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The Impact of Teacher and Student Racial and Ethnic Matching on Student Outcomes: A Quantitative Study

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Abstract

This study aimed to investigate the predictive relationship of teacher race on student outcomes in New Jersey public schools, as measured by the New Jersey Student Learning Assessment (NJSLA), chronic absenteeism, and graduation rates. Specifically, the relationship between teacher and student race matching with Black students, the schoolwide population of students, and a subset of urban schools was examined. The study investigated the potential of race matching to address the problem of racial and ethnic student achievement gaps. Studies indicate that pairing students with teachers with whom they share the same race and ethnicity can lead to increased cultural understanding and stronger teacher–student relationships, which can positively impact school outcome measures (Redding, 2019).

Race matching is defined as the congruence between the percentages of Black teachers and Black students in a particular school. Schoolwide data were used to create a race matching variable, which served as the main independent variable. A sample of 2,510 schools was used. The findings indicated that race matching had a statistically significant predictive relationship with student academic growth as measured using the NJSLA, chronic absenteeism and graduation rates for the schoolwide group of students, and graduation rates for the Black student group. The study also found that race matching had a statistically significant predictive relationship with student academic growth and chronic absenteeism in urban schools. The study's findings are used to provide valuable hiring and policy recommendations intended to address racial and ethnic achievement gaps.

Keywords: Race matching, achievement gaps

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Although I have had the personal and professional goal of obtaining a doctoral degree for over a decade, in 2020, my life journey finally allowed me to address this goal with a serious commitment of time and resources. The process proved very intense, but I am grateful for the support I have received from my family, classmates, instructors, and colleagues.

Most importantly, I want to thank my family members, who have supported me on this journey and understood the sacrifice I was making to have a more significant impact. My wife and daughter lost some of their time with me due to my schoolwork, and my parents have had fewer opportunities to see me over the last few years. My family members' sacrifice and understanding motivated me, as my love for them is always at the top of my mind.

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backgrounds and regions of the state who shared countless hours of synchronous online courses. We were able to see each other during in-person learning in our last year, which was a seamless transition, and I now have lifelong friendships with all of the members of cohort #24.

Contents

The Impact of Teacher and Student Racial and Ethnic Matching on Student Outcomes: A Quantitative Study

Black students are failing to achieve at the same levels as their peers, and an entire group of students has been left behind. Despite millions of dollars invested, countless hours spent in the classroom, endless discussions, and reams of paper dedicated to the study of this trend, Black students, on average, continue to lag behind their White counterparts in terms of educational outcomes (Assari et al., 2021; Kotok, 2017). Underperformance in the classroom is a critical issue, as it is a potential indicator for future social and economic outcomes such as job attainment and economic success, which in turn impact lifestyle choices such as housing and the overall ability to thrive. Education, or the lack thereof, is a determinant of a person's future. To ensure better life circumstances for students identified as Black, it is critical to determine how the achievement gap can be closed and school outcomes improved.

Previous research has demonstrated that the causes of the academic achievement gap are multidimensional (Duke, 2017). However, research findings are not exclusively negative, as there have been studies that have highlighted factors contributing to progress for Black students in narrowing the achievement gap. It has been noted that positive outcomes can be identified in schools where students feel closer bonds with teachers due to sharing the same race and ethnicity as that of faculty members. Positive student–teacher relationships can help to improve the quality of responses from students in an academic environment (Prewett, Bergin, & Huang, 2019; Rasheed, Brown, Doyle & Jennings, 2020, Redding, 2019).

This study focuses on improving school outcomes for students by analyzing the strategy of matching teachers and students by race in New Jersey schools. The creation of positive relationships between Black teachers and Black students can impact students by increasing

performance in reading and mathematics, raising graduation rates, and inspiring students to pursue higher education opportunities (Carver-Thomas, 2018). Strong teacher–student relationships can impact student assessments, as such relationships can serve as a motivating factor for students given that they are typically more receptive to teachers with whom they share strong connections. Hence, a significant amount of research has been conducted on racial and ethnic matching in teacher–student relationships and the positive outcomes that such matching can have on Black students. This strategy could be a key to effectively closing achievement gaps for Black students.

This dissertation uses school-level data to focus on how the percentage of Black teachers matches the percentage of Black students in each building. Race matching is measured by a newly created independent variable and is calculated using data concerning the percentage of Black students in each school and the difference between this percentage and the percentage of Black teachers in each school. This approach differs from race matching as defined in studies in which specific students were paired with specific teachers (Egalite, Kisida & Winters, 2015). With the approach to race matching in this study, it is assumed that students will have a greater likelihood of being exposed to a Black teacher, regardless of whether such exposure occurs when a teacher is functioning as a classroom teacher or in another school function, if the percentage of such teachers in a school is higher.

Statement of Problem

In the State of New Jersey, racial disparities in student achievement are evident. The results of the 2018–2019 New Jersey Student Learning Assessment (NJSLA) for Algebra I indicate that 55% of White students "Met or Exceeded Expectations," while only 20% of African American students achieved comparable results. Hispanic students "Met or Exceeded

Expectations" at a rate of 24%, while Asian students outpaced all other students by achieving the same standard at a rate of 78%. Statewide, the percentage of students who "Met or Exceeded Expectations" on the NJSLA for Algebra I was 43% (New Jersey Department of Education, n.d.-c). This achievement gap is an ongoing annual trend, the existence of which is further demonstrated when one considers the NJSLA results for English Language Arts (ELA) and mathematics; these results reflect the scope of the issue more broadly in terms of students in grades 3–10 who are meeting expectations (see Table 1). In all three years, Black and Hispanic students had lower scores on average than their White and Asian peers. In the 2018–2019 school year, 31.7% fewer Black students "Met or Exceeded Expectations" in ELA when compared to White students, and the proportion was 29.2% lower in ELA.

The results of the United States' National Assessment of Educational Progress (NAEP) also provide details that can be used to describe the achievement gaps that exist in public schools. Figure 1 presents the 2019 assessment results for grade 12 reading. It is clear that Asian/Pacific Islander and White students scored significantly higher than other racial and ethnic groups, as well as those identifying as two or more races. The average scale score for Black students is 31 points lower than that for White students and 36 points lower than that for students identified as Asian/Pacific Islander. Similar trends are found in mathematics. Expanding the analysis over time, the mathematics achievement gap between White and Black students has remained steady at an approximately 30-point scale score gap from 2005 to 2019 (NCES, 2019).

These data clearly show a significant achievement gap when Black and Hispanic students are compared to their peers on standardized measures of academic achievement. Of course, there are certainly important arguments against the use of assessment score targets as the only measure of progress for students of color, with the use of this measure largely being driven by federal

policies (Tefera, Hernández-Saca, & Lester, 2019). Other pertinent student outcomes that may be relevant to discussions among policymakers and educators include chronic absenteeism, graduation rates, and academic growth. Therefore, this dissertation also analyzes these student outcomes, which may be impacted by the race and ethnicity of teaching faculty. Data show disparities among student racial groups in terms of both chronic absenteeism and graduation rates in New Jersey. Statewide data indicate that in 2019, 8% of White students were chronically absent, compared to 17.6% of Black students (State of New Jersey Department of Education, n.d.-e). Table 2 indicates the gap in graduation rates among student groups, as White students graduated at a rate of 95% in 2020, while Black students graduated at a rate of 85.7%.

Researchers have hypothesized potential causes for low student achievement, high chronic absenteeism, and low graduation rates and suggested various strategies for overcoming these challenges. School districts have attempted to implement improvements such as more focused policy development, better aligned curricula, more effective instruction and school leadership, and better training for novice teachers in order to address low outcomes, but challenges still exist. New and more effective strategies are needed, and researchers have highlighted the difficulty of finding qualified teachers of color (Carver-Thomas, 2018).

The nexus of education equity issues that continue to exist could indicate a need for more teachers of color to be paired with students of color, a practice known as racial matching. This quantitative study investigates the impact of Black teachers by analyzing racial matching within the context of New Jersey schools and students; specifically, this study investigates changes in 2018–2019 student academic growth on the ELA and mathematics NJSLA, chronic absenteeism, and graduation rates of Black students, and the schoolwide population of students, both overall in the state and in a subset of urban schools. This study fills a gap by analyzing the unique situation

that exists in New Jersey. The percentage of Black teachers across the state is 6.6%, and the percentage of Black students is 15% (State of New Jersey Department of Education, n.d.-e). These figures indicate that many Black students may not have a teacher who shares their ethnicity and cultural understanding, which can be a motivating factor when in a challenging environment (Redding, 2019). These disparities exist throughout the state, and a study such as this has the potential to provide an informative perspective on this problem and to present findings and recommendations that can be used to improve policies and develop effective strategies on both the state and national levels.

Purpose of the Study

The purpose of this quantitative study is to investigate the predictive influence of Black teacher and Black student racial matching on student outcomes in New Jersey public schools as measured by the NJSLA, chronic absenteeism, and graduation rates. Specifically, this dissertation examines the impact of race matching on Black students while also analyzing the impact on all students and a subset of urban schools. Of course, a truly caring educator, regardless of their race and ethnicity, can have a profoundly positive impact on the life of any student. This study does not seek to promote the use of racially and ethnically segregated school systems. All students can benefit from a racially diverse teacher workforce, as a range of different backgrounds and experiences promotes critical thinking and problem-solving skills (Quiocho & Rios, 2000; Wells, Fox, & Cordova-Cobo, 2016). Instead, I aim to contribute to the rich conversation about how the diversity of the teacher workforce may be related to closing racial and ethnic achievement gaps and other outcome disparities that remain among students.

The literature review sets the foundation for this study by examining existing research on the impact of racial and ethnic diversity among teachers on student outcomes. In brief, it surveys

the vitally important landscape of what has already been studied at the intersections of race, ethnicity, and student achievement in order to demonstrate the importance of this study. The cross-section between race/ethnicity and student achievement is significant to this review, which also provides examples highlighting the impact on both individuals and groups of students. Research indicates that schools in the United States encounter challenges in terms of hiring students who match the racial and ethnic backgrounds of student bodies. Generally, teacher and student racial and ethnic matching can have a positive association with student outcomes, particularly when analyzing factors such as teacher perception and the early learning needs of students (Downer et al., 2016). Therefore, the influence of racial and ethnic factors is quantified through a multiple regression analysis of key independent and dependent variables that indicates the relevance of race matching as a potential strategy for educators and policymakers.

Significance of Study

The confluence of race and ethnicity with education represents a fascinating area of study, particularly when researching factors that may potentially cause low student achievement. An example of the foundation needed for understanding the significance of this study can be found in the work of Markus (2008), who discusses the correlation between race/ethnicity and an individual's social wellbeing, which has served as a significant factor in shaping public policy and determining how citizens are treated. Furthermore, experiences of racism have a significant impact on an individual's ability to function as a productive citizen and overcome institutionalized barriers. Biased views with regard to race have led to destructive outcomes, with examples including the “school-to-prison pipeline” (American Bar Association, 2018). Within education systems, teachers can have a significant influence on the life outcomes of students from elementary to high school; thus, it is critical that teachers believe in the abilities of

their students and guide them towards positive goals, both academic and nonacademic. From a student's standpoint, having a teacher with a positive understanding of their racial background and ethnic culture can be a motivating factor for that student's achievement; thus, racial and ethnic matching can help improve this understanding. Studies on the link between race/ethnicity and teacher influence serve as a useful foundation for the research presented in this study, as they clearly highlight the positive impact of teacher and student racial and ethnic matching on student academic outcomes (Egalite et al., 2015).

This study focuses on race matching and its impact on Black students, the schoolwide group of students, and a subset of urban schools. In the State of New Jersey, the challenges associated with student achievement are amplified by the growing disparities in student achievement among different racial and ethnic groups. In 2018–2019, Black students achieved scores that were 31.7% lower in math and 29.2% lower in ELA when compared to White students, measured as the percentage of students who "Met or Exceeded Expectations" (Eno et al., 2019). While studies have indicated that race matching can be a viable strategy that has a positive association with improving low student achievement among Black students, 2018–2019 statewide data indicate that 15% of the student population in New Jersey is Black, while only 6.6% of the teachers in the state are Black.

Figure 2 presents the percentages of Black teachers and students in the 2,510 New Jersey schools investigated in this study. The figure illustrates that there are that many schools are clustered due to having similar percentages, with the percentages of Black teachers and students being below 20% for each of these institutions. However, there is both significant variability and a trend indicating that, on average, as the percentage of Black students increases, so does the percentage of Black teachers at each school. Based on the percentages, there are some schools

where Black students are more likely to have Black teachers instruct them. However, a significant number of Black students may still not benefit from the presence of Black teachers; these students are enrolled in institutions where the percentages of the two groups are not comparable. This creates a dynamic setting for research because these disparities exist throughout New Jersey, and a study such as this has the potential to provide a rich perspective on the issue of achievement gaps. Analyzing the variables of race and ethnicity alongside the student outcomes of academic growth, chronic absenteeism, and graduation rates can guide New Jersey policymakers in the decision-making process by producing findings and recommendations that can be applied to New Jersey school districts and result in improved policies and effective strategies on both the state and national levels.

Research Questions

Effective teachers come from all races and ethnicities, but this study seeks to determine whether Black students can attain better outcomes when they are taught in schools where the student body and the teaching faculty's racial and ethnic demographics are similar. It is acknowledged that there are important outcomes associated with race matching, such as increased student motivation and self-efficacy, that this study does not examine (Carver-Thomas, 2018; Wright et al., 2017). However, because standardized assessment results are widely available to and used by policymakers and educators as well as the general public, the same data are analyzed in this study. Furthermore, to gain a more comprehensive overview of student outcomes, this dissertation specifically examines the relationship of race matching with chronic student absenteeism and graduation rates, along with student growth on the NJSLA administered in the 2018–2019 school year. The specific research questions are as follows:

1. Does race matching predict academic growth, as measured by the ELA and math NJSLA, for Black students or the schoolwide student group?
2. Does race matching predict chronic absenteeism among Black students or the schoolwide student group?
3. Does race matching predict graduation rates for Black students or the schoolwide student group?
4. Does race matching predict academic growth, chronic absenteeism, and graduation rates for Black students or the schoolwide student group in urban schools?

Study Design–Methodology

This dissertation investigates the impact of teacher and student racial and ethnic matching on student outcomes, as well as the potential impact of such matching in urban school districts. The literature features various questions regarding student–teacher relationships and racial and ethnic matching; this study contributes by conducting a quantitative analysis using data from the entire population of 2018–2019 schools in New Jersey (State of New Jersey Department of Education, n.d.-e). Student and teacher racial demographic data from schools that have teachers belonging to the Black racial/ethnic category were analyzed, and an independent variable measuring race matching was created as a central element for the analysis. The quantitative research employed a multiple regression analysis model to predict the relationship between the independent variables of teacher and student race matching and the dependent variables of student academic growth, chronic absenteeism, and graduation rates. The study uses as its control variables the percentage of economically disadvantaged students, the average number of years that teachers have spent at schools, and total school enrollment, as these variables partly describe school settings and may also be associated with student outcomes. A multiple

regression analysis allowed for answering the research questions and estimating the strength of the relationship between the independent and dependent variables. The data were analyzed using IBM SPSS Statistics (Version 28) predictive analytics software.

Unit of Analysis and Variables

New Jersey's annual statewide school performance report data set is collected by the New Jersey Department of Education (NJDOE) and is open to the public. The data set is available at https://rc.doe.state.nj.us/. This data set provides data on racial/ethnic teacher and student demographics, chronic absenteeism rates, graduation rates, and assessment results for each school in New Jersey for 2018–2019; these data are used for the main independent and dependent variables. The 2018–2019 school year was the last time that New Jersey students were administered statewide assessments, as these assessments were cancelled in the last two school years due to the COVID-19 pandemic. This data set also provided data for the control variables. This study uses the New Jersey-specific designation of former "Abbott districts" as the criterion for determining urbanicity. These school districts were designated as a result of the lengthy New Jersey Supreme Court case of Abbott v. Burke and a series of court and legislative actions that determined that 31 urban districts were entitled to additional support due to a lack of adequate financial resources with which to provide a thorough and efficient education to students (Education Law Center, n.d.-a).

Since the focus of this study is on race matching, a central element is the use of a newly created variable that measures the degree to which the percentage of Black teachers matches that of Black students at all schools included in the data set. The lower the numerical value of this variable after calculation, the closer the match between the percentages of Black teachers and

Black students in each school. According to the research hypotheses, closer matches should be a predictor of improved student outcomes.

The dependent variables are chronic absenteeism, graduation rates, and the NJDOE ELA and math student growth percentile (SGP) measurements, which were utilized in the analysis to highlight student progress. The SGP measurements are used as an alternative to measuring overall student achievement in relation to state and federal assessment targets. An SGP is a percentile ranking from 1 to 99 that describes a student's academic progress compared to their peers. The results for each school are provided in the form of the schoolwide median SGP (mSGP), which serves as a means by which to compare student groups, individual schools, and school districts. The mSGP is calculated by the NJDOE and presented in public reports. Additionally, the important outcome measures of chronic absenteeism and graduation rates served as dependent variables in this study. The chronic absenteeism rate reflects the percentage of students who are absent from school at least 10% of the school year, while the graduation rate measures the percentage of students who enter 9th grade and graduate after four years.

Three variables that may also impact student growth were used as control variables. The percentages of students who are economically disadvantaged at each school, the average years of teacher experience in each school, and total school enrollment were important in the study.

Definitions of Terms

Abbott School Districts: New Jersey school districts participated in a lengthy lawsuit challenging the way in which New Jersey finances public education that eventually reached the state Supreme Court in the case known as Abbott v. Burke. The court directed the state legislature to implement new laws to "assure" additional funding for the 31 urban school districts that was "substantially equivalent" to that provided to effective suburban school districts and also

to provide supplemental programs intended to address unfavorable health and social circumstances for the students in the 31 school districts. The Abbott designation was eliminated with the passing of the School Funding Reform Act of 2008 (Education Law Center, n.d.-b).

Achievement Gap: Inequalities in academic achievement between students belonging to different racial and ethnic groups (Langham, 2009). In addition, according to the Glossary of Educational Reform (Great Schools Partnership, n.d.), the term achievement gap refers to the significant and persistent disparities in academic performance or educational attainment between different groups of students, such as White and Black students.

Black: The National Center for Education Statistics (NCES) and the U.S. Census Bureau recognize the use of the 1997 Office of Management and Budget definitions of race. The Black racial category refers to persons whose origins can be traced to the Black racial groups of Africa. The term is capitalized, as it refers to a specific racial or ethnic category, as is the case for the term White (NCES, n.d.-a).

Chronic Absenteeism: Indicates the percentage of a school's students who are chronically absent. Chronically absent is defined as not being present for 10% or more of the days that a student was "in membership" at a school (State of New Jersey Department of Education, 2017).

Economically Disadvantaged Students: Students who are eligible for free or reduced priced lunch, with eligibility usually being determined through an application with details on family size and income, but students can also be determined eligible if they receive Temporary Assistance for Needy Families or are designated as homeless, migrant, runaway, or foster children (State of New Jersey Department of Education, 2017; U.S. Department of Agriculture, 2017).

Ethnicity: This term refers to shared culture, such as language, ancestry, practices, and beliefs (Quintana & McKown, 2007/2012).

Every Student Succeeds Act (ESSA): Federal legislation signed into law in 2015 as a reauthorization of the original Elementary and Secondary Education Act. All states are required to implement these laws, which replaced the No Child Left Behind Act (U.S. Department of Education, n.d.).

National Assessment of Educational Progress (NAEP): The largest national assessment that targets student outcomes across the country. It is administered by the National Council for Education Statistics, which is part of the United State Department of Education, and it measures students' level of proficiency in a number of subjects across multiple grades. It has been referred to as the "Nation's Report Card" (NCES, 2019).

New Jersey Student Learning Assessment (NJSLA): Statewide student assessments that were first administered in the spring of 2019 that measure ELA, mathematics, and science performance. The NJSLA is part of the state's required assessment system under the ESSA and measures progress toward mastery of the skills and content defined by the New Jersey Student Learning Standards (State of New Jersey Department of Education, n.d.-e)

Race: A social construct, not based on scientific fact, that categorizes persons based on prevalent views (Holst, 2020; NCES, n.d.-a).

Race and Ethnic Matching: The congruence between the racial and ethnic composition of teachers and students in a particular school (Blake et al., 2016). This factor serves as the main independent variable in this study.

Suburban School District: A school district outside of a main city and inside an urbanized area (NCES, n.d.-b).

Students of color: Student categorized as belonging to the Black, Latino, Native American, or Asian American racial and ethnic student groups.

Urban School District: A school district inside an urbanized area and inside a principal city. (NCES, n.d.-b). A district is usually described in terms of distinct characteristics, such as population, enrollment, demographic composition of students, resources in schools, disparities and educational inequality, and social and economic context (Welsh & Swain, 2020). For the purposes of this study, urban districts were defined as the former New Jersey Abbott districts (Education Law Center, n.d.-a).

Urbanicity: Refers to the categorization of a student's school as being within an urban school district, as defined by the National Center for Education Statistics (n.d.-b) and Welsh and Swain (2020).

White: The NCES and the U.S. Census Bureau recognize the use of the 1997 Office of Management and Budget definitions of race. The White racial category refers to persons whose origins can be traced to Europe, the Middle East, or North Africa. The term is capitalized, as it refers to a specific racial or ethnic category, as is the case with Black (NCES, n.d.-a).

Chapter Summary

This study identifies and addresses a student achievement problem with a myriad of consequences for students of color. There are apparent achievement gaps when comparing various student racial and ethnic groups, and, while a multitude of strategies could be employed, race matching has the potential to have a significant impact in New Jersey. This study focuses on Black students, the general schoolwide population of students, and a subset of urban schools. The results can provide valuable information for statewide policymakers and local school district

administrators as they seek to make critical staffing decisions and recommendations for school districts, particularly those in urban communities.

Literature Review

The key purpose of this study is to investigate the predictive relationship of teacher race on student outcomes in New Jersey public schools, as measured by the NJSLA, chronic absenteeism, and graduation rates. This literature review builds a foundation for studying race matching by first presenting definitions of race matching and discussing its implications for individuals. Doing so is essential for understanding the correlation of race and ethnicity with student learning and achievement. Research on the link between race/ethnicity and teacher perceptions is then examined to understand how the classroom environment can be impacted. Additionally, it is important to further describe racial achievement gaps, the importance of addressing disproportionality, and the implications for students from a national and statewide perspective. Finally, since the focus of this study is on Black teachers, research on this group of educators and what is already known about racial and ethnic matching represents a key section of this review. Overall, an overview of what has already been studied regarding the relationship between teacher race/ethnicity and student outcomes clarifies the importance of this study's research questions.

Defining Race and Ethnicity

Since this dissertation investigates the impact of teacher race and ethnicity on student outcomes, as a starting point, it is necessary to survey research that addresses the definitions of race and ethnicity. This section is intended to highlight the crucial nature of the definitions rather than to contest the viewpoints held by various researchers, as it is acknowledged that there has been debate regarding the definitions of race and ethnicity. From a biological view, race has been used to define certain people who share physical characteristics such as skin color, whereas, from a historical perspective, leading racial theorists contend that the concept of race was created by

groups in power as a means to maintain control (Omi & Winant, 2015). I subscribe to the view that race is a social construct based on prevalent views and how individuals perceive themselves in society. This social description of race has been recognized by organizations such as the American Medical Association (2020). In contrast, the concept of ethnicity is used to group people based on shared social, cultural, and historical perspectives (Quintana & McKown, 2007/2012).

Green (2006) acknowledges the wide use of the term ethnicity in modern society, which has contributed to its multiple definitions and led to much debate about the use of this term, and argues that the term should be based on three core elements: a common descent, a shared history, and a shared homeland. There has been considerable debate as to exact definitions, but the definitions and descriptions of race and ethnicity are essential in terms of placing this literature review in the appropriate context. Green (2006) seems to agree that race is viewed as a social construct that is inherently defined by particular groups based on their own viewpoints. While there has been considerable debate and various interpretations, both academic scholars and nonacademics have adapted the term for their own purposes (Green, 2006).

Welch (2003) explores the definitions of race and ethnicity through a law and public policy lens because, from a historical perspective, definitions provided clarity for decision-making about the treatment of specific individuals. She suggests that the definitions of race and ethnicity have caused much harm in the past, as they provided critical descriptors for racist behavior as people were seen as different. Various countries adopted laws that promoted racist behavior, slavery, and different treatment for individual groups, which subsequently informed many aspects of public policy. Hence, divisive practices were generally applied to people of color, as they were categorized as racial and ethnic minorities (Welch, 2003).

As U.S. laws evolved, racial and ethnic definitions were more purposefully applied to forbid separate treatment for particular groups of citizens after these concepts served as the basis for decades. While the government has acknowledged past discrimination, systemic laws have been implemented to help the United States progress in areas such as voting and education. Thus, in essence, the definitions of race and ethnicity, while clearly highlighting differences with respect to origin and nationality among people, served to unify people and encourage action during the Civil Rights movement of the 1960s (Welch, 2003).

