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Black and White Student Achievement Gaps in Tennessee

Haley Dirmeyer
East Tennessee State University

Black and White Student Achievement Gaps in Tennessee

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by

Haley Bliss Dirmeyer

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Dr. William Flora, Chair

Dr. Heather Moore

Dr. Pam Scott

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ABSTRACT

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Achievement gaps between Black students and White students have existed since public education was desegregated, and they still persist despite efforts to close the gap. This research describes the achievement gaps between Black and White 3rd through 8th grade students in the state of Tennessee from 2017-2019. This is a non-experimental, quantitative, comparative-analysis describing the ELA and math test scores of Black students and White students in each of the three geographic regions of Tennessee. Data were arranged in 2x2 contingency matrixes to compare the expected frequencies of students in each race scoring on-track and mastered versus below and approaching. The data from the matrixes were analyzed in SPSS using Chi Squared tests to determine if the difference between Black student scores and White student scores was statistically significant. All twelve test score groupings showed an achievement gap between Black students and White students. The largest achievement gap was in West Tennessee's elementary school ELA scores. The smallest achievement gap was in West Tennessee's middle school math scores. Although there were gaps between Black students and White students in all twelve groupings, East Tennessee's gaps were the smallest overall, ELA scores had smaller gaps than math scores in general, and middle school had smaller gaps than elementary school. These significant findings suggest there is much work to be done in Tennessee to close the gap between Black students and White students in order to provide a more equitable school experience.

DEDICATION

This work is dedicated to all of my students, present, past, and future. Learning from you inspires me to become a better educator.

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Thank you to the incredible committee of educators who worked extra hours to help me with this project. I appreciate Dr. Flora's willingness to chair my committee and guide me to a topic I am passionate about and interested in researching. Dr. Moore, thank you for responding to my seemingly endless series of questions about data and SPSS. Dr. Scott, thank you for being a huge part of my time at ETSU, teaching me about leadership, and being a part of my committee.

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Chapter 1. Introduction

This dissertation was a non-experimental, quantitative, comparative-analysis on the achievement gap between Black students and White students in public schools in Tennessee. School personnel in the state of Tennessee struggle to close gaps among different groups of students; the gap between Black students and White students remains a challenge to close. School personnel have introduced a variety of programs, initiatives, and incentives in order to close the gaps, but the gap persists and even widens despite the efforts made.

This study examines the English and Language Arts and Math scores on the standardized TNReady test in Tennessee for grades three through eight during the 2017-2018 and 2018-2019 school years in order to compare the gap in the three geographic regions of Tennessee. The two subgroups whose scores will be compared are Black students and White students.

The achievement gap does not solely exist between Black students and White students; the gap exists between Black, Latino, certain Asian groups, and Native American students and their White and certain Asian group peers (Carey, 2014). Socioeconomic groups additionally have an achievement gap (Cross, 2007). However, for the purposes of this dissertation, the only gap examined will be the gap between Black students and White students. In looking at causes of the gap, the socioeconomic differences will need to be examined, but they will not be addressed as an isolated variable.

Statement of the Problem

In public schools in Tennessee, the achievement of Black students and White students is not equal. The name of this phenomenon is the achievement gap. The purpose of this study is to compare the achievement gap in the three geographic regions (East, Middle, and West) in

Tennessee during the 2017-2018 and 2018-2019 school years. The Tennessee Department of Education reward school program includes criteria identify reward schools, schools in which personnel are making progress toward closing achievement gaps. However, this process is difficult, and there are many factors working against narrowing and closing the achievement gap. According to "District Accountability: ESSAA Updates for 2017-18", Tennessee's Department of Education regulations include all students demonstrate achievement and growth in their academics, and school systems where personnel are not able to help every group of students show progress are in need of intervention to make this happen (Tennessee Department of Education, 2019).

Purpose

The purpose of this study was to describe the Black achievement gap in the three geographic regions (East, Middle, and West) in Tennessee during the 2017-2018 and 2018-2019 school years. The researcher used data to compare Mathematics and English and Language Arts scores in the third through fifth grade and sixth through eighth grade bands. The data was sorted by CORE District in order to determine which regions in Tennessee have smaller achievement gaps and which have larger gaps.

