiscriminatory assessment, and an Individualized Education Plan (IEP) (Darrow, 2007; Keogh, 2007; Pittenger & Kuriloff, 1982). An IEP is a written document for each child that ensures that a child's education is developed specifically to address his or her individual needs. It is reviewed at least on an annual basis to determine if instructional objectives are being achieved (Pittenger & Kuriloff, 1982). This document was the baseline

mechanism for future legislation, specifically the Individuals with Disabilities Education Act (IDEA) (Hannon, 1997).

The EAHCA Act was revised throughout the 1980s and was renamed the IDEA in 1990 (Hannon, 1997; Robinson, 2012). According to Darrow (2007), changes to the title of the Act were made to reject the term handicapped and to reflect person-first language. The intent of the IDEA was to provide students with disabilities with equality and the ability to be self-sufficient (Hannon, 1997). The IDEA provides federal funding to the states and also governs how students with disabilities shall be educated. The law provides procedural safeguards to ensure that students with disabilities are provided with FAPE, which includes special education instruction and related services designed to meet a child's unique needs, from ages three through 21. The law also sets forth federal funding guidelines for states and increased due process rights for parents which ensure that they are provided the opportunity to be involved in their children's educational programming in a meaningful way (Katsiyannis et al., 2001). The additional changes that occurred to the Act through a variety of amendments included the extension of rights under the law to protect preschool aged children with disabilities and funding incentives to support early intervention programs for children from birth to two years of age (Darrow, 2007).

IDEA was enacted to assist states in meeting the educational needs of students with disabilities through federal funding (Katsiyannis et al., 2001). According to Kasiyannis et al., (2001), IDEA is a comprehensive law that, in addition to providing supportive funding to states, governs how students with disabilities are educated. Major changes to the Act included the following: an emphasis on the person first, removing the term *handicapped* and replacing it with *child*, *student*, or *individual with a disability*, students with autism and traumatic brain injuries were included in the list of disabilities that entitled individuals to the law's benefits, assistive

technology and rehabilitative services were added to the list of possible related services, and transition planning was required to be included in each IEP by the age of 16 (Darrow, 2007; Yell et al., 1998).

IDEA was further amended on June 4, 1997, when President Clinton signed the Individuals with Disabilities Education Act Amendments of 1997, P.L. 105-17 (Yell et al., 1998). In 1997 major changes to the law included the requirement that annual goals and objectives in IEPs be measurable. Including measureable goals would allow parents and educators to determine if student progress has been achieved (Yell et al., 1998). Additionally, in order to provide resolutions to disputes, mediation must be offered as an option to parents (Darrow, 2007). Finally, the IEP must be written collaboratively by a team that includes a general and special education teacher, a school system representative, the child when appropriate, and other individuals if needed (Wolfe, 2002). In addition, students with disabilities must be provided with the necessary accommodations so that they may be included in state and district-wide assessments (Darrow, 2007). In sum, the main requirements of IDEA are FAPE to all students with disabilities, the least restrictive environment (LRE), and procedural safeguards to protect students with disabilities and their parents (Wolfe, 2002). All of the laws and amendments were passed with the purpose of integrating students with disabilities into a mainstream setting to the highest degree possible (Darrow, 2007).

On January 8, 2002, President George G. W. Bush signed into law the most noteworthy reauthorization of ESEA, entitled the No Child Left Behind Act of 2001 (NCLB) (Simpson, LaCava, & Graner, 2004). NCLB introduced a new era of accountability for schools, which created regulations to "ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state

academic achievement standards and state academic assessments" (U.S. Department of Education). NCLB requires that all students, including students with disabilities, must meet state-identified standards by the conclusion of the 2013-2014 school year (Simpson, LaCava, & Graner, 2004). NCLB was also responsible for ensuring that parents were provided with "substantial and meaningful opportunities to participate in the education of their children" (NCLB, 2001). The purpose of NCLB is to close the achievement gap among students so that no student is left behind (No Child Left Behind Act, 2001). In order to accomplish this, NCLB requires that students with disabilities have access to core academic content taught by highly qualified teachers or teams of teachers. The legislation also requires that students with disabilities be provided with increased access to instructional opportunities in general education classes to the maximum extent possible and to be exposed to challenging expectations that have been established for all children (Handler, 2006). The Act required that separate measures must be reported for K-12 children, students who are economically disadvantaged, students from major racial and ethnic groups, students with disabilities, and students with limited English proficiency (Robinson, 2012). The Act further mandated that "all children have a fair, equal, and significant opportunity to obtain a high-quality education, and reach, at a minimum, proficiency on challenging state academic achievement standards and state academic assessments" (Simpson, LaCava, & Graner, p. 68). Furthermore, NCLB established rewards and consequences based on students' performance on state assessments. Schools that perform well may receive public recognition, and schools that do not could be issued sanctions and could be subject to state takeover (Simpson, LaCava, & Graner, 2004).

To meet the goals of NCLB, it was necessary for states to set challenging academic content and performance standards in reading, mathematics, and science. States then had to

develop or adopt assessments that would help to determine if students were meeting the standards of the state (Yell, Katsiyannas, & Shiner, 2006). Next, states were charged to identify benchmarks by which to measure the progress of students and school districts, or what was deemed "adequate yearly progress" (AYP) (Simpson, LaCava, & Graner, 2004). NCLB requires that results of the assessments be tracked and reported to the public. It was thought that AYP would allow stakeholders to identify areas of strength and those in need of improvement. AYP is a state-developed measureable milestone for schools to use to determine their success in improving student achievement (Yell et al., 2006). In order to make AYP, states had to have at least 95% of enrolled students participate in high-stakes testing; all students, including students who were members of sub-groups, must score at least a score of proficient at the state's targets for that year, and all students, including subgroups must meet AYP targets for graduation or attendance each year (Yell et al., 2006).

According to Yell, Katsiyannas, and Shiner (2006), Congress and the President believed that the results of assessments of students with disabilities must be included in AYP data if instruction and achievement of such students were expected to improve. The researchers stated that leaders feared that if school officials were not held accountable for the academic achievement of students with disabilities, they could potentially be excluded from accountability systems that provide useful information to parents and guardians and ensure that schools receive credit for the progress of all of their students. In addition, by including all students, it would ensure that all students receive the academic attention necessary to succeed (Yell et al., 2006). The assessment provision of NCLB required that students with disabilities receive appropriate accommodations during assessments in order for their progress to be measured. IEP teams or Section 504 teams decided how students would participate in state assessments, not if they would

participate. If it was determined that a student is unable to participate in the regular assessment even when provided with approved accommodations, the student would be provided with an alternate assessment (Yell et al., 2006).

In December of 2004, President Bush signed into law IDEA 2004. The primary purpose of IDEA 2004, according to Yell et al. (2006), was to improve the academic success of students with disabilities by providing a performance-driven framework for accountability to ensure that children with disabilities receive a fair and appropriate education. IDEA 2004 also reemphasized the principles of procedural safeguards for parents and the least restrictive environment (Turnbull, 2005).

The U.S. Supreme Court case *Board of Education of the Hendrick Hudson Central School District v. Rowley* (1982) was the first case to determine a legal standard for an "appropriate" education (McLaughlin, 2010). In this landmark case, the parents of Amy Rowley, an elementary school student afflicted with deafness, had been provided an FM hearing system, which amplified the voices of her teachers and classmates through a wireless receiver. Dissatisfied with this accommodation, the parents of this student requested to have a full time sign language interpreter in her academic classes (Hannon, 1997). This service was beyond what was provided via her IEP. It was argued that although the student was performing better than her peers, she was still not performing as well academically as she would if she did not have a disability (Board of Education v. Rowley, 1982). Because of the disparity between Amy's achievement and her potential, her parents argued that she was not receiving a FAPE. The courts had defined FAPE as an opportunity for a student to achieve his or her full potential commensurate with the opportunity provided to other children (IDEA). The school denied the request for a full time interpreter because Amy was achieving academic and social success

without this individualized service. Amy's parents claimed that the denial to their request was a violation of the student's right to a FAPE, which was guaranteed through IDEA (Hannon, 1997).

On June 29, 1982, Supreme Court Justice Rehnquist ruled that the school district had provided an appropriate education to Amy Rowley. The Court decided that Congress had intended that to deliver FAPE, "school districts had to provide personalized instruction with sufficient support services to permit a child with a disability to benefit educationally, which had been satisfied in this case." (Yell, Katsiyannis, & Hazelkorn, p. 4). Although some justices disagreed, the majority noted that the EAHCA required that special education services "be provided at public expense, meet state standards, and comport with the student's IEP. If individualized instruction allowed the child to benefit from educational services and was provided in conformity with the other requirements of the law, the student was receiving a FAPE." (Yell, Katsiyannis, & Hazelkorn, p. 4). The Supreme Court developed a two-pronged test to determine if districts were providing a FAPE under IDEA. First, the district must determine if it had complied with the procedures of the EAHCA. Second, the IEP must be reasonably calculated to enable the child to receive educational benefits (*Rowley v. Board of Education*, 1982). When these tests were applied by the Supreme Court to the Rowley case, it was determined that Amy Rowley had received an appropriate education that was in compliance with the procedures of IDEA (Yell et al., 2007). This two-pronged test came to be known as the Rowley standard and continues to guide school districts' thinking about FAPE (Yell et al., 2007).

Empirical Studies on the Effects of Inclusion on the Academic Achievement of Students without Disabilities

Research on the impact of inclusion classrooms on non-disabled students is varied and it is therefore difficult to draw clear conclusions about the benefits or drawbacks of this instructional method (McDonnell, Thorson, Disher, Mathot-Buckner, Mendel, & Ray, 2003;

Ruijs & Peetsma, 2009). Those in favor of inclusive educational settings argue that non-disabled students in an inclusion classroom may benefit in a variety of ways. For instance, researchers state that non-disabled students often perform better academically than their peers in non-inclusive classrooms because they profit from the additional support that is offered to students in an inclusive classroom setting (Ruijs & Peetsma, 2009). Research also indicates that inclusive educational programs may not only lead to positive academic outcomes for non-disabled students, but it may lead to social benefits for all students (McDonnell et al., 2003). Non-disabled students who are educated with peers with special educational needs are believed to be more tolerant of individuals with differences, while students with a disability who are educated in an inclusion classroom setting are readily exposed to models of appropriate social behavior (Daniel & King, 1997). Opponents, however argue that non-disabled children who are educated with students with a disability may in turn imitate undesirable behaviors displayed by their disabled peers (Ruijs & Peetsma, 2009).

Those in opposition to inclusive classroom settings contend that when students with disabilities are educated with their non-disabled peers, non-disabled students often become bored with the pace of instruction, while students with disabilities struggle to keep up with their non-disabled classmates (Daniel & King, 1997). This supports the argument that inclusion classes offer a "one size fits all" approach to teaching and may lead to educators ignoring the individual needs of students (Daniel & King, 1997).

The majority of studies have found that there are no statistically significant differences in the performance of non-disabled students when placed in an inclusion class as opposed to a non-inclusion setting (Ruijs & Peetsma, 2009). An exploratory study by McDonnell et al. (2003) was conducted to evaluate the impact of inclusive educational practices on the achievement of

students with disabilities and their non-disabled peers. The authors found that the placement of students with developmental disabilities did not have a statistically significant negative impact on their non-disabled peers on state mandated assessments in language arts or math.

The study involved five elementary schools in school districts located in rural, suburban, and urban areas. The schools were selected based on interest of the principal and faculty. Eighteen students with disabilities attended the five elementary schools, and 14 of the disabled students participated in the study. The participants were in Grades 1 through 5, and their mean age was 8.9 years, with a range of 6 to 12 years. A total of 324 non-disabled students were involved in the study. The non-disabled students were enrolled in the same general education classes as the 14 students with developmental disabilities. Students with disabilities were placed in classes by teachers and the building principals and were placed in classes where general education teachers were supportive of inclusion and expressed a willingness to work as part of the IEP team to support the individual needs of students. Non-disabled students were not placed in specific classes based on academic or standardized measures of school performance.

Student achievement was measured through two instruments, the Scales of Independent Behavior-Revised (SIB-R), which was designed to assess adaptive behavior in the areas of motor skills, social and communication skills, personal living, and community living, and the Utah Core Assessments. The Utah Core Assessments was used to measure the educational achievement of students without disabilities by evaluating students' mastery of the state standard and core curriculum objectives at each grade level.

The difference in performance between disabled and non-disabled students was compared through two quasi-experimental designs. A pre-test/post-test design was used to assess performance of students with disabilities on the SIB-R and a posttest only control group design

was used to measure level of achievement of non-disabled students on the Utah Core Assessment across inclusive and comparison classes. Students with disabilities were provided with additional support in the classroom such as curriculum and instructional adaptations, parallel instruction, circle of friends, peer tutoring, and direct instruction from paraprofessional staff. In addition, teachers utilized strategies such as cooperative learning, co-teaching between general education and special education professionals, and large and small group instruction. General education and special education teachers worked cooperatively to plan the curriculum and instruction in the general education classroom.

McDonnell et al. used a one-way Analysis of Variance (ANOVA) to compare the pre- and post-test results of the SIB-R for students with disabilities. The results of pre-test and post-test scores were statistically significant ($Z=3.18$, $p=.001$). Thirteen to 14 students' scores increased from pre-test to post-test, and one student's scores remained the same. A one-way ANOVA on the scores on the Utah Core Assessment for non-disabled students indicated that no significant differences existed between students enrolled in an inclusion classroom and those not enrolled in an inclusion classroom in either reading/language arts ($F= .02$; $p= .87$; $df= 1543$) or math ($F= .39$; $p= .52$, $df= 1543$).

The results of this study suggest that students with disabilities who were educated in an inclusion classroom setting experienced improvements in their adaptive behavior as measured by the SIB-R. In addition, there was no statistically significant difference in the performance of non-disabled students who were placed in classes with or without students with disabilities. These results are consistent with the research in that most studies have neutral academic outcomes for non-disabled students who are educated in classrooms with peers who have a disability.

Student Variables

Socioeconomic Status

Family income continues to be a consistent predictor of student achievement. Students of families with lower incomes are at an increased risk to be retained, suspended, or expelled from school. They are also more likely to underachieve compared to peers in middle and high income households and are more likely to be classified with learning disabilities and to perform more poorly on assessments (Dishman-Horst & Martin, 2007; Taylor, 2005).

The landmark Coleman Report, authorized by the 1964 Civil Rights Act, found that "the social composition of the student body is more highly related to achievement, independent of the student's own social background, than is any school factor" (Coleman, p. 325). Coleman noted that when students from a particular socioeconomic background are placed in schools of different social compositions, they achieve at different levels. Further studies have found that students from affluent households outperform students from low income households in all academic subjects (Taylor, 2005). Taylor (2005) states that children who qualify for free or reduced lunch programs receive the lowest scores on the National Assessment of Educational Progress (NAEP) tests in reading, writing, science, and mathematics. This social class argument is based on the assumption that the achievement gap exists before students begin a formal education because of limitations in their home environment. A culture of low achievement is fostered and is in turn the source of poor student performance (Wiggan, 2007).

Student Ethnicity

Coleman found that minority children began first grade behind white peers in reading and writing achievement. He noted that this gap increased by the end of school (Coleman, 1966). This is consistent with the findings of Bali and Alvarez (2004) who found that achievement gaps arise in the early grades and increase by the end of high school. Researchers continue to explore

reasons why this achievement gap exists and how and when it develops (Bali & Alvarez, 2004). Many theories exist that attempt to explain this achievement gap. For instance, it has been argued that the achievement gap between minority and non-minority students may be due to genetic deficiency, cultural and/or class poverty, low teacher expectations, and/or student oppositional identity (Wiggan, 2007).

Intelligence and achievement testing began circa 1890, when James Cattell coined the term *mental test* (Wiggan, 2007). In 1897, George R. Stetson attempted to measure and compare the intelligence of Black and White students. Although he determined through his testing that African Americans outscored their White counterparts, Stetson argued that Black students were intellectually deficient when compared to White students (Wiggan, 2007). According to Wiggan (2007), researchers demanded a revision of the test because its outcome did not support the common belief of the time that Black students were inferior to White students. Future studies were designed that supported the prevailing belief and unlike Stetson's study were widely publicized (Wiggan, 2007).

Wiggan (2007) attributed hereditary differences to variations between the academic achievement of Blacks and Whites. With this argument, external interventions may have minimal benefits for Blacks in terms of academic achievement (Wiggan, 2007). Along a similar vein, Herrnstein and Murray (1994) argued in *The Bell Curve* that if intelligence was determined by genetics, interventions for minority children were useless. Those who disagree with this theory argue that race is a socially constructed concept that is not grounded in biology but rather in a need for people to classify (Sternberg, Grigorenko, & Kidd, 2005). Therefore, the achievement gap may not be explained by genetic deficiencies. In addition, Gardner (1985) found that intelligence is multidimensional and may not be measured by one-dimensional

assessments such as those utilized by the authors of *The Bell Curve*. Furthermore, researchers who dispute the genetic perspective argue that the theory ignores the role that socialization plays in school performance and that performance changes when students are provided with equal access to resources such as high quality instruction (Sorensen & Hallinan, 1984). According to Wiggan (2007), the current literature provides no evidence for the genetic superiority of Whites over minorities, but the research does support evidence for socialization when accounting for differences in student achievement (Wiggan, 2007).