In summary, exploring historical definitions or descriptions of race and ethnicity provides a context for understanding the systemic challenges that different groups face in U.S. society, as highlighted by many organizations and think tanks. An example of such an organization is the American Bar Association's Coalition on Racial and Ethnic Justice, which has been at the forefront of analyzing these topics and has identified some core issues that stem from racial and ethnic biases, such as racial and color profiling, inclusion in the justice system, and the school-to-prison pipeline (American Bar Association, n.d.). These are all issues with strong ties to education that are clearly relevant when one thinks about the most vulnerable parts of the U.S. populations and the impact of teachers on children. A greater understanding of racial and ethnic differences can lead to significant reductions in differences between the outcomes of various student groups. When students exhibit challenges in the classroom, a lack of cultural understanding can lead to a continual disconnect between teachers and students, which can negatively impact classroom learning. Students have unique characteristics, and teaching strategies must therefore be customized to their particular needs (Redding, 2019). The widespread failure to acknowledge the social and cultural aspects of race and ethnicity emphasizes the need for students to have more informed teachers who are capable of addressing

their needs, which is the basis for this study on Black students being matched with Black teachers.

Importance of Race and Ethnicity

The question of why the race and ethnicity of individuals matter in social settings is captured in the work of Markus (2008), who presents five propositions concerning a unified theory for describing race and ethnicity. First, race and ethnicity are described as social traits, as opposed to being qualities that people automatically inherit, such as skin color. Rather, race and ethnicity describe culture and common habits. A second description of ethnicity proposes that certain groups have come to be associated with particular values and have embraced these associations. Third, race describes the views that others may have about particular groups. Fourth, race and ethnicity dictate a particular group's overall mental experience in everyday life. Finally, race and ethnicity have both a direct and an indirect influence on the behaviors that particular groups elicit, based on views both internally and externally by other people outside of the racial and ethnic group. In summary, race and ethnicity are important because of the direct and indirect influence of each construct, as these constructs influence how people perceive themselves, how others perceive them, and how they are treated by others (Markus, 2008).

The work of Markus (2008) is highlighted due to its connections with education research and this dissertation, as the importance of teachers having an improved understanding of students of color cannot be understated. This view has certain strengths, as it contributes to research that describes race and ethnicity as an essential aspect of understanding everyday life. There is a connection to classroom learning settings, as each student has unique characteristics that can be cultivated. Racial and ethnic achievement gaps do not exist due to biological inferiority, as a biological definition of race would lead one to believe; rather, achievement gaps are a matter of

resources and opportunities that have not existed for student groups that have been historically marginalized and have been perpetuated by a continued lack of understanding of the characteristics of students of color. When viewed through the lens of national and statewide standardized assessments, the disparities that exist with regard to achievement gaps for students of color can be addressed by means of the improved strategies and policy decisions recommended in this dissertation.

This study focuses on the importance of a teacher's understanding of race and ethnicity for the classroom, as such an understanding can lead to better connections with students (although it must be noted that there are multiple factors associated with low student achievement; Blair et al., 1999; Jeynes, 2003; Williams, 2011). Importantly, Gershenson et al. (2016) point to the relationship and increased expectations of Black teachers for Black students compared to non-Black teachers, as evidenced in their fixed effect strategy to review expectations data. The central premise of their study holds that Black students face challenges in terms of the quality of their educational attainment when teachers have incorrect and biased expectations of their students. When engaging in pedagogy, teachers may not invest the necessary time, effort, and resources in students if they do not believe that doing so will lead to success. The authors' data analysis measured the extent to which racial and ethnic differences between students and teachers affect teachers' expectations of student success. The study used data from the 2002 Education Longitudinal Study conducted by the NCES. The data represent a 2002 sample size of 16,810 students from a U.S. cohort of 10th graders and reflect math and reading teachers' expectations regarding their students' educational attainment. Non-Black teachers of Black students had significantly lower expectations when compared to those of Black teachers, a finding that has significant implications. For example, the total effect of a

racial mismatch on math teachers' expectations was -0.15 for Black male students, $p < .01$, when compared to students from other backgrounds. The authors' findings also indicate that White male teachers were about 10 to 20 percentage points more likely to have low expectations of Black female students. Black teachers' expectations of Black students were found to be 30–40% higher than those of non-Black teachers (Gershenson et al., 2016). These findings are significant when one considers that the majority of the teachers in New Jersey are White, as, in 2019–2020, 83.2% of teachers were White, whereas 6.6% were Black (Table 3), and suggest a challenging outlook when viewing an issue such as the Black student achievement gap.

Implications of Student and Teacher Perceptions of Race and Ethnicity

I continue by examining research on the intersection of race and ethnicity with teacher perceptions and beliefs and the potential impact thereof on student growth. Wright et al. (2017) cited research that indicates that White teachers engage in less positive communication with students of color and generally have lower perceptions of students' ability to achieve academically. Thus, the authors conducted research to determine whether teachers of color have better relationships with students and can thus have a more positive impact on students of color. Specifically, their study investigated whether Black and Latino kindergarten students exhibit increased social-emotional ratings when in classrooms led by teachers belonging to racial and ethnic groups that match their own. Scaled data from the Early Childhood Longitudinal Study, Kindergarten Class of 2010–2011 by the NCES were probed through a quantitative analysis; the authors emphasized the need for cultural fit between students and teachers and how such a fit can make both an academic and nonacademic difference for students. Key to the study are the differences between the internal and external behaviors exhibited by students, which were captured via surveys completed by the teachers. The authors described external behaviors as

"acting out, arguing, and getting angry" (Wright et al., 2017, p. 81), and teachers who shared the same race and ethnicity with their students had a measurable positive impact on these behaviors. The findings were comparable for Black and Latino students, as students from both groups were demonstrated to engage in a lower number of negative external behaviors (Wright et al., 2017).

It should be noted that Ladson-Billings (2009) has extensively studied the characteristics of teachers who have had success with students of color, regardless of the teachers' race and ethnicity, and pointed to the effectiveness of culturally relevant instruction as a key factor. Teachers trained in such instruction may have a better understanding of the unique challenges experienced by students of color and be able to motivate such students towards better learning opportunities.

Still, studies have emphasized the need for increased hiring of teachers of color to have an impact on longstanding racial and ethnic demographic disparities between teachers and students. Cherng and Halpin (2016) studied over 50,000 adolescent student reports and 1,680 classroom teachers and found that teacher perceptions of students varied by teacher race/ethnicity, while Black students had more favorable perceptions of Black teachers. Their findings indicate a need for a more diverse teaching population, as perceptions of teachers are associated with motivation and achievement, which consequently impact student achievement gaps.

In New Jersey, statewide data from the 2018–2019 school year indicate that the percentage of Black teachers across the state is 6.6%, while the percentage of Black students across the state is 15%. Within the state's largest school district, the City of Newark, the 2018–2019 data indicated that 41.9% of the students and 34.6% of the teachers were Black. Furthermore, while 54.2% of the students in Asbury Park were Black, only 28% of the teachers

were Black in the 2018–2019 school year (State of New Jersey Department of Education, n.d.-e). Both the City of Newark and Asbury Park are former Abbott school districts. These imbalances are concerning and have significant implications for the hiring of teachers of color and recruiting practices in both urban and suburban school districts, as all students, even if they represent a small racial and ethnic group in a school district, deserve to receive everything they need to be successful. Students deserve teachers who can understand their unique views of the world and better support them in learning in the classroom environment; such representation may help to address persistent Black–White achievement gaps.

Definition of Achievement Gaps

The term achievement gap has become synonymous with the growing disparities that can be observed when reviewing student achievement data. According to the Glossary of Educational Reform (Great School Partnership, n.d.), this term refers to significant and persistent disparities in academic performance or educational attainment between different groups of students, such as White and Black students. Therefore, within the context of achievement, there are many variables that can be used for measuring and analysis. For example, the previously cited data from the 2018–2019 NJSLA for Algebra I indicated that 55% of White students "Met or Exceeded Expectations," while only 20% of African American students achieved comparable results. Statewide, the percentage of students who "Met or Exceeded Expectations" on the NJSLA for Algebra I was 43%. The New Jersey Department of Education uses "Met or Exceeded Expectations" to describe students achieve at adequate levels; Black students achieved 35 percentage points lower than White students, which quantifies the issue (State of New Jersey Department of Education, n.d.-c). This gap means that a large proportion of Black students are lagging in learning.

Further within the description of achievement gaps, one can analyze various subjects to highlight differences among student groups. Literacy and math remain common areas of study, and each subject provides more specific insight into this challenge. The NAEP is the largest national assessment targeting student outcomes across the United States. It is administered by the National Council for Education Statistics, which is part of the United State Department of Education, and it measures students' level of proficiency in a number of subjects across multiple grades. It has been referred to as the "Nation's Report Card" and can also be used to highlight the challenges with racial and ethnic achievement gaps that currently exist (NCES, 2019). The NAEP has been administered nationwide since 1969 and provides a common measure that education stakeholders representing various interests can use to compare groups of students, and it features prominently in the research discussed below.

Black Student Achievement Gaps

There have been apparent inequities and well-documented challenges with respect to numerous social factors and quality of life experiences within the Black community, and education has been at the forefront of many studies, as it is viewed as a strong determinant of individual success. As shown in Figure 3, NAEP data indicate differences between Black students and those of other races. The 2019 NAEP 8th grade reading scale ranged from 0 to 500 points. The 2019 results indicated that Black students were the lowest achieving student group in the United States at 244, which is a 28-point scale score gap when compared to White students (272) and a 37-point gap when compared to Asian/Pacific Islander students (281). Hispanic student achievement also lags behind White and Asian students on this assessment, as Hispanic students achieved a score of 252, which is 20 points lower than that achieved by White and 29 points lower than that achieved by Asian students.

In New Jersey, the NJSLA is the mandatory state-level student assessment that meets federal Elementary and Secondary Education Act requirements. It was last administered in 2019, and the results presented in Table 1 show gaps that mirror the nationwide trends highlighted by the NAEP. New Jersey's Black and Hispanic students performed better in 2019 than in previous years, with Black students scoring 3.5% higher in ELA than in 2017 and Hispanic students scoring 4.5% higher than in 2017. These results may seem promising, as consistent growth was observed in two consecutive years (2018 and 2019); however, these same students continued to lag behind their White peers. In 2019, Black students remain the lowest performing group of students; thus it is more glaring that, overall, 57.8% of all students combined met expectations with regard to ELA, compared to only 38% of Black students as a group.

Kotok (2017) used national achievement data to study achievement gaps on the high school level. He explored whether gaps between different racial and ethnic groups may widen when students enter high school; if other factors, such as individual student or school descriptions, can impact achievement gaps; and the correlation of achievement gaps with race and ethnicity. He contends that there was insufficient research on those students who are at the highest levels of achievement within racial and ethnic groups and the gaps that may exist. His study employed longitudinal data from the 2009 High School Longitudinal Study conducted by the NCES, which included approximately 24,000 students from 944 schools. Kotok (2017) focused on students who scored in the top quintile of math achievement while in the 9th grade and analyzed descriptive data by race to determine the correlation with achievement when the same students were in the 11th grade. He found that small differences in 9th grade performance among the racial and ethnic groups became larger in the 11th grade. For example, Asian students scored 4 points higher than Black students in the 9th grade, but, in the 11th grade, Asian students

were scoring at least 15 points higher than Black students. White students also scored significantly higher than Black students in both the 9th and 11th grade years, as they gained 30.55 points in between those years to arrive at a score of 86.24; in comparison, Black students only gained 23.83 points to finally arrive at a score of 77.87 points overall by the 11th grade. Kotok concludes that various factors, such as peer engagement, self-efficacy, and socioeconomic status, contribute to the gaps among these racial groups.

Rather than focus on Black and White student achievement gaps, Duke (2017) contends that a primary focus on comparisons across racial and ethnic groups results in the unfair perception that all Black students are low achieving. Various factors have contributed to the high success of Black student, and Duke attempts to shed light on these factors to better understand the overall barriers to academic achievement. Progress in terms of Black student achievement can be traced over time based on NAEP data to determine whether trends exist at different points in time. The Educational Testing Service published a key study on the Black–White achievement gap that analyzed data from as far back as the 1970s, and Black students can be viewed in isolation within this same study (Duke, 2017). The report indicates a period of increased Black student achievement in the 1970s and 1980s that coincides with gains in education and income within Black communities. However, gains within the Black community slowed during the following period, with this decline continuing up to 2010; increased poverty has been proposed as the cause. Therefore, considering these trends, Duke argues that higher socioeconomic status within Black communities when compared to others could be one factor associated with higher assessment scores.

Duke (2017) highlights *The Urgency of Now* report by the Schott Foundation for Public Education, which found significant disparities in graduation rates throughout the United States,

with New York State achieving the lowest rate for the 2009–2010 cohort at 37%. The study showed a trend among states, with those that have many Black male students in school districts achieving the lowest graduation rates. Overall, while they have not identified definitive paths toward closing this gap, literature and studies on the Black student achievement gap call for further analysis to determine what could have a significant positive impact. There is evidence of wide gaps in urban school districts when compared to suburban school districts, which this dissertation further investigates as part of its quantitative methodology.

Urban Education and Achievement Gaps

Duncan-Andrade and Morrell (2008) note a set of challenges and failures that have become synonymous with urban education in the United States. First, urban education is characterized by a system that seeks to classify individuals as being beset by challenges held by students, families, and the communities in which they live (Duncan-Andrade & Morrell, 2008). This suggests a perception that students in urban schools are purposely held back from achieving because they lack the capability needed to make progress in the United States. Further, the notion of the failure of urban education is fed by a desire to advance the economic futures of the wealthy while categorizing poor students into predetermined economic categories. As education is a strong factor in determining life success, students in urban schools are continually denied quality education so that they will remain on the outside of the U.S. power structure (Duncan-Andrade & Morrell, 2008)

Chronic Absenteeism and Achievement Gaps

García and Weiss (2018) authored a report that substantiates the negative impact of chronic absenteeism on student success in school. The intent was to determine whether there is an association between chronic absenteeism and student achievement and to identify particular

groups of students who are more likely to be chronically absent from school, which could inform strategies for implementing effective interventions. The authors sought to summarize evidence regarding which students are more likely to be absent from school and the impact that attendance has on student achievement. The researchers completed an analysis of 2003 and 2015 NAEP data, as 4th and 8th grade students were asked to report on their attendance before taking the test. The focus was on the math assessment, and the authors' analysis indicated that 8th graders who were absent from school 3 or more days in a month prior to being tested scored from .3 to .6 standard deviations lower when compared to students who did not have any school absences. Furthermore, the analysis was able to detail the shares of 8th graders, categorized as falling into various groups, who were absent from school for 1–2 days, 3–4 days, 5–10 days, and more than 10 days prior to the 2015 NAEP math assessment. In terms of chronic absence, 3.9% of Hispanic English Language Learner (ELL) students and 3.2% of Asian ELL students were chronically absent, while 2.2% of Native American and other races and 2% of Black students were chronically absent. In comparison, White students were chronically absent at a rate of 1.4%, and the overall average in the 2015 NAEP math sample was 1.7%. Of those students who were eligible to receive free lunch, 2.3% were chronically absent, while ineligible students held a 1.1% share, which demonstrates that students of a lower socio-economic status were twice as likely as those of a higher socio-economic status to be chronically absent from school (García & Weiss, 2018). The researchers did not describe the statistical significance, but these differences are still important to note.

In summary, the impact of chronic absenteeism and the motivation for choosing it as a dependent variable and outcome measure for this dissertation are evident when one considers the correlation of this factor with student achievement. A regression analysis of the impact of

chronic absenteeism on various student racial and ethnic groups shows a significant negative effect on 8th grade math achievement, with Black students at $R^2 = -.36$ when missing 5–10 days of school ($p < 0.01$) and $R^2 = -.63$ when missing over 10 days ($p < 0.01$; García & Weiss, 2018). The City of Newark public schools provides an example of the issue of chronic absenteeism within New Jersey Schools. Newark's 2018–2019 schoolwide chronic absenteeism rate was 26.8%, and there are noticeable gaps when comparing the student subgroups. Black and Hispanic students were chronically absent at rates of 35.3% and 21.7%, respectively; these figures are much higher when compared to that for White students, who had a chronic absenteeism rate of 15.4% (State of New Jersey Department of Education, n.d.-a).

Black Student Self-Efficacy

This dissertation is grounded in the aforementioned literature, specifically the research on the impact of teacher race and ethnicity on student achievement. However, it is prudent to discuss other factors related to Black student outcomes that correlate with the role of Black teachers. Psychologist Albert Bandura has defined student self-efficacy as a personal judgment of "how well one can execute courses of action to deal with prospective situations" (Bandura, 1982, p. 122). This concept can be usefully applied in education, as it can describe a student's self-determination to overcome challenges. Through positive interactions with teachers, a student can develop varied approaches and strategies that work best for their individual abilities and talents. With positive self-efficacy, students feel motivated to learn, which can make a major difference in an inner-city environment characterized by abundant challenges and obstacles.

The research of Zimmerman et al. (1992) is pertinent, as they explored the role of self-efficacy in student success. Their study administered Bandura (1989) subscales to analyze the causal relationship between student self-motivation and self-efficacy with academic success.

The authors examined a sample of 9th and 10th grade students ($N = 116$) from two high schools in Eastern cities serving racially and ethnically diverse lower middle-class neighborhoods. The study did not measure student achievement outcomes such as test scores but instead focused on students' overall goals and the factors that impact such goals. Another variable that could have been considered would have been the impact of teacher values or motivation on students. Still, this study aligns with the work of Maslow (1954) and his hierarchy of needs, as self-esteem and self-actualization are at the highest level. Therefore, in essence, the study is saying that if students scored high on these scales, then their grades should be higher as well—or at least their goals would be. The authors used social studies as the academic subject/course, and correlations across multiple measures served to provide answers to the research questions.

Although there seemed to be significant effort spent on the potential impact of parental goals, these variables were deemed not as important as student self-efficacy with regard to self-regulated learning and academic achievement. A causal path was found with students' self-efficacy and their efficacy for student achievement. However, the authors recognized the study's limitations by noting that they did not explain other factors that may contribute to outcomes. Furthermore, they point out that a sociocognitive research model may have identified additional causes of academic achievement (Zimmerman et al., 1992). Student and parent qualitative data could have been used to fill some gaps in the findings and strengthen the conclusions.

While the positive correlation between self-efficacy and improved student outcomes has been noted, Schweinle and Mims (2009) investigated whether other factors, such as classroom racial and ethnic student makeup, impact the self-efficacy of Black students. The authors attempted to compare self-efficacy with the concept of stereotype threat. This concept has significant ties to student achievement, as motivation is a key success factor for students in

challenging environments. Steele and Aronson (1995) have conducted important research on stereotype threat theory and indicated that when individuals enter a situation where stereotypes are perceived, such as a classroom in which there are fewer Black than White students, individuals perpetuate the fear of being judged based on a given stereotype. Thus, for students, stereotype threat is linked to racial and ethnic student achievement gaps, and students' fear of underperforming may affect their motivation.

Generally speaking, stereotypes are part of a social construct, as people of color feel marginalized in society due to the systemic social and economic challenges they face through no fault of their own (Schweinle & Mims, 2009). Racial and ethnic groups that have economic and political power tend to be decision-makers in many arenas, and this reality perpetuates itself in many facets of life, such as the workforce, where there may be lower numbers of people of color represented in certain vocations, and in housing opportunities, as people of color are often forced to live in substandard housing. Therefore, the connection between stereotype threat and the social constructs described above is relevant to this dissertation, as this study seeks to identify methods by which to overcome deep-rooted challenges in education through reform and strategic thinking that applies policies that have proven to be effective, such as pairing Black students with Black teachers.

Schweinle and Mims (2009) posit that while the negative self-efficacy felt by Black students is a societal reality, Black students still have the innate self-management strategies required to be successful in classroom environments where they are outnumbered as a racial and ethnic group. Schweinle and Mims' research highlights the resilience of Black students, which is associated with higher self-efficacy. The study focused on 5th grade math students (N = 243) from two Southern elementary schools; these students were administered the Motivated

Strategies for Learning Questionnaire, which measures competence and confidence in the performance of class work, and the My Class Activities survey, which measures student perceptions of math and math class. Through comparisons of predominantly White and predominantly Black classrooms, the authors found that the self-efficacy of Black students in classes with mostly White students was not significantly different than that of Black students in mostly Black classes, which does not align with the previously mentioned impacts of stereotypes on the perception of Black students (Schweinle & Mims, 2009).

Schweinle and Mims (2009) point towards the concept of resilience as a key factor in the self-efficacy of Black students as students begin to understand the societal challenges before them and look towards their own peer group for the guidance and confidence needed to be successful, which is a strength of this study. However, their research did not specifically focus on the academic success of individual students and could thus not directly correlate self-efficacy and student achievement. Nevertheless, the research of Schweinle and Mims (2009) does provide additional insight into the grounded notion of students' sense of belonging and connection with the classroom leader having a positive impact on student outcomes. A teacher who has a better understanding of their students' needs might seek to create a classroom that is more inclusive of marginalized cultures and work to provide the supports that students require to succeed.

The Role of Black Teachers

A variety of studies have investigated Black teachers' impact on Black students using various methods. The potential impact of Black teachers is central to this dissertation and is examined through the subtopics of Black teachers' perceptions of students, Black teachers'

impact on learning outcomes, Black teachers' impact on student suspensions, and Black teachers' impact on graduation and postsecondary education.

Black Teachers' Perceptions of Students

Carrol (2017) investigated Black teachers' perceptions of their impact on Black student achievement. The authors defined student achievement in the traditional broad sense, using standard assessments such as quizzes, tests, and other projects. The six teachers interviewed showed strong support for and understanding of their students, as many wanted to prepare their students for life given that they were aware of the social and political challenges that Black students and citizens face in the world. They had messages of empowerment and self-discipline for their students, which are certainly needed beyond student achievement. Nevertheless, all expressed frustration with the systems surrounding their teaching practices. The authors divided these concerns into the categories of institutional frustration, pedagogical frustration, relational frustration, positional frustration, and cultural frustration, all of which impact teachers' effectiveness with regard to their students (Carrol, 2017). Specifically, some teachers indicated that their teaching methods and lesson plans were not having the desired impact. These findings are intriguing, as college students may receive training on understanding students from diverse ethnicities and cultural backgrounds within their teacher preparation programs, which would seemingly put teachers at an advantage, but there is evidently still a need for additional supports for teaching methods to have a true impact.

Black Teachers' Impact on Learning Outcomes

Redding (2019) conducted research on teachers who have had success with Black students, focusing on racial/ethnic matching. Redding's main question was "[t]o what extent is Black and Latino/a students' assignment to a teacher of the same race/ethnicity associated with

improved teacher ratings, increased student achievement, or more positive behavioral outcomes (disciplinary action, gifted and talented assignment, attendance, and school dropout)?" (p. 501). His study is distinct because it sought to address gaps in the literature by linking race and ethnicity with the variables of gender identity, school level, and specific regions. This study was built on foundational elements that suggest that teacher and student racial/ethnic matching benefits student outcomes in three key ways. First, students benefit from racial/ethnic matching due to the "shared cultural understanding" of their teachers. When students and teachers share the same racial/ethnic background, they will also share a common set of beliefs, which can result in more effective teaching. This positive relationship can also have a measurable impact on disciplinary infractions and a better perception of potential misbehaviors on the part of teachers who possess the same race and ethnicity of their students. Overall, this shared cultural understanding produces a more encouraging and sympathetic learning environment for students (Redding, 2019).

Second, "student responsiveness" is positively impacted by teacher and student racial and ethnic matching. According to Redding (2019), students are affected by the high expectations that teachers of the same race tend to have concerning student ability and consequently feel a sense of motivation. They view teachers of the same race as positive role models, as individuals whom they wish to emulate and build strong relationships with. Furthermore, when faced with challenges, students may find it easier to consult teachers who share similar backgrounds, as racial and ethnic barriers do not exist, and the student will not feel there is a better chance for a critical reaction or advice (Redding, 2019).

Redding (2019) conducted a comprehensive literature review to better understand racial and ethnic teacher and student matching and the impact thereof on student outcomes by focusing

on English-language published research articles that covered the period of 1995 and 2018 and were peer-reviewed, based on the U.S. K-12 settings, and used quantitative data. Among his findings were that Black students had higher achievement rates when they receive instruction from a Black teacher. For example, Dee (2004) analyzed data from the Tennessee's Project STAR class-size experiment, in which students and teachers were randomly matched within the participating schools Dee found that Black students had math and reading scores that were from three to five percentile points and three to six percentile points higher, respectively, when they were assigned to a Black teacher. Redding (2019) also found that although much research has been conducted, there are gaps in terms of describing how gender identity, school level, and region may impact the teacher–student relationship. The existence of these gaps indicates the relevance of the present dissertation, which focuses on urban versus other school findings in New Jersey, as a means to address research gaps.

Gottfried et al. (2022) conducted a study that focused on the impact of teacher and student racial and ethnic matching in the early elementary grades on student memory and cognitive skills. They analyzed data from the Early Childhood Longitudinal Study, Kindergarten Class of 2010–2011 from the U.S. Department of Education and formulated research questions intended to determine whether matching matters with regard to memory and cognitive skills; whether there were differences in outcomes between Black, Latinx, and Asian students; and whether the results could be compared to the student achievement outcomes in reading and math. The researchers used a school fixed effects model and a student fixed effects model; the findings indicated that racial and ethnic matching did not positively impact cognitive flexibility in the early grades, but there were positive results for working memory (Gottfried et al., 2022).