Research Questions

The researcher wrote twelve research questions and associated null and alternative hypotheses to guide the research for this study. The questions focus on the Black student and White student achievement gap.

1. Is the population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery statistically equal?

$H_0$1: The population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery is statistically equal.

H_a1: The population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery is not statistically equal.

2. Is the population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$2: The population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery is statistically equal.

   H_a2: The population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery is not statistically equal.

3. Is the population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$3: The population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery is statistically equal.

   H_a3: The population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery is not statistically equal.

4. Is the population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery statistically equal?

$H_0$4: The population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery is statistically equal.

H_a4: The population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery is not statistically equal.

5. Is the population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$5: The population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a5: The population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

6. Is the population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$6: The population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a6: The population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

7. Is the population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery statistically equal?

$H_0$7: The population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

H_a7: The population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

8. Is the population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$8: The population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a8: The population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

9. Is the population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$9: The population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery is statistically equal.

   H_a9: The population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery is not statistically equal.

10. Is the population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery statistically equal?

$H_0$10: The population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery is statistically equal.

H_a10: The population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery is not statistically equal.

11. Is the population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery statistically equal?

    $H_0$11: The population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery is statistically equal.

    H_a11: The population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery is not statistically equal.

12. Is the population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery statistically equal?

    $H_0$12: The population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery is statistically equal.

    H_a12: The population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery is not statistically equal.

Definitions and Terms

The following terms are essential to understanding this study:

1. Achievement gap: the phenomenon that occurs when certain demographics, especially minority demographics, score lower on standardized testing than other demographics. Specifically, in this study, the achievement gap will refer to the occurrence that as a group, Black students score lower on standardized testing than White students do (Chambers, 2009). The achievement gap does not imply Black students are unable to achieve as high as White students; rather, they do not receive the same educational resources and opportunities as White students.
2. CORE Districts: the state of Tennessee is divided into eight regional groups in order to best serve and support public schools. These eight CORE Districts are East, First, Mid Cumberland, Northwest, South Central, Southeast, Southwest, and Upper Cumberland (Tennessee Department of Education, n.d.).

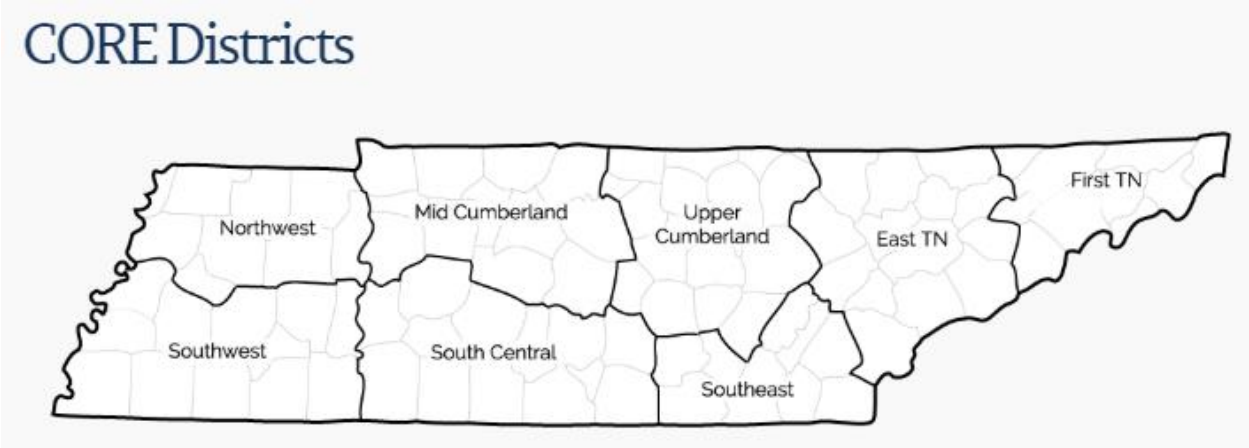

Figure 1.
CORE Districts in Tennessee

3. TNReady: the standardized state testing used in Tennessee. This test is designed to assess real understanding and application, not just rote memorization (Tennessee Department of Education, n.d.).