Social class and culture became a popular explanation for the academic differences between Whites and minorities in the 1960s and 1970s due to social activism against racism and racial discrimination (Wiggan, 2007). During that time, students' social class, cultural differences, and home environments were used to explain differences in school performance. According to Bali and Alvarez (2004), family factors play a strong role for Black students, and neighborhood factors play a significant role in student achievement among Hispanics. It has been argued that disorganized neighborhoods are responsible for educational failure, and students are vulnerable because they are unable to select the neighborhood in which they grow up (Wilson, 1996). In addition, Hispanic student achievement may lag behind that of Whites due to school and language factors (Bali & Alvarez, 2004). This argument is consistent with the findings of Bernstein (1971), who argued that language and social class diminish the achievement of students from low socioeconomic backgrounds. He asserted that students from disadvantaged backgrounds do not have the cultural and linguistic codes that middle class students have, and therefore are predisposed to lower school performance (Bernstein 1971; Bourdieu & Passeron, 1977).

Student Gender

Student gender is a variable that is often explored when identifying factors that may influence student achievement. Although discrepancies exist within the literature about the variables that impact student achievement, it has been determined by many researchers that female students tend to score higher on average than males on tests of verbal abilities, and males tend to score higher than females on assessments of mathematical computation (Niedeerle & Vesterlund, 2010; Nowell & Hedges, 1998; Pope, Wentzel, Braden, & Anderson, 2006). In fact, it has been determined that female high school students perform better than males in most subjects, and females have surpassed males in college going (Goldin, Katz, & Kuziemko, 2006; Niederle & Vesterlund, 2010). Pope and Sydnor (2010) report that all cohorts of women born in the Unites States since 1960 have a greater number of years of schooling than their male counterparts. Although research in this area is abundant, Pope, Wentzel, Braden, and Anderson (2006) state that gender accounts for only small amounts of variance in test scores between males and females.

The differences in academic achievement based on gender may be due to a number of factors. Some factors include socioeconomic status (Parke & Keener, 2011), ethnicity (Parke & Keener, 2011), school climate (Legewie & DiPrete, 2012), biology (Niederle & Vesterlund, 2010), socialization (Nowell & Hedges, 1998), and geographic location (Pope & Sydnor, 2010). The abundance of theories demonstrates that a consensus on the variables that impact student achievement based on gender does not exist.

According to Nowell and Hedges (1998), the research that does exist on gender differences in academic achievement is generally flawed. The authors state that the majority of primary research on the subject involved small and under-representative samples, from which

data are derived that may not be generalized to national samples. The authors argue that the data from larger samples are also unable to be generalized to the national population. Nowell and Hedges (1998) report that the Scholastic Aptitude Test (SAT) is utilized in many studies; however, the group of students that takes the assessment consists of self-selected students who are considering applying to college. In addition, students may take the SAT to fulfill a requirement of the competitive high schools they attend. Based on this, the authors argue that the small gender differences that are identified in most studies are even smaller due to the lack of representativeness in samples (Nowell & Hedges, 1998).

Several research studies show that slight gender differences in student achievement exist and have remained constant over time. For instance, Nowell and Hedges (1998) reviewed gender differences in academic achievement since 1960 and found that the differences in mean and variance are very small and have remained stable over time. The authors conducted a meta-analysis where they compared survey data from eight samples of twelfth grade U.S. students, which included all waves of the National Assessment of Educational Progress (NAEP). The NAEP is a nationally representative and continuing assessment of trends in academic achievement of US elementary and secondary students in various subjects. Mean differences, variance ratios, and proportion ratios in the tails of the test score distributions were analyzed for significant change over time. The researchers determined that slight gender differences exist in all areas and showed that males scored higher on mathematics and science tests while females scored higher on tests of reading and writing. When looking at NAEP tests, the authors state that the differences in mean remained stable over time. These findings are consistent with those of Klecker (2006), who found that there is a positive relationship between females and reading

achievement. These findings, according to Klecker (2006), were consistent at the fourth, eighth and twelfth grade levels.

Student Attendance

It has been determined from previous research that significant positive relationships exist between school attendance and student academic performance and that attendance may be a predictor of future academic performance (Aden, Yahye, & Dahir, 2013; Schmulian & Coetzee, 2011). In other words, when student attendance is poor, grades tend to decrease (Borland & Howsen, 1998; Gump, 2005; Jackson & Lunenburg, 2010). Archambault, Kennedy, and Bender (2013) have argued that school attendance has not only been associated with increased performance on standardized tests, but a chronic lack of attendance may be an indicator of students who may be considered at-risk and who are in need of interventions from school personnel (Archambault et al., 2013). Students who are frequently truant from school may not only fall behind in their academics but are also more likely to experience legal troubles and to become involved in problematic behavior within their communities (Aden, Yahye, & Dahir, 2013). For instance, adults who were chronically absent in school are more likely than others to be incarcerated, live in poverty, experience teen pregnancy and substance abuse, have mental and physical health problems, work in low-paying positions, utilize public assistance, and have children who have behavior problems (Archambault et al., 2013; Spencer, 2009). In addition, in a study of African American males who were frequently absent from school, 75% did not graduate from high school (Roby, 2004). Data also suggest that absenteeism is of greater concern for students with disabilities. According to Spencer (2009), students with disabilities are more likely than their non-disabled peers to be absent from school. Spencer states that students with learning and behavior disabilities miss 15% to 20% more instructional time due to absences than students without disabilities.

Student attendance is a topic that is gaining more interest, as No Child Left Behind legislation stresses the importance of attendance as an accountability indicator at the elementary, middle, and secondary school levels (Spencer, 2009). Attendance has become a great concern at the secondary level in particular because it has been determined that its effect is twice as strong in secondary school as it is in elementary school (Caldas, 1993).

Conclusion

As educators are faced with increased accountability measures due to recent legislation such as the TEACHNJ Act and the No Child Left Behind Act, students with special needs are spending increasingly more time in inclusive classroom settings (Henning & Mitchell, 2002). School leaders must rely on current research to make the most appropriate decisions regarding student placement for all students. Instructional leaders must also consider the influence of variables such as socioeconomic status, gender, ethnicity, and attendance on student achievement.

Beginning in the 1970s, laws were enacted that specifically addressed students with disabilities such as the EAHCA and the EHA (Yell et al., 1998). More recently, NCLB has required that students with disabilities be exposed to instructional opportunities in general education classes to the maximum extent possible (No Child Left Behind Act, 2001). Such regulations have led to debates among educators and policy makers about the influence of such legislation on the academic achievement of non-disabled students who are placed in an inclusive classroom setting (Ruijs & Peetsma, 2009). Those who support the practice of inclusion argue that non-disabled students perform better than their peers when placed in an inclusive classroom setting for a variety of reasons. Some feel that the non-disabled student benefits from the additional support of a co-teacher (Ruijs & Peetsma, 2009). Those in opposition to the practice

contend that when non-disabled students are educated with peers who have been classified with a disability, their individual needs are ignored (Daniel & King, 1997). Research studies also indicate that no statistically significant differences exist between the performance of students with disabilities and those without when educated in the same classroom setting (Ruijs & Peetsma, 2009).

The purpose of this study was to identify factors that may influence the academic achievement of non-disabled students, as measured by the Language Arts Literacy section of the 2013 NJ HSPA. This research will add to the limited body of research that exists on the influence of inclusion classes on regular education students so that educational leaders may make informed decisions about the most appropriate learning environment for secondary students.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this quantitative study was to examine the influence of the inclusion setting in Language Arts on the academic achievement of eleventh grade general education students as measured by the 2013 NJ HSPA. This study produced research-based evidence on the influence of inclusion on regular education students in Grade 11, which will add to a limited and disparate body of existing literature. There has been an abundance of research on the positive impact of inclusion on students who are classified with a disability; however, fewer studies have been conducted that address the influence of inclusion on regular education students in the high school setting. Previous studies that have examined the influence of inclusion on middle school students include Christie Robinson's 2012 examination of the impact of placement in an inclusion class on the academic achievement of general education students in Grades 6, 7, and 8 and Faye Brady's 2010 longitudinal study on the influence of inclusion on non-disabled middle school students in Math and Language Arts Literacy. Fewer studies however, focus on the influence of inclusion classes on non-disabled students at the high school level.

In the current study, school and student variables were reviewed and their influence on student achievement were examined. This study also provides empirical evidence that may be utilized to assist policy makers and school administrators with creating polices and forming decisions that will have a positive impact on the academic achievement of all students.

Research Design

This study was conducted as a non-experimental, explanatory design. Subjects were assigned to treatment and control conditions with quantitative methods. Simultaneous multiple

regressions were utilized to determine if a statistically significant relationship exists between the student and school variables and student achievement. This method was utilized because multivariate statistical analyses allow us to determine the amount of variance found in the dependent variable that is explained by the independent variables (Gay, Mills, & Airasian, 2012). Gay et al., (2012) state that this method allows one to determine which of the predictor variables are making the most significant contribution to the criterion variable. Additionally, an ANCOVA and factorial ANCOVA were utilized to determine a more nuanced and refined level or levels of association between the criterion variable and its subsequent significant predictors.

Sample Population

The participants of this study were selected from a suburban middle to upper middle class PreK-12 school district located in central New Jersey. According to the United States Census Bureau, this township has a population of approximately 66,522 people, 23,962 households, and 18,235 families. The racial makeup of the township is approximately 93.89% White, 1.31% Black, 0.10% Native American, 2.60% Asian, 0.01% Pacific Islander, 0.81% other races, and 1.29% two or more races. About 5.37% of the population is Hispanic or Latino. The median household income in the township is $96,190, while the median family income is $110,944. Males have a median income of $78,739, while the median income of females is $52,752. The per capita income for the township is $42,792. About 1.7% of families and 3.0% of the population are below the poverty line, including 2.9% of those less than 18 years of age and 5.1% of those age 65 or older.

This suburban school district is comprised of 17 schools and serves about 10,527 students in pre-kindergarten through Grade 12. The district houses two PreK-5 elementary schools, ten

K-5 elementary schools, three Grades 6-8 middle schools, and two Grades 9-12 high schools. This district is classified by the New Jersey Department of Education as being in district factor group GH, which is the third highest of eight groupings based on socioeconomic characteristics of local districts.

For the purposes of this study, the sample population was limited to the two high schools in the school district, MTN and MTS. MTN High School has approximately 1,474 students, 373 of which are in grade nine, 363 in grade ten, 364 in grade eleven, 350 in grade twelve, and 24 students are repeating grade twelve. In MTN High School, 88.2% of the students are classified as White, 2.8% are Black or African American, 6.3% are Hispanic or Latino, 1.7% are Asian, 0.3% are American Indian, 0.6% are Pacific Islander, and 0.1% are of two or more races. About 16% of the students have been classified as having special educational needs, and 13.6% of students qualify for free or reduced lunch.

MTS High School has approximately 1364 students with 344 in grade nine, 329 in grade ten, 323 in grade eleven, 344 in grade twelve, and 25 students repeating grade twelve. The school is comprised of 91.6% White students, 1.4% Black or African American, 3.8% Hispanic or Latino, 2.7% Asian, 0.3% American Indian, and 0.1% Pacific Islander. Sixteen percent of students have been classified with a disability, and 5.4% of students qualify for free or reduced lunch.

Participants were included in the study if they met the following criteria: (1) each student in the sample was in the eleventh grade during the 2012-2013 school year at MTN High School or MTS High School, (2) each student in the sample had valid overall and cluster scores in Language Arts Literacy on the 2010 NJ ASK 8 and the 2013 NJ HSPA, (3) each student in the

sample had been enrolled in the district during Grades 8-11, (4) each student in the sample was considered a general education student and was deemed ineligible for special education services.

During Grades 9 and 10, students were assigned to either a College Prep I (CPI) or College Prep II (CPII) level English course based on a variety of factors. School counselors reviewed standardized test data from the previous year, current teachers made recommendations based on course performance and district requisites, and parents were invited to discuss recommendations with the counselor and student. Students who did not perform at the proficient level on standardized tests and/or did not receive the requisite course grade were recommended to the CPII English level. The CPII level courses were inclusive classes where general education and students who were classified were taught in the same classroom. Two certified teachers (one content expert, and one special education teacher) taught the students. Both general education and special education students were exposed to the same curriculum and were taught in the same classroom at all times. Students who received a score of Proficient or above and received the requisite course grade at the end of the year were recommended for CPI. During their junior year, CPI and CPII levels were combined. The district decided to combine the CPI and CPII levels because both courses offered exposure to the same curriculum and common assessments. Therefore, students were randomly assigned to a general college prep English course during their junior year.

Instrumentation of NJ HSPA

The purpose of this study was to determine whether a significant relationship exists between the student variables, school variables discussed in the review of the literature, and performance on the Language Arts Literacy section of the 2013 NJ HSPA of eleventh grade students. The 2013 NJ HSPA scores measure the level of proficiency of students on New

Jersey's Core Curriculum Content Standards (NJCCCS) in Language Arts and Mathematics throughout the state of New Jersey.

In 1976, the New Jersey Legislature established "uniform standards of minimum achievement in basic communication and computation skills." (Technical Report NJ HSPA, p. 5) At this time, the idea of utilizing a test as a graduation requirement was introduced (Technical Report NJ HSPA, 2006). In 1996, the New Jersey State Board of Education adopted the NJCCCS, which outlined what a student should be able to know and do at the end of Grade 4, Grade 8, and at the end of a New Jersey public school education. All New Jersey school districts were required to develop a curriculum based upon the NJCCCS, which defined the state's graduation requirements. The NJ HSPA is aligned to the NJCCCS and, as of March 2002, has become the state's graduation test (Technical Report NJ HSPA, 2006).

According to the Technical Report NJ HSPA (2006), NJ HSPA scores are reported as scale scores ranging from 100-300. Students are provided with a proficiency level of Partially Proficient, Proficient, or Advanced Proficient based on the scale score for each section. Students who score below 200 are classified as Partially Proficient, students who score 200-249 are classified as Proficient, and students who score 250 or higher are classified as Advanced Proficient. Students who score 200 or above on the Language Arts Literacy and Mathematics sections have achieved the state minimum level of proficiency.

The 2006 Technical Report NJ HSPA indicates that reliability estimates for HSPA are based on Cronbach's alpha measure of internal consistency. In 1951 Lee Cronbach developed alpha to measure the internal consistency within a test (Tavakol & Dennick, 2011). According to Tavakol and Dennick (2011), internal consistency is the degree to which all items on a test measure the same concept. Internal consistency must be determined before a test is used for

examination purposes to ensure validity. The standard errors of measurement (SEMs) are expressed as the raw score metric and the scale score metric. According to Tavakol and Dennick (2011), as the estimate of reliability increases, the portion of a test score that is due to error will decrease. The standard error is calculated at each score point to determine how reliably the test classifies students into performance categories (Partially Proficient, Proficient, and Advanced Proficient). To ensure hand-scoring reliability, two readers are assigned to read every student's response. Readers are trained using actual student papers and taught to consistently assign an accurate score of students' work. If two readers assign a score that differs by more than one point, a third reader makes a judgment of the student's work.

The validity of the NJ HSPA is based on its alignment with the New Jersey Core Curriculum Content Standards. According to the Technical Report NJ HSPA (2006), content validity is the most important source of evidence, as the test is intended to measure student performance in relationship to the NJCCCS and the knowledge and skills expected of high school students. To be included in a bank of questions that may be selected for the assessment, test questions are reviewed over a two-year cycle. During this time, a due process model of validity is employed, which relies on the expertise of educators participating in the test development process. The test development process integrates critical components into the test development process such as recruitment of educators who are familiar with the NJCCCS and the population being assessed and training individuals on writing test items, content specifications, and the goals of the assessment. Individuals who are determined by Measurement Incorporated, the organization through which the assessment is designed, agree to what degree the test items measure the knowledge, skills and abilities the test is designed to measure. They are provided the opportunity to reject or revise test items (Technical Report NJ HSPA, 2006).

Data Collection

Permission was granted to this researcher to use all requested resources by the superintendent of schools as well as the Board of Education. At the commencement of this study, data were collected by the district Student Information System Manager and shared via Excel spreadsheet categorized by student numbers. Student numbers were assigned to ensure that data remain anonymous and confidential. The reports that were shared included 2010 NJ ASK 8 scores in Language Arts, 2013 NJ HSPA scores in Language Arts, eligibility for free or reduced lunch, student attendance, length of time in the school district, placement in an inclusion or non-inclusion English class in Grades 9, 10, and 11, ethnicity, gender, and classification as regular education or special education student. The focus of this study was on the academic achievement of regular education students; therefore, students who were classified as special education students were excluded from the study. If data were missing from a student's record, he or she still may have been included in this study.

Data Analysis

This study included convenience samples from two high schools located in a suburban school district in New Jersey, where the performance of regular education students placed in inclusion language arts courses was examined. All collected data were analyzed via IBM SPSS Statistics Student Version 18.0 for Windows computer program. The predictor variables ethnicity, gender, socioeconomic status, time in district, attendance, placement in an inclusion Language Arts classroom, and placement in a self-contained classroom for zero, one, two, or three years were entered as the independent variables. The performance of regular education students on 2013 NJ HSPA was identified as the dependent variable in this study. Multiple

regression analysis was utilized to determine the association between the independent variables and the dependent variable, in addition to ANCOVA and factorial ANCOVA.