Goldhaber and Hansen (2010) focused on teacher effectiveness by analyzing data related to teacher licensure exams. While there were varying results regarding teachers' own exam results and how well they can predict student achievement, the researchers found positive results with respect to the impact of Black teachers on Black students. They used a model that analyzed the impact of all teachers, including Black and White, on students. The authors used North Carolina Department of Public Instruction data from 1994 to 2005 and were able to link student and teachers over that time period, highlighting the teachers who monitored the assessment exams for students on North Carolina's end-of-grade assessments in reading and math. The study included 4,051 teachers and 174,828 students, with Black teachers accounting for 13% of the sample. The findings indicate that Black teachers had an effect of .43 in reading and .35 in math on Black students ($p < .01$).

Egalite et al. (2015) analyzed student-level data for grades 3–10 from Florida public schools. The authors were able to match students to particular teachers over the period of 2001 to 2009 through unique student identifiers and tracked the progress of these students through each grade. They described the use of student fixed effects to estimate the correlation between student and teacher racial and ethnic matching and student achievement outcomes. The study found that race matching between teachers and students had a statistically significant impact on student achievement in reading and math. For Black students, as an example, matching teachers and students by race/ethnicity resulted in students achieving grades that were .004 standard deviations from the mean in reading and .019 standard deviations from the mean in math ($p < .01$). Other studies indicated similar and more significant results for reading and mathematics. There is evidence that Black students score higher on achievement tests when they are taught by Black teachers, as demonstrated through Redding's forest plot of various studies (Redding,

2019). Redding also raises interesting arguments and suggestions regarding future research on school context, specifically the impact of teacher–student racial/ethnic matching on students attending racially segregated schools with a number of Black teachers compared to the impact of teacher assignments in racially diverse school.

Black Teachers' Impact on Student Suspensions

Black teachers may also impact outcomes other than test scores. Lindsay and Hart (2017) conducted a study that explored whether same race teachers had any impact on the rates of out-of-school suspensions, in-school suspensions, and expulsions of Black students in grades 1–12 in North Carolina. The authors conducted an analysis of administrative data and disciplinary records for a sample of 2 million public school students for the period between the 2007– 2008 and the 2012–2013 school years. In summary, the authors found that when Black students were exposed to Black teachers, the likelihood of the students being suspended, whether in or out of school, or expelled decreased. This trend was found across all grade levels examined. Furthermore, when Black students were exposed to a "large share" of Black teachers, the number of documented disciplinary occurrences was "significantly" reduced (Lindsay & Hart, 2017). The authors note the potential existence of a "gatekeeper effect" in these findings, as an initial referral for disciplinary action usually relies upon the teacher making an observation based on their judgment and notifying an administrator for further intervention (Lindsay & Hart, 2017). This suggests a correlation with a central notion in research on teacher–student racial and ethnic matching, namely that same-race teachers have a better understanding of same-race students and will therefore tend to take a different approach when faced with instructional challenges.

Black Teachers' Impact on Graduation and Postsecondary Education

Graduation rates are also a dependent variable in this study, as this outcome measure is an important indicator of student success. Gershenson, Hart, et al. (2021) studied the long-term impact on Black students in Tennessee and North Carolina of being assigned to a Black teacher in grades K–3. Their study used data from the Tennessee STAR Experiment (Mosteller, 1995) and longitudinal administrative data from the North Carolina Education Research Data Center (NCERDC) on all public school students in North Carolina in the identified grade levels. The study tracked a cohort of North Carolina students through 12th grade and used student-level records as teacher identifiers to determine whether exposure to same-race teachers has long-term effects on students. It revealed evidence indicating that Black students who have at least one Black teachers in grades K–3 are 13% more likely to graduate from high school and 19% more likely to enroll in college when compared to Black students who are not assigned to a Black teacher. While the researchers do highlight limitations with respect to the accuracy of the college enrollment data, the findings are still significant for the research and represent evidence as to the importance of Black teachers being grouped with Black students. The correlation between same-race teachers and students described by Gershenson, Hart, et al. (2021) serves to clarify the motivation for choosing graduation rates as a dependent variable and outcome measure for the present dissertation. Graduation is a significant achievement for students; therefore, studying race matching as a potential strategy for removing barrier to success is essential.

Chapter Summary

This literature review established a foundation for further investigating questions surrounding teacher and student racial and ethnic matching. It began by connecting key ideas surrounding race and ethnic identity in the United States, as there may be varying views with

respect to identification. It is difficult to argue against the misrepresentation and negative perceptions that have been associated with people of color in the United States and historical events and movements. The connection of the historical and theoretical views on race and ethnicity is important for understanding the plight of students of color in contemporary school classrooms. Well into the 21st century, significant disparities still exist in the field of education and student achievement.

An important body of research has examined educator connections with students of color in innovative ways by considering the unique cultural characteristics of members of this student group and the communities in which they may reside. The schools in these communities are microcosms of their neighborhoods, yet the racial and ethnic backgrounds of key staff within these schools may not reflect those of the communities in which these institutions are located; as achievement gaps persist, the central hypothesis of this dissertation points to the effectiveness of racial and ethnic matching of teachers and students. Therefore, this literature review cited key research relevant to understanding the problem of low student achievement, with a focus on the achievement gap for Black students, by identifying contributing factors within the Black student group, such as chronic absenteeism. Additionally, teachers' perceptions are important for understanding how education professionals view and motivate students, thus impacting Black student achievement as well. Most importantly, since the role of Black teachers is central to this dissertation, key research concerning this teacher group's impact clearly indicates their positive influence on Black students' academic achievement, attendance, school suspensions, and the likelihood of graduating and pursuing postsecondary education. Quantitative analyses indicate that Black teachers have a measurable impact in these areas. The concept of student self-efficacy has a correlation with student achievement (Kitsantas et al., 2011), and the literature indicates

that Black teachers also have a positive impact on Black student self-efficacy, in addition to an impact on increased representation in school gifted programs. Still, although many Black teachers may naturally possess cultural connections, proper training for such teachers is essential for effectiveness.

Contribution to the Field

The various studies discussed above demonstrate the relationship of racial and ethnic matching for teachers and students, with positive results. While this topic has been addressed in previous studies, the present dissertation's focus on the characteristics of New Jersey provides a compelling contribution to the field. Statewide data indicate that in 2018–2019, 15% of the student population in New Jersey was Black, while only 6.6% of the teachers were Black. In general, New Jersey has many schools with wide ranges of proportional data with respect to Black student and Black teacher demographics (see Figure 2). Based on the percentages, There are schools where Black students are more likely to have Black teachers instruct them. However, a significant number of Black students may still not benefit from the presence of Black teachers even when the percentages of the two groups are comparable. This creates a dynamic setting for research because these disparities exist throughout the state, and a study such as this has the potential to provide a rich perspective on the problem of achievement gaps. Furthermore, the use of the student outcomes of academic growth, chronic absenteeism, and graduation rates captures student performance by allowing for analyses of multiple measures of student progress and success.

Analyzing the variables of race and ethnicity with regard to the role they play in these student outcome measures may prove helpful to New Jersey policymakers in their decision-making processes. The value of this dissertation lies in the findings and recommendations that it

provides, as they could result in improved policies and effective strategies at both the state and national levels.

The findings presented in this dissertation can be used to guide statewide policymakers and local school district administrators in the development of effective practices for providing a more equitable learning environment for students of color. At present, there is a shortage of teachers of color in New Jersey when compared to White teachers, but this research could serve as the impetus for more robust recruiting strategies and justify the dedication of additional resources from federal, state, and local funding sources.

Methods

The purpose of this study is to investigate the predictive influence of teacher race on student outcomes in New Jersey public schools, as measured by SGP on the NJSLA, chronic absenteeism, and graduation rates. In the State of New Jersey, the challenges of student achievement are amplified by the growing racial disparities in student achievement that can be identified among different student racial and ethnic groups. Research shows that healthy teacher–student relationships are an increasingly motivating factor for students, as they are more receptive to teachers with whom they share stronger connections. Teachers can take advantage and seek opportunities for better engagement with students, which will help when preparing for deeper learning opportunities. Carver-Thomas (2018) found that strengthening the connections created between teachers and students of color leads to greater achievement in reading and math and increased graduation rates and inspires students to seek higher education opportunities. A significant amount of research has been conducted on racial and ethnic matching in teacher–student relationships and the positive outcomes that it can have for students of color. This quantitative study examines the impact of Black teachers by explicitly analyzing racial matching within the context of New Jersey schools and students.

This chapter presents a summary of the research design and methodology by reviewing and describing the research questions and sources of data, including the variables used, as well as the analysis that was run. In addition, this chapter justifies the research decisions that guided the models. Finally, the validity and reliability are highlighted, as are limitations.

Research Questions

This dissertation study is guided by the following four research questions:

1. Does race matching predict academic growth, as measured by the ELA and math NJSLA, for Black students or the schoolwide student group?
2. Does race matching predict chronic absenteeism among Black students or the schoolwide student group?
3. Does race matching predict graduation rates for Black students or the schoolwide student group?
4. Does race matching predict academic growth, chronic absenteeism, and graduation rates for Black students or the schoolwide student group in urban schools?

Null Hypotheses

H01: There is no statistically significant relationship between race matching and Black student or schoolwide student academic growth in ELA and math as evidenced by the 2018–2019 NJSLA Student Growth Percentiles.

H02: There is no statistically significant relationship between race matching and Black student or schoolwide student chronic absenteeism as evidenced by the 2018–2019 New Jersey data.

H03: There is no statistically significant relationship between race matching and Black student or schoolwide student graduation rates as evidenced by the 2018–2019 New Jersey data.

H04: There is no statistically significant relationship between race matching and Black student or schoolwide student academic growth, chronic absenteeism, and graduation rates in urban schools as evidenced by the 2018–2019 New Jersey data.

Research Design

The quantitative research study employed a multiple regression analysis model to predict the relationship between the independent variable of race matching with the dependent variables

of student academic growth (2018–2019 NJSLA SGPs), chronic absenteeism, and graduation rates. The study used the control variables of the percentage of economically disadvantaged students at each school, teachers' average years of experience in each school, and total school enrollment, as these may also be closely associated with student outcomes. The 2018–2019 data set was chosen for all variables because, due to the COVID-19 pandemic, this was the last year that the NJSLA was administered.

Multiple regression was performed for each research question because doing so allows for analyzing the relationships between the independent variables (predictors) of teacher race/ethnicity, the previously cited control variables, and the dependent variables of NJSLA student growth, chronic absenteeism and graduation rates. The use of multiple regressions allowed for estimating how strong the relationships are between two or more independent variables and the dependent variables. Overall, the following general model was used to address the research questions:

$$\boldsymbol{outcome} = \boldsymbol{a} + \boldsymbol{\beta_1}\ \boldsymbol{racial\ match} + \boldsymbol{\beta_2}\ \%\boldsymbol{disadvantage} + \boldsymbol{\beta_3}\ \boldsymbol{experience}$$

$$+ \boldsymbol{\beta_4}\ \boldsymbol{enrollment} + \boldsymbol{\beta_5}\ \boldsymbol{higher\_teachers} + \ \boldsymbol{\varepsilon}$$

All models used a different dependent variable to analyze the relationship of that variable with the race matching variable. The overall analysis followed an approach in which additional variables were added to the model at each step until all independent variables were included in the final run of the regression model. This approach was adopted to better understand the contribution of and the relationships between each variable. The student outcomes in the equation represent the dependent variables in each research question, with these outcomes being ELA and math SGP, chronic absenteeism, and the graduation rate. All outcomes are examined for both Black students and the schoolwide student group. In each research question, β_1 represents

the main coefficient of interest, which is race matching. β_2 represents the coefficients for the percentage of economically disadvantaged students, which in New Jersey are defined as the percentage of students who are eligible to receive free and reduced priced lunch. β_3 represents the coefficients for the average years of teacher experience in each school, while β_4 represents the coefficients for total enrollment at each school in the data set. Finally, β_5 represents the coefficients for schools with a higher percentage of Black teachers when compared to the percentage of Black students. The same general model was used for the subset analysis of former Abbott district schools.

Sample

The study used a sample consisting of the 2018–2019 racial/ethnic teacher and student demographics and assessment results for 2,510 schools in New Jersey. The 2018–2019 school year was the last time that New Jersey students were administered statewide assessments, which have been cancelled in the last two school years due to the COVID-19 pandemic. As a part of the ESSA reporting requirements, each state must determine a minimum number of students for each subgroup, with this number determining whether a particular student subgroup will be included in the ESSA school accountability system and public reports for each school. This number is known as the minimum "n-size" or sample size; in New Jersey, the minimum sample size for reporting is 10 students (State of New Jersey Department of Education, 2017). Consequently, schools that do not have a requisite number of Black students for reporting in certain categories were omitted. The data that are not reported for a particular school are marked with an asterisk (*). Any school that had missing data for variables was excluded from the analyses. This data set does not delve into the student and classroom teacher level; rather, it focuses on the school level.

Data Sources and Data Collection

New Jersey's annual statewide school performance report data set is collected by the New Jersey Department of Education and it is available at https://rc.doe.state.nj.us/. This data set provides data on racial/ethnic teacher and student demographics, chronic absenteeism rates, graduation rates, and assessment results for each school in New Jersey for 2018–2019 (State of New Jersey Department of Education, n.d.-e). The assessment results are based on the NJSLA, which is the required statewide annual assessment for students. The 2018–2019 school year was the last time that New Jersey students were administered statewide assessments, which were cancelled in the last two school years due the COVID-19 pandemic. The results are only calculated for ELA in grades 4–8 and math in grades 4–7 (State of New Jersey Department of Education, 2017).

Race Matching Variable

Since the focus of this study is on race matching, a central element is the use of a newly created independent variable that measures the degree to which the percentages of Black teachers matches that of Black students at all schools included in the data set. The study relies on school-level, rather than student-level, data; as such, race matching is defined using the percentage of Black students in each school and how close it is to the percentage of Black teachers in each school. This race matching independent variable was generated by using the "transform" and "compute variable" functions in SPSS to calculate the differences between the percentages of Black students and percentages of Black teachers at each school to create a new variable indicating the difference between these teacher and student race/ethnicity rates. The percentage of Black teachers within the data set is 6.48%, with a standard deviation of 12.97, and the percentage of Black students is 15%, so the difference between the two variables is 8.52%. After

calculating the range of differences, a small number of schools (*n*= 227) was comprised of those with a higher percentage of Black teachers compared to Black students. Overall, this group of schools represents a small percentage of the 2,510 schools in the sample set, and each of these schools has percentages of Black teachers and Black students that are comparable to those of the rest of the schools in the sample set. Still, the differences between Black teachers and Black students will produce negative numbers; therefore, absolute values were used so that all calculations would be made using positive numbers. In this approach, the lower the number after calculation, the closer the match between the number of Black teachers and Black students in each school. Closer matches should be a predictor of improved student outcomes.

It is important to note that the race matching variable used in the study did not have a normal distribution of values. An assumption in performing a regression analysis is that variables should follow a normal distribution of values in order to improve the reliability of the results (Cohen et al., 2003). Tabachnock and Fidell (2019) suggest logarithmic transformations as a method for preparing data for analysis. A logarithmic transformation manipulates the original data to help them better follow a normal or bell curve to allow any subsequent analysis to produce more valid results. Less skewed data are the result. Before the log transformation, the race matching variable had a mean of 8.46 and a standard deviation of 12.45, which indicate that there is wide variation of Black teachers and Black students in New Jersey schools. In some cases within the data set, there were schools with as much as 100% Black students and only 5.9% Black teachers (see Figure 4).

The race matching continuous variable calculation initially resulted in values ranging from -31.40 to 100. The negative values indicate that there were 227 schools in which the percentage of Black teachers was higher than the percentage of Black students out of the total of

2,283 schools. The variable was then recalculated so that it only used absolute values, which eliminated the negative values resulting from a higher percentage of Black teachers than Black students. The mean then resulted in 9.41, and the standard deviation was 11.75. The range following the absolute calculation was .00 to 100, with no negative values. Finally, the logarithmic transformations were completed, which resulted in a mean and standard deviation for the race matching variable of 1.55 and 1.28, respectively. Thus, the logarithmic transformation created less skewed data that are more reliable for interpretation (see Figure 6). The final range following the transformation of values was -2.30 to 4.61. Figures 4–6 in the Appendix provide an overview of the histograms for the race matching variable before and after the logarithmic transformation.

Furthermore, to create the categorical race matching variable, the data range was divided into three parts, separated by one standard deviation above and below the mean. The variable was recoded into three different categorical variables based on the ranges, with the schools being grouped into matching categorical independent variables (high, medium, and low matching). High-matching schools are defined as schools with small differences between the Black teacher and student groups. Medium- and low-matching schools have larger differences between the proportion of Black teachers and Black students. Closer matches should be a predictor of improved student outcomes. The mean of the distribution was 1.55, and the standard deviation was 1.29.

The range of values following the logarithmic transformation was from -.231 to 4.61; therefore, one standard deviation above the mean was 2.84. and one standard deviation below the mean was .27. The values between these two values represented the medium-matching schools (n = 1,559). When described using percentage data prior to the log transformation, schools

within the medium-matching category have differences between Black students and Black teachers ranging from 1.4 to 17 percentage points. An example of a school within this range is Union County Career and Technical Institute; 26.2% of this school's students and 12% of its teachers are Black. The high-matching schools have the lowest logarithmic transformed values, ranging from .26 to -2.3 (n = 377). Schools within the high-matching category have differences between Black students and Black teachers ranging from .10 to 1.3 percentage points. An example of a school in this range is Cooper's Poynt School, Camden City; 46.9% of this school's students and 47.7% of its teachers are Black. The low-matching schools are those with the highest logarithmic transformed values, which range from 2.85 to 4.61 in the range of values (n = 432). Schools within the low-matching category have differences between Black students and Black teachers ranging from 17.10 to 100 percentage points. An example of a school in this range is Ewing High School, Ewing New Jersey; 49.1% of this school's students and 4% of its teachers are Black.

The Black student chronic absenteeism variable was also log-transformed because it did not demonstrate a normal distribution (see Figure 11). The mean and standard deviation were 13.56 and 11.09, respectively, prior to the transformation and 2.43 and .72 thereafter. To further test for normality of the data following the transformations, an analysis of skewness and kurtosis was conducted, along with a visual inspection of the histograms. Skewness measures the symmetry of the data set, which indicates if it looks the same on the left and right of center. Skewness matters because in a regression analysis, a normal distribution of data below and above the mean leads to more reliable results (Cohen et al., 2003). Kurtosis measures whether the tail of the distribution appears light or heavy on a curve, which indicates whether the values are clustered in the tail. If the kurtosis value is high, then the distribution of values may have

many outliers (heavy). The skewness and kurtosis values for the transformed race matching variable were -246 and -.420, respectively, while the skewness and kurtosis values for the transformed Black student chronic absenteeism variable were -.243 and -.008, respectively. These measures are ideal when they are closest to zero, and both were within the accepted limits (Cain et al., 2017).

The regression analysis was run using the matching variable as a continuous variable, which was based on the calculated differences at each school, as well as the categorical variable described above, in order to compare outcomes and make further determinations for the study.

Additional Subset of Schools for Comparison

To make this study even more germane to New Jersey education policy decisions, urban schools were designated as those within the 31 former New Jersey Abbott districts (Education Law Center, n.d.-a). These urbanicity data were used to identify 449 schools as a separate subset that underwent its own regression analysis, which is described later.

Dependent Variables

Three sets of dependent variables are key to this study: the NJDOE ELA and math SGP measurements, chronic absenteeism, and graduation rates. The 2018–2019 chronic absenteeism and graduation rates are relevant outcome measures because of their relationship with overall student progress in a school (García & Weiss, 2018; Gershenson, Hart, et al., 2021). Chronic absenteeism is defined as a student being absent from school at least 10% of the school year. The data provided are described as the percentage of a school's students who were chronically absent. The graduation rate measures the percentage of students who enter 9th grade and graduate after four years. Black student and schoolwide percentages are used for chronic absenteeism and graduation rates. The SGP measures are used as an alternative to measuring

overall student achievement in relation to state and federal assessment targets. An SGP is a percentile ranking from 1 to 99 that describes a student's academic progress compared to their peers across the state. The results for each school are provided in the form of the schoolwide mSGP, which serves as a means by which to compare student groups, individual schools, and school districts and is calculated by the NJDOE and presented in public reports. This is an aggregate data set of student outcomes, based on the grades taught at each school, comprised of ELA and math in grades 4–7 and ELA only for grade 8 (State of New Jersey Department of Education, 2017). Black student and schoolwide mSGP data were chosen for this study.

Control Variables

Three factors that may also impact student growth were used as control variables. First, the percentage of students who are economically disadvantaged at each school is defined as the percentage of students who are eligible to receive free and reduced-price lunch. This variable is important because it may be associated with student performance (García & Weiss, 2018). Second, the average years of teacher experience in each school, and third, total enrollment were used, as these variables can also have an impact on student outcomes (Gershenson & Langbein, 2015; Tang et al., 2021).

Additionally, there are 227 schools in which there were higher percentages of Black teachers when compared to the percentages of Black students, so a dichotomous variable that describes this relationship was also created and used in the analysis of the study's variables as a robustness check.

Description of Variables

The total number of schools included in the data set is 2,510. As the models measured the impact of the independent variables on different outcome measures, sample sizes varied. In the

models using academic growth, because the NJDOE only includes grades 4–8 in this calculation, the sample is smaller when measuring the schoolwide population (n = 1,746, n = 1,740). The sample is also smaller when measuring outcomes for Black students (n = 944, n = 894), as a lower number of schools have the Black student subgroup (see Table 4). Additionally, the percentage of Black students who were chronically absent at each school had a lower sample size because many schools do not have the minimum sample of 10 students in this subgroup, which is necessary for public reporting (n = 1,512). The sample size for the graduation rate is smaller because there are fewer high schools in the state, compared to elementary and middle schools (n = 415, n = 215). As indicated in Table 5, 449 schools are located in former Abbott school districts.

Data Analysis

The quantitative component of this study employed a multiple regression analysis model to predict the relationship between the independent matching variable of interest, calculated using the percentages of Black students and Black teachers at each school, and the dependent variables of schoolwide and Black student ELA and math academic growth (SGP values), chronic absenteeism, and graduation rates. The study used as control variables the percentage of students identified as economically disadvantaged at each school, the average years of teacher experience in each school, and total school enrollment at each school, as these may also be associated with student outcomes. The methods used to answer each research question are as follows:

- The first research question asks whether race matching can predict student growth in ELA and mathematics. For this model, the dependent variables were the ELA and math SGP for students at each school, and the main independent or predictor variables were the

continuous and categorical variables using the percentages of Black students and Black teachers at each school. The control variables of percentage of economically disadvantaged students at each school, average years of teacher experience in each school, and total school enrollment at each school were included in the model.

- The second research question asks whether race matching can predict chronic absenteeism. For this model, the dependent variable was the chronic absenteeism rate for students at each school, and the main independent or predictor variables were the continuous and categorical variables using the percentages of Black students and Black teachers at each school. The control variables of percentage of economically disadvantaged students at each school, average years of teacher experience in each school, and total school enrollment at each school were included in the model.
- The third research question asks whether race matching can predict graduation rates. For this model, the dependent variable was the chronic absenteeism rate for students at each school, and the main independent or predictor variables were the continuous and categorical variables using the percentages of Black students and Black teachers at each school. The control variables of percentage of economically disadvantaged students at each school, average years of teacher experience in each school, and total school enrollment at each school were included in the model.
- The fourth research question asks whether race matching can predict student academic growth, chronic absenteeism, and graduation rates at urban schools. For this model, schools in the former Abbott districts were used as a subset for a separate analysis. The dependent variables were academic growth, chronic absenteeism, and graduation rates for students at each school, and the main independent variables or predictors were the

continuous and categorical variables using the percentages of Black students and Black teachers at each school. The control variables of percentage of economically disadvantaged students at each school, average years of teacher experience in each school, and total school enrollment at each school were included in the model.

I used SPSS to run a separate regression model for each research question, using the specific independent and dependent variables as specified above. After running each model, the regression coefficients, *p*-values, and R^2 values were used to analyze the relationships. Multiple regression was chosen because this study seeks to examine the relationships between the independent variables (predictors) of teacher race/ethnicity and the previously cited control variables and the dependent variables of NJSLA student growth, chronic absenteeism, and graduation rates. The use of multiple regression makes it possible to answer the research questions and estimate the strength of the relationship between two or more independent variables and the dependent variable.

Validity/Reliability

The use of publicly available data ensured accuracy, and the data used in this study are considered to be of high quality because they were collected directly from schools and districts in order to meet federal and state reporting requirements. Still, to ensure reliability and validity, the data were cleaned and coded within SPSS. The study focused on all school districts, rather than just a few, which ensured an adequate sample. Multiple regression is an appropriate model for this type of research because the model used in this study is large and features a wide set of variables. The same model was used for each of the research questions, which ensured consistency and increased the reliability of the outcomes. Multiple specification checks of the assumptions for regression analysis were completed to ensure that the outcomes are valid.

Limitations

There are limitations that should be considered when reviewing the results of this study, specifically with respect to the pairing of teachers and students, the creation of the categorical race matching variable, and the choice of confounding variables. First, an important limitation of this research design is the inability to determine which specific Black students are actually paired with Black teachers. As mentioned previously, the study used school-level data on the percentages of Black teachers and Black students at each school to describe race matching, but the data do not identify which students had Black teachers in important subjects such as ELA and math.