4. Mastered, On Track, Approaching, or Below: Levels of proficiency achieved by students who take the TNReady test (Tennessee Department of Education, n.d.).
5. Racism: grouping people based on skin color and ranking them on a hierarchy where White and light-skinned people are at the top (Forrest-Bank & Cuellar, 2018).
6. Racial Identity: how people see themselves in relation to their racial group (Toldson & Owens, 2010).
7. Microaggression: subtle everyday covert behaviors that cause marginalized people to feel more oppressed (Applebaum, 2019).
8. Acting White hypothesis: Black students who adopt certain traditionally-white characteristics and mannerisms do better in school than their peers who do not (Wildhagen, 2011).
9. Post-racialism: the imagined era where racial issues are no longer of national importance (Ricks, 2014).

Limitations and Delimitations

This study has typical limitations of educational research. The academic year of 2016-2017 did not have Tennessee state testing, so students taking the test in 2017-2018 had not experienced testing the year before. Teachers were unable to receive data to inform their teaching practices or to understand effectively their students' prior mastery upon starting the school year. There is no 2018 data for Social Studies testing because it was a field test, and there is no 2019 data for Science since it was a field test in that year.

Assessment data utilized in this study was only sampled from the state of Tennessee. The only racial demographics analyzed in this study were Black and White. Additionally, only data for the assessment areas of English and Language Arts and Math were utilized in this study.

Significance of the Study

The findings of this study will have implications for public schools. The achievement gap between Black students and White students should not exist in any school system, especially in public schools in the United States. Because most of the United States Black population resides in the South, findings to help better educate Black students are of increased importance (Morris & Monroe, 2009). This study focuses on the state of Tennessee, so the findings will be of interest to educators, politicians, and stakeholders in the state of Tennessee.

In addition, this study will be of interest to educators who want to educate all students most effectively. The findings of this study will contribute by describing the racial achievement gap in a state where there are currently no studies focusing on achievement gap analysis. .

This study is additionally of interest to educational leaders in public school systems in Tennessee. The findings describe the achievement gap in the three geographic regions, so educational leaders in geographic regions with larger gaps may find practices of geographic regions with smaller gaps of interest.

The literature about racial achievement and the academic achievement gap, its contributors, and changes in this gap as students get older will be reviewed in the next section. Following a review of the literature, the theoretical framework public education cultural theory will be presented and used as context in the analysis of the data in Tennessee.

Summary

The purpose of this study is to describe the test scores in the three geographic regions in Tennessee to determine which have larger Black student achievement gaps. Because equal access of education is necessary for all students in Tennessee public schools, examining the racial achievement gap is essential. Understanding how students perform on standardized tests is the first step toward determining if the state testing or education system is structured to marginalize students and make progress toward closing any persisting gaps. Current events and widespread violence toward Black people pushes a need for equality in academic achievement toward the front of American priorities.

This quantitative study will examine the TNReady scores of Black students and White students in grades 3 through 8 for English and Language Arts and Mathematics to describe achievement gaps in the three geographic in Tennessee. Due to the naturally uncontrolled nature of education and state testing, several limitations exist in this study. However, the lack of studies on Tennessee public education and racial achievement gaps highlight the importance of examining the occurrence of this phenomenon in Tennessee public schools.

Chapter 2. Review of Literature

The purpose of this chapter is to summarize the body of research associated with race-related student achievement gaps in public education in the United States. The United States has a history of racism and discrimination toward Black and African American people (Spring, 1993). Black students are more likely to receive lower grades, drop out of high school, and score lower on standardized tests; they are less likely to complete a college education than White students (Williams, 2014). Wasserberg (2017) argues that stereotypes and stigmas placed on Black students have shut off access to higher-performing and better-funded educational programs. Ladson-Billings (2006) insists that although researchers, educators, and policymakers have spent an increasing amount of time dedicating attention to this problem, nothing concrete has been done to help Black students. An examination of the history of Black education, the causes of the achievement gaps, several key programs and initiatives that could assist in closing the gap, and a review of studies that examine the widening or narrowing of the gap is as follows.