Variables

The independent variables that were included in this study were ethnicity, gender, socioeconomic status, time in district, attendance, placement in an inclusion language arts classroom, and placement in a self-contained classroom for zero, one, two or three years. In addition, student past performance was determined by previous level of proficiency on the 2010 NJ ASK 8 Assessment. The dichotomous variables in this study were variables that were classified as "yes" or "no." For instance, "yes," the student is eligible for free lunch, or "no," the student is not eligible for free lunch. School, ethnicity, gender, lunch status, and placement in an inclusion English classroom were dummy-coded. The coding that was used in SPSS is listed in the table below (Table 1).

Table 1

Coding in SPSS of Dichotomous Variables

Variable	**Coding**
School	MTS=1, MTN=2
Ethnicity	Non-White=0, White=1
Gender	Male=0, Female= 1
Lunch Status	No Free or Reduced Lunch=0, Free or Reduced Lunch=1
Placement in an Inclusion Setting	No Placement in Inclusion Setting=0,

	Placement in Inclusion Setting=1

Propensity Score Matching

The sample used in the study was selected through Propensity Score Matching (PSM). According to Lane and Henson (2010), ethical and cost limitations prevent educational researchers from utilizing a randomized design. Therefore, experimental design has been the most commonly used method for determining causal inferences in education (Lane & Henson, 2010). According to Rosenbaum and Rubin (1983), non-randomized samples may differ from one another based on covariates. When these differences are not accounted for, selection bias may increase and researchers may be faced with treatment effects which may be influenced by group differences due to non-randomization (Lane & Henson, 2010). By utilizing PSM, researchers have the ability to control for group differences when estimating treatment effects (Lane & Henson, 2010). According to Lane and Henson (2010), it has been recommended by the U.S. Department of Education that education researchers utilize PSM in their work; however, PSM continues to be underutilized in the field of education.

Multiple Regression

A simultaneous multiple regression was performed on the PSM sample to determine the amount of variance in 2013 NJ HSPA scores that could be explained by placement in an inclusion language arts class. Next, I conducted an explanation of coefficients which determined if the variables had a positive or negative influence on student 2013 NJ HSPA scores, as well as the strength of the influence. The independent variables considered in the regression equation were ethnicity, gender, socioeconomic status, time in district, attendance, placement in an inclusion language arts classroom, and placement in an inclusion classroom for zero, one, two or three years. The dependent variable was student performance on the 2013 NJHSPA.

ANCOVA

ANCOVA is a statistical method that is used to control for the effects of covariates, or scale variables that are not the independent variables in the study (Leech, Barrett, & Morgan, 2011). According to Leech, Barrett, and Morgan (2011), covariates may cause one to "draw incorrect inferences about the prediction of the dependent variable from the independent variable, if not controlled" (p. 167). Utilizing ANCOVA will "allow you to determine the significance of the contribution of the covariate as well as whether the nominal variables (factors) significantly predict the dependent variable, over and above the 'effect' of the covariate" (Leech et al., p. 167).

Factorial ANCOVA

In a causal comparative design, a factorial ANCOVA is used to determine the effects of the grouping variable on the control variable (Gay, Mills, & Airasian, 2012). It is a statistical technique used to adjust initial differences between groups on variables used in causal-comparative and experimental studies (Gay, Mills, & Airasian, 2012). The factorial ANCOVA measures whether levels of one independent variable affect the dependent variable in the same way as the levels of the second independent variable (Hinkle, Wiersma, & Jurs, 2003). This helps to explain how the variables interact with each other and the influence they have on the dependent variable. (Hinkle, Wiersma, & Jurs, 2003).

The factorial ANCOVA is utilized as a procedure to explain the variation in the dependent variable (Hinkle, Wiersma, & Jurs, 2003). According to Hinkle, Wiersma, and Jurs (2003), the factorial ANCOVA combines regression analysis and ANOVA and controls for the effects of an extraneous variable, or covariate, by identifying the variation attributed to the extraneous variable. In order for this to occur, the covariate must be unaffected by the other

independent variables. In this research project, the covariate was academic past performance as measured by 2010 NJ ASK 8 scores. By statistically controlling for the variation attributed to the covariate, the precision of the research is increased by decreasing the error variance.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to investigate the influence of an inclusive secondary language arts classroom setting on the academic performance of general education students on the Language Arts Literacy section of the 2013 NJ HSPA in one school district. Additionally, I examined the independent variable of number of years in an inclusive language arts classroom setting while controlling for the student variables of eligibility for free and reduced lunch (SES), gender, attendance, past academic performance as measured by the 2010 NJ ASK 8, and ethnicity. This study was designed to add to the body of research-based evidence on the academic performance of non-disabled students in special education inclusion classes in order to continue to develop policies and to provide educators with information that will guide decisions regarding student placement in order to allow all students to be successful.

Research Questions

A quantitative analytical methodology was used to answer the following research questions:

Research Question 1: What influence, if any, does placement in an inclusive language arts classroom setting have on Grade 11 non-disabled students' academic performance in Language Arts Literacy as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 1: Placement in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy

academic performance as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Research Question 2: What influence, if any, does the number of years placed in an inclusive language arts classroom setting have on the academic performance in Language Arts Literacy of Grade 11 non-disabled students as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 2: The number of years placed in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Research Question 3: What effect, if any, does the number of years placed in an inclusive language arts classroom setting have on the Language Arts Literacy performance of Grade 11 non-disabled students, as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for student academic past performance?

Null Hypothesis 3: There is no statistically significant difference in Language Arts Literacy academic performance, as measured by the 2013 NJHSPA Language Arts Literacy section, based on the number of years a non-disabled Grade 11 student is placed in an inclusive language arts classroom when controlling for student academic past performance.

Research Question 4: What type of interaction, if any, exists between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students'

Language Arts Literacy performance, as measured by the 2013 NJ HSPA Language Arts Literacy section when also controlling for student academic past performance?

Null Hypothesis 4: There is no statistically significant interaction between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance as measured by the 2013 NJ HSPA Language Arts Literacy section when also controlling for student academic past performance.

Results

In the original sample, a total of 639 students in Grade 11 were included from both MTN and MTS schools. After eliminating students with missing 2010 NJ ASK8 and/or 2013 NJ HSPA data, 481 students remained in the sample. Two hundred forty five were included from MTN, and 236 were from MTS. The independent variables included were gender, ethnicity, SES as measured by receipt of free or reduced lunch, length of time in district, attendance, past performance as measured by scaled scores on the 2010 NJ ASK 8, placement in an inclusion English classroom setting and number of years in an inclusion English classroom setting. Gender was dummy-coded as 0 for male and 1 for female. The sample consisted of 221 males and 260 females. Ethnicity was dummy-coded as 1 for White and 0 for non-White. Four hundred twenty nine students in the sample were classified as White, and 52 were classified as non-White. Lunch status was dummy-coded as 0 for students who did not receive free or reduced lunch and 1 for students who received either free or reduced lunch. Four hundred thirty two students in this sample did not receive free or reduced lunch, while 49 students received free or reduced lunch. Time in district was coded as 3 for students who were in the district for three or more years (471 students), 2 for students who were in the district for one to two years (5 students), and 1 for students who were in the district for less than one year (5 students). The

mean amount of time in district was 2.9688 years and the standard deviation was .22607. The mean number of days absent (attendance) was 1.3773 and had a standard deviation of 2.28526. Past performance as measured by the 2010 NJ ASK 8 scaled scores had a mean score of 234.4699 with a standard deviation of 19.38039. Finally, 68 students were in an inclusion English class for one year, 34 were in an inclusion English class for two years, and 5 students were in an inclusion English class for three years. Three hundred seventy four students were never in an inclusive English classroom setting. The mean number of years students were in an inclusive English classroom setting was .3139 with a standard deviation of .64807 (see Table 2).

Table 2

Descriptive Statistics of Whole Sample

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Gender	481	.00	1.00	.5405	.02275	.49887
Ethnicity	481	.00	1.00	.8919	.01417	.31084
SES	481	.00	1.00	.1019	.01381	.30279
Time in District	481	1.00	3.00	2.9688	.01031	.22607
Absent	481	.00	19.00	1.3773	.10420	2.28526
Past Performance	481	187.00	300.00	234.4699	.88367	19.38039
Inclusion	481	.00	1.00	.2225	.01898	.41633
Inclusion Years	481	.00	3.00	.3139	.02955	.64807
Valid *N* (listwise)	481					

The final sample used for statistical analysis was obtained through the use of propensity score matching (PSM). Propensity score matching, developed by Rosenbaum and Rubin (1983), attempts to increase the validity of causal inference from observational studies by balancing the distributions of the observed covariates between the treatment and control groups (Bai, 2011). According to Bai (2011), a propensity score is used to reduce the selection bias by balancing groups and allowing direct comparisons of the observational data. In other words, PSM allows one to compare groups as if one were conducting a randomized experiment. I decided to use PSM for two primary reasons: (1) PSM assists in marginalizing the influence of selection bias, which in turn reduces the possibility of a Type 1 error (the probability of rejecting a null hypothesis that is true) and (2) since the study was based on data obtained from students attending two separate schools, I would have been obliged to run the analysis separately for each school. PSM allowed me to better control for the school as a nested community and to identify the effects of condition on an individual student's performance. Consequently, I was able to combine both school samples into one overall sample since PSM controlled not only for school factors but also for individual student factors.

The use of PSM is a method that is relatively new to the field of education but has been widely used in many other fields of study (Lane & Henson, 2010). Randomly assigning students to inclusion classes in a school is impractical and at times unethical; therefore, an alternative method of reducing selection bias is necessary. PSM allows statistically equivalent groups to be created though matched sampling. By utilizing matched sampling, group differences due to demographic characteristics rather than treatment effects are eliminated (Hahs-Vaughn & Onwuegbuzie, 2006). To study the effect of the predictor variables on student achievement of eleventh grade students at two schools, a quasi-experiment was designed where

students from one school were matched with students from another based on relevant characteristics. In addition to the previously stated rationale for using PSM in a quasi-experimental design correlation study is the implication that PSM provides an artificial condition of a randomized design type methodology. Randomized design is one of the strongest methodologies of all research designs (Cresswell, 2012; Gall, 2012).

Propensity score matching for this sample was done in the statistical software language "R" (Bai, Pan, & Swoboda, 2014), using the add-on packages "MatchIt" and "optmatch" (Ho, Imai, King, & Stuart, 2011). All student data were collected, and entered in an Excel file where it was properly dummy-coded. The Excel file was then loaded into "MatchIt" via "R" where a one-to- one PSM was computed in "optmatch." The results of the PSM analyses and eventual sample construction appear in Appendix B.

After PSM, a total of 214 students were included in the sample from both high schools. Eight independent variables—gender, ethnicity, SES, length of time in district, attendance, academic past performance, placement in an inclusive English classroom setting, and number of years placed in an inclusion English classroom setting—were included in the PSM analysis. One hundred thirty one males and 83 females were included in the PSM sample. There were 27 non-White students and 187 White students in the sample. One hundred eighty six students in the sample received neither free nor reduced lunch, while 28 students did receive free or reduced lunch. The sample consisted of 212 students who were in the district for three or more years, two students who were in the district for one to two years, and no students who were in the district for less than one year. The mean length of time in the district for this sample was 2.9907 with a standard deviation of .09645. The mean number of days absent was 1.6869 with a standard deviation of 2.52408. The mean scaled score of the 2010 NJ ASK 8 was 224.2243 with

a standard deviation of 17.64001. One hundred seven students spent at least one year in an inclusive English classroom setting, and 107 students in the sample had not been placed in an inclusive English classroom setting. The number of years a student was placed in an inclusion classroom setting for English language arts was examined. The mean number of years in an inclusion setting for English was .7056 with a standard deviation of .81780. Five students were in an inclusion English classroom setting for three years, 34 students were in an inclusion classroom setting for two years, 68 students were in an inclusion classroom setting for one year, and 107 students were never in an inclusion English classroom setting.

Table 3

Descriptive Statistics of PSM Sample

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Gender	214	.00	1.00	.3879	.03339	.48840
Ethnicity	214	.00	1.00	.8738	.02275	.33282
SES	214	.00	1.00	.1308	.02311	.33802
Time in District	214	2.00	3.00	2.9907	.00659	.09645
Absent	214	.00	19.00	1.6869	.17254	2.52408
Past Performance	214	187.00	276.00	224.2243	1.20585	17.64001
Inclusion	214	.00	1.00	.5000	.03426	.50117
Inclusion Years	214	.00	3.00	.7056	.05590	.81780
Valid *N* (listwise)	214					

Research Question 1: Analysis and Results

Research Question 1: What influence, if any, does placement in an inclusive language arts classroom setting have on Grade 11 non-disabled students' academic performance in Language Arts Literacy as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 1: Placement in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

A simultaneous multiple regression was run to determine the answer to the first research question. The purpose was to determine the amount of influence the independent variables gender, ethnicity, SES, time in district, attendance, academic past performance, and placement in an inclusive English classroom had on eleventh grade students' performance on the 2013 NJ HSPA Language Arts Literacy section.

This model (Model 1) involves 214 eleventh grade students. In multiple regression Model 1, the dependent variable is the 2013 NJ HSPA Language Arts Literacy scaled score for students in Grade 11. In this model, the value of *R* squared is .377, which indicates that 37.7% of the variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA can be attributed to the independent variables. The adjusted *R* square is .356, which indicates that the independent variables would contribute to 35.6% of the variability in this regression model

with respect to the population from which the sample was drawn. The Durbin-Watson score was 2.215. This indicates that the residuals of the variables are not related and the assumption for regression is met (see Table 4).

Table 4

Model Summary Language Arts Literacy, 2013 NJ HSPA

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.614[a]	.377	.356	11.00485	.377	17.795	7	206	.000	2.215

a. Predictors: (Constant), Inclusion, Time in District, Attendance, Gender, Ethnicity (dichotomous), Past Performance (NJASK 8 LAL), SES Free/Reduced Lunch (dichotomous)

b. Dependent Variable: Gd. 11 LAL

Regression Model 1 is statistically significant ($F = 17.795$, df=7,206, $p < .001$) (see Table 5).

Table 5

ANOVA Table for Language Arts Literacy, 2013 NJ HSPA

ANOVA[b]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	15085.816	7	2155.117	17.795	.000[a]
	Residual	24947.964	206	121.107		
	Total	40033.780	213			

a. Predictors: (Constant), Inclusion, Time in District, Absent, Gender, Ethnicity (dichotomous), Gd. 8 Language Arts Literacy, Free/Reduced Lunch (dichotomous)

b. Dependent Variable: Gd. 11 Language Arts Literacy

Examination of the standardized beta coefficients table (see Table 6) indicates that there are three statistically significant predictors of performance on the Language Arts Literacy section of the 2013 NJ HSPA. The statistically significant variables are inclusion, attendance, and past performance, which account for 34% of the variance in this regression model. Multicollinearity is not of concern because all predictor variables included in the regression met the tolerance level threshold for this model, .644 (>1-R^2) (Leech, Barrett, & Morgan, 2011).

Student attendance is a significant predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA ($\beta = -.175$ $t = -3.147$, $p<.05$). Attendance contributes to 3.1% of the variance in this regression model. The negative beta indicates that as number of days absent increases, performance on the Language Arts Literacy section of the 2013 NJ HSPA decreases.

Past performance is a statistically significant predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA (β=.542, *t*=9.610, *p< .001)*. According to the analysis, past performance accounts for 29.4% of the variabilty in Grade 11 students' performance on the Language Arts Literacy section of the 2013 NJ HSPA in this model. The positive beta indicates that as student performance on the Language Arts Literacy section of the 2010 NJ ASK 8 increases, performance on the Language Arts Literacy section of the 2013 NJ HSPA increases as well.

Placement in an inclusive English classroom setting is a statistically significant predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA for non-disabled students in Grade 11 (β= -.125, *t*= -2.260, *p<.05*). Placement in an inclusion classroom setting contributes to 1.6% of the variance of eleventh grade students' performance on the Language Arts Literacy section of the 2013 NJ HSPA. The negative beta indicates that general education students who are placed in a non-inclusive classroom setting perform higher than general education students who are placed in an inclusive English classroom setting on the Language Arts Literacy section of the 2013 NJ HSPA.

Of the three statistically significant variables, student attendance, past performance, and placement in an inclusion classroom setting for Language Arts Literacy, past performance is the strongest predicor of performance on the Language Arts Literacy section of the 2013 NJ HSPA. Past perfromance is a stronger predictor of performance on the Language Arts Literacysection of the 2013 NJ HSPA than the variables student attendance and placement in an inclusion classrom setting.