Another limitation stems from the creation of the high-, medium-, and low-matching variables. The calculation used to create the variables captured schools in which there were low numbers of Black teachers and Black students, categorizing those as high matching. The low numbers of Black teachers and students may not be significant if these schools are viewed in isolation. Conversely, the created variables categorized schools in which there are a significant number of Black teachers as low matching because the difference in the percentages Black students was significantly higher.

Additionally, I decided to use particular variables and to study the unique relationship of each, but it is acknowledged that there are a number of variables that could also have an impact on student outcomes, such as student suspensions for disciplinary levels and violence and vandalism data. Other data, such as funding levels, which could be used to better describe schools and have an association with academic outcomes, were also not used in the study. Furthermore, since this study analyzes the relationship of race and ethnicity with student outcomes, the race of additional staff member categories in a school could be an important factor

that would be worth analyzing. Despite these omissions, however, I sought to make a relevant contribution to the rich field of teacher and student racial matching. Further discussion of the limitations can be found in Chapter 5, along with the recommendations.

Chapter Summary

This chapter outlined the quantitative research methods that were used to answer the research questions. This dissertation relied on a public data set that uses school-level information as the main source for all variables, which ensures the reliability and validity of the data. The outcome measures of ELA and math student growth percentiles (SGP), chronic absenteeism, and graduation rates are relevant to both policymakers and educators. A multiple regression analysis was used as the primary analytical method, and the creation of continuous and categorical independent variables that identified racial and ethnic matching between teachers and students at each school was key to this study.

Results

This study investigates the relationship between student–teacher race matching and student growth, chronic absenteeism, and graduation rates in New Jersey public schools. Multiple regression was used to examine the relationship between the independent variable of race matching with the dependent variables. The study also used the control variables of the percentage of economically disadvantaged students at each school, average years of teaching experience in a school, and total enrollment at each school, as these variables may also be associated with student outcomes. A dichotomous variable that identifies schools with a higher percentage of Black teachers than Black students was also used in the analysis. In the following, key assumptions for the regression analysis are described; thereafter, the descriptive statistics for all the variables used in the study are described. Finally, the detailed results for each research question are presented.

Assumptions

Cohen et al. (2003) discuss the key assumptions that must be satisfied in a multiple regression design to ensure that the results are trustworthy and free of bias. It is expected that 1) the relationships between the independent variables and the dependent variables are linear; 2) there is no multicollinearity, or the independent variables should not be highly correlated with each other; 3) homoscedasticity exists, or the residuals in the model remain constant; 4) the residuals in the model should be independent of each other; and 5) the residuals in the model have a normal distribution.

All variables were analyzed to test the key assumptions for the multiple regression analysis, and the results for all six assumptions identified above were positive. First, linear

relationships were observed in plots of the variables created using SPSS. For example, Figure 20 shows that as race matching increases, schoolwide ELA SGP also increases.

Second, multicollinearity indicates whether the independent variables are highly correlated, which can lead to skewed results and issues with correct interpretation. The variance inflation factor (VIF) measures how much of the variance may be inflated, while tolerance is the amount of variability in an independent variable that is not explained by other independent variables in the model. Multicollinearity is not evident, as the VIF statistic indicates a range of 1.043 to 1.402 for the independent variables. Tolerance also measures multicollinearity by indicating the extent to which the coefficients are affected by the independent variables in the models. The tolerance value is 1 for the racial matching variable across all models. The control variables of percentage of economically disadvantaged students, total student enrollment, and teachers' average years of experience in each school had tolerance levels ranging from .923 to .996 across all models. Both the VIF and tolerance were within acceptable ranges for all variables (Daoud, 2017).

Next, homoscedasticity refers to the assumption that the values of the variables are equally distributed or are clustered together at certain points. When using all of the independent and dependent variables for the models, a visual check of the residuals in the plots indicated normality, and scatterplots of the residuals indicated that homoscedasticity existed across the models.

Additionally, Durbin–Watson tests were conducted to test the independence of the variables, resulting in ranges from 1.274 to 2.023. Any result that is less than 1 or more than 3 should raise concerns (Cohen et al., 2003).

Finally, according to Cohen et al. (2003), a normal distribution of the residuals in each model is necessary for reliability. The normal distribution of the residuals was observed through the use of p-plots for each regression model in SPSS, and these indicated that the models were fit for analysis.

Descriptive Statistics

Table 4 in the Appendix presents descriptive statistics for all variables used in the study. As previously discussed, schoolwide mSGP serves as a means by which to compare student groups, individual schools, and school districts. However, the schoolwide mSGP is only comprised of ELA in grades 4–8 and math in grades 4–7 (State of New Jersey Department of Education, 2017), so the sample size is lower because a number of schools were excluded from the calculation. According to the NJDOE, "Low Growth" is less than 35, "Typical Growth" is between 35 and 65, and "High Growth" is greater than 65, with student values ranging from 1 to 99 (State of New Jersey Department of Education, n.d.-e). For the 2018–2019 school year, schools included in the sample had a student growth percentile (mSGP) of 50.83 schoolwide and 45.49 for Black students in ELA (Table 4). The math mSGP for schools in the sample was 50.74 for the schoolwide population and 44 for Black students (Table 4; State of New Jersey Department of Education, n.d.-e).

The percentages of Black students and Black teachers at each school were used to calculate the values for the new variable of racial and ethnic matching. The fact that the sample contained 2,500 Black students indicates that nearly every school was captured for this variable (see Table 4). There is an extensive range of values within New Jersey schools, but most schools have a low number of Black students. The range is between 0–100%, with a mean of 15.07% (see Figure 9). The 2018–2019 NJDOE data also indicate that, statewide, White students

accounted for 41.4% of all enrolled students, Hispanic students 30.5%, Asian students 10.2%, and students belonging to two or more races 2.4% (State of New Jersey Department of Education, n.d.-e). Table 4 and Figure 10 show a statewide mean of 6.47% with regard to Black teachers, which indicates a sizeable gap compared to the percentage of Black students (15%). White teachers accounted for 83.2% of teachers in schools across the state, while Hispanics and Asian teachers accounted for 7.6% and 2.1%, respectively (State of New Jersey Department of Education, n.d.-e).

For chronic absenteeism, the schoolwide sample size is 2,367 schools (see Table 4 and Figure 12). The sample for chronic absenteeism among Black students consisted of 1,512 schools (see Table 4 and Figure 13), as many schools did not reach the requisite number of Black students for public reporting. For those schools reporting Black students, the mean was 13.56%, which is higher than the schoolwide mean of 9.71%.

Districtwide outcomes indicate that chronic absenteeism is a significant concern. Table 6 identifies the New Jersey schools and districts with the highest chronic absenteeism percentages during the 2018–2019 school year; 22 of the 30 districts or charter schools listed are either former Abbott school districts or located within the boundaries of a former Abbott district. For example, the Camden City schoolwide chronic absenteeism rate for the 2018–2019 school year was 33.8%. This rate is 23.2% higher than the statewide schoolwide average of 10.6%, which is an alarming finding. Furthermore, this figure may severely hinder the success of any strategies intended to increase student achievement in ELA and math because an excessive number of students are not present in school to receive instruction and intervention. The City of Newark public schools had a schoolwide chronic absenteeism rate of 26.8% for 2018–2019. Table 6 does not present the results for student subgroups, but New Jersey data indicate a noticeable gap when

making comparisons. Black and Hispanic students were chronically absent at rates of 35.3% and 21.7%, respectively, which are much higher when compared to White students, who had a chronic absenteeism rate of 15.4%. Students with disabilities had the highest chronic absenteeism rate in the school district at 36.3% (State of New Jersey Department of Education, n.d.-a).

Schoolwide graduation rates had a sample size of 415 (see Table 4 and Figure 14), as this variable only applies to high schools. The models examining the Black student graduation rate had a sample size of 215, as many schools did not meet the requisite sample size of Black students for public reporting (see Table 4 and Figure 15). The range of percentages in both variables indicates that some schools had very low graduation rates when compared to the mean of 91.66% for the schoolwide population and 86.81% for Black students. The gap between Black students and the overall schoolwide population is noticeable (see Table 4).

The percentage of economically disadvantaged students at each school ranges from 0 to 100 across the schools, with a mean of 35.62 (see Table 4 and Figure 16). In the NJDOE Performance Report Data system, economically disadvantaged students are reported as a separate subgroup, although there is no designation of race and ethnicity within the subgroup. Studies have indicated that high levels of poverty are an important factor related to valued student outcomes (Assari et al., 2021; García & Weiss, 2018; Kotok, 2017). Socioeconomic status (defined as household income, parental education, and occupational status) has been found to contribute to 85% of the Black–White math achievement gap and nearly 100% of the reading achievement gap among students entering kindergarten (Paschall et al., 2018). Therefore, the high rates of poverty and other socioeconomic factors associated with certain groups of students

at particular schools are informative when seeking to understand the local challenges a school faces.

The variable of total school enrollment had a range of 1 to 5,366 (see Table 4 and Figure 17). Within New Jersey, there are various schools with particular programs for special needs students; therefore, a review of the data highlights a number of schools that may be reporting very low enrollment based on this very small percentage of students. Furthermore, there are 262 schools within the sample within the enrollment range of 1,001 to the maximum value of 5,366. Many of these schools can be described as comprehensive high schools that serve entire communities. The two schools with the highest enrollments on the list are charters schools that serve a large urban community.

The teachers' average years of experience at each school had a range of .00 to 27.50 (see Table 4 and Figure 18). The values of this variable represent the average number of years of teaching in a school setting and are useful for determining whether a school has more experienced teachers. This variable could have a relationship with outcome measures, as it is assumed that teachers with more experience should have received more extensive training and developed improved skills, which should help them to maintain an environment that is conducive to student needs. The mean value for this variable is 11.98, and the standard deviation is 2.87.

Furthermore, as mentioned previously, the sample includes 227 schools in which there were higher percentages of Black teachers when compared to percentages of Black students, so a dichotomous variable that indicates this relationship was also created and used in the analysis of the study's variables to help determine the potential impact of this factor on school outcomes (see Table 4 and Figure 19). Finally, schools in the former Abbott school districts accounted for 449 of the 2,510 schools in the data set (see Table 4).

Results for Research Questions

A multiple regression analysis was used to answer the research questions by examining the relationship between the independent race matching variables and the dependent variables of Black student ELA student growth, schoolwide ELA student growth, Black student math student growth, schoolwide math student growth, Black student chronic absenteeism, schoolwide student chronic absenteeism, Black student graduation rates, and schoolwide student graduation rates. Race matching is measured by the difference between the percentages of Black teachers and Black students at each school. The continuous logarithmic transformed and categorical race matching variables were used in the analysis. The percentage of economically disadvantaged students, total school enrollment, and teachers' average years of experience at each school were used as control variables. As a first step, each dependent variable was analyzed independently in a separate model with the log-transformed race matching variable. Next, each of the control variables was added in separate steps of analysis to compare any differences in the coefficients. Additional steps included all variables for a given research question. I used SPSS to run the model; Tables 7–14 present the regression coefficient, *p*-value, and the R-squared value to highlight the relationships.

Schools in the former Abbott districts were isolated into a separate data set within SPSS in order to conduct the analysis required to answering the research question. Tables 15–16 present the results. The categorical race matching variable was used to analyze the schoolwide dependent variables only. This was not conducted using a step process, as all independent variables were included in the model for each research question. Table 17 presents the results. The use of multiple regression allowed for estimating the strength of the relationship between the independent and the dependent variables.

Scatterplots highlighting the relationship between the logarithmic transformed race matching variable and the dependent variables are provided in Figures 20–25 in the Appendix. Linear relationships are demonstrated, showing the positive results for the logarithmic transformation. In some of the models, as indicated in the results, the plots demonstrated strong positive relationships between the independent variables (x-axis) and the dependent variables (y-axis).

Research Question 1

Does race matching predict academic growth, as measured by the ELA and math NJSLA, for Black students or the schoolwide student group?

Schoolwide ELA SGP. As shown in Table 7, the race matching independent variable was a statistically significant predictor of schoolwide ELA SGP. This finding suggests that in New Jersey, high race matching has a relationship with higher schoolwide ELA SGP. The coefficient of interest on the log-transformed race matching variable was $B = -1.853$ ($p < .001$) when used alone in the first step of the analysis. Figure 20 shows this linear relationship. It should be noted that based on the central premise of this dissertation's hypotheses, the ideal result would provide a negative regression coefficient, as smaller values or differences for the continuous variable indicate that schools have closer racial and ethnic matches among teachers and students. Therefore, the race matching variable and ELA SGP should move in different directions such that as the degree of racial difference decreases, ELA SGP increases. Additionally, because the independent race matching variable has been log-transformed, the coefficient should be divided by 100 in order to correctly interpret the results for all outcome variables in the study. For example, -1.853/100 = - .01853 indicates that for every one-unit decrease in the value of the racial match variable, one can expect the schoolwide ELA SGP to be .01853 or 1.8% higher. The

log-transformed model's R^2 value of .050 indicates that the independent variable can explain 5% of the variance in the model.

In subsequent steps, additional independent variables were added to the analysis. In step 2, the log-transformed race matching coefficient was $B = -1.182$ ($p < .001$), and the percentage of economically disadvantaged students coefficient was $B = -.058$ ($p < .001$). This result had a higher R^2 value of .071. In this case, the percentage of economically disadvantaged students also has a negative relationship with test scores, as, for every one-percent increase in the percentage of economically disadvantaged students, one can expect schoolwide ELA SGP to decrease by .058%, holding race matching constant. The average years of teacher experience in each school was then added as a variable and while matching maintained its relationship with schoolwide ELA SGP, the average years of teaching experience variable was $B = -.374$ ($p < .001$) and $R^2 = .081$. These values indicate that for each additional year of average teaching experience, schoolwide ELA SGP decreased by .374%, holding the other covariates constant. Total school enrollment was added next with all previous variables also being included, though it was not significant in this model. Finally, the dichotomous variable that identifies schools with a higher percentage of Black teachers than Black students was added to the analysis, and it was also not significant. Overall model fit improved across these models, as expected (see R^2 values in Table 7). Throughout the analyses using all variables, it was evident that the race matching variable, the variable indicating the proportion of students considered economically disadvantaged, and average years of teacher experience in each school were related to schoolwide ELA SGP.

The categorical race matching variable was also a significant predictor of schoolwide ELA SGP (see Table 17). High matching was $B = 3.632$ ($p < .001$), while medium matching of race for students and teachers was $B = 2.133$ ($p < .01$). On average, schools within the high-

matching category had 3.632% higher student growth in ELA when compared to schools in the low-matching category. Schools in the medium-matching category, on average, had 2.133% higher student growth in ELA when compared to schools in the low-matching category. The percentage of economically disadvantaged students was $B = -.075$, $p < .001$. $R^2 = .076$, indicating that 7.6% of the variation in the model can be explained by the independent variables. Therefore, based on these and the previously mentioned findings, this study rejects the null hypothesis, finding evidence of a positive relationship between race matching and overall student performance.

Black Student ELA SGP. When analyzing Black student ELA SGP in the initial step with the log-transformed race matching variable only, the results indicated that $B = - .595$ (Table 8). However, as indicated by the *p*-value, these results were not considered significant. In fact, the results for the race matching variable indicated that it was not a significant predictor of Black student ELA SGP across all steps, as additional independent variables were added to the model. This was not an expected outcome, based on the literature review. R^2 ranged from .002 to .013, only increasing when the additional variables of percentage of economically disadvantaged students was added to each model, meaning variables in the model are not capturing much of the variability in the outcome. The coefficient for the percentage of economically disadvantaged students variable ranged from $B = -.028$ to -.036, with $p < .05$ in the last three models. Average years of teacher experience had a similar coefficient as in the overall student model. All results are provided in Table 9.

Schoolwide Math SGP. Similar to the results for schoolwide ELA SGP, the race matching independent variable was also a statistically significant predictor of schoolwide Math SGP across all model specifications. The results in Table 9 suggest that in New Jersey, high race

matching is associated with higher schoolwide Math SGP. The race matching variable was B = -2.289 ($p < .001$) when used alone in the first step of the analysis, indicating that for every 1 unit decrease in the value of the racial match variable, you can expect schoolwide Math SGP to be .02289 or 2.2% higher. The R^2 value in this first step of analysis was .067, indicating that 6.7% of the variation can be explained by this independent variable.

As before, additional independent variables were added in subsequent steps of the analysis. In step 2, the log-transformed race matching variable maintained B = -1.032 ($p < .001$) and the percentage of economically disadvantaged students variable was B = -.110 ($p < .001$). This result had a higher R^2 value of .132. In this case, the percentage of economically disadvantaged students also has a negative effect on test scores, as for every one percent increase in economically disadvantaged students, you can expect schoolwide math SGP to decrease by .132%. The average years of teacher experience in each school was then added (B = -.217, $p < .05$, and R^2 = .135), indicating that for every one unit increase in the years of teaching experience, schoolwide math SGP decreased by .217%. Total school enrollment was added next with all previous variables. Total school enrollment was B = -.001 and the p-value indicated that it was not significant in this model (R^2 = .136). Finally, the dichotomous variable that identifies schools with a higher percentage of Black teachers than Black students was added to the analysis. For this variable, B = .742, the p-value indicating that it was not a significant predictor of schoolwide math SGP, and the R^2 value did not change. Again, it was evident that the log-transformed race matching variable and the percentage of economically disadvantaged students variable impacted schoolwide math SGP. These variables were significant across all 5 steps of the analysis and the average years of teacher experience in each school also had a significant negative impact. As this variable increased, schoolwide math SGP decreased.

The categorical race matching variable was also a significant predictor of schoolwide Math SGP (Table 17). High matching was $B = 3.462$ ($p < .001$), and medium matching of race for students and teachers was $B = 2.555$ ($p < .001$). On average, schools within the high matching category had 3.462% higher student growth in math, when compared to schools in the low matching category. Schools in the medium matching category, on average, had 2.555% higher student growth in math, when compared to schools in the low matching category. The percentage of students economically disadvantaged students was $B = -.119$ ($p < .001$). $R^2 = .133$, indicating that 13.3% of the variation in the model can be explained by the independent variables. Therefore, based on this and the previously mentioned findings, this study rejects the null hypothesis. The study found evidence of a positive relationship between race matching and overall student performance.

Black Student Math SGP. Again, as in the case with Black student ELA SGP, there was an expectation that race matching would be a significant predictor of Black student math SGP. When analyzing this outcome variable in the initial step with the log-transformed race matching variable only, the results were not statistically significant ($B = -.696$, see Table 10), and the results for the race matching variable consistently indicated that it was not a significant predictor of Black student math SGP as additional independent variables were added to the model. This was not an expected outcome based on the literature review. R^2 ranged from .003 to .032, which was slightly higher than the results for ELA SGP but still very small, indicating that the independent variables in the model do little to explain the outcome. Table 11 presents all of the results.

Research Question 2

Does race matching predict chronic absenteeism among Black students or the schoolwide student group?

Schoolwide Chronic Absenteeism. The results for schoolwide student chronic absenteeism presented in Table 11 indicate that $B = 2.313$ ($p < .001$) for the log-transformed race matching variable (column 1). Therefore, for every one-unit decrease in the value of racial match, one can expect schoolwide chronic absenteeism to be 2.31% lower. The model's R^2 value of .120 indicates that the independent variable can explain 12% of the model's variance. This linear relationship is shown in Figure 24. After the percentage of economically disadvantaged students variable was added, $B = .979$ ($p < .001$) for race matching and $B = .119$ ($p < .001$) for the percentage of economically disadvantaged students. These results indicated that for every one-unit decrease in the log-transformed race matching variable and increase in the percentage of economically disadvantaged students, schoolwide student chronic absenteeism decreased by .979% and .119%, respectively. The R^2 value of .241 indicated that 24.1% of the variation can be explained by these independent variables. The results presented in Table 11 suggest that in New Jersey, race matching is associated with schoolwide student chronic absenteeism. In the final step of the analysis, when all variables were added, the R^2 value was .255. The average years of teacher experience in each school was $B = .236$ ($p < .001$), and the variable for higher percentage of Black teachers compared to Black students was $B = .827$, but the *p*-value did not indicate significance. In contrast to Black student chronic absenteeism, the final step did not negate the significance of the race matching variable after all independent variables were added, $B = 1.095$ ($p < .001$), indicating that it can be a predictor of schoolwide chronic absenteeism in New Jersey schools.

The categorical race matching variable was also a significant predictor of schoolwide chronic absenteeism (Table 17). High matching was $B = -4.128$ ($p < .001$), and medium matching of students and teachers by race was $B = -2.990$ ($p < .001$). On average, schools within the high-matching category had 4.128% lower schoolwide student chronic absenteeism when compared to schools in the low-matching category. Schools in the medium-matching category, on average, had 2.990% lower schoolwide student chronic absenteeism when compared to schools in the low-matching category. The percentage of economically disadvantaged students was $B = -.123$ ($p < .001$), $R^2 = .253$, indicating that 25.3% of the variation in the model can be explained by the independent variables. Based on these findings for the schoolwide population of students, this study rejects the null hypothesis. The study found evidence of a positive relationship between race matching and an overall reduction in student chronic absenteeism.

Black Student Chronic Absenteeism. In the first step of the analysis of Black student chronic absenteeism, the log-transformed race matching variable resulted in $B = .027$; however, the *p*-value indicated that the results were not significant (see Table 12). With the addition of several independent variables, the log-transformed race matching variable was a significant predictor of Black student chronic absenteeism. In a subsequent step, the percentage of economically disadvantaged students variable was added to the analysis, and it was found that $B = -.059$ ($p < .001$) for the race matching variable and $B = .011$ ($p < .001$) for the percentage of economically disadvantaged students. This small impact indicated that for every one-unit decrease in the log-transformed race matching variable and decrease in the percentage of economically disadvantaged students, Black student chronic absenteeism increased by .059% and decreased by .011%, respectively. The R^2 value was .141, indicating that 14.1% of the variation can be explained by these independent variables. The results presented in Table 12

suggest that in New Jersey, race matching is associated with higher Black student chronic absenteeism, but the negative coefficient indicates that the variables move in different directions when the desired result is a decrease in chronic absenteeism. In the final step of the analysis, when all variables were added, the R^2 value was .169. Average years of teacher experience in each school was $B = .037$ ($p < .001$), and the variable for a higher percentage of Black teachers compared to Black students was $B = .179$ ($p < .01$). Nonetheless, in the final step, as the race matching variable was analyzed with the other variables, it was not a significant predictor of Black student chronic absenteeism.

Research Question 3

Does race matching predict graduation rates for Black students or the schoolwide student group?

Schoolwide Student Graduation Rates. The results for schoolwide student graduation rates using the log-transformed race matching variable by itself indicated that $B = -2.450$ ($p < .001$; see Table 13). Therefore, the results indicate that for every one-unit decrease in the value of the racial match variable, one can expect schoolwide graduation rates to be .0245 or 2.4% higher. The model's R^2 value of .135 indicates that the independent variables can explain 13.5% of the variance in the model. Figure 24 shows this linear relationship. After the percentage of economically disadvantaged students variable was added, $B = .829$ ($p < .05$) for race matching and $B = -.142$ ($p < .001$) for percentage of economically disadvantaged students. These results indicated that for every one-unit increase in the percentage of economically disadvantaged students, schoolwide graduation rates decreased by .142%. The R^2 indicates that 24.7% of the variation can be explained by these independent variables. The results presented in Table 13 suggest that in New Jersey, race matching is associated with schoolwide student graduation rates.

In the final step of the analysis, when all variables were added, the R^2 value was .274. Average years of teacher experience in each school was $B = -.416$ ($p < .001$), and the variable for a higher percentage of Black teachers compared to Black students was $B = -2.947$ ($p < .05$). The log-transformed race matching variable remained a significant predictor of schoolwide graduation rates in the last step of the analysis, with $B = -1.041$ ($p < .01$).

The categorical race matching variable was also a significant predictor of schoolwide graduation rates (see Table 17). High matching was $B = 4.209$ ($p < .01$), and medium matching of race for students and teachers was $B = 3.316$ ($p < .01$). On average, schools within the high-matching category had 4.209% higher schoolwide student graduation rates when compared to schools in the low-matching category. Schools in the medium-matching category had on average 3.316% higher schoolwide student graduation rates when compared to schools in the low matching category. The percentage of economically disadvantaged students was $B = -.155$ ($p < .001$), $R^2 = .276$, indicating that 27.6% of the variation in the model can be explained by the independent variables.

Black Student Graduation Rates. Black student graduation rates results indicated that $B = -1.759$ ($p < .01$) for race matching when used alone in the analysis (see Table 14). Therefore, the results indicate that for every one-unit decrease in the value of the log-transformed racial match variable, one can expect Black student graduation rates to be .01759 or 1.7% higher. The model's R^2 value of .034 indicates that the independent variables can explain 3.4% of the variance in the model. Figure 25 shows this linear relationship. However, its significance varied across the subsequent steps of the model analysis, and the log-transformed race matching variable was not a significant predictor of Black student graduation rates until all variables were added in the final step. $B = -1.717$ ($p < .05$), while the percentage of economically

disadvantaged students was B = -.074 ($p < .05$), and average years of teaching experience in each school was B = -.591 ($p < .05$). The variable indicating schools that have a higher percentage of Black teachers than Black students was the strongest predictor of Black student graduation rates with B = -11.563 ($p < .001$), indicating that schools in this category had on average 11.563% lower Black student graduation rates. Still, based on the overall findings of this model, this study rejects the null hypothesis.