Black American Education History

Scholars of Critical Race Theory postulate that race is a social phenomena invented by people in power to keep their power by marginalizing people of color (Williams, 2018). The marginalization occurred through educating the majority that people of color were less intelligent and capable in order to oppress them (Williams, 2018). The theme of marginalization is perpetually visible in the history of American public education.

During slavery in America, local and federal policies included explicit rules forbidding the education of Black students (Ladson-Billings, 2006). It was not until after the Civil War that Southern state laws and policies included Black education (Cohen et al., 2012). Black schools

received cast-off materials from White schools and typically operated for a school year that lasted four months (Ladson-Billings, 2006). Even when Black students were enrolled in school, they typically attended the equivalent of three years less than their White peers due to shortened school years (Cohen et al., 2012).

In 1954, the historic Supreme Court Case of *Brown v. Board of Education of Topeka, Kansas* desegregated American Public Schools (Carroll, 2017). However, during desegregation, several racist implementation actions led to a huge loss for the Black education community. The closing of Black schools heavily implied that the White schools were better; this caused Black teachers to be devalued, fired, and unable to be hired in White schools (Carroll, 2017). The few remaining Black educators were compensated well below their White coworkers (Sandles, 2020). Black principals were unable to become principals in White schools and instead took positions as assistant principals (Carroll, 2017). The mistreatment of Black educators led to fewer Black students desiring to become teachers or school administrators (Carroll, 2017). Before *Brown v. Board of Education,* about one-half of Black professionals were employed as teachers (Madkins, 2011, as cited in Sandles, 2020). The decline of Black teachers after *Brown v. Board of Education* as a consequence of the decision was predicted by W. E. B. DuBois (Sandles, 2020), one of the founders of Critical Race Theory (Kempf, 2020).

Research conducted in the mid 1960s popularized the racist theories and beliefs about why Black children were unable to achieve at the same rate as White children (Ladson-Billings, 2006). Several researchers published their work stating that home lives and culture were a contributing factor for Black student test scores being lower than White student scores (Ladson-Billings, 2006). Believing that Black culture prevents Black children from high achievement is

an example of victim blaming. The achievement gap between White and Black scores has been around since Black education formally began in the United States (Noguera, 2008). However, since 1960s researchers believed that the capacity Black students had for learning was genetically lower than the White capacity, no effort was placed in learning how to close the gap for decades (Noguera, 2008).

Achievement Gaps

An achievement gap is a difference in the standardized test scores of two groups (Chambers, 2009). The specific achievement gap that is the focus of this research is the achievement gap between White students and Black students in the same school systems, schools, and classrooms. Black students significantly underperform on standardized tests compared to their White peers (Catelli, 2006). Rather than examine the causes of these gaps in order to blame an institution or practice, the causes will be examined in order to highlight ways to close the gap. The gap needs to be closed; Catelli (2006) even argues that gap closure is an "American imperative" (p. 184). The president of the Columbia University Teachers College in 2005 compared the achievement gap to AIDS in healthcare due to both being institutional failures (Catelli, 2006). Closing the gap proves to be more difficult than imagined because of factors such as legal implications, racial identify, attendance and discipline, socioeconomic status, microaggressions, test bias, special education representation, White privilege, and stereotypes of Black students and the schools they attend.

Because the achievement gap is measured by test scores, Chambers (2009) argues that the term achievement gap is racist because it implies that Black students are not achieving rather than simply scoring lower on standardized tests. She further suggests that the term receivement

gap would be more fitting since Black students do not receive as high quality an education as their White peers and receive unequal treatment in a variety of ways, including discipline (Baker, 2019). Although both receivement gap and test score gap fit the phenomenon (Chambers, 2009), for the purpose of this study, the well-known and widely-accepted term achievement gap will be used to describe the discrepancy between Black and White standardized test scores.