Table 6

Coefficients Table for Language Arts Literacy, 2013 NJ HSPA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	157.281	26.894		5.848	.000	104.259	210.304		
	Gender	-1.380	1.583	-.049	-.872	.384	-4.501	1.741	.951	1.051
	Ethnicity (dichotomous)	-2.979	2.457	-.072	-1.212	.227	-7.823	1.865	.850	1.176
	SES Free/Reduced Lunch(dichotomous)	-.463	2.459	-.011	-.188	.851	-5.311	4.385	.823	1.215
	Time in District	-2.007	8.121	-.014	-.247	.805	-18.017	14.004	.927	1.079
	Attendance	-.953	.303	-.175	-3.147	.002	-1.550	-.356	.973	1.028
	Past Performance (NJASK 8 Language Arts Literacy)	.421	.044	.542	9.610	.000	.335	.508	.951	1.052
	Inclusion	-3.427	1.516	-.125	-2.260	.025	-6.416	-.438	.985	1.016

a. Dependent Variable: Gd. 11 Language Arts Literacy

Based on this analysis, the null hypothesis for this research question was rejected. Placement in an inclusive language arts classroom setting has a statistically significant influence

on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Research Question 2. Analysis and Results

Research Question 2: What influence, if any, does the number of years placed in an inclusive language arts classroom setting have on the academic performance in Language Arts Literacy of Grade 11 non-disabled students as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 2: The number of years placed in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

In order to answer the second research question, a simultaneous multiple regression analysis was run. This analysis was conducted to determine the amount of influence gender, ethnicity, SES, time in district, attendance, past performance, and number of years in an inclusion setting had on Grade 11 students' performance in Language Arts Literacy as measured by the 2013 NJ HSPA.

This multiple regression analysis (Model 2) involves 214 eleventh grade students and examines the relative influence of seven predictor variables on students' performance on the Language Arts Literacy section of the 2013 NJ HSPA. In multiple regression Model 2, the dependent variable is eleventh grade students' performance on the Language Arts Literacy

section of the 2013 NJ HSPA. The independent variables are gender, ethnicity, SES, length of time in district, attendance, academic past performance, and number of years in an inclusion English class. In multiple regression Model 2 (see Table 7), the value of *R* squared is .375, which indicates that 37.5% of the variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA can be explained by the independent variables. The adjusted *R* square is .353, which indicates that with respect to the population from which the sample was drawn, the independent variables contribute to 35.3% of the variability in this regression model. The Durbin-Watson value for this model is 2.193, which indicates that the residuals are not related and the assumption is met.

Table 7

Model Summary for Academic Achievement, 2013 NJ HSPA

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.612[a]	.375	.353	11.02473	.375	17.625	7	206	.000	2.193

a. Predictors: (Constant), Inclusion Years, Gender, Time in District, Attendance, Ethnicity, Past Performance, SES
b. Dependent Variable: Academic Achievement

The regression, Model 2, is statistically significant ($F = 17.625$, df=7,206, $p < .001$) (see Table 8).

Table 8

ANOVA Table for Academic Achievement, 2013 NJ HSPA

ANOVA[b]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	14995.588	7	2142.227	17.625	.000[a]
	Residual	25038.192	206	121.545		
	Total	40033.780	213			

a. Predictors: (Constant), Inclusion Years, Gender, Time in District, Attendance, Ethnicity, Past Performance, SES

b. Dependent Variable: Academic Achievement

Examination of the standardized beta coefficients table (see Table 9) indicates that there are three statistically significant predictors of performance on the Language Arts Literacy section of the 2013 NJ HSPA. They include student attendance, past performance, and number of years of inclusion. The three statistically signifanct variables account for 32.7% of the variance in this regression model. Multicollinearity is not of concern since all predictor variables included in the model met the tolerance level threshold for this model, .625 (>1-R^2).

Table 9

Coefficients Table for Academic Achievement, 2013 NJ HSPA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	157.460	26.957		5.841	.000					
	Gender	-1.559	1.582	-.056	-.986	.325	-.001	-.069	-.054	.956	1.046
	Ethnicity	-3.063	2.461	-.074	-1.245	.215	-.026	-.086	-.069	.850	1.176
	SES	-.378	2.465	-.009	-.153	.878	-.034	-.011	-.008	.822	1.216
	Time in District	-1.659	8.137	-.012	-.204	.839	-.059	-.014	-.011	.926	1.079
	Attendance	-.905	.304	-.167	-2.979	.003	-.247	-.203	-.164	.971	1.030
	Past Performance	.415	.044	.534	9.336	.000	.569	.545	.514	.930	1.076
	Inclusion Years	-1.968	.944	-.117	-2.085	.038	-.231	-.144	-.115	.958	1.044

a. Dependent Variable: Academic Achievement

Student attendance is a significant predictor of performace on the Language Arts Literacy section of the 2013 NJ HSPA ($\beta = -.167$, $t = -2.979$, $p<.003$). Attendance contributes to 2.79% of the variance in this regression model. The negative beta indicates that as number of days absent increases, performance on the Language Arts Literacy section of the 2013 NJ HSPA decreases.

Past performance is a statistically significant predictor of performance of the Language Arts Literacy section of the 2013 NJ HSPA (β=.534, *t*=9.336, *p*<.*001*) and accounts for 28.5% of the variabilty in Grade 11 students' performance on the Language Arts Literacy section of the 2013 NJ HSPA in this model. The positive beta indicates that as student performance on the Language Arts Literacy section of the 2010 NJ ASK 8 increases, performance on the Language Arts Literacy section of the 2013 NJ HSPA increases as well.

Number of years in an inclusive classroom setting is a statistically significant predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA for students in Grade 11 (β= -.117, *t*= -2.085, *p*=.*038*). Number of years in an inclusion classroom setting contributes to 1.37% of the variance of eleventh grade students' performance on the Language Arts Literacy section of the 2013 NJ HSPA. The negative beta indicates that as number of years in an inclusion classroom setting increases, performance on the Language Arts Literacy section of the assessment decreases.

Of the three statistically significant variables, student attendance, past performance, and number of years in an inclusion English classroom setting, past performance is the strongest predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA. Past performance is a stronger predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA than student attendance and number of years in an inclusion classrom setting.

Based on this analysis, the null hypothesis for Research Question 2 is rejected. The number of years placed in an inclusive language arts classroom setting has a statistically significant influence on Grade 11 non-disabled students' academic performance as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and past academic performance.

Research Question 3: Analysis and Results

Research Question 3: What effect, if any, does the number of years placed in an inclusive language arts classroom setting have on the Language Arts Literacy performance of Grade 11 non-disabled students as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for student academic past performance?

Null Hypothesis 3: There is no statistically significant difference in Language Arts Literacy academic performance as measured by the 2013 NJ HSPA Language Arts Literacy section, based on the number of years a non-disabled Grade 11 student is placed in an inclusive language arts classroom when controlling for student academic past performance.

An analysis of covariance (ANCOVA) was used to answer Research Question 3. The ANCOVA assessed whether statistically significant differences were found among students who were in an inclusion English class for zero years, one year, two years, or three years when controlling for academic past performance. In this ANCOVA, past performance is treated as the covariate; and number of years in an inclusion English class is the main effect. The dependent variable is performance on the Language Arts Literacy section of the 2013 NJ HSPA. In this analysis, 107 students were never in an inclusive English classroom setting, 68 students were in an inclusive English classroom setting for one year, 34 students were in an inclusive English classroom setting for two years, and 5 students were in an inclusive English classroom setting for three years. The mean score on the Language Arts Literacy section of the 2013 NJ HSPA assessment for students who were never in an inclusive English classroom setting was 241.65, the mean score for students in an inclusion English classroom for one year was 239.49, the mean score was 231.56 for students who were in an inclusion English classroom setting for two years,

and 236.00 for students who were in an inclusion English classroom setting for three years (Table 10).

Table 10

Descriptive Statistics for Students in Inclusion Setting

Dependent Variable: Gd. 11 Language Arts Literacy

Inclusion Years		Mean	Std. Deviation	*N*
dimension1	.00	241.6542	13.67418	107
	1.00	239.4853	11.23892	68
	2.00	231.5588	16.46519	34
	3.00	236.0000	5.43139	5
	Total	239.2290	13.70956	214

The Levene's test, used to check the assumpton of homogeneity of variance, was not statisitcally significant ($p>.05$). This indicates that the error variance of the dependent variable, performance on the Language Arts Literacy section of the 2013 NJ HSPA 11, is equal across groups (Leech, Barrett, & Morgan, 2011) (see Table 11).

Table 11

Levene's Test of Equality of Error Variances for Language Arts Literacy, 2013 NJ HSPA

Dependent Variable: Gd. 11 Language Arts Literacy

F	*df*1	*df*2	Sig.
.966	3	210	.410

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + g8 Language Arts Literacy + inclyrs

In this ANCOVA, academic past performance was found to be statistically significant, $F(1,209),= 89.31$, $p=.001$, partial $eta^2=.299$. However, as is evident from this table, no statistically significant difference exists between the 2013 NJ HSPA Language Arts Literacy scores of students who were in an inclusion English course for zero, one, two, or three years when controlling for past performance $F(3,209) = 2.467$, $p=.063$, partial $eta^2=.034$ (see Table 12).

Table 12

Tests of Between-Subject Effects

Tests of Between-Subjects Effects

Dependent Variable: Gd. 11 language arts literacy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	13867.736[a]	4	3466.934	27.692	.000	.346	110.768	1.000
Intercept	26128.372	1	26128.372	208.699	.000	.500	208.699	1.000
g8language arts literacy	11181.529	1	11181.529	89.312	.000	.299	89.312	1.000
inclyrs	926.595	3	308.865	2.467	.063	.034	7.401	.607
Error	26166.045	209	125.196					
Total	12287361.000	214						
Corrected Total	40033.780	213						

a. R Squared = .346 (Adjusted R Squared = .334)

b. Computed using alpha = .05

When controlling for academic past performance, the effect of inclusion years is not statistically significant, $F(3, 209)= 2.467$, $p=.063$, partial eta^2=.034 (see Table 13).

Table 13

Univariate Tests Language Arts Literacy, 2013 NJ HSPA

Univariate Tests

Dependent Variable: Gd. 11 language arts literacy

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Contrast	926.595	3	308.865	2.467	.063	.034	7.401	.607
Error	26166.045	209	125.196					

The F tests the effect of Inclusion Years. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

Because the category of three years in an inclusion class has a small sample size ($n = 5$) and had potential for creating spurious results, the analysis was re-run with the elimination of these five students. In this ANCOVA, 107 students had never been in an inclusion class, 68 students had spent one year in an inclusion class, and 34 students had been in an inclusion class for two years (see Table 14).

Table 14

Descriptive Statistics of Students in Inclusion Language Arts Class

Dependent Variable: Gd. 11 Language Arts Literacy

Incl yrs		Mean	Std. Deviation	*N*
dimension1	.00	241.6542	13.67418	107
	1.00	239.4853	11.23892	68
	2.00	231.5588	16.46519	34
	Total	239.3062	13.84363	209

The Levene's test was not statisitcally significant ($p > .05$). Therefore, performance on the Language Arts Literacy section of the 2013 NJ HSPA is equal across groups (see Table 15).

Table 15

Levene's Test of Equality of Error Variances Language Arts Literacy, 2013 NJ HSPA

Dependent Variable: Gd. 11 Language Arts Literacy

F	*df*1	*df*2	Sig.
1.365	2	206	.258

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + g8 Language Arts Literacy + inclyrs_

In this ANCOVA, past performance is treated as the covariate, and number of years in an inclusion English class is the main effect. The dependent variable is performance on the Language Arts Literacy section of the 2013 NJ HSPA. The covariate, past performance, is found to be statistically significant, $F(1, 205) = 92.417$, $p=.000$, partial eta^2= .311. When controlling for past performance and excluding students who were in an inclusve classroom setting for English for three years, inclusion years is now found to be statistically significant, $F(2,205) = 3.497$, $p=.032$, partial eta^2=.033). Similar to the regression analyis that had been run previously (Model 1), the *R* squared for this model is .356. This indicates that 35.6% of the variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA can be attributed to the variables academic past performance and inclusion years. The adjusted *R* squared for this analysis is .347, which indicates that the independent variables contribute to 34.7% of the

variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA with respect to the population from which the sample was drawn (see Table 16).

Table 16

Tests of Between-Subjects Effects Language Arts Literacy, 2013 NJ HSPA

Tests of Between-Subjects Effects

Dependent Variable: Gd. 11 language arts literacy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	14201.278[a]	3	4733.759	37.817	.000	.356	113.450	1.000
Intercept	24243.212	1	24243.212	193.673	.000	.486	193.673	1.000
g8language arts literacy	11568.449	1	11568.449	92.417	.000	.311	92.417	1.000
inclyrs	875.483	2	437.742	3.497	.032	.033	6.994	.648
Error	25661.124	205	125.176					
Total	12008763.000	209						
Corrected Total	39862.402	208						

a. R Squared = .356 (Adjusted R Squared = .347)

b. Computed using alpha = .05

There is a statistically significant difference between performance on the Language Arts Literacy section of the 2013 NJ HSPA of students who spent zero years in an inclusive English course and students who were in an inclusion course for two years. No statistically significant differences of means were found between any other groups. The difference between the means between students with zero years of inclusion and those with two years of inclusion was 5.685 with a standard error of 2.250 (see Table 17).

Table 17

Pairwise Comparisons Language Arts Literacy, 2013 NJ HSPA

Pairwise Comparisons

Dependent Variable: Gd. 11 language arts literacy

(I) Inclusion Years	(J) Inclusion Years	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
.00	1.00	2.586	1.736	.138	-.837	6.008
	2.00	5.685*	2.250	.012	1.249	10.121
1.00	.00	-2.586	1.736	.138	-6.008	.837
	2.00	3.100	2.403	.199	-1.638	7.838
2.00	.00	-5.685*	2.250	.012	-10.121	-1.249
	1.00	-3.100	2.403	.199	-7.838	1.638

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

While controlling for the covariate, academic past performance, the effect of inclusion years is statistically significant, $F(2, 205)= 3.497$, $p=.032$, *partial eta*$^2=.033$ (see Table 18).

Table 18

Univariate Tests Language Arts Literacy, 2013 NJ HSPA

Univariate Tests

Dependent Variable: Gd. 11 language arts literacy

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Contrast	875.483	2	437.742	3.497	.032	.033	6.994	.648
Error	25661.124	205	125.176					

The F tests the effect of Inclusion Years. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

The null hypothesis for Research Question 3 is rejected. Based on the analysis, there is a statistically significant difference in academic performance, as measured by the Language Arts Literacy section of the 2013 NJ HSPA, based on the number of years a non-disabled Grade 11 student is placed in an inclusive language arts classroom when controlling for student academic past performance.

Research Question 4: Analysis and Results

Research Question 4: What type of interaction, if any, exists between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance as measured by the 2013 NJ HSPA Language Arts Literacy section when also controlling for student academic past performance?

Null Hypothesis 4: There is no statistically significant interaction between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance as measured by the 2013 NJ HSPA Language Arts Literacy section when also controlling for student academic past performance.

Based on the results thus far, as well as the literature, which states that there may be a difference in student academic performance based on school (Robinson, 2012), a factorial ANCOVA was run. This analysis determined if there was a significant interaction between the two schools and the main effect, performance on the Language Arts Literacy section of the 2013 NJ HSPA. Factorial ANCOVA was selected to compare groups based on two independent variables, school and number of years in an inclusive classroom setting, while controlling for student academic past performance. As student academic past performance accounted for the largest percentage of variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA, it was included in the analysis as a control variable or covariate.

This factorial ANCOVA included 68 students from MTS and 141 students from MTN. The sample included 33 students from MTS and 74 students from MTN who were in an inclusion English classroom setting for zero years. Students from MTS in this group had a mean score of 238.242 on the Language Arts Literacy section of the 2013 NJ HSPA with a standard deviation of 15.169, while students from MTN who were in an inclusion class for zero years had a mean score of 243.176 on the Language Arts Literacy section of the 2013 NJ HSPA with a standard deviation of 12.767. The sample also consisted of 28 students from MTS and 40 students from MTN who were in an inclusive English classroom setting for one year. The mean score on the Language Arts Literacy section of the 2013 NJ HSPA for students in MTS was 239.893 with a standard deviation of 11.513, and the mean score for students in MTN was 239.200 with a standard deviation of 11.182. Seven students who were in an inclusion English classroom for two years were included in this sample from MTS, and 27 who were from MTN. Students scheduled for inclusion for two years at MTS had a mean score of 219.286 with a

standard deviation of 26.912, while students from MTN that were in an inclusion class for two years had a mean score of 234.741 with a standard deviation of 11.220 (see Tables19, 20).