Research Question 4

Does race matching predict academic growth, chronic absenteeism, and graduation rates for Black students or the schoolwide student group in New Jersey urban schools?

Schools in the former Abbott districts were isolated into a separate data set within SPSS; Table 15 presents the descriptive statistics for the data subset. The sample sizes are noticeably smaller than those of the complete data set. There are 449 total schools across the 31 school districts. When the log-transformed race matching variable was used in the regression model as an initial step, the results did not indicate that it was a significant predictor of outcomes for the Black student group, similar to the full statewide results above, but there was significance found when analyzing the schoolwide student populations within the former Abbott schools. Therefore, the analysis using schoolwide groups for all outcome measures, which maximized the sample size for analysis, is presented. Table 17 presents the regression results.

Schoolwide Student ELA and Math SGP. The log-transformed race matching variable resulted in B = -1.638 ($p < .01$) for schoolwide student ELA SGP. This result indicated that for every one-unit decrease in the log-transformed race matching variable, schoolwide ELA SGP increased by .01638 or 1.6%. The percentage of economically disadvantaged students variable resulted in B = -.029; however, the p-value did not indicate significance. Average years of

teacher experience in each school was B = -.570 ($p < .01$), indicating that it was also a significant predictor of ELA SGP for this schoolwide group. The variable for higher percentage of Black teachers compared to Black students was B = .412, but the p-value did not indicate significance. The R^2 value of .084 indicates that 8.4% of the variation can be explained by these independent variables. The results presented in Table 16 suggest that in New Jersey, race matching can be a predictor of schoolwide ELA SGP in the former Abbott districts, which agrees with the overall findings when analyzing the complete New Jersey data set of 2,510 schools.

For schoolwide student math SGP, the log-transformed race matching variable was B = -2.224 ($p < .001$). This result indicated that for every one-unit decrease in the log-transformed race matching variable, schoolwide math SGP increased by .02224 or 2.2%. The percentage of economically disadvantaged students variable resulted in B = -.050; however, the p-value did not indicate significance. Average years of teacher experience in each school was B = -.307, but, again, the results were not a significant predictor of math SGP for this schoolwide group. The variable for higher percentage of Black teachers compared to Black students was B = 2.872 ($p < .05$), which indicates significance. The R^2 value of .093 indicates that 9.3% of the variation can be explained by these independent variables. The results presented in Table 16 suggest that in New Jersey, race matching can be a predictor of schoolwide math SGP in the former Abbott districts, which agrees with the overall findings when analyzing the complete New Jersey data set of 2,510 schools.

Schoolwide Student Chronic Absenteeism. The log-transformed race matching variable resulted in B = 2.460 ($p < .001$) for schoolwide chronic absenteeism. This result indicated that for every one-unit decrease in the log-transformed race matching variable, schoolwide chronic absenteeism also decreased by .02460 or 2.4%. The percentage of economically disadvantaged

students variable resulted in B = -.085 ($p < .05$), indicating that this variable can also be a significant predictor of schoolwide chronic absenteeism. However, the *p*-values for the remaining variables in the model did not indicate any significance in terms of predicting schoolwide chronic absenteeism. The R^2 value of .082 indicates that 8.2% of the variation can be explained by these independent variables. The results presented in Table 16 suggest that in New Jersey, race matching can be a predictor of schoolwide chronic absenteeism in the former Abbott districts.

Schoolwide Graduation Rates. For schoolwide graduation rates, the log-transformed race matching variable resulted in B = -1.089, but the *p*-value did not indicate that this variable was a significant predictor of schoolwide graduation rates. Furthermore, the *p*-values for the remaining variables in the model also did not indicate any significance in terms of predicting schoolwide chronic absenteeism. However, the R^2 value of .150 suggests that these independent variables can explain some of the variation in this model.

Chapter Summary

The results for the Black student group varied when analyzing the outcomes measures of ELA and math SGP, chronic absenteeism, and graduation rates. Race matching was not a predictor for the Black student academic variables based on the assessment results, which was not expected based on the literature. Conversely, when analyzing the schoolwide groups, race matching did have a significant relationship with ELA and math SGP, regardless of whether the matching was coded continuously or categorically.

The regression analysis indicated an important relationship between the log-transformed race matching variable and schoolwide chronic absenteeism; however, when analyzing Black student chronic absenteeism, results were mixed. Additionally, race matching was found to be a

predictor of both schoolwide and Black student graduation rates in the final step of the analysis, in which all variables were included. The categorical high-matching variable was also a significant predictor of schoolwide chronic absenteeism and graduation rates.

The analysis of the former Abbott schools provided positive results, as the log-transformed race matching variable was found to be a significant predictor of schoolwide ELA and math SGP in the respective models. The results were also similar for schoolwide chronic absenteeism, as race matching was a significant predictor of the dependent variable. Conversely, no statistically significant relationship was determined between race matching and schoolwide graduation rates in the former Abbott districts.

Implications and Recommendations

Study Overview

There is no doubt that a significant student achievement gap exists when comparing Black and White students. Achievement gaps have been a persistent trend throughout history (Great School Partnership, n.d.), as students of color have not been provided with the same educational opportunities, and these disparities have led to generations of students falling behind their peers. This achievement gap is an ongoing annual trend that is apparent in the New Jersey student achievement data presented in Table 1. Research has outlined key factors that contribute to such gaps, including family socioeconomics and parental education (Assari, 2018; Kotok, 2017), and it is logical to investigate promising strategies intended to mitigate these factors. While many characteristics of a student's home life are beyond the influence of school staff, educators and policymakers can still influence school-based factors that may impact achievement gaps. Carver-Thomas (2018) found that stronger connections between teachers of color and students of color impacted the latter by increasing both their achievement in reading and mathematics and graduation rates and inspiring them to seek higher education opportunities. This connection can positively impact student assessments since it is an increasingly motivating factor for students, as they are more receptive to teachers with whom they share a greater connection. There is meaningful research on racial and ethnic matching in teacher–student relationships and the positive outcomes that it can have on students of color and their school outcomes.

This study used multiple regression to investigate teacher–student racial and ethnic matching within the context of New Jersey schools, defined using data from Black teachers and Black students in all public schools across the state. I analyzed the predictive relationships

between teacher race and chronic absenteeism, graduation rates, and student academic growth outcomes as measured by the NJSLA. All school independent and dependent variables are based on data from the 2018–2019 school year. Overall, the study found significant positive relationships between teacher-student racial matching and schoolwide and Black student graduation rates, schoolwide chronic absenteeism, and schoolwide ELA and math student growth. These regression results suggest that an increase in the number of Black teachers statewide could lead to positive outcomes for all students. Thus, race matching has been identified as a promising practice that may lead to better educational experiences for many New Jersey students.

Significant Results

The analysis of the first research question revealed that race matching is a predictor of ELA and math for the schoolwide student group. A review of the percentage of Black teachers at each of the schools in the data set indicates that some may be small in number, but nevertheless, the close match with Black students has a predictive relationship with the performance of the total school population. The outcomes for schools with a closer match between the percentages of Black teachers and Black students may indicate that the very presence of diverse faculty provides a wider range of ethnic and cultural perspectives, thus creating a positive and progressive climate where all students can exhibit improved learning. Previous literature indicates that all students can benefit from teachers of color (Quiocho & Rios, 2000; Redding, 2019), and, in other sectors, racial and ethnic diversity has demonstrated substantively improved outcomes for corporations that include people of color in leadership positions. Such organizations consistently outperform homogenous ones due to diversity of thought and improved decision-making (Hunt et al., 2018). Findings such as these, paired with the positive

results demonstrated herein, suggest that overall school populations benefit from the presence of Black teachers in schools.

Specifically, this study demonstrates that students exhibit higher academic performance when Black teachers are present. It found that the full model including the log-transformed race matching variable could predict 8% of the variation in schoolwide ELA SGP. Regarding math, the study found that the model could predict 13.6% of the variation in schoolwide math SGP. It is important to note that only schools with grades 4–8 were included in the sample for ELA SGP, and grades 4–7 were included in the sample for math SGP because SGP is not calculated for high schools. As a result, it is not known whether significant results would have been obtained had New Jersey high school assessments been used in the analysis.

The results obtained for the second research question provided evidence that lower chronic absenteeism rates are associated with higher race matching. This is an important finding, as chronic absenteeism has a close association with student academic performance (García & Weiss, 2018). Further analysis exploring more underlying associated factors is encouraged, as it may lead to more comprehensive planning for addressing the issue at the school level. Still, race matching represents a promising strategy. Significant results were found for the schoolwide population, as 25% of the variation could be predicted by the full model. Regarding Black students, however, the relationship was negative, which was not the predicted result, as this suggests that as race matching increases, Black student chronic absenteeism rates also increase. When comparing student groups, New Jersey data indicate that Black students are chronically absent at a rate of 17.6%, while the rate for White students is substantially lower at 8% (State of New Jersey Department of Education, n.d.-e). Importantly, only schools with sufficiently large enrollments of Black students were included in these models. Therefore, these results may be

driven by the sample of Black students in the analysis, who have higher chronic absenteeism more generally, and the additional factors that have led to this negative trend (García & Weiss, 2018).

The third research question addressed graduation rates, and race matching also positively predicted outcomes, which agrees with the findings of the literature review (Gershenson, Hart, et al., 2021). Consistent with the other findings, this also highlights race matching as a promising practice for improving graduation rates for the schoolwide student group in New Jersey schools. The significant results revealed that the model with only the log-transformed race matching variable could predict 13.5% of the variation in schoolwide graduation rates, and, when the model was analyzed using all variables, the results indicated that 27.4% of the variation could be predicted. The variables of percentage of economically disadvantaged students, average years of teacher experience in each school, and schools with higher percentages of Black teachers than Black students all had a statistically significant relationship with graduation rates (see Table 13). Furthermore, the findings regarding the third research question suggest a very promising outcome when viewed within the context of outcome gaps between Black and White students. The results revealed that the log-transformed race matching variable can predict Black student graduation rates. Specifically for Black students, the study found that $B = -1.717$ ($p < .01$; see Table 14). The aforementioned findings can inform the development of more effective and targeted strategies aimed at closing the significant gaps in statewide graduation rates among different student groups (see Table 2). Race matching can undoubtedly contribute to more thoughtful policies and practices.

The fourth research question analyzed schoolwide group outcome variables for schools in the former Abbott districts. The analysis of the former Abbott schools also yielded positive

results, as race matching was found to be a significant predictor of schoolwide ELA SGP, schoolwide math SGP, and schoolwide chronic absenteeism in the models conducted. As urban education presents distinct challenges for both policymakers and educators, these results are critical, particularly when additional strategies and resources are considered. The School Funding Reform Act currently dictates funding for all New Jersey school districts, moving away from the funding formula specifically for former Abbott school districts (State of New Jersey Department of Education, n.d.-d). Funding levels may be viewed as adequate in some districts and very challenged in others, but the standard thought process for district leaders should be to fund projects that are part of a coherent strategic plan. As funding levels may be uncertain during certain school years, projects that are prioritized within a strategic plan should be addressed first when it is determined that they would have the most significant impact on improving student achievement levels and helping a district progress. Therefore, educational leaders and policymakers should prioritize the consistent allocation of significant resources to increase the recruitment and retention of teachers of color, as doing so can benefit all students.

Nonsignificant Results

The first research question reflected the expectation that race matching would predict Black student growth in ELA and math, but this was not found to be the case. Based on the *p*-values, a number of the results for the log-transformed race matching variable did not demonstrate a significant relationship. The results for Black student ELA SGP (Table 9) were not significant when race matching was the independent variable, which contradicts previous research (Redding, 2019). This nonsignificant finding was consistent when Black student math SGP was analyzed. It is possible that the results were impacted by the lack of longitudinal data in the analyses. This was a key limitation of this study when compared to those that used

longitudinal data over a number of years when conducting analyses. Additionally, across all models, total school enrollment did not have any significance as a control variable. Finally, in the analysis using schools from the former Abbott districts, schoolwide graduation rates were not predicted by the race matching variable.

Limitations

This study was subject to important limitations that may have impacted the results. First, as mentioned previously, the study only used one year of data, whereas the use of longitudinal data may have provided evidence of trends over time (Gershenson, Hart, et al., 2021). Furthermore, the data used in the NJDOE sample set were reported by each school in accordance with the New Jersey Department of Education's various data submission requirements. Therefore, the accuracy of the data is limited by the extent to which each school and school district accurately interpreted, collected, and reported each data point to the Department. Furthermore, since the present study measures the impact of race matching on Black students, various data was omitted from the sample. Many schools in this subgroup did not have the minimum sample size of 10 students required for public reporting.

Finally, the study used school-level data on the percentages of Black teachers and Black students at each school to describe race matching, but the data do not explicitly identify which students had Black teachers in essential subjects such as ELA and math. This study posits that students in the analyzed schools are exposed to teachers of color, though the extent is unclear. Therefore, when applying these results for any purpose, this limitation should be kept in mind.

Recommendations for Future Study

Based on the limitations described above, it is possible to identify many directions that future studies in the area of race matching could pursue.

First, a student outcome measure encompassing all students, not just those in currently tested grades, in New Jersey over multiple years could better describe the impact of teachers and students sharing the same race by capturing students as they progress through various grades. There is research that discusses positive results in the early grades (Gottfried et al., 2022), and studies have tracked students up to the 12th grade (Gershenson, Hart, et al., 2021), but, as this dissertation focuses on the New Jersey results, I recommend conducting a longitudinal study using New Jersey outcome measures.

Second, since the data set used does not indicate which students were taught by Black teachers or any teachers of color, it would be prudent to recommend a future study matching Black students with Black teachers as a central point of the data collection process. Conducting such a study would require researchers to obtain this information, which is not available to the public, from specific school districts. The educational outcomes for students taught by Black students could be analyzed over time using the same educational outcomes as in this study. Student-level data should be a rich source for quantitative methods, and qualitative research methods where Black students and Black teachers can provide firsthand accounts of their experiences should also prove valuable. Most importantly, listening to students and understanding their perspectives can lead to recommendations for practice that may increase student engagement, help students feel more invested in their own learning, and result in even stronger student–teacher collaboration.

Third, it is acknowledged that racial and ethnic race matching can be extended to include other school staff members, such as administrators, counselors, and support staff. These individuals can play prominent and influential role in students' lives, so a future study on the relationship between these staff members and student outcomes is recommended.

Finally, future research should also include additional variables to describe the schools being studied, as doing so could provide a better understanding of settings where race matching may lead to the best possible improvement despite other challenging factors that may inhibit positive student outcomes. In the present study, urban schools were identified as those that were formerly classified as Abbott districts. However, there are variations among these schools, such as administrator experience, staff education levels, numbers of violent incidents and vandalism infractions, student discipline records, and age and condition of the school building, that could represent additional variables that should be considered.

Recommendations for Policy and Practice

Based on the positive results of race matching when analyzing schoolwide outcomes for ELA, math, chronic absenteeism, and graduation rates, this study adopts the position that all students can benefit from the ethnic and cultural diversity that teachers of color can bring to a faculty. The results were robust for the schoolwide group and further emphasize the need to train and hire more teachers of color as an overarching recommendation. Table 3 presents the 2019–2020 data on teacher and administrator demographics in New Jersey, which are the latest available to the public, and shows the disparities when it comes to hiring teachers of color compared to White teachers. White teachers make up 83.2% of all teachers in the state, with Hispanic teachers accounting for 7.6%, Black teachers 6.6%, and Asian teachers 2.1%. Extending the data to highlight administrators still shows significant gaps, as 77% of the administrators in the state are White, whereas Hispanic administrators account for 7.4%, Black administrators 14.1%, and Asian administrators 1.2%. These figures do not match the demographics of the students in the state. Policymakers and school district administrators need to

increase the pool of teachers of color in New Jersey; however, this cannot be accomplished without significant assistance from all parties who influence policy and practice.

First, it starts when students discuss career goals and aspirations in early education. Educators should understand that a career goal in education is beneficial to society and rewarding to the individual, so exposing students to the field should be an inherent part of the career awareness curriculum for elementary students. The State of New Jersey Department of Education (2020) has mandatory standards requiring that all school districts adopt and use K-12, which consists of standard 9 Career Readiness, Life Literacies, and Key Skills standards. The specific areas to be covered within the standards are categorized by the end of grades 2, 5, 8, and12. With regard to the career awareness and planning component, students should understand the skills and knowledge required in different jobs, and, by the end of grade 5, they should understand that an individual's passion affects their employment potential. By the end of grades 8 and 12, students should have gained an understanding of the importance of developing a career plan. Students should be exposed to the teaching field during the career awareness instruction provided in these formative years to allow them to explore and consider this career in their career plans.

Second, additional planning needs to be conducted in collaboration with higher education institutions. These organizations should receive direct funding for studies that lead to implementing strategies aimed at innovative programs to increase the numbers of students of color who choose teaching as a major. Such strategies could include removing any potential barriers for students who historically may not have entered or remained in teaching majors and actively promoting teaching education as a promising career opportunity.

Third, incentivizing the teaching profession should be a central element of the state's budget. Such incentivization could be funded by a dedicated source from which school districts could draw funds to provide signing bonuses, student loan forgiveness, and relocation expense assistance for teachers of color, who may face additional financial burdens when compared to their White colleagues. These funds should not come from a school district's general budget through a line-item appropriation; rather, they should be provided by a central government source that will reimburse a school district each time it can demonstrate that its leadership has provided one of the aforementioned incentives to a teacher of color who is new to a school district.

Fourth, parties capable of influencing policy and practice need to develop a more comprehensive understanding of why there are smaller numbers of teachers of color employed in New Jersey. One factor is the challenging situations that new teachers encounter during their initial years. Ingersoll et al. (2017) note that teachers of color are more likely to work in urban communities, and nearly two-thirds of all teachers of color work in high-poverty schools. The authors indicate that between 1987 and 2012, the number of teachers of color in higher-poverty schools increased by 288%, but turnover for teachers of color was also 25% higher than that for other teachers. These data are not highlighted to suggest that teachers of color should not work in such communities but rather to acknowledge the challenges they face in urban education as described in the literature. It is likely that no factor is more important than educational inequalities (Welsh & Swain, 2020). Thus, there must be a concerted effort to change the environment in which teachers of color work through providing improved resources and better training to prepare them properly for the frontlines, and this also applies for teachers of color in urban and suburban school districts. Importantly, while policymakers can and should provide

improved monetary resources, such effort needs to be implemented in concert with educators to channel funds toward the best uses. Prior to funds being obligated to other mandates as required by federal and state requirements and local collective bargaining agreements, they should be directed in a very deliberate and targeted manner toward methods for improving school climate, novice teacher training, and mental health supports for teachers, which should support the retention of teachers of color.

Finally, greater accountability on the part of all groups mentioned above is required due to the crucial need to ensure student success. All of these recommendations should utilize measurable outcomes that can be used to estimate progress when implemented. Each responsible agency or organization should set midyear benchmarks and annual targets for such strategies and regularly report to the public, as such transparency should promote active support from all stakeholders.

New Jersey must focus on a path of progress, as thousands of students are still provided with an education that does not meet their needs. Educational leaders have a moral obligation to review and develop all policies and practices through an equity lens and seek to provide all students with the skills necessary to succeed; this belief should drive all educators' daily work. Leaders must set an example in ensuring that school environments and the accompanying resources match the needs of students. Further addressing teacher–student racial and ethnic disparities through improvements in teacher preparation, recruitment, and hiring practices is essential.

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Appendix

Tables

Table 1

Percentages of Student Groups Meeting Expectations

2017–2019 NJSLA Results (Grades 3–10)

	2017		2018		2019	
	ELA	Math	ELA	Math	ELA	Math
All Students	54.5	42.9	56.6	44.7	57.8	44
White	64	52.3	65.8	54.3	67.2	53.9
Hispanic	39.2	26.7	42.1	28.7	43.7	28
Black	34.5	21	36.9	22.8	38	22.2
Asian	81.1	76	82.9	77.7	83.4	77

Note. From *Direction of the New Jersey Assessment System and Spring 2019 Results*, by L. P. Eno et al., 2019 (https://www.nj.gov/education/sboe/meetings/agenda/2019/september/public/4a State Level Student Performance Data.pdf). Copyright 2019 by the NJDOE.

Table 2

2019–2020

Cohort 2020 4-Year Graduation

Rate

Student Group	State: Graduates	State: Continuing Students	State: Noncontinuing Students
Statewide	91%	4.10%	4.90%
White	95%	2.70%	2.30%
Hispanic	84.80%	5.90%	9.30%
Black or African American	85.70%	6.60%	7.80%
Asian, Native Hawaiian, or Pacific Islander	96.80%	2%	1.20%
American Indian or Alaska Native	89.40%	3.50%	7.10%
Two or More Races	92%	3.20%	4.80%

Note. Adapted from *2020-2021: NJ School Performance Report*, by the State of New Jersey Department of Education, n.d.-f (https://rc.doe.state.nj.us/download). Copyright 2020 by the NJDOE.

Table 3

New Jersey Student, Teacher, and Administrator Demographics

2019–2020

Category	Students in State	Teachers in State	Administrators in State
Female	48.5%	77%	55.5%
Male	51.5%	23%	44.5%
White	41.4%	83.2%	77%
Hispanic	30.5%	7.6%	7.4%
Black or African American	15.1%	6.6%	14.1%
Asian	10.2%	2.1%	1.2%
American Indian or Alaska Native	0.1%	0.1%	0.1%
Native Hawaiian or Pacific Islander	0.2%	0.1%	0.1%
Two or More Races	2.4%	0.2%	0.2%

Note. Adapted from *2020-2021: NJ School Performance Report*, by the State of New Jersey Department of Education, n.d.-f (https://rc.doe.state.nj.us/download). Copyright 2020 by the NJDOE.

Table 4

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Schoolwide ELA SGP	1,746	15	86	50.84	10.41
Black Student ELA SGP	944	13	88	45.50	11.73
Schoolwide Math SGP	1,740	6.50	96	50.74	11.09
Black Student Math SGP	894	1	86	44.01	12.06
Black Student Pct in School	2,500	.00	100	15.08	20.44
Black Teacher Pct in School	2,476	.00	94.40	6.48	12.97
Schoolwide Chronic Abs Pct	2,367	.00	83.30	9.71	8.46
Black Student Chronic Abs Pct	1,512	.00	81.30	13.56	11.09
Log Black Student Chronic Abs Pct	1,393	-.36	4.40	2.44	.73
Schoolwide Graduation Rate	415	29.10	100	91.67	9.37
Black Student Graduation Rate	215	32.6	100	86.81	11.40
Log Abs Racial Match Variable	2,410	-2.30	4.61	1.56	1.29
High Race Matching	2,368	.00	1	.16	.37
Medium Race Matching	2,368	.00	1	.66	.47
Low Race Matching	2,368	.00	1	.18	.39
Economically Disad Student Pct	2,500	.00	100	35.62	28.72
Total School Enrollment	2,500	1	5,366	547.46	411.59
Teachers' Avg Years of Exp	2,476	.00	27.50	11.99	2.88

Higher Pct of Black Teachers	2,466	.00	1	.09	.29
Former Abbott District Schools	2,510	.000	1	.18	.38

Note: This table presents all the variables used in the study.

Table 5

New Jersey Former Abbott School Districts

School District	Total Enrollment
Asbury Park	1,596.5
Bridgeton	6,012
Burlington City	1,690
Camden	6,355
East Orange	8,748
Elizabeth	27,157
Garfield	4,715
Gloucester City	2,220
Harrison	1,945
Hoboken	2,230
Irvington	6,836
Jersey City	25,496
Keansburg	1,539
Long Branch	5,399
Millville	4,944

Neptune Township	3,664.5
New Brunswick	9,172
Newark	36,405
Orange	5,236.5
Passaic City	12,890
Paterson	23,356
Pemberton Township	4,355
Perth Amboy	10,512
Phillipsburg	3,788
Plainfield	8,438.5
Pleasantville	3,403
Salem City	1,179
Trenton	12,878.5
Union City	11,866
Vineland	9,487
West New York	7,580

Note. Adapted from *Fall Enrollment Reports*, by the State of New Jersey Department of Education, n.d.-b (https://www.nj.gov/education/doedata/enr/index.shtml). Copyright 2021 by the NJDOE. Adapted from *DOE Archives. Abbott History*, by the State of New Jersey Department of Education, 2021 (https://www.nj.gov/education/archive/abbotts/). Copyright 2021 by the NJDOE.