Although the racial achievement gap is not the only achievement gap (gender, socioeconomic, disability, etc.), it is the most widely-known gap and sometimes referred to as the achievement gap as if it were the only one (Cross, 2007). Since this study focuses solely on the racial achievement gap, it will be referred to as the achievement gap as it is the only gap investigated by this research. Several other gaps will be discussed to completely review the literature, as they align with the achievement gap: the discipline gap (Baker, 2019), the curriculum gap (Teale et al., 2008), and the excellence gap (Harris & Plucker, 2014).

Wasserberg (2017) states that because predominantly Black schools have fallen behind in test scores, state and local legislation includes incentives for gap closure. Consequences defined in the legislatively-driven programs lead teachers to teach to the test, focusing on test-based instruction. In a study to determine if teaching to the test helps or hurts student academic achievement, Li and Xiong (2018) found that students in classes where the teacher spent more time preparing for the test performed worse on the test than students in classes where the teacher did not. Wasserberg (2017) emphasizes that these programs disengage students, specifically our most academically at-risk populations when his research is showing that these programs hurt more than they are helping. Several additional factors contribute to the achievement gap.

Teale, Paciga, and Hottman (2008) argue that the curriculum gap causes the achievement gap. The curriculum gap occurs when teachers use legislation instead of their own knowledge and expertise to drive the curriculum. Teale (2008) describe a curriculum gap emerging in the early grades (usually Kindergarten through third grade), and it typically presents as teachers prioritizing phonics skills over reading comprehension skills and building on student knowledge of the real world. In an attempt to increase student reading achievement, many school system leaders have increased the time young children spend in reading and language arts classes at the expense of science and social studies classes, the classes where students learn domain knowledge (Teale et al., 2008). Eliminating teaching the content necessary for reading comprehension only hurts student reading skills (Teale et al., 2008). After implementation of this program, reading scores may increase in the first few years, but a gap widens by fifth or sixth grade (Teale et al., 2008).

Harris and Plucker (2014) propose that the widening of the achievement gap is due to focusing on basic levels of achievement rather than more complex thinking skills; the researchers suggest focusing on the excellence gap rather than the achievement gap: the excellence gap is a discrepancy in academic performance at a much higher level than the achievement gap. Research on the excellence gap is utilized as a framework for addressing high-performing students in rigorous academic classes in high school and college. The rest of this review of literature will focus on the achievement gap, as this research is focused on students of all levels in grades 3 through 8.

Ladson-Billings (2006) explain that the continuation of the achievement gap can be tied to money. The researcher states that a much smaller amount of money per student is spent at

poorer schools, typically schools where a majority of Black students can be found, so in order to eradicate the achievement gap, one would need to spend more money on the schools which lack the most resources. The researcher compares the expenditure per student of inner-city schools to nearby suburban schools and describes the demographics present at each school. Much more money is spent in public schools with a higher percent of White students who attend (Ladson-Billings, 2006). Ladson-Billings (2006) uses this evidence to argue that racism is still a dominant attitude in American public schools, since government leaders allocate more money on White education disproportionally.

Legal Implications

The No Child Left Behind Act (NCLB) included regulations and procedures focused on closing the racial achievement gap, but it did not completely succeed in gap closure (Williams, 2014). In fact, the gap closure that occurred in the 1980s became stagnant, rather than continuing to close, when NCLB was implemented (Gorey, 2009). Mead (2007) states that all of the political implications of NCLB caused barriers to success in increasing student achievement. Guskey (2005) explains that although much attention is given to the achievement gap in legislation, the research behind the legislation almost always starts fresh, rather than building on the already existing body of research and knowledge. This prevents the legislation from being beneficial. Although NCLB may have been developed with good intention, this legislation has not been associated with a reduction in the gap for students of color.

Racial Identity

Toldson and Owens (2010) ask whether the achievement gap is related to Black student racial identity and negativity they face due to their identities. The researchers could find no

evidence to prove that the achievement gap is caused by negativity or racial identity (Toldson & Owens, 2010). Stating that racial academic underachievement is caused by racial identity attributes the underachievement to the person being Black (Ladson-Billings, 2006). The underachievement is caused by many outside political, economic, and historical factors that it is unethical and grossly oversimplifying a huge issue to blame underachievement on being Black (Ladson-Billings, 2006).