Table 19

Between-Subjects Factors Inclusion Years and School

		Value Label	*N*
Inclusion Years	.00		107
	1.00		68
	2.00		34
School	.00	MTS	68
	1.00	MTN	141

Table 20

Descriptive Statistics of School and Inclusion Years

Dependent Variable: Gd. 11 Language Arts Literacy

Inclusion Years	School	Mean	Std. Deviation	*N*
.00	MTS	238.2424	15.16993	33
	MTN	243.1757	12.76807	74
	Total	241.6542	13.67418	107
1.00	MTS	239.8929	11.51276	28
	MTN	239.2000	11.18195	40
	Total	239.4853	11.23892	68

2.00	MTS	219.2857	26.91167	7
	MTN	234.7407	11.22015	27
	Total	231.5588	16.46519	34
Total	MTS	236.9706	16.28567	68
	MTN	240.4326	12.40467	141
	Total	239.3062	13.84363	209

In the factorial ANCOVA analysis (see Table 21), past academic performance was found to have a statistically significant influence on the dependent variable, Grade 11 Language Arts Literacy performance (F=97.375, df= 1,202, $p<.001$). The partial eta^2, which is the index for the effect size for each independent variable and the interaction between school and inclusion, for past academic performance is .325. This indicates that 32.5% of Language Arts Literacy achievement on the 2013 NJ HSPA can be predicted by past academic performance. The influence of inclusion years was also found to have a statistically significant influence on the dependent variable of Language Arts Literacy performance on the 2013 NJ HSPA (F=6.230, df= 2, 202, $p<.001$). The partial eta^2 for inclusion years is .058, indicating that 5.8% of Language Arts Literacy achievement on the 2013 NJ HSPA can be predicted by inclusion years. In addition, school was found to have a statistically significant influence on the dependent variable (F=13.702, df=1, 202, $p <.001$). The partial eta^2 for school was .064, which indicates that 6.4% of performance on the Language Arts Literacy section of the 2013 NJ HSPA can be predicted by past academic performance. Finally, in the factorial ANCOVA analysis, the interaction between inclusion years and school was found to have a statistically significant influence on the dependent variable (F=3.159, df=2, 202, $p<.05$). The partial eta^2 for the interaction between

inclusion years and school was .030, which indicates that 3% of the variance in Language Arts Literacy performance on the 2013 NJ HSPA could be predicted by the interaction between inclusion years and school.

Table 21

Tests of Between-Subjects Effects School and Inclusion Years

Dependent Variable: Gd. 11 Language Arts Literacy

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	16018.158[a]	6	2669.693	22.617	.000	.402	135.700	1.000
Intercept	23336.522	1	23336.522	197.699	.000	.495	197.699	1.000
g8language arts literacy	11494.225	1	11494.225	97.375	.000	.325	97.375	1.000
school	1617.336	1	1617.336	13.702	.000	.064	13.702	.958
Inclusion yrs	1470.824	2	735.412	6.230	.002	.058	12.460	.891
school * inclusion yrs	745.716	2	372.858	3.159	.045	.030	6.317	.601
Error	23844.244	202	118.041					
Total	1.201E7	209						
Corrected Total	39862.402	208						

a. *R* Squared = .402 (Adjusted *R* Squared = .384)

b. Computed using alpha = .05

It was determined that the interaction between school and number of inclusion years was statistically significant; therefore, six new groups were created accounting for all possible combinations of the interaction terms. By developing these new groups, differences between each group were able to be examined more closely. The new variable created was termed "SchoolInteract" and the newly created codes are as follows (see Table 22):

Code 1.00= School MTS, zero years of inclusion (n=33)

Code 2.00= School MTN, zero years of inclusion (n=74)

Code 3.00= School MTS, one year of inclusion (n=28)

Code 4.00= School MTN, one year of inclusion (n=40)

Code 5.00= School MTS, two years of inclusion (n=7)

Code 6.00= School MTN, two years of inclusion (n=27)

A univariate analysis was completed on the six new classification codes, which were categorized as the "SchoolInteract" variable and, as expected, a significant difference between groups was found (see Table 23).

Table 22

Descriptive Statistics of Six New Cell Codes

Dependent Variable: Gd. 11 Language Arts Literacy

Six New Cell Codes	Mean	Std. Deviation	*N*
1.00	238.2424	15.16993	33
2.00	243.1757	12.76807	74
3.00	239.8929	11.51276	28
4.00	239.2000	11.18195	40

5.00	219.2857	26.91167	7
6.00	234.7407	11.22015	27
Total	239.3062	13.84363	209

Table 23

Tests of Between-Subjects Effects SchoolInteract

Dependent Variable: Gd. 11 Language Arts Literacy

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	4523.933[a]	5	904.787	5.197	.000	.113	25.987	.986
Intercept	7034951.301	1	7034951.301	40411.912	.000	.995	40411.912	1.000
SchoolInteract	4523.933	5	904.787	5.197	.000	.113	25.987	.986
Error	35338.469	203	174.081					
Total	12008763.000	209						
Corrected Total	39862.402	208						

a. *R* Squared = .113 (Adjusted *R* Squared = .092)

b. Computed using alpha = .05

Statistically significant mean differences were identified between students at MTS who were in an inclusion classroom for two years and the following groups: MTS students with zero years of inclusion *(p <.009)*, MTN students with zero years of inclusion *(p <.001),* MTS students with one year of inclusion *(p <.004),* and MTN students with one year of inclusion *(p <.004).* The mean difference between students at MTS with zero years of inclusion and students at MTS with two years of inclusion was 18.9567. The mean difference between students at MTN with

zero years of inclusion and students at MTS with two years of inclusion was 23.8900. The mean difference between students at MTS with one year of inclusion and students at MTS with two years of inclusion was 20.6071. The mean difference between students at MTN with one year of inclusion and students at MTS with two years of inclusion was 19.9143. This analysis indicates that there were significant differences in 2013 NJ HSPA Language Arts Literacy mean scores based on school. It appears that for students at MTS that were placed in an inclusive English classroom setting for two years, mean scores declined significantly. Students at MTN performed significantly higher on the Language Arts Literacy section of the 2013 NJ HSPA than students at MTS when we planned for the covariate (see Table 24).

Table 24

Tukey HSD Six New Cell Codes

Dependent Variable: Gd. 11 Language Arts Literacy

(I) Six New Cell Codes	(J) Six New Cell Codes	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-4.9333	2.76182	.477	-12.8794	3.0129
	3.00	-1.6504	3.39004	.997	-11.4041	8.1032
	4.00	-.9576	3.10278	1.000	-9.8847	7.9695
	5.00	18.9567*	5.49035	.009	3.1602	34.7532
	6.00	3.5017	3.42383	.910	-6.3492	13.3525
2.00	1.00	4.9333	2.76182	.477	-3.0129	12.8794
	3.00	3.2828	2.92739	.872	-5.1397	11.7053

	4.00	3.9757	2.58930	.642	-3.4741	11.4255
	5.00	23.8900*	5.21739	.000	8.8788	38.9011
	6.00	8.4349	2.96646	.055	-.1000	16.9699
3.00	1.00	1.6504	3.39004	.997	-8.1032	11.4041
	2.00	-3.2828	2.92739	.872	-11.7053	5.1397
	4.00	.6929	3.25103	1.000	-8.6608	10.0465
	5.00	20.6071*	5.57547	.004	4.5657	36.6486
	6.00	5.1521	3.55874	.698	-5.0869	15.3911
4.00	1.00	.9576	3.10278	1.000	-7.9695	9.8847
	2.00	-3.9757	2.58930	.642	-11.4255	3.4741
	3.00	-.6929	3.25103	1.000	-10.0465	8.6608
	5.00	19.9143*	5.40562	.004	4.3615	35.4670
	6.00	4.4593	3.28626	.753	-4.9958	13.9143
5.00	1.00	-18.9567*	5.49035	.009	-34.7532	-3.1602
	2.00	-23.8900*	5.21739	.000	-38.9011	-8.8788
	3.00	-20.6071*	5.57547	.004	-36.6486	-4.5657
	4.00	-19.9143*	5.40562	.004	-35.4670	-4.3615
	6.00	-15.4550	5.59609	.068	-31.5558	.6457
6.00	1.00	-3.5017	3.42383	.910	-13.3525	6.3492
	2.00	-8.4349	2.96646	.055	-16.9699	.1000
	3.00	-5.1521	3.55874	.698	-15.3911	5.0869
	4.00	-4.4593	3.28626	.753	-13.9143	4.9958

	5.00	15.4550	5.59609	.068	-.6457	31.5558

Based on observed means.

The error term is Mean Square (Error) = 174.081.

* The mean difference is significant at the .05 level.

Examination of the profile plot displays a disordinal interaction. This relationship indicates that there was a statistically significant interaction between school and inclusion years (see Figure 1). In MTS, there was a large difference between general education students' test scores when placed in an inclusive English classroom setting for more than two years. This analysis suggests that in MTS, other school factors have an influence on Language Arts Literacy 2013 NJ HSPA performance for general education students who were in an inclusion English class for two years. In MTN, there is some indication that general education students who were placed in an inclusive English classroom setting generally had higher scores on the 2013 NJ HSPA, but the difference between students who were placed in inclusion for more years did not differ as greatly as those students in MTS. According to this analysis, it appears that student performance on the Language Arts Literacy section of the 2013 NJ HSPA was dependent on which school a general education student was scheduled in an inclusion English class.

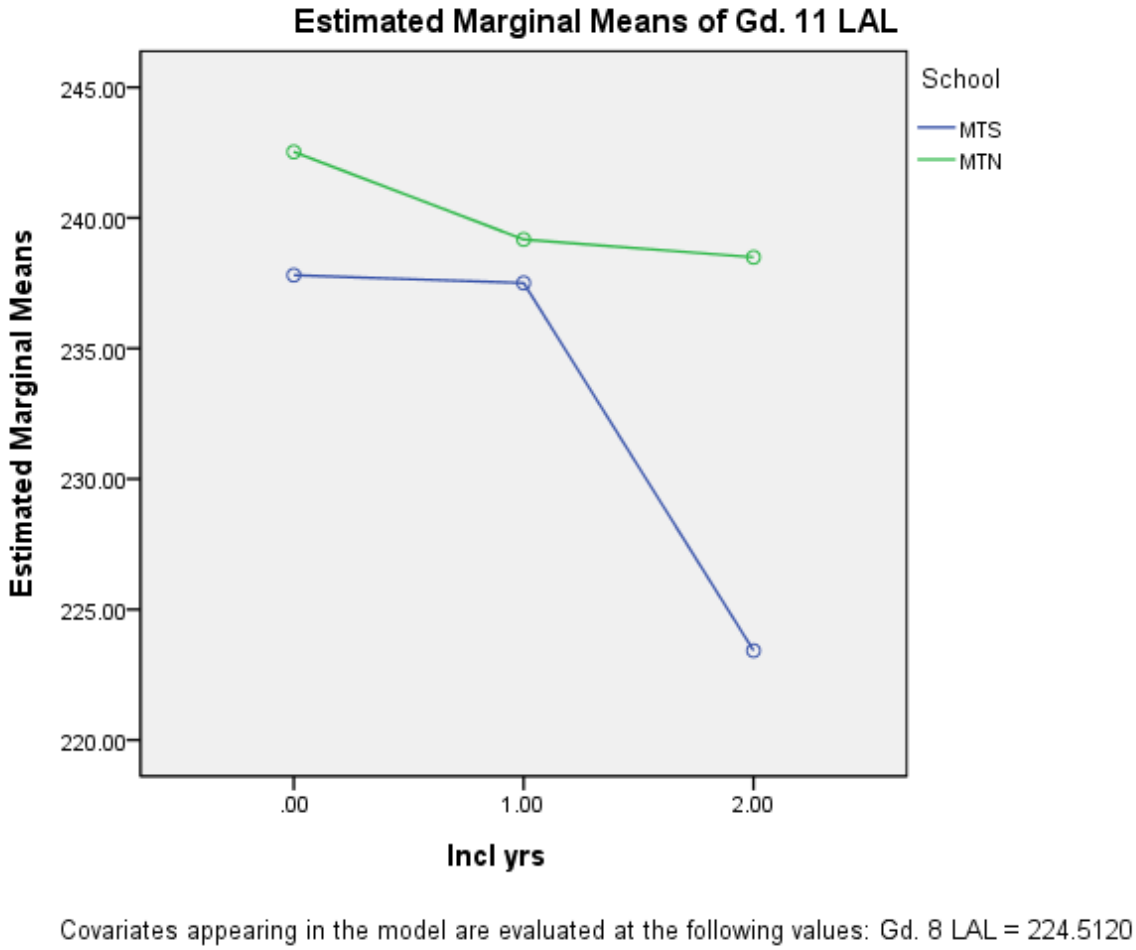

Figure 1. Estimated marginal means language arts literacy, 2013 NJ HSPA.

Based on this analysis, it is necessary to reject the null hypothesis. There is a statistically significant interaction between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance when also controlling for student academic past performance.

Summary

In summary, in a sample that was created by using PSM, the performance of 214 eleventh grade students on the Language Arts Literacy section of the 2013 NJ HSPA was analyzed. Eight independent variables—gender, ethnicity, SES, length of time in district, attendance, academic

past performance, placement in an inclusion English classroom setting, and number of years in an inclusion English classroom—were included in the analysis. A regression analysis was run to determine the amount of influence the variables had on academic performance. It was found that student attendance, academic past performance, and placement in an inclusion classroom setting for an English class were statistically significant predictors of academic performance. Academic past performance had the strongest influence, with 29.4% of the variability in eleventh grade students' performance on the Language Arts Literacy section of the 2013 NJ HSPA.

A simultaneous multiple regression analysis was run to determine the amount of influence gender, ethnicity, SES, time in district, attendance, past performance, and number of years in an inclusion setting for an English course had on Grade 11 students' performance on the Language Arts Literacy section of the 2013 NJ HSPA. There were three statistically significant predictors of performance on the Language Arts Literacy section of the 2013 NJ HSPA in this model. The statistically significant variables included student attendance, academic past performance, and number of years in inclusion. Academic past performance was the strongest predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA, contributing to 28.5% of the variance in this regression model.

An ANCOVA was run to determine whether statistically significant differences exist among students who were placed in an inclusion English class for zero years, one year, two years, or three years when controlling for academic past performance. In this analysis, academic past performance was treated as the covariate, and number of years in an inclusion class was the main effect. The dependent variable was Language Arts Literacy performance on the 2013 NJ HSPA. Students that were in an inclusion classroom setting for English for three years were eliminated from this analysis due to the small sample size (n=5). Once this occurred, it was

determined that number of years in an inclusion class and academic past performance were statistically significant.

The difference between 2013 NJ HSPA Language Arts Literacy mean scores was statistically significant in both schools when controlling for academic past performance. When the interaction between school and inclusion years was examined, the results were statistically significant when a student was placed in an inclusion classroom setting for English for at least two years. Students at MTS experienced a statistically significant drop in performance the longer they were enrolled in an inclusion English class. Students in MTN, however, did not experience such a drastic change in scores on the Language Arts Literacy section of the 2013 NJ HSPA. This analysis supports the idea that other school factors influence student performance on the Language Arts Literacy section of the 2013 NJHSPA in MTS.

In conclusion, all four null hypotheses were rejected. The results indicate that general education students who were placed in an inclusive English classroom setting scored significantly differently than general education students who were not placed in an inclusive English classroom setting. Eleventh grade general education students at MTS who were placed in an inclusive English classroom setting for two years scored significantly lower on the Language Arts Literacy section of the 2013 NJ HSPA than Grade 11 non-disabled students placed in an inclusion classroom setting at MTN and students who were in an inclusion setting for zero or one year at MTS.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Federal mandates such as No Child Left Behind (NCLB) and Individuals with Disabilities Education Improvement Act (IDEIA) require that students with disabilities be educated in the least restrictive environment. These mandates have resulted in an increasing number of students with disabilities being educated in inclusive classrooms among their non-disabled peers (Henning & Mitchell, 2002). A growing body of research identifying the benefits of serving students with disabilities in the general education setting may also be contributing to the increase (McDonell, Mathot-Bucker, Thorson & Fister, 2001). While many studies document the benefit of inclusion for students with special needs, fewer studies have examined the effect of inclusive educational settings on non-disabled students (Daniel & King, 1997; Gattuso, 2007).

With increased accountability measures to evaluate the effectiveness of teachers and administrators, more attention has been focused on providing the most appropriate learning environment to all students. Teachers and administrators will be evaluated, promoted, compensated, and dismissed depending on whether their students demonstrate growth on state standardized assessments. School leaders must develop programs that most appropriately meet the varying academic needs of students so they may experience adequate growth on state assessments. This will require instructional leaders to provide and foster an academic environment that meets the needs of all students, including those who do not have a disability.

Purpose

The purpose of this research was to investigate the influence of an inclusive English classroom setting on the academic performance of non-disabled eleventh grade students on the Language Arts Literacy section of the 2013 NJ HSPA. As more emphasis is being placed by policy makers on the Common Core State Standards and high stakes testing, it is necessary to provide all students with access to a learning environment which will provide them with the most academic success. This study will add to the body of research-based evidence on the academic performance of non-disabled students in special education inclusion classes. This will allow researchers, educators, and policy makers to continue to develop policies and to provide educators with information necessary to make decisions regarding the most appropriate educational setting for all students.

Organization of Chapter

In this chapter, the four research questions that were examined are listed and the results will be discussed. The findings of this research in relation to previous research are compared. Based on the findings, recommendations for policy and practice are made, along with recommendations for future research.

Sample Selection

Participants in this study were selected from two high schools located in a suburban township in central New Jersey. The study initially included 639 eleventh grade students enrolled in inclusive and non-inclusive language arts courses. It was determined that statistically significant differences existed between students in the two schools on the identified independent variables: SES, gender, ethnicity, placement in an inclusion language arts classroom setting, time in district, academic past performance, attendance, and number of years in an

inclusion language arts classroom setting. The final sample utilized in this study, which included 214 eleventh grade students from both high schools, was obtained through PSM. PSM is a method that attempts to reduce the selection bias by allowing direct comparisons as if conducting a randomized experiment. PSM was selected for this study because it reduced the possibility of a Type I error. It also allowed for the combination of both school samples into one overall sample and to identify the effects of condition on an individual student's performance.