Table 6

2018–2019

New Jersey Chronic Absenteeism Rates

30 Districts and Charter Schools with the

Highest Chronic Absenteeism Rates

District Name	Chronic Abs. Count	Chronic Abs. Pct.
Trenton Stem-to-Civics Charter School*	343	61.3
Achieve Community Charter School*	116	53
Camden City School District*	2,236	33.8
Marion P. Thomas Charter School*	481	32.6
Compass Academy Charter School*	60	30.6
Wallkill Valley Regional High School	183	30.3
Camden Prep, Inc.*	216	30
Trenton Public School District*	3,659	30
Roseville Community Charter School*	94	29.7
Newark Educators Community Charter School*	72	28.8
Chartertech High School for the Performing Arts	95	28.1
Paterson Public School District*	6,704	27.6
Gloucester City Public School District*	526	27.5
University Heights Charter School*	220	27.1
Newark Public School District*	9,212	26.8

College Achieve Greater Asbury Park Charter School*	53	26.6
Clementon Elementary School District	125	26.4
Sparta Township Public School District	787	25
Peoples Preparatory Charter School District*	92	24.9
Freedom Prep Charter School*	210	24.7
Keansburg School District*	354	24.3
Great Oaks Legacy Charter School*	362	23.6
Atlantic City School District	1,496	23.4
Millville Public Charter School*	45	23.1
Lawnside School District	60	22.7
Paulsboro School District	254	22.6
Asbury Park School District*	358	22.3
Salem City School District*	232	22.1
M.E.T.S. Charter School*	160	21.9
Willingboro Public School District	668	21.6

Note. Adapted from *2018-2019: NJ School Performance Report*, by the State of New Jersey Department of Education, n.d.-e (https://rc.doe.state.nj.us/download) Copyright 2019 by the NJDOE.

* Former Abbott districts or schools located in the boundaries of former Abbott districts.

Table 7

Model Summary of Coefficients for Research Question 1 (Schoolwide ELA SGP)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	-1.853***	-1.182***	-1.256***	-1.266***	-1.171***
		(.222)	(.222)	(.222)	(.229)
Pct Econ Disadv		-.058***	-.063***	-.062***	-.066***
		(.009)	(.009)	(.010)	(.010)
Avg Teach Years			-.374***	-.377***	-.376***
			(.090	(.090)	(.090)
Total Enrollment				.000	-.001
				(.001)	(.001)
High Pct of Black Tchr					1.433
					(.837)
Constant	53.635***	54.775***	59.542***	59.790***	59.675***
	(.386)	(.424)	(1.224)	(1.302)	(1.303)
N	1,693	1,693	1,693	1,693	1,693
R^2	.050	.071	.081	.081	.083
Adjusted R^2	.050	.070	.079	.079	.080

Note: The dependent variable is schoolwide student ELA SGP.

*p < .05, **p < .01, **p < .001

Table 8

Model Summary of Coefficients for Research Question 1 (Black Student ELA SGP)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	-.595	-.367	-.470	-.586	-.535
	(.377)	(.394)	(.394)	(.405)	(.422)
Pct Econ Disadv		-.028	-.035*	-.034*	-.036*
		(.015)	(.015)	(.015)	(.016)
Avg Teach Years			-.375**	-.393**	-.393**
				(.133)	(.133)
Total Enrollment				-.001	-.001
				(.001)	(.001)
High Pct of Black					.624
Tchr					(1.436)
Constant	46.834***	47.740***	52.726***	53.957***	53.957***
	(.925)	(1.036)	(2.038)	(2.267)	(2.267)
N	933	933	933	933	933
R^2	.003	.007	.015	.017	.017
Adjusted R^2	.002	.005	.012	.013	.012

Note: The dependent variable is Black student ELA SGP.

*p < .05, **p < .01, **p < .001

Table 9

Model Summary of Coefficients for Research Question 1 (Schoolwide Math SGP)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	-2.289***	-1.032***	-1.074***	-1.093***	-1.044***
	(.208)	(.229)	(.230)	(.231)	(.238)
Pct Econ Disadv		-.110***	-.112***	-.110***	-.122***
		(.010)	(.010)	(.010)	(.010)
Avg Teach Years			-.217*	-.222*	-.222*
			(.093)	(.094)	(.094)
Total Enrollment				-.001	-.0001
				(.001)	(.001)
High Pct of Black					.742
Tch					(.867)
Constant	54.125***	56.274***	59.038***	59.500***	59.440***
	(.409)	(.438)	(1.270)	(1.349)	(1.351)
N	1,687	1,687	1,687	1,687	1,687
R^2	.067	.132	.135	.136	.136
Adjusted R^2	.067	.131	.134	.134	.133

Note: The dependent variable is schoolwide math SGP.

*p < .05, **p < .01, **p < .001

Table 10

Model Summary of Coefficients for Research Question 1 (Black Student Math SGP)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	-.696	-.329	-.473	-.603	-.439
	(.406)	(.418)	(.418)	(.43)	(.445)
Pct Econ Disadv		-.053***	-.061***	-.060***	-.067***
		(.015)	(.016)	(.016)	(.016)
Avg Teach Years			-.439*	-.460***	-.461***
			(.137)	(.138)	(.138)
Total Enrollment				-.002	-.002
				(.001)	(.001)
High Pct of Black Tch					2.133
					(1.509)
Constant	45.575***	47.443***	53.366***	54.753***	54.618***
	(1.013)	(1.144)	(2.173)	(2.419)	(2.419)
N	884	884	884	884	884
R^2	.003	.017	.028	.030	.032
Adjusted R^2	.002	.014	.025	.025	.026

Note: The dependent variable is Black student math SGP.

*p < .05, **p < .01, **p < .001

Table 11

Model Summary of Coefficients for Research Question 2 (Schoolwide Chronic Absenteeism)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	2.313***	.979***	1.009***	1.040***	1.095***
	(.131)	(.140)	(.140)	(.140)	(.144)
Pct Econ Disadv		.119***	.122***	.119***	.117***
		(.006)	(.006)	(.006)	(.006)
Avg Teach Years			.240***	.237***	.236***
			(.057)	(.057)	(.057)
Total Enrollment				.002***	.002***
				(.000)	(.000)
High Pct of Black					.827
Tch					(.541)
Constant	6.278***	4.029***	1.007***	.083	.021
	(.259)	(.268)	(.767)	(.788)	(.789)
N	2,290	2,290	2,290	2,290	2,290
R^2	.120	.241	.247	.254	.255
Adjusted R^2	.119	.240	.246	.253	.253

Note: The dependent variable is schoolwide chronic absenteeism.

*p < .05, **p < .01, **p < .001

Table 12

Model Summary of Coefficients for Research Question 2 (Black Student Chronic Absenteeism)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	.027	-.059***	-.054**	-.045*	-.031
	(.018)	(.017)	(.017)	(.018)	(.018)
Pct Econ Disadv		.011***	.011***	.011***	.011***
		(.001)	(.001)	(.001)	(.001)
Avg Teach Years			.037***	.037***	.037***
			(.006)	(.006)	(.006)
Total Enrollment				.000**	.000**
				(.000)	(.000)
High Pct of Black					.179**
Tch					(.069)
Constant	2.380***	2.059***	1.581***	1.477***	1.468***
	(.042)	(.045)	(.096)	(.102)	(.102)
N	1,379	1,379	1,379	1,379	1,379
R^2	.002	.141	.160	.165	.169
Adjusted R^2	.001	.140	.158	.163	.166

Note: The dependent variable is Black student chronic absenteeism.

*p < .05, **p < .01, **p < .001

Table 13

Model Summary of Coefficients for Research Question 3 (Schoolwide Graduation Rate)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	-2.450***	-.829*	-.809*	-.822*	-1.041**
	(.309)	(.356)	(.352)	(.355)	(.369)
Pct Econ Disadv		-.142***	-.156***	-.155***	-.148***
		(.018)	(.019)	(.019)	(.019)
Avg Teach Years			-.439**	-.436**	-.416**
			(.141)	(.141)	(.141)
Total Enrollment				.000	.000
				(.001)	(.001)
High Pct of Black					-2.947*
Tch					(1.385)
Constant	95.757***	97.945***	103.545***	103.705***	103.826***
	(.652)	(.672)	(1.912)	(1.984)	(1.976)
N	406	406	406	406	406
R^2	.135	.247	.265	.265	.274
Adjusted R^2	.133	.244	.260	.258	.265

Note: The dependent variable is the schoolwide graduation rate.

*p < .05, **p < .01, **p < .001

Table 14

Model Summary of Coefficients for Research Question 3 (Black Student Graduation Rate)

	(1)	(2)	(3)	(4)	(5)
Log Race Match	-1.759**	-1.162	-1.241	-1.237	-1.717*
	(.650)	(.679)	(.673)	(.718)	(.715)
Pct Econ Disadv		-.085**	-.109**	-.109**	-.074*
		(.032)	(.033)	(.033)	(.034)
Avg Teach Years			-.623*	-.623*	-.591*
			(.268)	(.269)	(.262)
Total Enrollment				2.208E-5	.001
				(.001)	(.001)
High Pct of Black					-11.563***
Tchr					(3.412)
Constant	91.074***	93.577***	102.215***	102.177***	101.091***
	(1.688)	(1.912)	(4.171)	(4.619)	(4.518)
N	213	213	213	213	213
R^2	.034	.065	.089	.089	.136
Adjusted R^2	.029	.056	.075	.071	.116

Note: The dependent variable is Black student graduation rate.

*p < .05, **p < .01, **p < .001

Table 15

Descriptive Statistics

Former Abbott Schools

	N	Minimum	Maximum	Mean	Std. Deviation
Schoolwide ELA SGP	325	18.5	75	48.18	10.44
Black Student ELA SGP	273	16	86	44.56	11.44
Schoolwide Math SGP	321	13.5	96	44.71	10.70
Black Student Math SGP	266	13	75	41.51	11.16
Pct of Black Students	448	0	96	32.02	28.22
Pct of Black Teachers	439	0	80	21.62	20.33
Schoolwide Chronic Absenteeism	415	1	67.5	18.64	12.22
Black Student Chronic Absenteeism	366	0	71.7	23.04	12.80
Log Black Student Chronic Absenteeism	365	0.1	4.27	2.97	0.63
Schoolwide Graduation Rate	74	33.2	100	84.56	13.06
Black Student Graduation Rate	63	32.6	100	83.23	14.42
Log Abs Racial Match	436	-2.3	4.14	2.066	1.26
Pct of Econ. Disadvantaged	448	12	100	73.57	15.86
Teachers' Avg Years Exp	439	0.5	22	12.22	2.84
Total School Enrollment	448	16	2,880	614.24	371.32
Higher Pct of Black Teachers	438	0	1	0.24	0.43

Note: This table provides all variables for the former Abbott schools data set.

Table 16

Model Summary of Coefficients for Research Question 4 (Urban Schools)

	Schoolwide ELA SGP	Schoolwide Math SGP	Schoolwide Chron. Abs	Schoolwide Grad. Rate
	(1)	(2)	(3)	(4)
Log Race Match	-1.638**	-2.224***	2.460***	-1.089
	(.485)	(.504)	(.498)	(1.464)
Pct Econ Disadv	-.029	-.050	-.085*	.183
	(.040)	(.042)	(.039)	(.112)
Avg Teach Years	-.570	-.307	.240	-.603
	(.203)**	(.212)	(.212)	(.5)71
Total Enrollment	.004	-.001	.001	-.005
	(.002)	(.003)	(.002)	(.003)
High Pct of Black	.412	2.872*	.452	-6.131
Tchr	(.753)	(1.355)	(1.388)	(4.097)
Constant	58.440***	56.826***	15.832***	87.801***
	(4.475)	(4.652)	(4.455)	(11.501)
N	323	319	410	72
R^2	.084	.093	.082	.150
Adjusted R^2	.069	.078	.071	.086

Note: The dependent variables are listed as the header for each column.

*p < .05, **p < .01, **p < .001

Table 17

Model Summary of Coefficients for Research Questions (Race Matching Categorical Variable)

	Schoolwide ELA SGP	Schoolwide Math SGP	Schoolwide Chron. Abs	Schoolwide Grad. Rate
	(1)	(2)	(3)	(4)
High Match	3.632***	3.462***	-4.128***	4.209*
	(1.424)	(.992)	(.609)	(1.632)
Medium Match	2.133**	2.555***	-2.990)***	3.316**
	(.719)	(.749)	(.459)	(1.115)
Pct Econ Disadv	-.075***	-.119***	.123***	-.155***
	(.010)	(.010)	(.006)	(.018)
Avg Teach Years	-.362***	-.202*	.238***	-.441**
	(.091)	(.094)	(.058)	(.142)
Total Enrollment	-.001	-.002	.002***	.000
	(.001)	(.001)	(.000)	(.000)
High Pct of Black	1.838*	1.238	.602	-2.822*
Tchr	(.843)	(.875)	(.546)	(1.400)
Constant	56.013***	55.607***	4.128	99.815***
	(1.424)	(1.480)	(.897)	(2.286)
N	1,662	1,656	2,250	402
R^2	.076	.133	.253	.276
Adjusted R^2	.073	.130	.251	.265

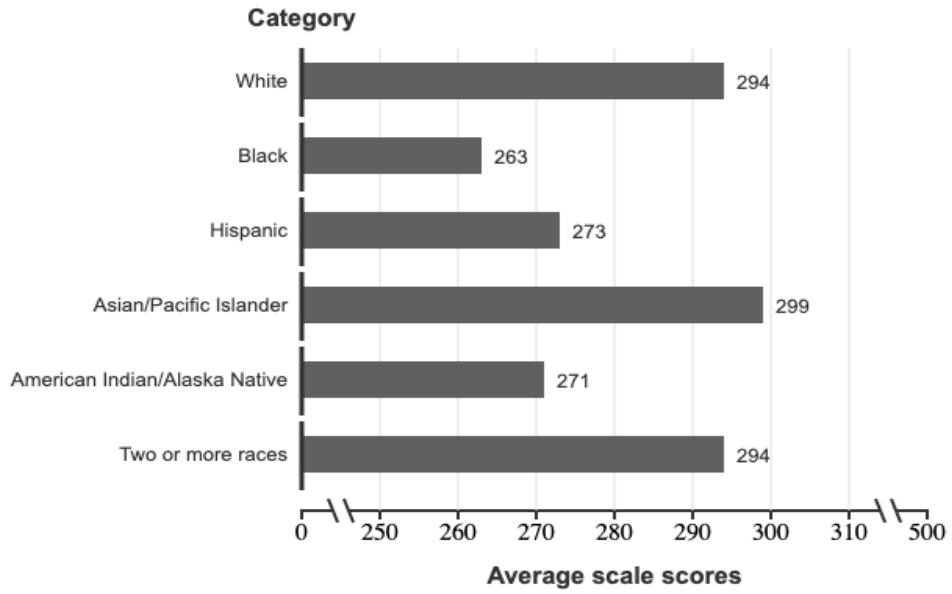
Note: The dependent variables are listed as column headings

*p < .05, **p < .01, **p < .001

Figures

Figure 1

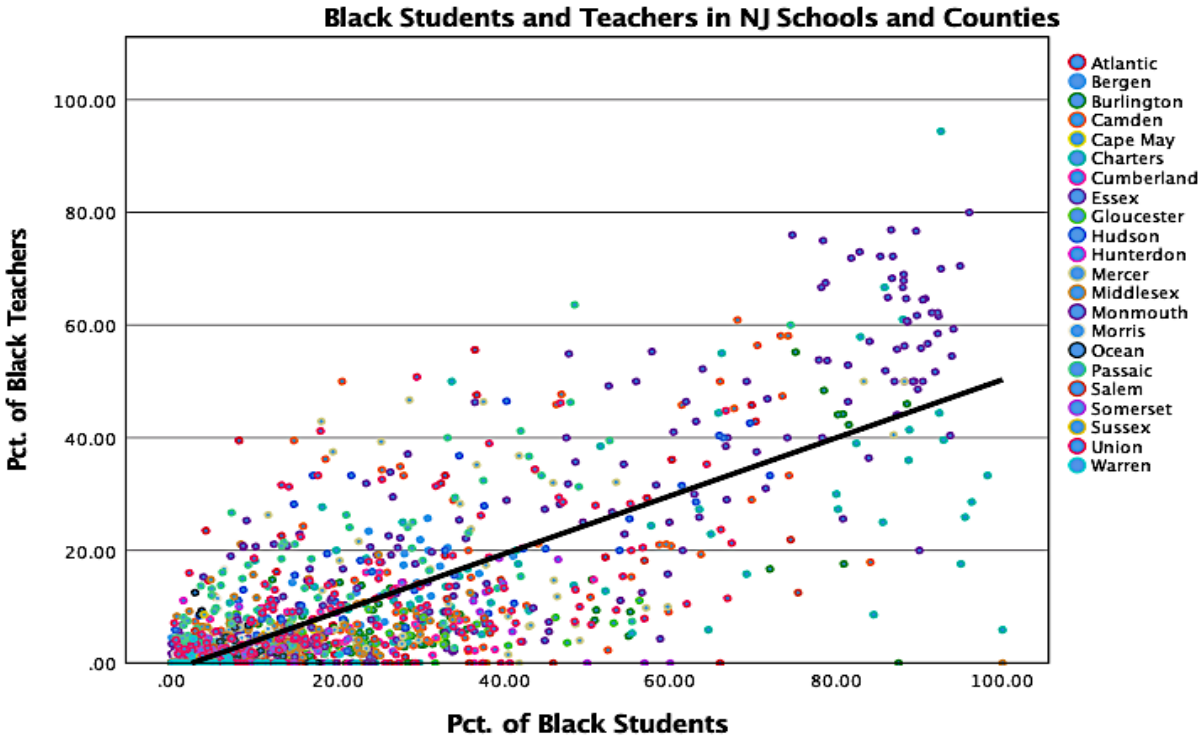
Average scale scores for grade 12 reading, by Race/ethnicity used to report trends, school-reported [SDRACE] for jurisdiction: 2019
2019, National public



NOTE: Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Prior to 2011, students in the "two or more races" category were categorized as "unclassified." The NAEP Reading scale ranges from 0 to 500. Some apparent differences between estimates may not be statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2019 Reading Assessment.

Note. From *The Nation's Report Card: NAEP. Achievement Gaps Dashboard*, by the National Center for Education Statistics (NCES), 2019 (https://nces.ed.gov/nationsreportcard). Copyright 2019 by the USDE.

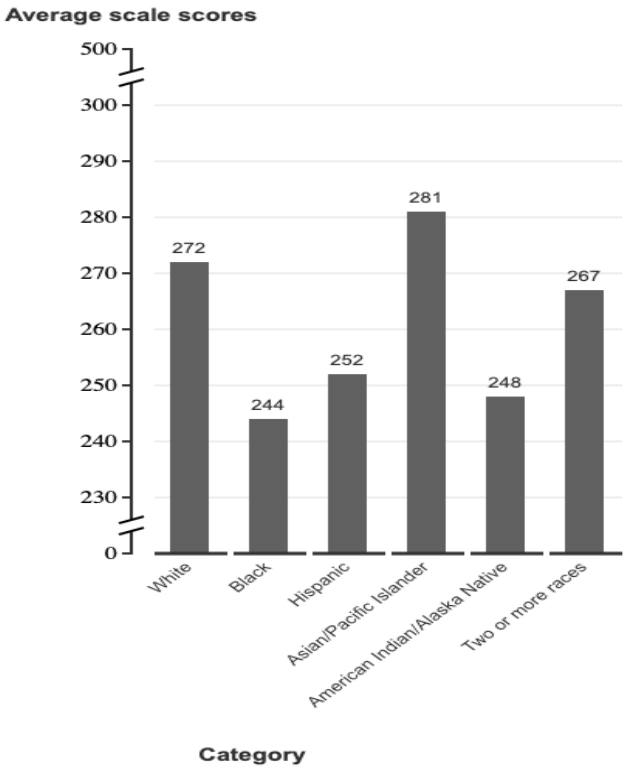
Figure 2



Note. Adapted from *2018-2019: NJ School Performance Report*, by the State of New Jersey Department of Education, n.d.-e. (https://rc.doe.state.nj.us/download) Copyright 2019 by the NJDOE.

Figure 3

Average scale scores for grade 8 reading, by Race/ethnicity used to report trends, school-reported [SDRACE] for jurisdiction: 2019
2019, National



NOTE: Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Prior to 2011, students in the "two or more races" category were categorized as "unclassified." The NAEP Reading scale ranges from 0 to 500. Some apparent differences between estimates may not be statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2019 Reading Assessment.

Note. From *The Nation's Report Card: NAEP. Achievement Gaps Dashboard*, by the National Center for Education Statistics (NCES), 2019 (https://nces.ed.gov/nationsreportcard). Copyright 2019 by the USDE.

Figure 4

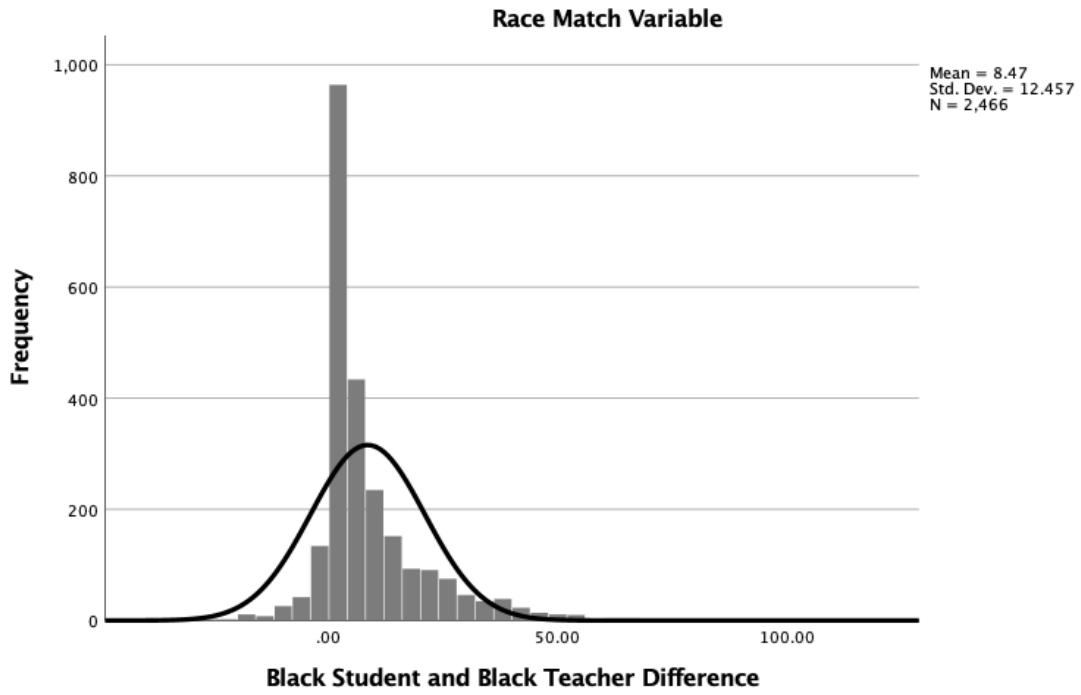

Race Match Variable
Mean = 8.47
Std. Dev. = 12.457
N = 2,466
Frequency
1,000
800
600
400
200
0
.00
50.00
100.00
Black Student and Black Teacher Difference