Racial identity as an explanation for the achievement gap is the fallacy of victim-blaming. Cross (2007) compares victim-blaming to eugenics. Explaining the achievement gap is a result of racial identity implicitly states that Black students are less capable than their White peers. Although many of the ideas that eugenics popularized have been discredited or disproved, the racist aftereffects still linger and impact conscious and subconscious thoughts and biases (Cross, 2007). Rather than focusing on Blackness as the cause of the achievement gap, researchers have found data to support a myriad of other factors that cause this discrepancy, like disciplinary action (Gopalan, 2019), microaggressions (Applebaum, 2019), and standardized testing (Soares, 2012).

Attendance and Discipline

Black students higher rate of out-of-school suspensions may impact overall academic achievement, contributing to a gap in overall performance when compared to White students. Black students are suspended at a higher rate than their White peers (Williams, 2014), a phenomenon known as the discipline gap (Baker, 2019). Black males comprise 8% of the students enrolled in American public schools, but 25% of students who were suspended in the 2015-2016 school year were Black males (Gopalan, 2019). In the 2013-2014 school year, Black

boys were suspended at a rate 3.5 times higher than White boys, and Black girls were suspended at a rate five times higher than White girls (Hirschfield, 2018). Finn and Servoss (2014) discovered that one in six Black males in the tenth grade was suspended at some point during the school year. Black students in the study exhibited the same behaviors as students of all other racial groups yet were suspended at higher rates (Finn & Servoss, 2014). Black students were twice as likely to have been suspended as their White peers, as discovered by Martin et al. (2016).

The increased disciplinary measures taken on Black students can lead to incarceration in prison shortly after leaving school, a phenomenon known as the school to prison pipeline (STPP) (Stovall, 2018). Stovall (2018) argues that disciplinary measures such as choosing where students stand and how they line up, eating lunch in silence in the school cafeteria, random searches, and strict dress codes can make a school seem prison-like, rendering the STPP less of a pipeline and more of a parallel institution. Similar to schools disciplining Black students at a higher rate than their White peers, Black citizens are arrested at a higher rate than White citizens in the United States (Ramsay-Jordan, 2020).

The disproportionate rate of Black student suspension is an example of a microaggression, a small action designed to make a minority group feel alienated (Applebaum, 2019), toward Black students (Dotterer & James, 2018). Black students are suspended because of factors like teacher race, conflicting values between school and home, and teacher perception of the behavior (Baker, 2019). Baker (2019) explains that school staff often hold a belief that Black students exhibit worse behavior than their White peers, making staff more likely to identify and discipline bad behavior in Black students.

Baker (2019) states that systematic racism is the reason why Black students are disproportionately suspended; school demographics are the biggest predictor, indicating that teachers and administrators at these schools have responsibility. Stovall (2018) poses that school leaders and teachers consider Black and Latinx students to be less important than White peers, even suggesting a widely-held belief they are disposable. The perception that they are viewed as lesser negatively impacts the school experience for marginalized groups (Stovall, 2018).

When students are not in school participating in the lessons and receiving the same academic material as their peers, they will not be able to perform at a similar level. Black students miss critical instruction that leads to collegiate success (Goings & Bianco, 2016). Unfortunately, there are few studies including examination of the relationship between discipline and achievement, especially from a racial gap perspective (Gopalan, 2019). In fact, there had been no studies analyzing this phenomenon from a national level at the time of Gopalan's 2019 study.

In school, Black students feel like they are unnoticed, and when they are noticed, they perceive that the teachers care less about them than they do about other students (St. Mary et al., 2018), perhaps because they are disciplined at a higher rate than other students (Williams, 2014). This perception contributes to a negative attitude about school and a less positive schooling experience.