Research Questions and Answers

Research Question 1: What influence, if any, does placement in an inclusive language arts classroom setting have on Grade 11 non-disabled students' academic performance in Language Arts Literacy as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 1: Placement in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the Language Arts Literacy section of the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Answer: The null hypothesis for Research Question 1 was rejected. It was determined that placement in an inclusive language arts classroom setting had a statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy performance as measured by the 2013 NJ HSPA when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

A simultaneous multiple regression was used to answer the first research question. The purpose of this analysis was to determine the amount of influence the independent variables—gender, ethnicity, SES, time in district, attendance, academic past performance, and placement in an inclusive English classroom—had on eleventh grade students' performance on the dependent variable, performance on the Language Arts Literacy section of the 2013 NJ HSPA. It was determined that the independent variables contributed to 37.7% of the variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA.

After further examination, it was determined that three of the variables included in this model were statistically significant predictors of performance on the Language Arts Literacy section of the 2013 NJ HSPA. Attendance contributed to 3.1% of the variance, academic past performance contributed to 29.4% of the variance, and placement in an inclusive English classroom setting contributed to 1.6% of the variance of the dependent variable. Together, the statistically significant variables—inclusion, attendance, and academic past performance—accounted for 34% of the variance in the model. Academic past performance was the strongest predictor of performance on the Language Arts Literacy section of the 2013 NJ HSPA.

According to this analysis, the 2010 NJ ASK 8 was the strongest predictor of performance on the 2013 NJ HSPA, followed by attendance, then placement in an inclusive English classroom setting. There was a positive relationship between academic past performance and performance on the Language Arts Literacy section of the 2013 NJ HSPA, which indicated that as performance on the 2010 NJ ASK 8 increased, performance on the 2013 NJ HSPA increased as well. There was a negative relationship between both attendance and placement in an inclusive English classroom setting on performance on the 2013 NJ HSPA. As days absent increased, performance on the 2013 NJ HSPA decreased. Similarly, 2013 NJ HSPA

performance on the Language Arts Literacy section was lower for students who were placed in an inclusive English classroom setting.

The variable of inclusion was a statistically significant variable that influenced student performance on the Language Arts Literacy section of the 2013 NJ HSPA. It appears that non-disabled students who were placed in an inclusion English classroom setting scored lower than their non-disabled peers who were not placed in an inclusive classroom setting. This finding is not consistent with the research of Demeris, Childs, and Jordan (2007), who state that non-disabled students may benefit from being in an inclusive classroom, or McDonnell et al. (2003), who state that there is no statistically significant difference between the academic performance of regular education students placed in inclusion classes or not placed in inclusion classes.

Research Question 2: What influence, if any, does the number of years placed in an inclusive language arts classroom setting have on the academic performance in Language Arts Literacy of Grade 11 non-disabled students as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance?

Null Hypothesis 2: The number of years placed in an inclusive language arts classroom setting has no statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

Answer: The null hypothesis for Research Question 2 is rejected. The number of years placed in an inclusive language arts classroom setting has a statistically significant influence on Grade 11 non-disabled students' Language Arts Literacy academic performance as measured by

the 2013 NJ HSPA Language Arts Literacy section when controlling for gender, student ethnicity, SES, student attendance, and academic past performance.

A simultaneous multiple regression analysis was used to answer this research question. In the model, 37.5% of the variance in performance on the Language Arts Literacy section of the 2013 HSPA can be explained by the independent variables. Three of the variables were determined to be statistically significant predictors of the dependent variable, performance on the Language Arts Literacy section of the 2013 NJ HSPA. The statistically significant variables included student attendance, academic past performance, and number of years in an inclusion English class. Student attendance accounted for 2.79% of the variance, academic past performance accounted for 28.5 % of the variance, and number of years in an inclusive English classroom accounted for 1.37% of the variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA. There was a negative relationship between student attendance and number of years in an inclusive language arts classroom on the dependent variable. This indicates that performance on the Language Arts Literacy section of the 2013 NJ HSPA tended to decrease as student absences increased. In addition, performance on the Language Arts Literacy section of the 2013 NJ HSPA decreased as the number of years a student was placed in an inclusive language arts class increased. The positive relationship between academic past performance and the dependent variable indicates that performance on the Language Arts Literacy section of the 2013 NJ HSPA was higher for students who performed higher on the 2010 NJ ASK 8.

This analysis suggests that the number of years a student spends in an inclusive English classroom setting has a statistically significant influence on performance on the Language Arts Literacy section of the 2013 NJ HSPA. In other words, general education students who spent

more years in an inclusive language arts classroom setting performed more poorly on the state assessment in language arts. Once again, this finding does not align with the current research on inclusive classroom practices. Cole et al. (2004) investigated the effect of the inclusive classroom setting on a group of primary students in six Indiana schools. The researchers concluded that non-disabled students who were educated in an inclusive classroom environment performed better on a reading and mathematics assessment than regular education students in non-inclusive classrooms. They argued that regular education students in inclusion classrooms benefit from the additional teacher support that is available to all students. Similarly, Demeris, Childs, and Jordan (2007) found that non-disabled students performed better when the number of students with special needs in their class increased. In the study the researchers investigated the influence of inclusion in 2,152 classes. Although inclusion contributed only a small portion to academic achievement, the results were statistically significant. The results of this analysis contradict the aforementioned studies; therefore, it is important to continue to explore this topic by controlling for academic past performance, the variable that had the greatest influence on student academic performance.

Research Question 3: What effect, if any, does the number of years placed in an inclusive language arts classroom setting have on the Language Arts Literacy performance of Grade 11 non-disabled students, as measured by the 2013 NJ HSPA Language Arts Literacy section, when controlling for student academic past performance?

Null Hypothesis 3: There is no statistically significant difference in Language Arts Literacy academic performance, as measured by the 2013 NJHSPA Language Arts Literacy section, based on the number of years a non-disabled Grade 11 student is placed in an inclusive language arts classroom when controlling for student academic past performance.

Answer: The null hypothesis for Research Question 3 is rejected. Based on this analysis, there is a statistically significant difference in academic performance, as measured by the Language Arts Literacy section of the 2013 NJ HSPA, based on the number of years a non-disabled student is placed in an inclusive language arts classroom when controlling for academic past performance.

An analysis of covariance (ANCOVA) was used to answer the third research question. The ANCOVA was used to determine whether statistically significant differences were identified among students who were in an inclusion language arts classroom for zero years, one year, two years, or three years when controlling for academic past performance. I controlled for academic past performance since it contributed to the most variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA.

Included in this sample were 107 students who had never been placed in an inclusion language arts classroom setting, 68 students who were in an inclusion language arts classroom setting for one year, 34 students who were in an inclusion language arts classroom setting for two years, and 5 students who were in an inclusion language arts classroom setting for three years. During the initial ANCOVA, no statistically significant differences were found based on number of years in an inclusion language arts classroom when controlling for academic past performance. Since the sample size of students who were in an inclusion language arts classroom for three years was exceedingly small, it was possible that it could have led to spurious erroneous results. Consequently, the five students who were in an inclusion classroom for three years were removed from the overall sample and the ANCOVA was recalculated.

When the ANCOVA was rerun with the reduced sample with academic past performance serving as the covariate and number of years in an inclusion English classroom as the main

effect, number of inclusion years was found to be statistically significant. The variables academic past performance and number of years in inclusion explained 35.6% of the variance in performance on the Language Arts Literacy section of the 2013 NJ HSPA. There was a statistically significant difference in performance on the Language Arts Literacy section of the 2013 NJ HSPA between students who spent zero years and those who spent two years in an inclusive language arts classroom setting. The difference in the mean scores between the two groups was 5.685.

This ANCOVA demonstrates that students who are in an inclusion language arts classroom setting for zero years perform better on the Language Arts Literacy section of the 2013 NJ HSPA than students who were in an inclusive language arts classroom setting for two years. The difference between the mean scores of the two groups is 5.685. The difference between the mean scores of students who were in an inclusion English class for zero years and one year was 2.586. Students who were not placed in an inclusion class had a higher mean score than those who were in an inclusion class for one year; however, this result was not statistically significant. This result may suggest that the longer a general education student is placed in an inclusion English class, the more negatively it influences their performance on the Language Arts Literacy section of the 2013 NJ HSPA. The analysis fails to inform us of the influence of the school on the dependent variable. As might be suggested from the results of the first three research questions and congruent with the research of Robinson (2012), there is a possibility that statistically significant differences exist between students at MTN and MTS who are placed in inclusion English classes for zero, one, two, or three years based on other school specific variables. Consequently, a fourth research question was developed to explore this idea further.

Research Question 4: What, if any, type of interaction exists between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance, as measured by the 2013 NJ HSPA Language Arts Literacy section when also controlling for student academic past performance?

Null Hypothesis 4: There is no statistically significant interaction between school and number of years placed in an inclusive language arts classroom on Grade 11 non-disabled students' Language Arts Literacy performance as measured by the 2013 NJHSPA Language Arts Literacy section when also controlling for student academic past performance.

Answer: It is necessary to reject the null hypothesis. There is a statistically significant interaction between school and number of years placed in an inclusive language arts classroom on Grade 11 students' Language Arts Literacy performance when also controlling for student academic past performance.

A factorial ANCOVA was conducted to answer this research question. The sample included 68 students from MTS and 141 students from MTN. Thirty-three students from MTS and 74 students from MTN were in an inclusion English classroom setting for zero years. Twenty-eight students from MTS and 40 students from MTN were in an inclusion English classroom setting for one year. Seven students from MTS and 27 from MTN that were in an inclusion English classroom for two years were included in the sample. Overall, students at MTN had a higher mean score on the Language Arts Literacy section of the NJ HSPA than students at MTS. Students at MTN had a mean score of 234.741 on the assessment, while students at MTS had a mean score of 219.286.

Six new categories were created to further analyze the interaction between school and number of years in inclusion language arts classes. A statistically significant difference between

groups was found between students at MTS who were in an inclusion classroom for two years and the following groups: students who were at MTS with zero years of inclusion (p <.009), students at MTN with zero years of inclusion (p <.001), students at MTS with one year of inclusion (p <.004), and students at MTN with one year of inclusion (p <.004). The mean score of students who attended MTS and had two years of inclusion had a lower mean score than students who attended MTS and were never in an inclusion class. The difference in the mean scores was 18.9567. Students at MTS with two years of inclusion had a lower mean score than students who attended MTN and were never scheduled in an inclusion class. The difference between the mean scores was 23.8900. Students at MTS who were in an inclusion English class for two years and students who were in an inclusion classroom setting at MTS for one year scored statistically different on the 2013 NJ HSPA. The difference in mean scores between the two groups was 20.6071. Finally, students who were in an inclusion English class at MTS for two years scored statistically different than students who were in an inclusion class for one year at MTN. The difference in means between the groups was 19.9143.

Although the differences were statistically significant, it is important to note that the small sample size for students at MTS who were in an inclusion class for two years may have had an influence on the outcome of this analysis. It does appear that students who attended MTS and were placed in an inclusion English course scored lower than most groups. In review of the outcome of this analysis, it appears that additional factors that were not included in this analysis may have had a negative influence on the performance of students who attended MTS and were placed in inclusion language arts classes for two years. For instance, it is possible that during scheduling, lower performing general education students were placed in inclusion language arts classes so they might have access to additional instructional support. It is also

possible that teachers did not receive the same level of training in co-teaching practices at MTS as those at MTN or that weaker teachers were placed in inclusive classroom settings at MTS. These results seem to indicate that other school factors may be negatively influencing the academic performance of students who are placed in inclusion classes at MTS, which are not evident or able to be identified from this study.

School variables such as methods for scheduling students into classes may influence student academic achievement. For instance, many school administrators currently do not make student placement decisions based on research-based, empirical studies (Robinson, 2012). Additionally, the structure of the inclusion classroom in each school is not specified in this study. Factors such as the number of teachers and paraprofessionals present in the classroom and how their services are utilized, teacher attitude towards inclusion, professional development of teachers, class size, number of special needs students in the class, and special education classification of special needs students in the classes varies per school and per classroom. According to Idol (2006), the way in which special education services are provided may influence the academic achievement of non-disabled students in inclusion classes. This research does not explain the influence that individual school factors may have on the academic performance of non-disabled students placed in inclusive classroom settings. Therefore, further research is warranted.

Conclusions

The results of this study indicate that regular education students that were placed in an inclusion classroom for language arts generally did not perform as well on the Language Arts Literacy section of the 2013 NJ HSPA as their peers who were not placed in an inclusion classroom. Students that were placed in inclusion classes had lower mean scores on the

assessment than students who had not been educated in an inclusive classroom setting. It was also determined by this study that the school a student attended had a statistically significant influence on student achievement in this district. This study did not identify the school factors that might have contributed to the lower mean scores on the Language Arts Literacy section of the 2013 NJ HSPA for students in MTS. Further research will need to occur to identify such school factors.

Finally, findings of this study suggest that as the number of years a student spends in an inclusion setting increases, academic achievement as measured by the Language Arts Literacy section of the 2013 NJ HSPA declines. Students who spent more years in an inclusion classroom for language arts did not perform as well as their peers who spent fewer years in an inclusion setting. It is important to note, however, that although the findings are statistically significant, the effect of inclusion on student performance in this study is small (β= -.117, which indicates that 1.37% of the variance in academic performance can be explained by inclusion). Therefore, more research should be conducted on this topic using a larger and more heterogeneous sample. The sample used in this study was a small sample from an upper middle class, suburban school district and the results may only be generalized to a similar population.

Due to the mixed results of studies on the topic, it is difficult to draw clear findings from the literature about the effects of inclusion. Some studies have identified positive effects of inclusion for non-disabled students (Cole, Waldron, & Majd, 2004); others have found negative effects (Robinson, 2012), and some have found no effects on academic achievement of regular education students (McDonnell, Thorson, Disher, Mathot-Buckner, & Ray, 2003).

McDonnell et al. (2003) conducted a study that evaluated the impact of inclusive educational programs on the achievement of elementary students with developmental disabilities

and their peers without disabilities. The authors found that the academic achievement of non-disabled students on state mandated criterion-referenced tests in reading/language arts and mathematics was not negatively influenced by placement in an inclusion classroom with classified peers (McDonnell, Thorson, Disher, Mathot-Buckner, & Ray, 2003). They argue that based upon this research, concerns of individuals who have expressed fears about the potentially negative impact of influence on the academic achievement of students without disabilities are unfounded (McDonnell, Thorson, Disher, Mathot-Buckner, & Ray, 2003).

Daniel and King (1997) examined the educational achievement of third and fourth grade students without disabilities on the Stanford Achievement Test who were enrolled in an inclusive classroom setting. The researchers found few significant differences among regular education students in inclusion classes compared to regular education students in non-inclusion classes. They posit that even though third grade students in inclusion classes did experience small gains in reading scores and fourth grade students achieved even smaller gains in math than their counterparts in non-inclusion classrooms, the results did not support the argument for or against participation in inclusion classes (Daniel & King, 1997).

The practice of inclusion is becoming more widespread (Ruijs & Peetsma, 2009), particularly because legislation such as NCLB and IDEA supports this practice due to the social and academic benefits that may exist for students with disabilities. However, some of the research has identified neutral or negative influences on the academic achievement of non-disabled students who are educated in an inclusive classroom (Ruijs & Peetsma, 2009; McDonnell, Thorson, Disher, Mathot-Buckner & Ray, 2003; Daniel & King, 1997).

The question that often arises from studies on the influence of inclusion on non-disabled students is what risks arise for the majority when accommodating the needs of a few (Sharpe,

York, & Knight, 1994). According to Vyzogsky's ZPD (zone of proximal development), children with special educational needs might perform better academically in an inclusive setting because they may learn from their more capable peers. In addition, they may be more motivated to achieve, as there may be more of an academic focus in a regular education classroom with higher standards and expectations. School leaders must decide if the benefits of inclusion for special education students outweigh the effect of inclusion on their regular education peers.

According to the literature on the influence of inclusion on regular education students, differences in schools seem to be important factors in the academic achievement of regular education students in inclusive classroom settings (Ruijs & Peetsma, 2009; Robinson, 2012). This finding is consistent with the results of this study. Although the same demographic variables were explored at MTS and MTN, students performed differently on the Language Arts Literacy section of the 2013 NJ HSPA at each school. In some cases, the effect size was small, but this may indicate that factors, most likely school-based factors, other than the ones explored in this study are influencing the academic performance of non-disabled students who are placed in an inclusive language arts classroom setting.