Figure 5

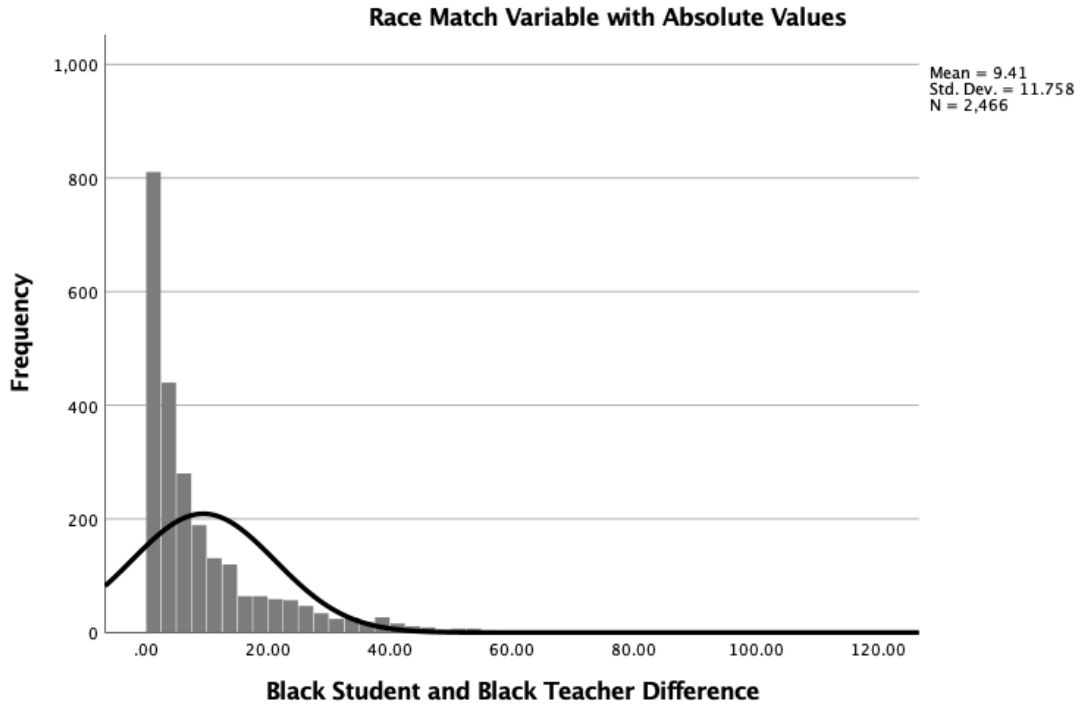


Figure 6

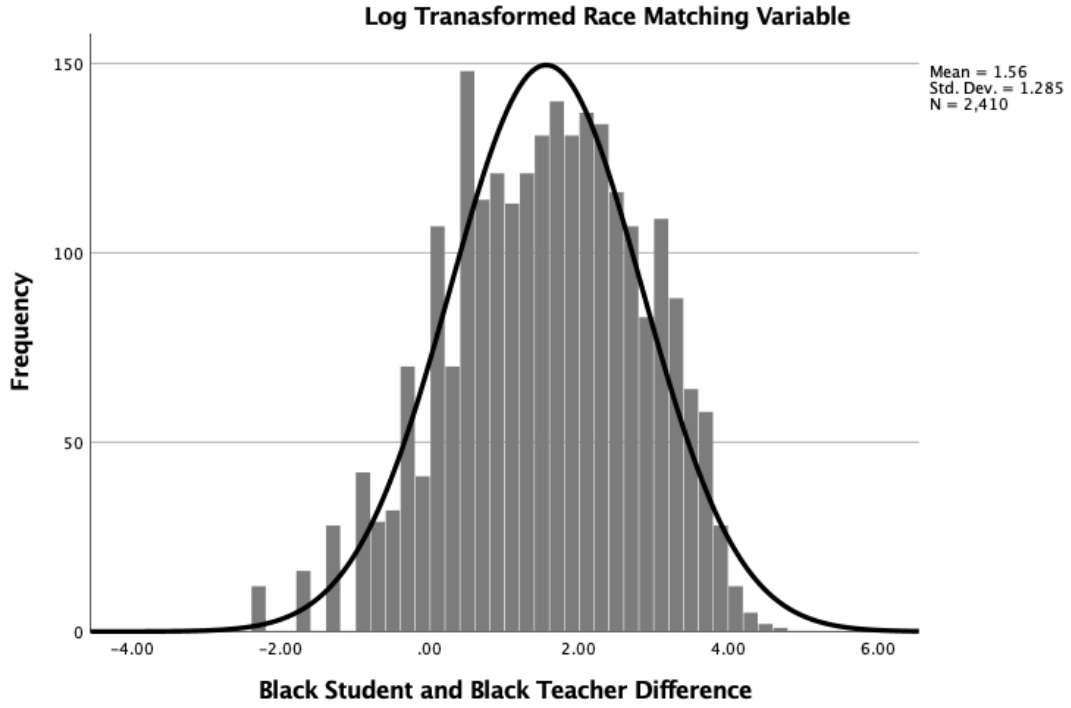


Figure 7

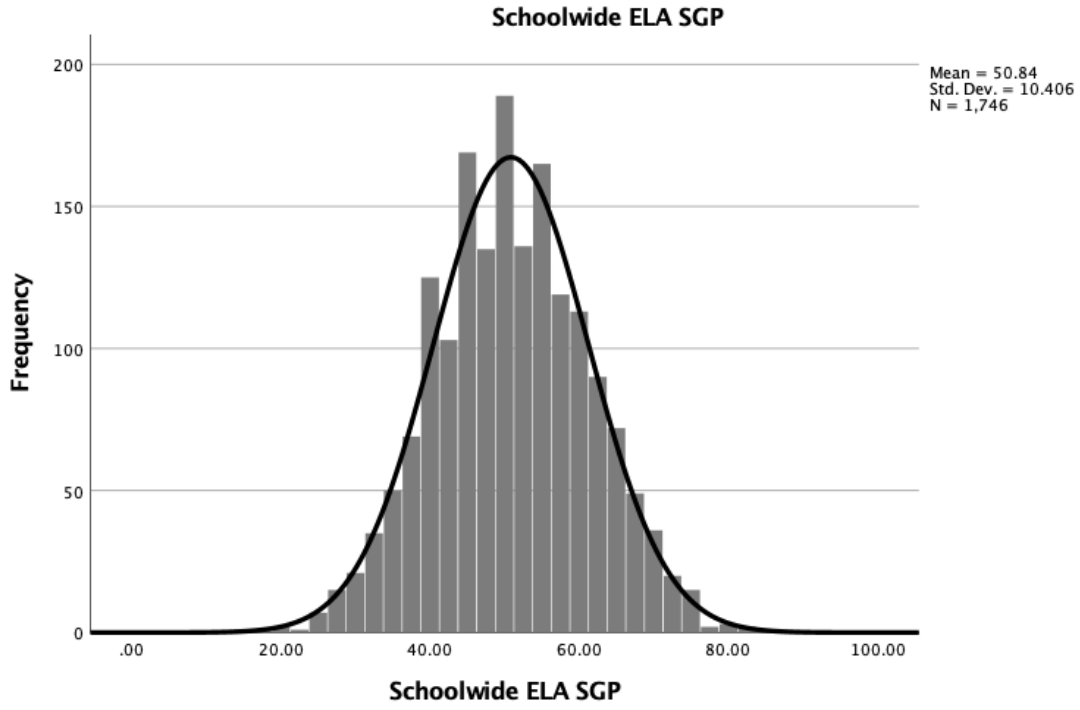


Figure 8

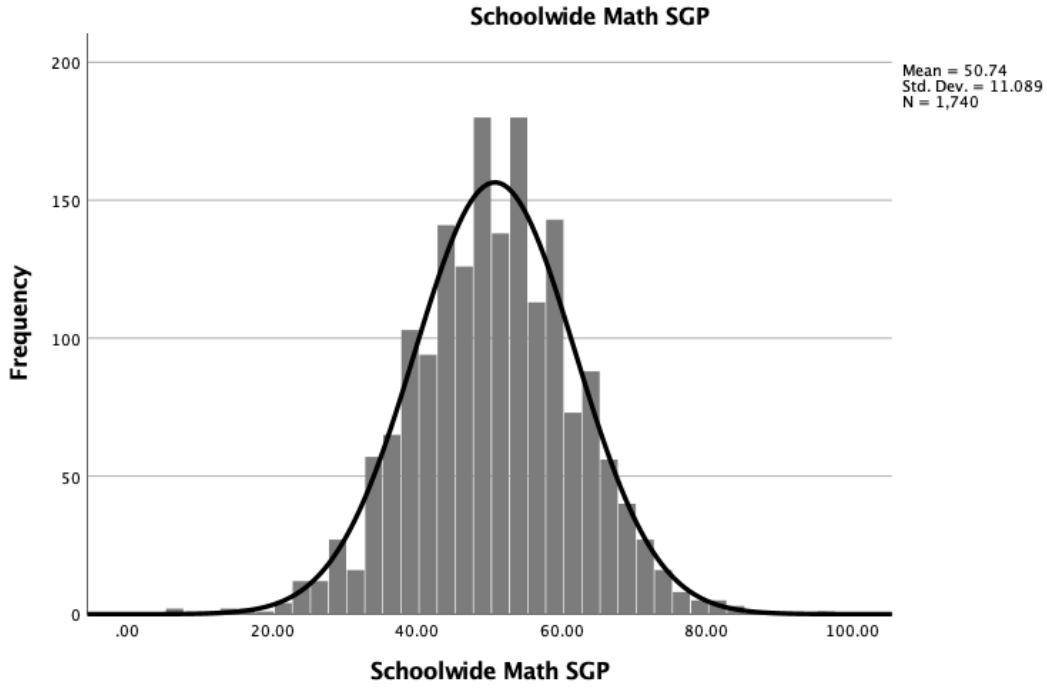


Figure 9

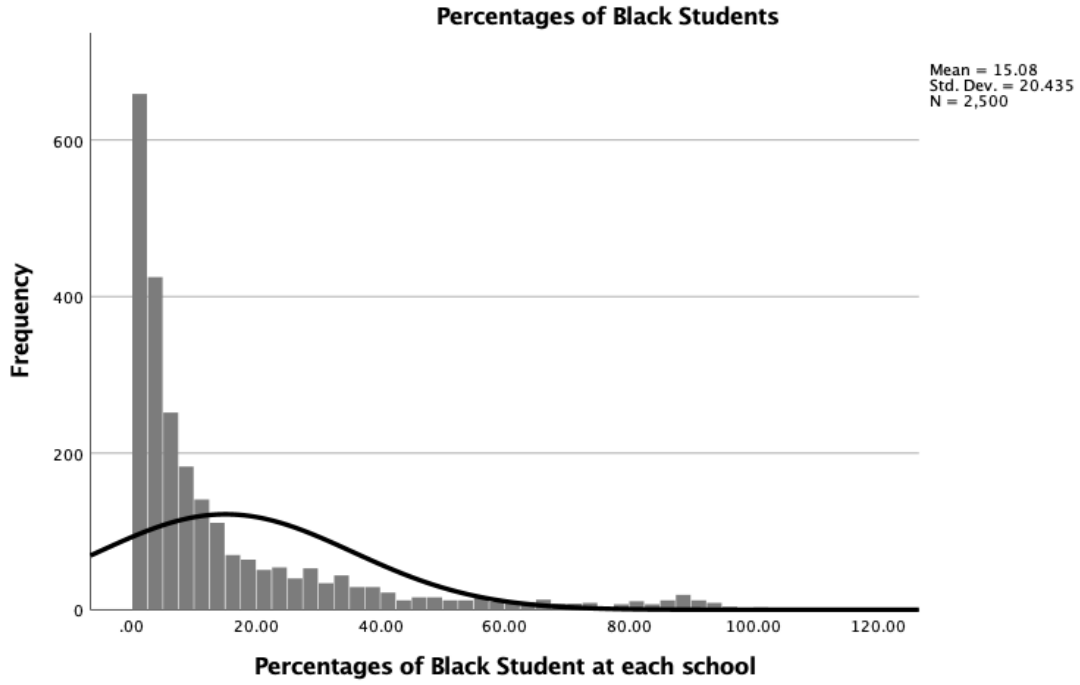


Figure 10

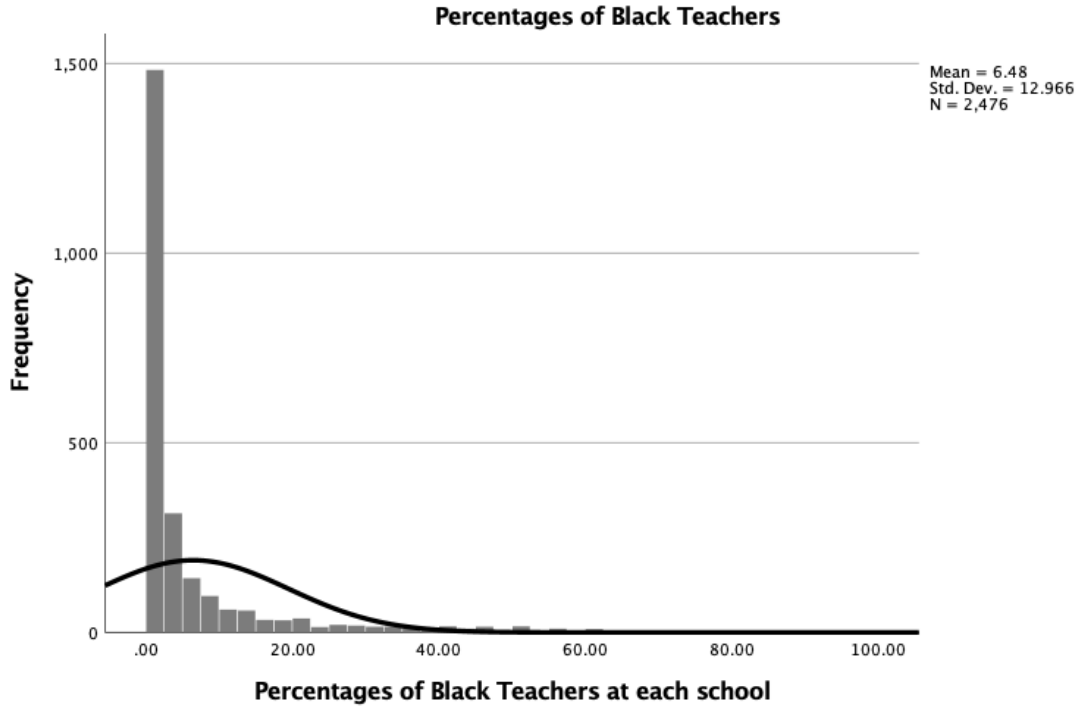


Figure 11

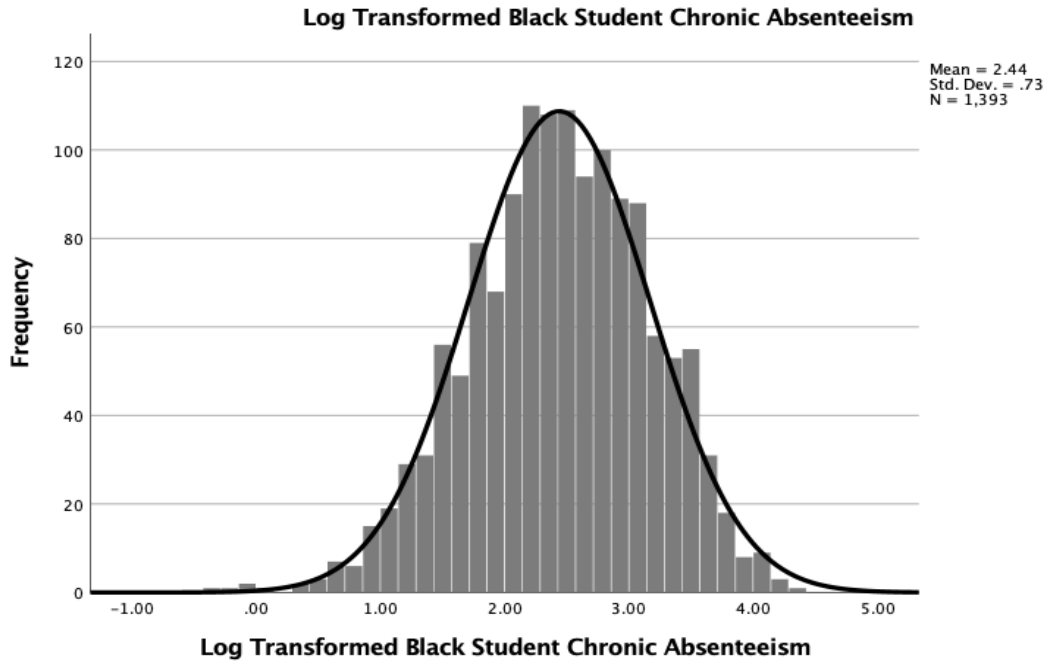

Log Transformed Black Student Chronic Absenteeism
Mean = 2.44
Std. Dev. = .73
N = 1,393
Frequency
120
100
80
60
40
20
0
−1.00
.00
1.00
2.00
3.00
4.00
5.00
Log Transformed Black Student Chronic Absenteeism