Recommendations for Policy and Practice

The findings from this study may be shared with school leaders so they may most appropriately address the needs of all students. Although inclusion classes may be appropriate for some general education students, inclusion may not be the best fit for all general education students. When students are placed in an inclusive environment, it is important that teachers employ differentiated strategies to meet the varying needs of all students in the classroom (Obiakor, Harris, Mutua, Rotatori, & Algozzine, 2012). In order to accomplish this in the most effective manner, educators must receive training on how to work with diverse learners during

their pre-service training as well as throughout their tenure as a teacher. Policy makers must ensure that such topics are addressed during post-secondary programs, and instructional leaders must provide opportunities for teachers to learn effective, research-based practices that will allow them to improve their practice. Teachers must also be provided time to plan with their co-teachers and to collaborate with colleagues in order to grow as professionals and to apply effective strategies in their classroom.

In addition, it is recommended that school leaders examine scheduling and recommendation processes for placing regular education students into inclusion classes. Practices must be employed that allow educators to properly place students in inclusion or non-inclusion classes based on their needs as well as multiple data points. It is also recommended that once placed in an inclusion classroom, the performance of non-disabled students be monitored closely and frequently by teachers, administrators, and support personnel so that adjustments to student placement may be made if necessary. Instructional leaders must also ensure that all students, regardless of their placement, receive the same access to the school curriculum and qualified teachers. Ultimately, all students in an inclusion setting should be provided with an environment which allows them to reach their full academic potential.

The results of this study add to the existing body of literature on the influence of being in an inclusion English class on the academic performance of non-disabled secondary students. The study suggests that inclusion classes may not be the most appropriate placement for all learners at each level and that other options may need to be explored to increase the achievement of non-disabled students at the secondary level. Very few studies address the topic of inclusion at the secondary level; therefore, this topic must be examined further.

Recommendations for Future Research

Limited empirical research studies exist on the effect of inclusion on non-disabled students. The minimal studies that do exist focus mainly on the influence of inclusion on non-disabled elementary or middle school students. It would be beneficial to educators of high school students if more studies were conducted on the influence of placement in inclusion classes on secondary students in language arts and mathematics. The results of the research would allow instructional leaders as well as policy makers to implement practices which ensure that the needs of all students are met. The findings of such studies would add to the small body of research that exists and would provide valuable information about how to most appropriately prepare students to make academic gains on state standardized tests and to acquire the skills necessary to become college and career ready.

This research study was conducted in an affluent suburban central New Jersey town which lacked socioeconomic or ethnic diversity. Results of this study may not be generalized to students in rural or urban school settings. It is recommended that the influence of inclusion on non-disabled high school students be explored in school districts that serve students of various socioeconomic, geographic, and ethnic backgrounds. Exploring this topic in a different school setting will not only add to the body of research on inclusion, but would provide educators, legislators, and policy makers with information about meeting the needs of students from a variety of diverse backgrounds.

This research suggests that school factors other than the ones explored in this study may influence the academic achievement of non-disabled students who are placed in inclusion English classes. Additional research may be necessary to identify such factors and may provide school leaders with valuable information about the school environment. By identifying school

factors that influence student achievement, instructional leaders may introduce strategies to improve academic performance of all students as well as opportunities for instructors to receive professional development.

The state of New Jersey recently adopted the Common Core State Standards, upon which curriculum must be developed. During the 2014-2015 school year, student achievement of the standards was assessed through the PARCC assessment. It is recommended that researchers continue to explore the influence of inclusion on all students using the newly developed standards and assessments. This will allow educators and policy makers to remain abreast of the academic needs of students so that appropriate resources and strategies may be instituted. The data that are obtained from the PARCC may suggest that school leaders may need to adjust instructional practices to ensure that teachers are knowledgeable of the new standards and assessments and that students are experiencing growth and success.

The PARCC assessment will provide median growth scores for students who take the assessment each year. This annual data will allow educators to measure student academic growth and compare it to the growth of peers who perform similarly on the assessment. With this information, it is recommended that researchers develop a study using a longitudinal methodology that investigates non-disabled students' academic growth or change over time depending on when they were placed in an inclusive classroom setting. As the NJ HSPA is administered only to students in Grade 11, educators are currently unable to perform a longitudinal study using this assessment. As NJ HSPA becomes obsolete and PARCC is introduced, opportunities to compare student growth using a longitudinal methodology exist. A longitudinal study may provide instructional leaders and policy makers with valuable

information about the long-term effects of placement of non-disabled students in an inclusion classroom setting for the subjects that are assessed.

The current study did not explore the ways in which co-teachers work together in the classroom. Obiakor et al. (2012) references five evidenced-based models of co-teaching in their research and state that general and special education teachers must utilize diverse instructional strategies and assessment methods to accommodate the diverse needs of students in their classroom. The authors state that in order for co-teaching to be successful, teachers must be flexible and willing to implement the most appropriate strategies that will enhance the learning of all students. It is recommended that a study investigating the potential differences in the academic performance of non-disabled students who are placed in an inclusive classroom environment based on the co-teaching models utilized in the classroom be conducted. The information gathered from such a study may provide educators and policy makers with valuable information regarding the most effective strategies for meeting the needs of an increasingly diverse student population. This information will also be useful to those who develop pre-service programs for future educators.

Research has suggested that teacher attitudes about inclusion may have an influence on student academic performance (Avradidis, Bayliss, & Burden, 2000; Hwang & Evans, 2011; Janney, Snell, Beers, & Raynes, 1995; Idol, 2006). A study to examine teachers' attitudes towards inclusion and the effect on the general education students' academic achievement when placed in an inclusion setting may yield valuable findings. Teacher attitudes about inclusion were not explored in this study but may have had an influence on student academic achievement.

The requirement of NCLB that all students have access to the same curriculum and rigorous standards is not likely to change in the near future. Therefore, students will continue to

be placed in inclusive classroom settings with a diverse group of learners. The mixed body of literature that exists is evidence that further research on inclusion needs to be conducted. The evidence collected from this study suggests that regular education students who are placed in an inclusive classroom may not benefit as much from the inclusive environment as they would from a non-inclusive environment. Federal, state, and local agencies should reconsider the mandate of inclusion and explore other options that may more appropriately meet the needs of regular education students.

Recommendations for future practice of inclusion include scheduling diverse learners strategically based on performance data and empirical data, ensuring that teachers are prepared to work collaboratively to employ strategies that allow them to meet the varying needs of students, providing professional development and pre-service training to teachers on educating diverse learners, and monitoring and adjusting student placement based on performance. Federal and state mandates as well as the mixed body of research on inclusion necessitate further study in the area of inclusion to ensure the academic success of all students at the secondary level.

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APPENDICES

APPENDIX A Request to Conduct Research

March 20, 2013

[redacted]

Dear [redacted]

I am writing to request permission to conduct a research study in the [redacted] Public Schools. I am currently enrolled in the Seton Hall Executive Doctoral program in K-12 Administration in South Orange, NJ, and am in the process of writing my dissertation. The study is entitled *The Influence of Co-taught Inclusion on the Academic Achievement of Eleventh Grade Non-disabled Students in Language Arts.*

Last year, our district decided to de-track the College Prep (CP) level courses in Language Arts. As a result, CP level students will be exposed to the same curriculum and assessments with no differentiation of levels. My research study will determine the impact the change has had on the academic performance of approximately 1466 eleventh and twelfth grade students as evidenced by High School Proficiency Assessment (HSPA) data. I will be utilizing HSPA data of eleventh grade students during the 2011-12 and 2012-13 school years from [redacted] and [redacted] No staff members will be involved in the research project.

In order to conduct this research, I will need to be granted access to anonymous standardized test data coded only with student identification numbers. I will not have any direct contact with students during the study and the project will not interrupt or displace the regular instructional program. If approval is granted, the data utilized in the study will remain confidential and anonymous. No costs will be incurred by the school district to conduct this research. The completed dissertation will be reviewed and evaluated by Seton Hall mentor, Dr. Gerard Babo. Upon completion of the project, I will supply a written report to the Superintendent of [redacted] Public Schools.

As the district moves towards de-tracking and increasing the rigor of the curriculum, my research will provide relevant evidence and data which may guide decision making. The project will supply district stakeholders with an interpretation of student assessment data and research based practices which will guide our district as we continue to provide the most rigorous and appropriate curriculum to our students.

Your approval to conduct this study will be greatly appreciated. I would be happy to meet with you to answer any questions or concerns that you may have regarding this study. If you agree, kindly submit a signed letter of permission on your institution's letterhead acknowledging your consent for me to conduct this study in your district.

Sincerely,

Jocelyn Easley
Doctoral Candidate
Seton Hall University

Special Education Week in New Jersey).

8) Approval for Jocelyn Easley, Assistant Principal for Guidance, to conduct a research study to determine the impact of recent changes in Language Arts course assignments on academic performance.

APPENDIX B "MatchIt" Matched Cases

```
R Console                                                                    Page 1


R version 3.0.3 (2014-03-06) -- "Warm Puppy"
Copyright (C) 2014 The R Foundation for Statistical Computing
Platform: i386-w64-mingw32/i386 (32-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages("MatchIt")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://lib.stat.cmu.edu/R/CRAN/bin/windows/contrib/3.0/MatchIt_2.4-21.zip'
Content type 'application/zip' length 78129 bytes (76 Kb)
opened URL
downloaded 76 Kb

package 'MatchIt' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\babogera\AppData\Local\Temp\Rtmpi0J3ri\downloaded_packages
> install.packages("optmatch")
trying URL 'http://lib.stat.cmu.edu/R/CRAN/bin/windows/contrib/3.0/optmatch_0.9-3.zip'
Content type 'application/zip' length 596103 bytes (582 Kb)
opened URL
downloaded 582 Kb

package 'optmatch' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\babogera\AppData\Local\Temp\Rtmpi0J3ri\downloaded_packages
> library(MASS)
> library(MatchIt)
> library(optmatch)
Loading required package: digest
You're loading optmatch, by B. Hansen and M. Fredrickson.
 The optmatch package makes essential use of D. P. Bertsekas
 and P. Tseng's RELAX-IV algorithm and code, as well as
 Bertsekas' AUCTION algorithm and code.  Using the software
 to 'satisfy in any part commercial delivery requirements to
 government or industry' requires a special agreement with
 Dr. Bertsekas. For more information, enter
 relaxinfo() at the command line.

> data1<-read.csv("C:/new_JEv2")
Error in file(file, "rt") : cannot open the connection
In addition: Warning message:
In file(file, "rt") :
  cannot open file 'C:/new_JEv2': No such file or directory
> data1<-read.csv("C:/new_JEv2.csv")
> ml.out<-matchit(incl ~ school + gender + ethnicity + frl + tid + absent + g8lal, data = data1,
method = "optimal", distance = "logit", ratio = 1)
Warning message:
In fullmatch(d, min.controls = ratio, max.controls = ratio, omit.fraction = (n0 -  :
  Without 'data' argument the order of the match is not guaranteed
    to be the same as your original data.
> summary(ml.out)

Call:
matchit(formula = incl ~ school + gender + ethnicity + frl +
    tid + absent + g8lal, data = data1, method = "optimal", distance = "logit",
    ratio = 1)
```

```
Summary of balance for all data:
          Means Treated Means Control SD Control Mean Diff eQQ Med eQQ Mean
distance         0.3472         0.1868     0.1375    0.1605  0.1673   0.1606
school           0.6542         0.4439     0.4975    0.2104  0.0000   0.2150
gender           0.4206         0.5749     0.4950   -0.1543  0.0000   0.1495
ethnicity        1.2430         1.2433     0.7901   -0.0003  0.0000   0.0748
frl              0.2523         0.1578     0.5170    0.0946  0.0000   0.0935
tid              2.9907         2.9626     0.2509    0.0281  0.0000   0.0374
absent           1.6776         1.2914     2.2609    0.3861  0.0000   0.5467
g8lal          222.5981       237.8663    18.5349  -15.2682 15.0000  15.1495
          eQQ Max
distance   0.2776
school     1.0000
gender     1.0000
ethnicity  1.0000
frl        2.0000
tid        2.0000
absent     6.0000
g8lal     24.0000


Summary of balance for matched data:
          Means Treated Means Control SD Control Mean Diff eQQ Med eQQ Mean
distance         0.3472         0.3210     0.1609    0.0262  0.0021   0.0280
school           0.6542         0.6916     0.4640   -0.0374  0.0000   0.0374
gender           0.4206         0.3551     0.4808    0.0654  0.0000   0.0654
ethnicity        1.2430         1.2056     0.5785    0.0374  0.0000   0.0374
frl              0.2523         0.2243     0.6190    0.0280  0.0000   0.0280
tid              2.9907         2.9907     0.0967    0.0000  0.0000   0.0000
absent           1.6776         1.6963     2.6941   -0.0187  0.0000   0.4766
g8lal          222.5981       225.8505    17.6340   -3.2523  3.0000   3.8318
          eQQ Max
distance   0.1327
school     1.0000
gender     1.0000
ethnicity  2.0000
frl        1.0000
tid        0.0000
absent     6.0000
g8lal     10.0000

Percent Balance Improvement:
           Mean Diff. eQQ Med eQQ Mean    eQQ Max
distance      83.6503 98.7686  82.5505    52.1992
school        82.2286  0.0000  82.6087     0.0000
gender        57.6032  0.0000  56.2500     0.0000
ethnicity -11407.6923  0.0000  50.0000 -100.0000
frl              70.3567  0.0000  70.0000    50.0000
tid             100.0000  0.0000 100.0000  100.0000
absent           95.1592  0.0000  12.8205     0.0000
g8lal            78.6986 80.0000  74.7070    58.3333

Sample sizes:
          Control Treated
All           374     107
Matched       107     107
Unmatched     267       0
Discarded       0       0

> match.data=match.data(m1.out)
> write.table(match.data, file="C:/matched111.csv",sep=",",col.names=NA)
>
```

PROPENSITY SCORE MATCHING - FINAL CASES

	id	incl	school	gender	ethnicity	fri	tid	absent	g8tal	g11tal	inclyrs	fri_all	ethnicity_all	distance	weights	subclass
3	3	0	0	0	1	0	3	0.5	276	250	0	0	1	0.026573	1	31
6	6	1	0	1	1	0	3	6.5	208	221	1	0	1	0.322273	1	107
8	8	1	0	0	1	2	3	0	233	248	1	2	1	0.218528	1	9
11	11	0	0	1	1	0	3	13.5	202	232	0	0	1	0.396742	1	18
12	12	0	0	0	1	0	3	0.5	221	212	0	0	1	0.254595	1	10
13	13	0	0	1	1	0	3	1	221	238	0	0	1	0.201205	1	7
25	25	1	0	0	1	0	3	1.5	236	246	1	0	1	0.147242	1	26
45	45	1	0	1	1	0	3	0	231	241	1	0	1	0.136446	1	91
48	48	0	0	1	1	0	3	0.5	231	252	0	0	1	0.136856	1	91
49	49	1	0	1	3	2	3	0.5	218	214	2	2	3	0.280404	1	104
53	53	1	0	1	2	0	3	1.5	231	250	1	0	2	0.134577	1	105
54	54	1	0	1	1	0	3	0.5	276	253	1	0	1	0.019667	1	106
60	60	0	0	1	1	0	3	0	231	246	0	0	1	0.136446	1	105
61	61	1	0	1	1	0	3	1	231	240	1	0	1	0.137267	1	3
63	63	1	0	0	1	0	3	0	231	246	1	0	1	0.176954	1	4
65	65	1	0	0	1	0	3	1	231	242	1	0	1	0.177968	1	5
68	68	1	0	1	1	0	3	0	246	240	1	0	1	0.073494	1	6
70	70	1	0	1	1	0	3	1	221	234	2	0	1	0.201205	1	7
77	77	1	0	1	1	0	3	7	233	217	1	0	1	0.131432	1	8
81	81	1	0	0	1	0	3	0	221	238	1	0	1	0.253936	1	10
95	95	0	0	0	3	0	3	1	208	230	0	0	3	0.371374	1	94
97	97	0	0	0	1	0	3	0	216	241	0	0	1	0.299846	1	36
102	102	1	0	0	1	0	3	0.5	233	248	2	0	1	0.164444	1	1
104	104	0	0	0	1	0	3	0.5	225	249	0	0	1	0.221316	1	9
107	107	1	0	0	1	0	3	0.5	236	227	1	0	1	0.146372	1	20
117	117	1	0	1	2	2	2	0	243	257	1	2	2	0.026106	1	31
122	122	0	0	0	1	0	3	1.5	214	229	0	0	1	0.321753	1	107
124	124	0	0	0	1	0	3	1	218	221	0	0	1	0.282324	1	30
127	127	0	0	0	1	0	3	0	214	221	0	0	1	0.319482	1	11
131	131	0	0	0	1	0	3	0	202	216	0	0	1	0.448959	1	67
132	132	1	0	0	3	0	3	0	206	232	1	0	3	0.391408	1	42
138	138	0	0	0	1	0	3	1	210	236	0	0	1	0.362289	1	47
143	143	0	0	0	1	0	3	3.5	212	245	0	0	1	0.345258	1	81
145	145	0	0	0	1	0	3	14	210	198	0	0	1	0.38341	1	69
147	147	1	0	0	1	0	3	1.5	206	241	1	0	1	0.406558	1	53
148	148	1	0	1	1	0	3	0.5	243	249	1	0	1	0.083714	1	64
149	149	1	0	0	1	0	3	13	210	168	2	0	1	0.381768	1	75

PROPENSITY SCORE MATCHING - FINAL CASES

	id	incl	school	gender	ethnicity	frl	tid	absent	g8lal	g11lal	inclyrs	frl_all	ethnicity_all	distance	weights	subclass
151	151	1	0	1	1	0	3	0	236	237	1	0	1	0.111568	1	86
152	152	0	0	0	1	2	3	19	228	244	0	2	1	0.286484	1	43
160	160	0	0	1	2	2	3	3	206	217	0	2	2	0.414006	1	70
165	165	0	0	0	1	0	3	2.5	216	244	0	0	1	0.303506	1	82
166	166	0	0	0	1	0	3	0	236	244	0	0	1	0.145938	1	20
172	172	1	0	1	1	0	3	3.5	233	229	3	0	1	0.12868	1	97
174	174	0	0	0	1	0	3	1.5	231	240	0	0	1	0.178477	1	5
178	178	1	0	0	1	0	3	2	193	221	2	0	1	0.555391	1	2
179	179	1	0	0	1	0	3	0	214	234	1	0	1	0.319482	1	11
183	183	0	0	1	1	0	3	1	204	241	0	0	1	0.354845	1	102
186	186	1	0	1	1	0	3	0	216	221	1	0	1	0.239389	1	12
190	190	0	0	0	1	0	3	0	216	246	0	0	1	0.299846	1	29
192	192	1	0	1	1	0	3	1	228	242	1	0	1	0.154419	1	13
196	196	1	0	1	1	0	3	0.5	221	240	1	0	1	0.200647	1	14
197	197	1	0	0	1	0	3	0	200	219	1	0	1	0.47178	1	15
199	199	1	0	0	1	0	3	0	254	241	1	0	1	0.069543	1	16
201	201	0	0	1	1	0	3	3.5	276	263	0	0	1	0.020073	1	106
202	202	0	0	0	1	0	3	0	218	246	0	0	1	0.280918	1	104
205	205	0	0	0	1	0	3	0.5	254	260	0	0	1	0.069768	1	16
209	209	1	0	0	1	0	3	3	243	242	2	0	1	0.112291	1	17
210	210	1	0	1	3	0	3	9	200	232	3	0	3	0.39862	1	18
213	213	1	0	1	3	0	3	1	221	253	1	0	3	0.192858	1	19
220	220	1	0	0	1	0	3	1	195	233	1	0	1	0.530873	1	21
221	221	0	0	1	1	0	3	0.5	243	246	0	0	1	0.083714	1	64
227	227	0	0	0	1	0	3	0	239	259	0	0	1	0.129584	1	8
228	228	1	0	1	1	2	3	0	187	208	2	2	1	0.629705	1	22
231	231	0	0	1	1	0	3	3	233	236	0	0	1	0.128291	1	97
234	234	0	0	1	1	0	3	4	200	216	0	0	1	0.402947	1	84
235	235	1	0	1	1	0	3	1	267	264	1	0	1	0.029541	1	23
236	236	0	0	0	1	0	3	1.5	233	246	0	0	1	0.165401	1	1
237	237	0	0	1	1	0	3	1	267	258	0	0	1	0.029541	1	23
238	238	1	0	0	1	0	3	0	246	245	1	0	1	0.097421	1	24
239	239	0	0	1	1	0	3	1	231	240	0	0	1	0.137267	1	3
246	246	1	1	1	3	0	3	1	236	252	1	0	3	0.195616	1	25
247	247	0	1	0	1	2	2	0	225	238	0	2	1	0.147903	1	26
250	250	0	1	1	1	0	3	6	216	249	0	0	1	0.399482	1	15
252	252	1	1	0	1	0	3	0.5	200	226	1	0	1	0.645012	1	27

PROPENSITY SCORE MATCHING - FINAL CASES

	id	incl	school	gender	ethnicity	frl	tid	absent	g8lal	g11lal	inclyrs	frl_all	ethnicity_all	distance	weights	subclass
254	254	0	1	0	1	0	3	0	223	252	0	0	1	0.386299	1	72
256	256	0	1	0	1	2	3	4.5	226	215	0	2	1	0.44653	1	66
258	258	1	1	0	1	0	3	1	233	254	1	0	1	0.285908	1	28
259	259	1	1	1	1	0	3	1.5	225	240	1	0	1	0.29894	1	29
260	260	0	1	0	1	0	3	0	233	255	0	0	1	0.284491	1	103
261	261	0	1	0	1	0	3	2.5	262	257	0	0	1	0.096463	1	24
264	264	0	1	1	1	0	3	1	214	240	0	0	1	0.413263	1	27
266	266	1	1	0	1	0	3	1.5	233	240	1	0	1	0.286618	1	30
268	268	0	1	0	1	0	3	0	218	249	0	0	1	0.441963	1	59
269	269	1	1	0	1	0	3	2	202	240	3	0	1	0.626149	1	32
270	270	0	1	0	3	2	3	0	210	248	0	2	3	0.607376	1	89
271	271	1	1	1	3	2	3	3.5	254	248	1	2	3	0.13369	1	33
275	275	1	1	1	1	1	3	1	218	240	1	1	1	0.411715	1	34
277	277	1	1	1	3	2	3	2.5	233	240	2	2	3	0.286807	1	35
278	278	0	1	0	3	0	3	0	193	226	0	0	3	0.703188	1	50
279	279	0	1	1	2	0	3	0	239	236	0	0	2	0.177656	1	4
281	281	1	1	1	1	0	3	3.5	225	241	1	0	1	0.301861	1	36
282	283	1	1	0	1	0	3	0.5	254	248	1	0	1	0.131982	1	37
284	285	0	1	1	1	0	3	3	216	221	0	0	1	0.394491	1	100
286	287	1	1	0	1	0	3	0.5	196	212	2	0	1	0.685884	1	38
287	288	1	1	1	1	0	3	1	212	237	1	0	1	0.435704	1	39
288	289	0	1	1	1	0	3	2.5	228	249	0	0	1	0.272253	1	93
289	290	1	1	0	1	0	3	3.5	233	222	1	0	1	0.289468	1	40
290	291	0	1	0	1	0	3	0	236	248	0	0	1	0.257289	1	79
293	294	0	1	0	1	0	3	1	258	244	0	0	1	0.112663	1	17
294	295	1	1	1	1	0	3	0	236	238	1	0	1	0.202925	1	41
296	297	1	1	0	1	0	3	1.5	233	224	2	0	1	0.286618	1	43
297	298	0	1	1	1	1	3	2	223	248	0	1	1	0.359018	1	83
300	301	0	1	0	1	0	3	0.5	254	244	0	0	1	0.131982	1	33
301	302	1	1	0	1	2	3	0	231	246	2	2	1	0.383275	1	44
302	303	0	1	0	1	0	3	0	254	255	0	0	1	0.131585	1	37
303	304	0	1	1	1	0	3	0	225	248	0	0	1	0.29676	1	62
305	306	0	1	0	1	0	3	2	221	241	0	0	1	0.411657	1	80
308	309	1	1	0	1	0	3	0	198	242	3	0	1	0.664985	1	45
312	313	0	1	1	1	0	3	1	216	230	0	0	1	0.391176	1	32
313	314	0	1	0	1	0	3	1	223	216	0	0	1	0.387948	1	71
314	315	0	1	0	1	0	3	2	214	241	0	0	1	0.491116	1	57

PROPENSITY SCORE MATCHING - FINAL CASES

	id	incl	school	gender	ethnicity	frl	tid	absent	g8lal	g11lal	inclyrs	frl_all	ethnicity_all	distance	weights	subclass
315	316	0	1	1	2	1	3	1	225	252	0	1	2	0.33074	1	85
319	320	0	1	1	1	0	3	1	202	214	0	0	1	0.550027	1	46
321	322	0	1	0	1	0	3	1	231	249	0	0	1	0.305029	1	76
322	323	0	1	1	1	0	3	2.5	210	217	0	0	1	0.461002	1	2
327	328	1	1	0	1	0	3	0	204	246	1	0	1	0.601077	1	46
331	332	0	1	0	3	0	3	2	243	241	0	0	3	0.194576	1	19
332	333	0	1	0	1	0	3	4	225	241	0	0	1	0.371222	1	75
333	334	0	1	0	1	0	3	1	216	255	0	0	1	0.466458	1	51
335	336	1	1	0	1	0	3	0	225	221	2	0	1	0.364757	1	47
336	337	0	1	0	1	0	3	2.5	223	254	0	0	1	0.390426	1	42
339	340	0	1	0	1	0	3	1	221	245	0	0	1	0.409975	1	63
340	341	1	1	0	1	0	3	2	239	234	1	0	1	0.234329	1	48
341	342	1	1	0	1	0	3	1.5	223	242	1	0	1	0.388773	1	49
343	344	1	1	0	1	0	3	1.5	198	227	2	0	1	0.667304	1	50
346	347	0	1	1	2	0	3	2	225	244	0	0	2	0.294161	1	40
347	348	1	1	0	1	0	3	1.5	216	241	1	0	1	0.467323	1	51
348	349	1	1	1	1	0	3	0	262	254	1	0	1	0.071589	1	52
350	351	1	1	0	1	0	3	1	231	236	1	0	1	0.305029	1	54
352	353	0	1	0	1	0	3	1	204	232	0	0	1	0.602742	1	60
353	354	0	1	0	1	0	3	2	210	230	0	0	1	0.536986	1	61
355	356	0	1	0	3	0	3	1	208	230	0	0	3	0.544974	1	92
356	357	0	1	1	1	0	3	0	221	242	0	0	1	0.33648	1	99
357	358	1	1	0	1	0	3	8.5	206	221	1	0	1	0.593185	1	55
359	360	1	1	0	1	0	3	3.5	214	241	2	0	1	0.493721	1	56
360	361	1	1	1	1	0	3	1.5	206	237	2	0	1	0.505124	1	57
362	363	1	1	0	1	0	3	0	246	255	1	0	1	0.179535	1	58
363	364	0	1	0	1	0	3	0	223	250	0	0	1	0.386299	1	95
364	365	0	1	0	1	0	3	1.5	195	212	0	0	1	0.697165	1	38
369	370	0	1	0	1	0	3	0	206	254	0	0	1	0.578855	1	101
370	371	0	1	0	1	2	3	2	246	244	0	2	1	0.240331	1	12
373	374	1	1	0	1	2	3	1	214	242	1	2	1	0.577434	1	59
377	378	1	1	0	1	0	3	0	198	232	2	0	1	0.664985	1	60
378	379	1	1	0	1	2	3	1	214	230	1	2	1	0.577434	1	61
379	380	0	1	1	1	0	3	1.5	221	219	0	0	1	0.338812	1	88
381	382	1	1	1	1	0	3	1	225	236	2	0	1	0.298212	1	62
383	384	1	1	0	1	0	3	5	221	236	2	0	1	0.416716	1	63
385	386	1	1	0	1	0	3	1	198	238	2	0	1	0.666532	1	65

PROPENSITY SCORE MATCHING - FINAL CASES

	id	incl	school	gender	ethnicity	fri	tid	absent	g8lal	g11lal	inclyrs	fri_all	ethnicity_all	distance	weights	subclass
387	388	1	1	1	1	0	3	4	210	242	1	0	1	0.463593	1	66
388	389	1	1	0	1	0	3	2	214	252	1	0	1	0.491116	1	67
389	390	1	1	1	1	0	3	1.5	218	230	2	0	1	0.370336	1	68
390	391	0	1	0	1	0	3	2.5	206	257	0	0	1	0.583085	1	98
393	394	1	1	1	1	0	3	0.5	216	214	1	0	1	0.390349	1	69
394	395	1	1	1	1	0	3	1	206	217	1	0	1	0.504256	1	70
395	396	1	1	0	1	0	3	2	223	257	1	0	1	0.389599	1	71
396	397	1	1	0	1	0	3	1.5	218	226	2	0	1	0.444536	1	72
398	399	0	1	1	3	2	3	1.5	233	248	0	2	3	0.285388	1	28
399	400	0	1	0	1	0	3	0	223	245	0	0	1	0.386299	1	45
400	401	0	1	1	3	0	3	2	225	233	0	0	3	0.288714	1	35
401	402	1	1	1	1	0	3	0.5	250	253	1	0	1	0.118388	1	73
402	403	1	1	0	1	0	3	8	236	252	2	0	1	0.268055	1	74
403	404	1	1	0	1	0	3	0.5	231	238	1	0	1	0.304293	1	76
405	406	0	1	0	1	0	3	2	223	245	0	0	1	0.389599	1	53
406	407	0	1	0	1	0	3	1	206	230	0	0	1	0.580548	1	96
408	409	0	1	0	1	0	3	1.5	228	250	0	0	1	0.335777	1	77
411	412	1	1	0	1	0	3	1.5	228	227	1	0	1	0.335777	1	77
414	415	0	1	0	1	0	3	6	212	246	0	0	1	0.521021	1	21
416	417	1	1	1	1	0	3	0	236	249	1	0	1	0.202925	1	78
417	418	1	1	0	1	0	3	0	236	245	2	0	1	0.257289	1	79
418	419	0	1	1	3	0	3	1.5	236	241	0	0	3	0.196163	1	25
420	421	1	1	1	1	0	3	1.5	204	216	1	0	1	0.528065	1	80
421	422	0	1	0	1	0	3	0.5	225	249	0	0	1	0.365563	1	68
423	424	1	1	1	1	0	3	9	221	236	2	0	1	0.350584	1	81
425	426	0	1	1	1	0	3	1	250	260	0	0	1	0.118751	1	73
426	427	1	1	0	1	0	3	0	231	238	1	0	1	0.303558	1	82
427	428	0	1	0	1	0	3	1	223	240	0	0	1	0.387948	1	49
428	429	1	1	1	3	0	3	2.5	218	237	1	0	3	0.359718	1	83
430	431	0	1	1	1	0	3	3	214	224	0	0	1	0.416637	1	39
431	432	1	1	0	2	2	3	2.5	210	244	1	2	2	0.61776	1	84
433	434	1	1	0	1	0	3	0	228	237	3	0	1	0.333456	1	85
435	436	0	1	1	1	0	3	2	262	249	0	0	1	0.072518	1	6
438	439	0	1	0	1	0	3	1.5	221	241	0	0	1	0.410816	1	34
439	440	1	1	0	1	0	3	2	250	246	1	0	1	0.15586	1	87
440	441	1	1	0	1	0	3	3	228	238	2	0	1	0.338106	1	88
441	442	1	1	0	1	1	3	0	206	214	2	1	1	0.621388	1	89

PROPENSITY SCORE MATCHING - FINAL CASES

	id	incl	school	gender	ethnicity	frl	tid	absent	g8tal	g11tal	inclyrs	frl_all	ethnicity_all	distance	weights	subclass
444	445	1	1	0	1	0	3	0	189	227	1	0	1	0.750081	1	90
445	446	0	1	1	1	2	3	2	236	245	0	2	1	0.269045	1	74
446	447	0	1	0	3	2	3	2.5	198	232	0	2	3	0.732029	1	90
447	448	0	1	0	1	0	3	2	206	248	0	0	1	0.58224	1	55
448	449	0	1	0	1	0	3	0	258	265	0	0	1	0.11197	1	86
449	450	0	1	1	1	0	3	0	236	249	0	0	1	0.202925	1	41
451	452	1	1	1	1	0	3	5.5	196	233	2	0	1	0.624265	1	92
452	453	0	1	0	1	0	3	0	225	241	0	0	1	0.364757	1	22
453	454	1	1	1	1	0	3	1	228	246	1	0	1	0.270193	1	93
454	455	1	1	0	2	2	3	0	225	244	2	2	2	0.443636	1	94
456	457	1	1	0	5	2	3	0	206	244	2	2	5	0.638138	1	95
457	458	1	1	0	1	1	3	2.5	210	217	2	1	1	0.581531	1	96
458	459	1	1	1	1	0	3	3.5	198	246	2	0	1	0.599147	1	98
461	462	0	1	1	1	2	3	1	225	260	0	2	1	0.377285	1	44
462	463	0	1	0	1	0	3	1	250	265	0	0	1	0.154947	1	13
463	464	0	1	1	1	0	3	2	262	273	0	0	1	0.072518	1	52
464	465	1	1	1	1	0	3	0	221	241	1	0	1	0.33648	1	99
465	466	0	1	0	1	2	3	2	204	238	0	2	1	0.685377	1	65
466	467	0	1	0	1	0	3	1	239	249	0	0	1	0.233084	1	48
467	468	0	1	1	1	0	3	1.5	236	250	0	0	1	0.204617	1	78
469	470	0	1	0	1	0	3	0	243	245	0	0	1	0.200738	1	14
470	471	0	1	1	1	0	3	0	210	234	0	0	1	0.456688	1	56
473	474	1	1	0	1	0	3	1	218	234	2	0	1	0.443678	1	100
474	475	0	1	0	1	0	3	2	250	253	0	0	1	0.15586	1	87
475	476	1	1	0	1	0	3	1	204	237	1	0	1	0.602742	1	101
476	477	1	1	1	1	0	3	0	202	230	2	0	1	0.548307	1	102
477	478	0	1	0	1	0	3	0	246	266	0	0	1	0.179535	1	58
480	481	0	1	0	1	0	3	1	231	249	0	0	1	0.305029	1	54
481	482	1	1	0	3	0	3	8	233	259	2	0	3	0.285069	1	103