Figure 12

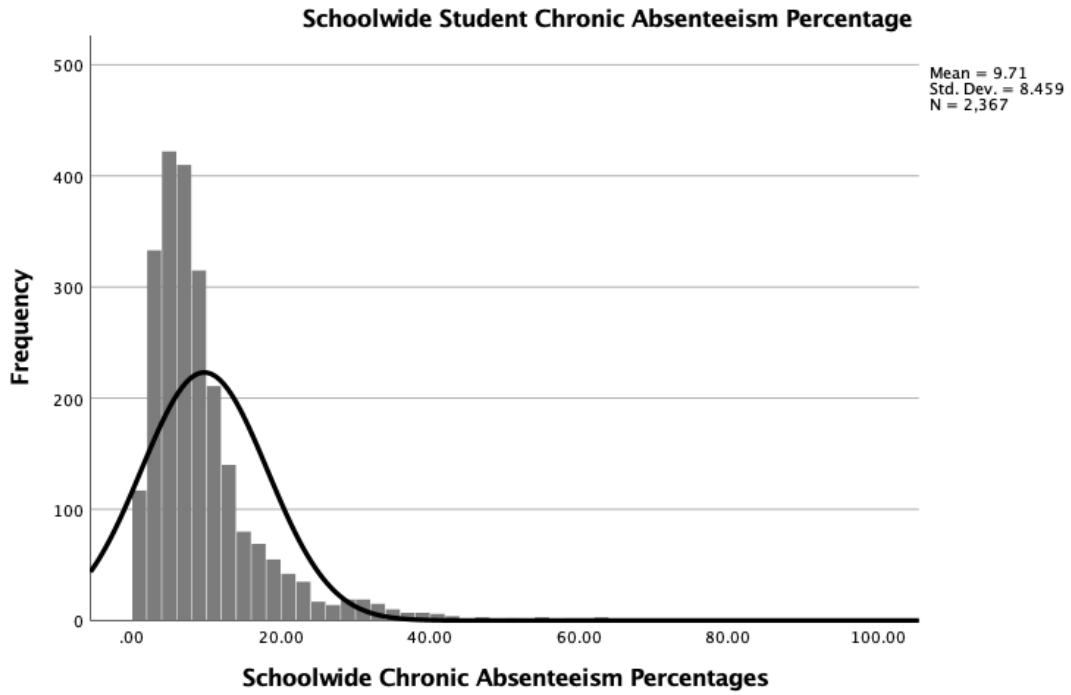


Figure 13

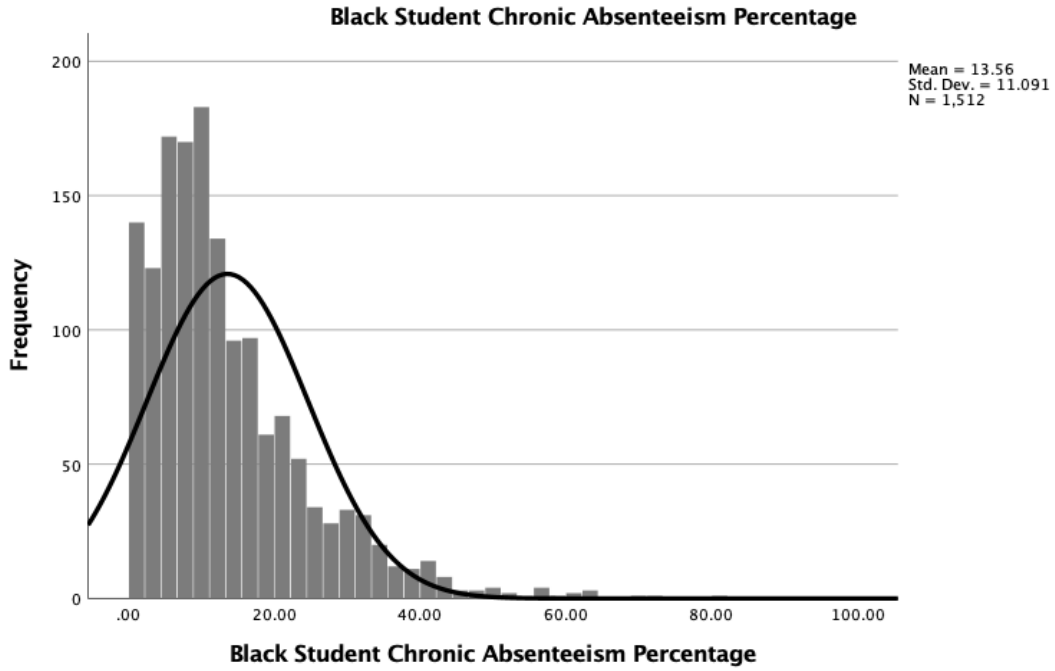


Figure 14

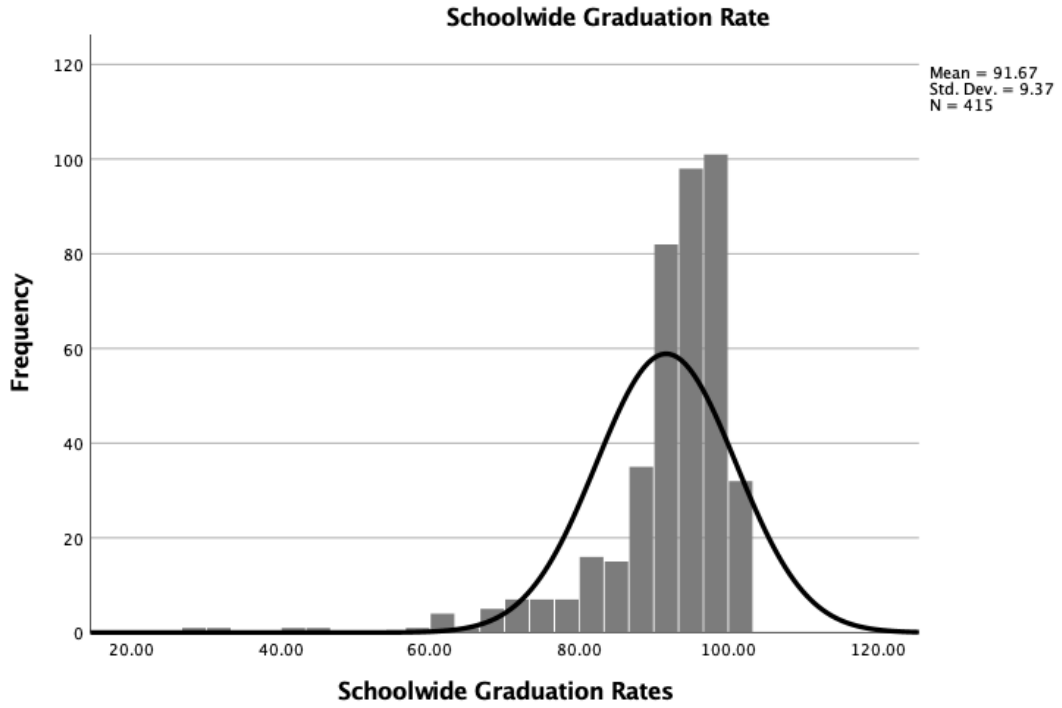


Figure 15

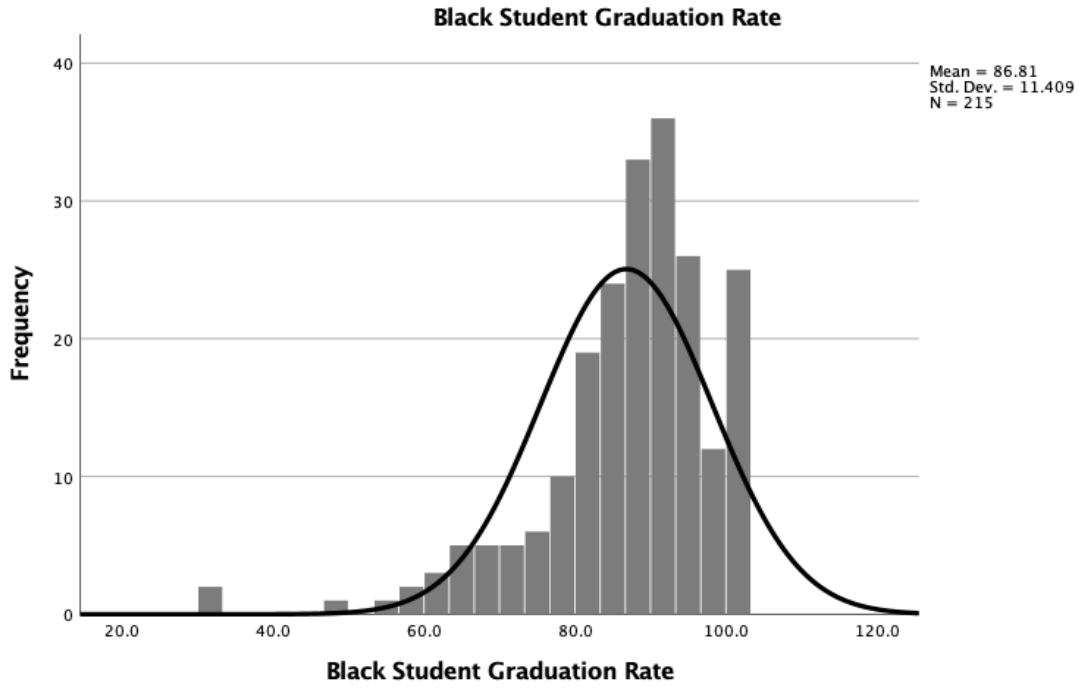


Figure 16

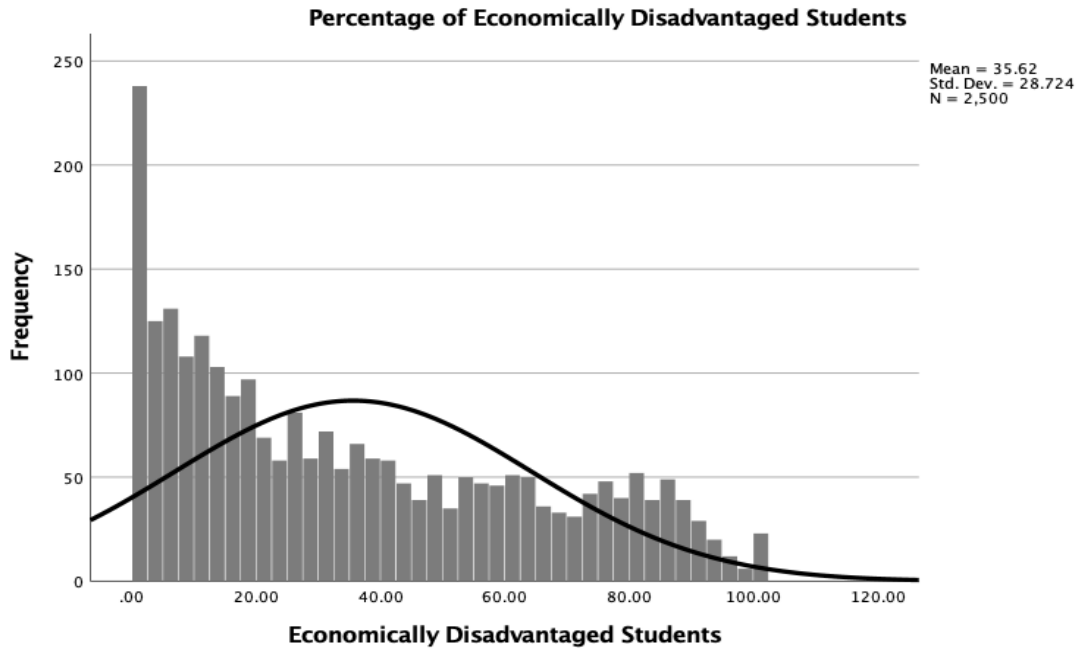


Figure 17

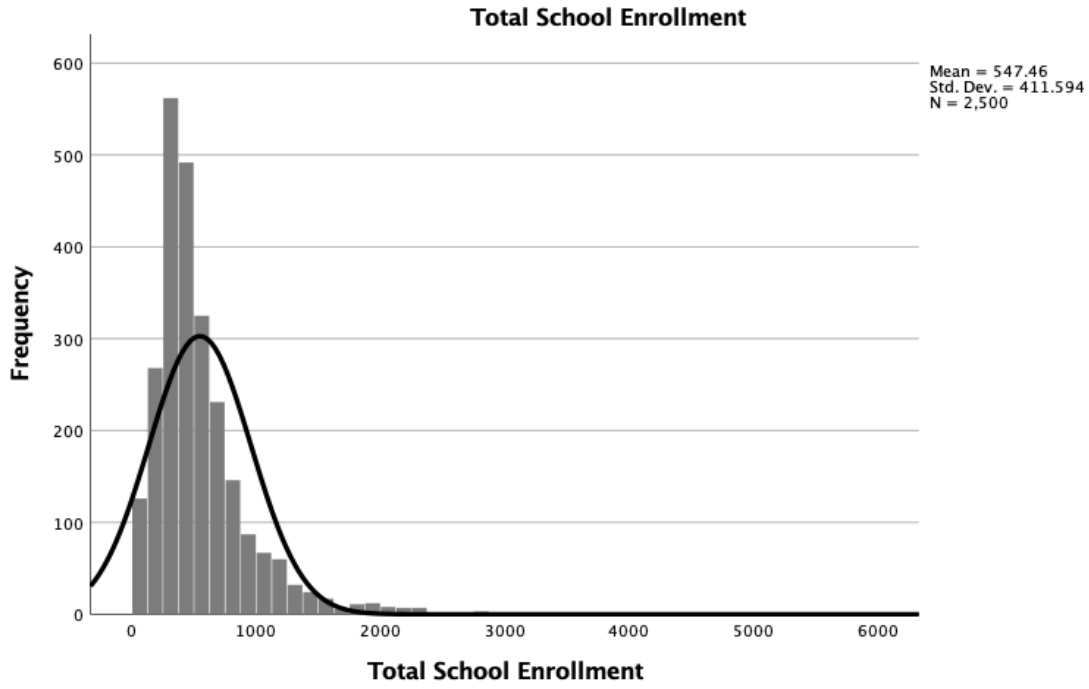


Figure 18

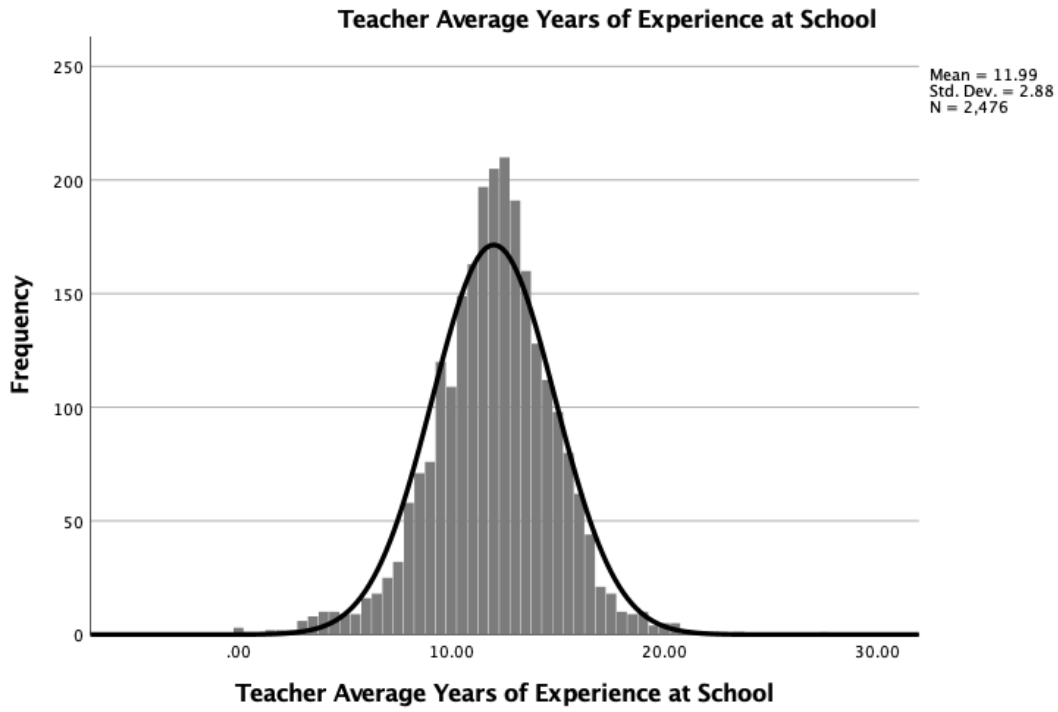


Figure 19

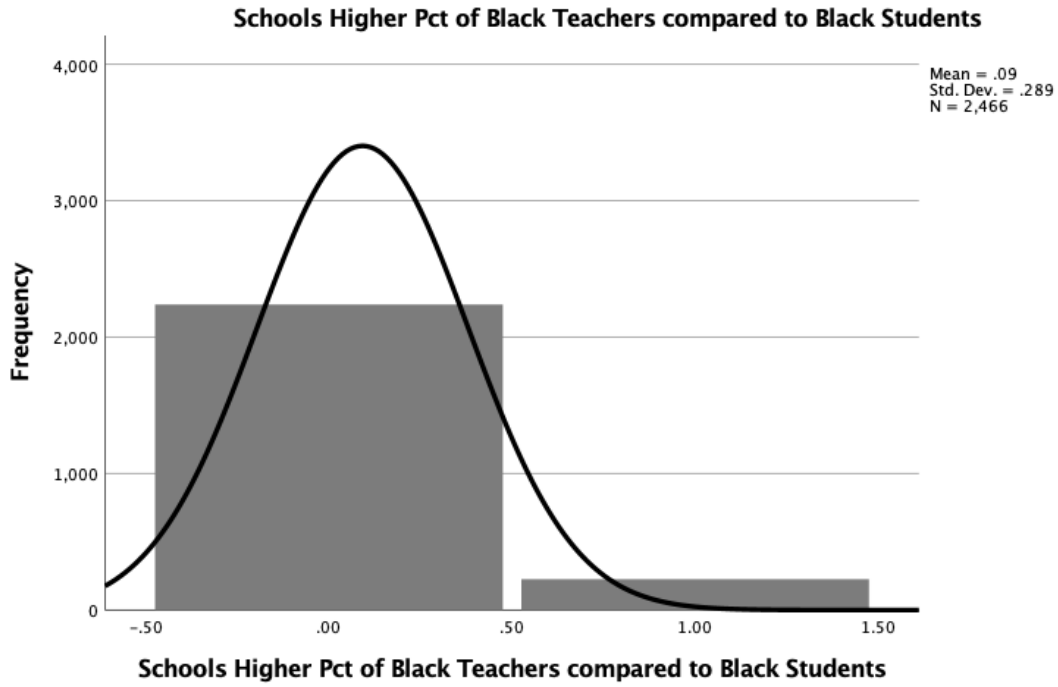


Figure 20

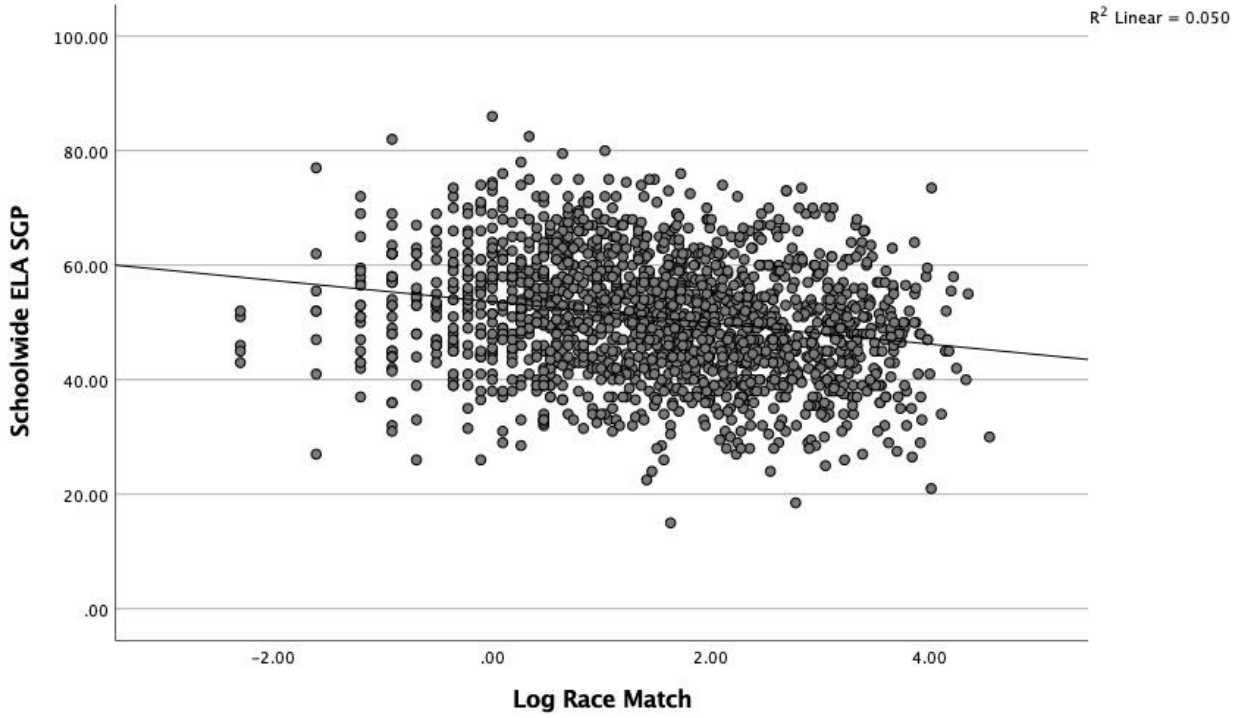


Figure 21

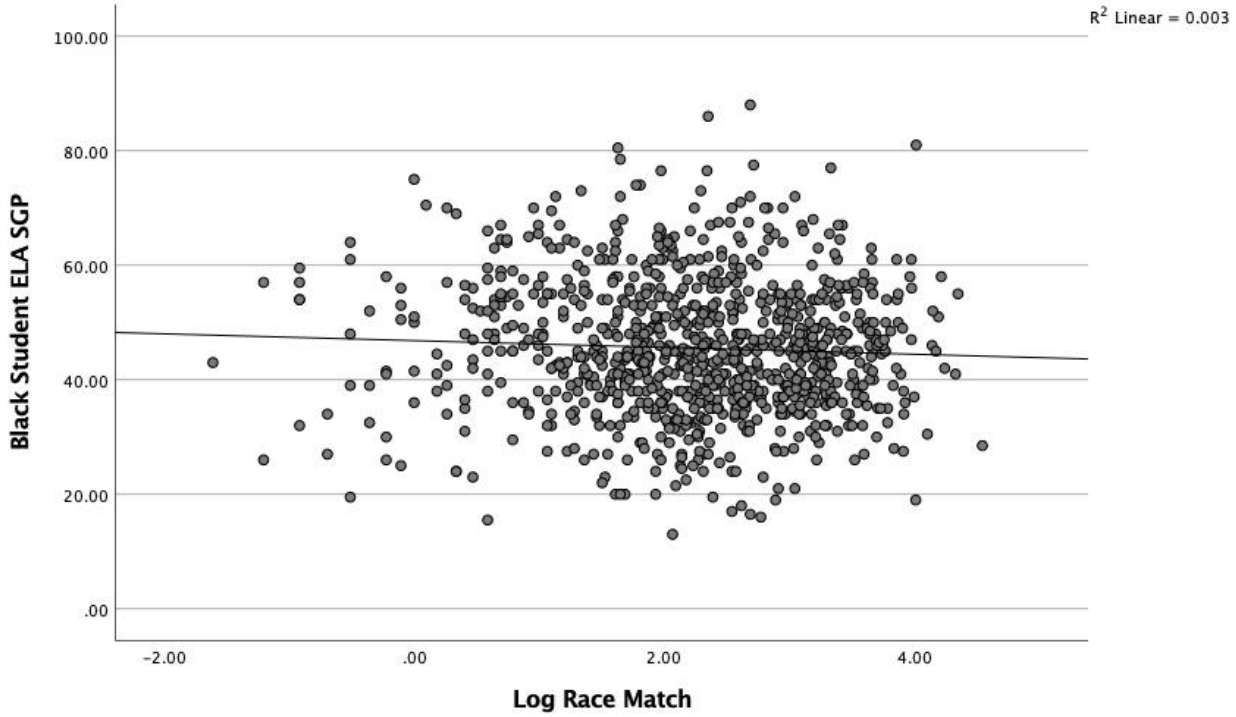


Figure 22

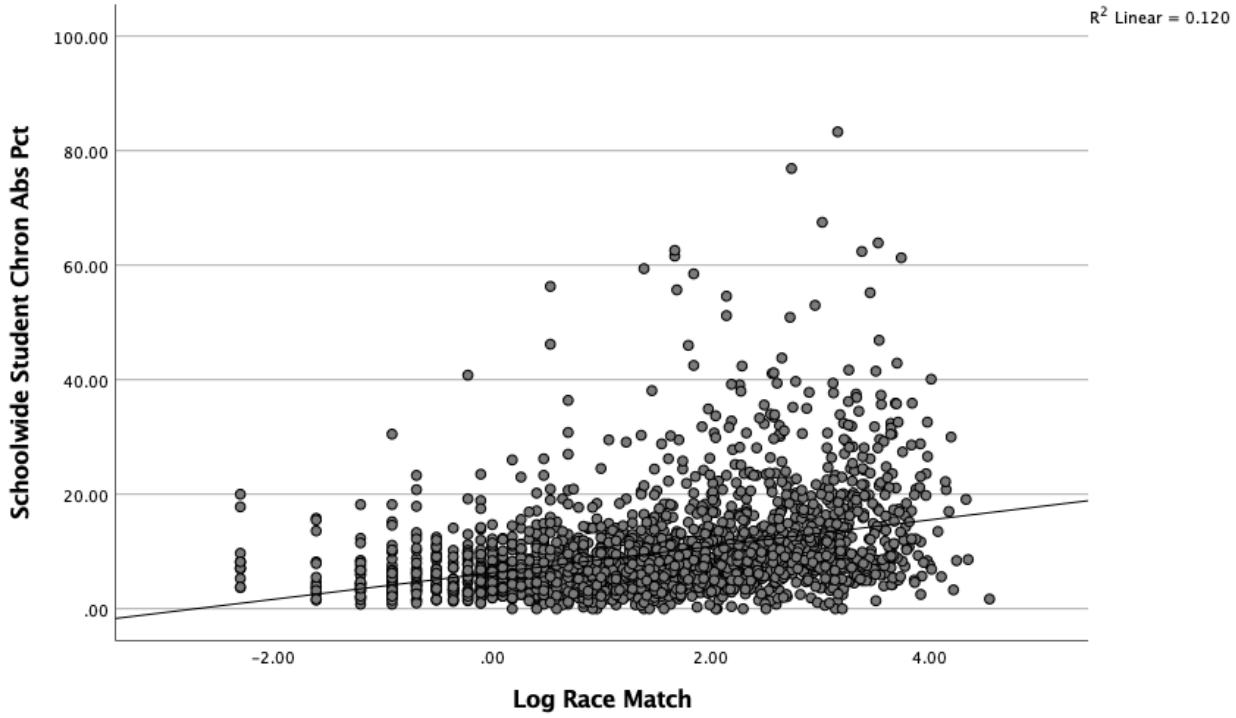

R^2 Linear = 0.120
Schoolwide Student Chron Abs Pct
100.00
80.00
60.00
40.00
20.00
.00
-2.00
.00
2.00
4.00
Log Race Match

Figure 23

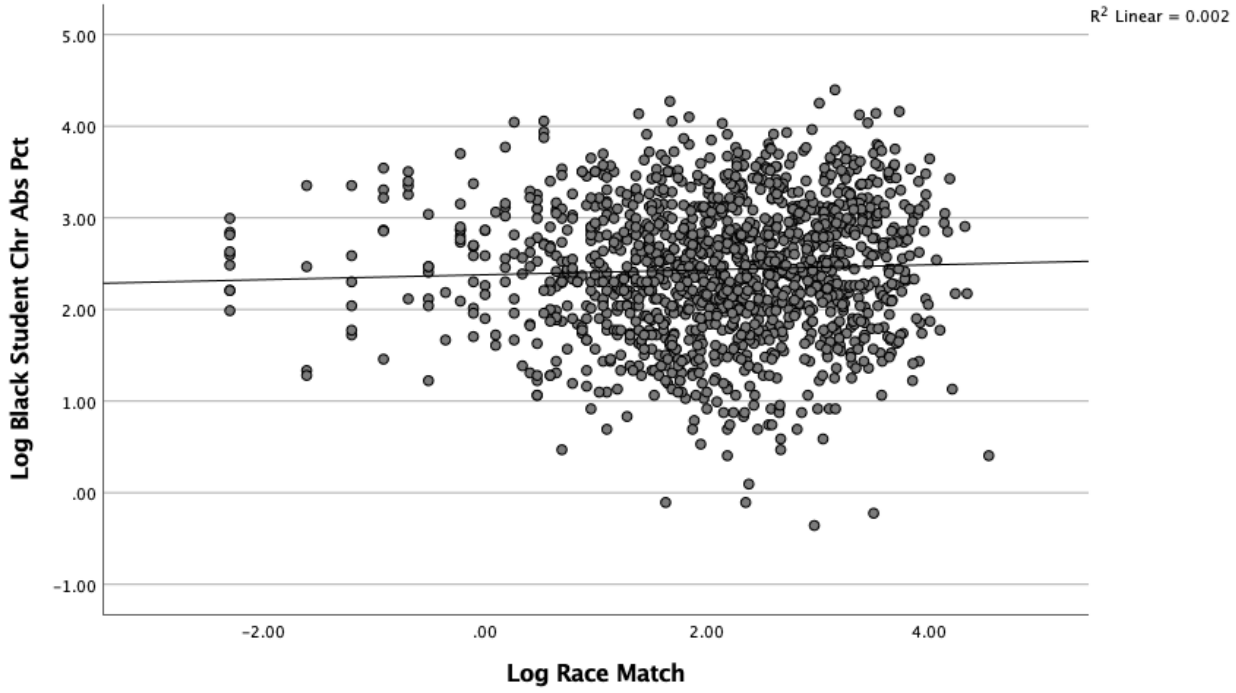


Figure 24

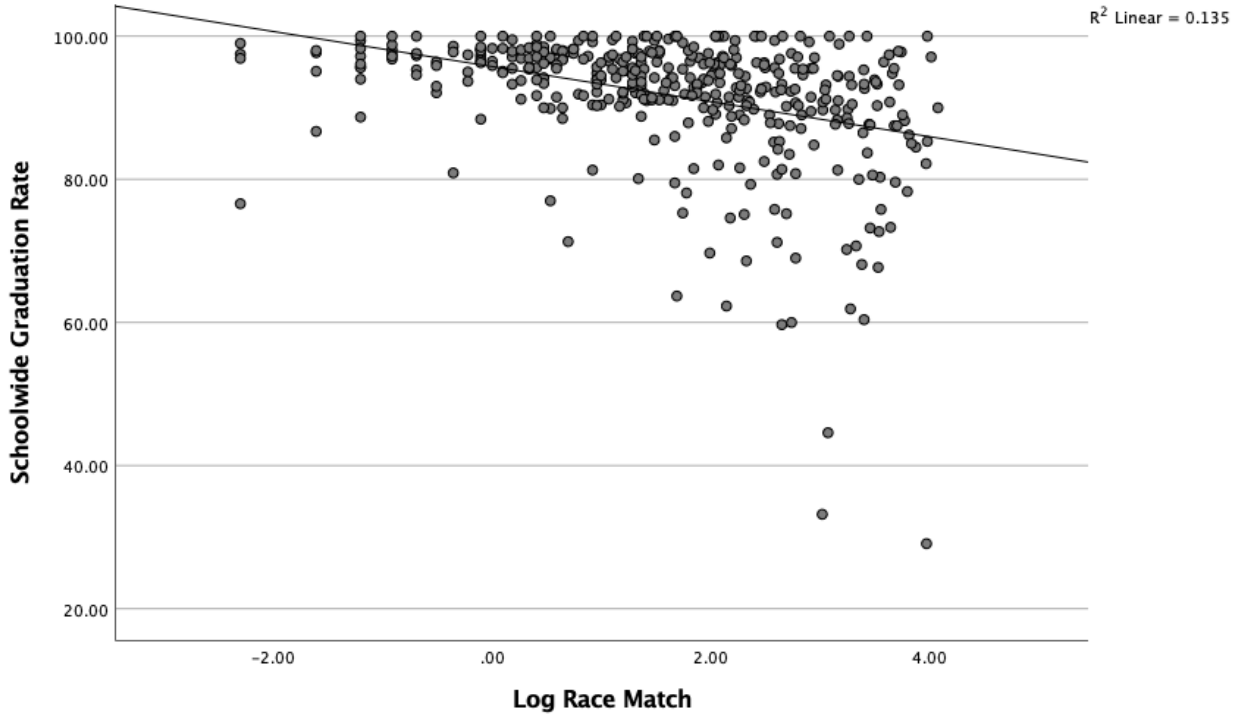


Figure 25

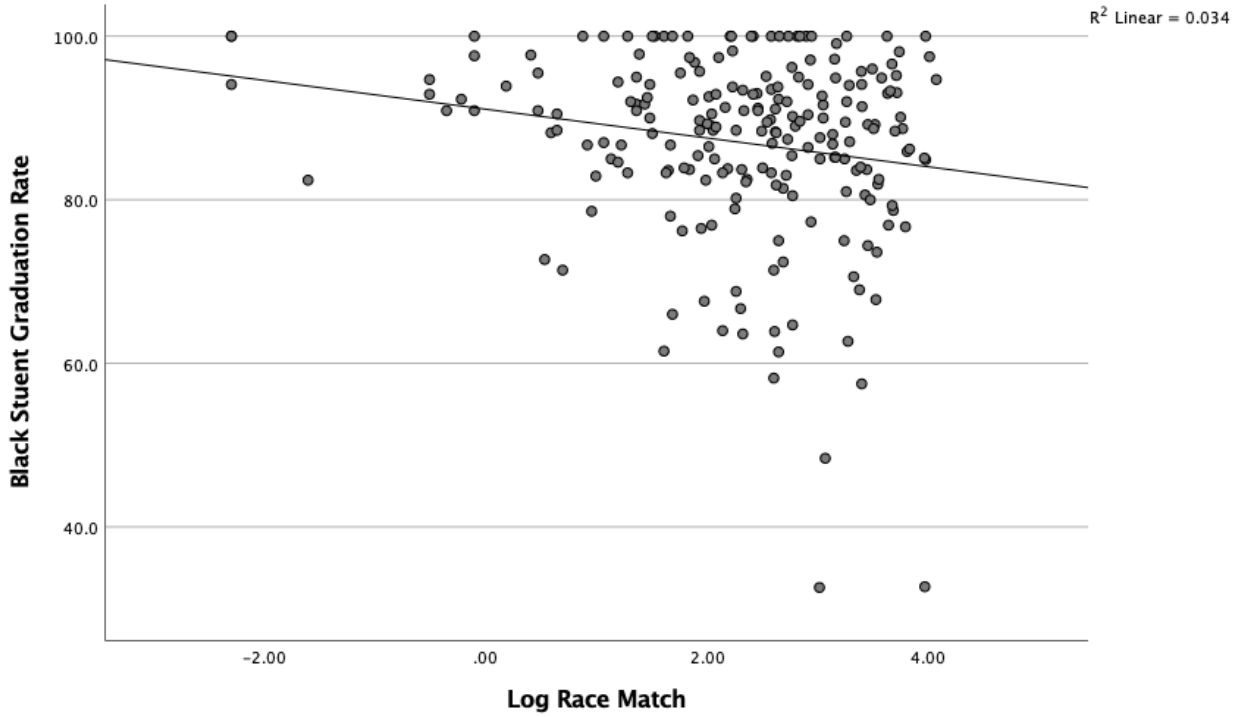


Figure 26