There are legal considerations when discussing a racial achievement gap. If the gap is because of *de jure* segregation, the school system is in violation of the Fourteenth Amendment and has to eliminate the disparity (Klein, 2002). The difference between *de jure* segregation and *de facto* segregation is that *de facto* segregation happens because groups naturally want to be

apart (Donato & Hanson, 2012). *De jure* segregation results from legislation (Donato & Hanson, 2012). If the achievement gap is the result of social or economical forces, *de facto* segregation, then there is no legal violation (Klein, 2002). Although the disparity between Black student and White student discipline has occurred in American schools for decades, it has only recently gained the attention of the public (Ramsay-Jordan, 2020).

Socioeconomic Status (SES)

Another cause of the gap is socioeconomic status (SES) (Gopalan, 2019). There are several connections between SES, race, and achievement gaps. There is an academic achievement gap between students of a high SES and students of a low SES (Cross, 2007). Geographically, lower-funded and lower-performing schools tend to be comprised of majority-Black student bodies. Schools attended by a majority of Black students tend to be funded significantly less and located in poorer neighborhoods than schools attended by a majority of White students (Gopalan, 2019). However, Gopalan states that the geography exacerbates the gap (2019). Gopalan (2019) explains that SES accounts for nearly all of the racial achievement gap when students enter kindergarten but shrinks to about 60% by the time students enroll in third grade.

Black Americans are unemployed at twice the rate of White Americans (Bouie, 2017). The wealth gap between Black and White Americans is widening; Black Americans' median wealth dropped seventy-five percent between 1983 and 2019 whereas White Americans' median income increased fourteen percent during the same time (Bouie, 2017). Conley (as cited in Parker & Stovall, 2004) uncovers that low-income Black families have no assets, compared to

White low-income families having around $10,000. In upper-income families, Black families have one-third the assets of White families (Conley, as cited in Parker & Stovall, 2004).

Although the racial achievement gap and the SES achievement gap are the subject of much legislation, including the ineffective No Child Left Behind (NCLB), very little legislative attention is given to the low SES students who are academically high-achieving (Tabron & Venzant Chambers, 2019). Most of the legislation focuses on those students who are low-achieving or on the cusp of scoring on-track (Tabron & Venzant Chambers, 2019).

Another barrier schools in low-income areas face is recruiting confident, experienced, and talented teachers (Ramsay-Jordan, 2020). Pre-service teachers express a need for more training on reaching students in low-income schools (Bazemore-Bertrand & Handsfield, 2019). Teacher education programs should examine candidates' biases about minority students without fear or judgment and actively seek to teach candidates to become culturally responsive (Ramsay-Jordan, 2020). Creating a new attitude in pre-service teachers about minority students can help all students feel safe and welcome in school and teachers feel better prepared (Bazemore-Bertrand & Handsfield, 2019). Actively recruiting diverse candidates in teacher education programs can assist (Ramsay-Jordan, 2020).

Although aforementioned research shows the achievement gap is tied to SES, Ladson-Billings (2006) cites the National Center for Education Statistics 2001 report, illustrating Black students and White students in similar economic groups still have a significant achievement gap on standardized tests. This suggests that although SES and racial achievement gaps are connected, they may not have a causal relationship (Ladson-Billings, 2006). Quinn (2015) found a correlation between SES and the racial achievement gap when students start Kindergarten, but

SES could not correlate to the racial achievement gap widening as students progress in elementary school.

Many marginalized groups experience discrimination in the same ways, a phenomenon known as intersectionality (Bazemore-Bertrand & Handsfield, 2019). Race and economic class particularly can be interconnected. Pre-service teachers tend to view poverty and minority races as groups with deficits due to the portrayal in the media, lack of information about these groups, and lack of preparation from higher education programming (Bazemore-Bertrand & Handsfield, 2019). Teachers watch these students more closely to identify mistakes (Baker, 2019).

Attitudes about Schooling

Pinder (2012) states there is a significant difference in the attitudes about attending American public schools when comparing Afro-Caribbean (voluntary immigrant community) and African American (involuntary immigrant community) students. The Afro-Caribbean students have both a more positive attitude about attending mostly-White schools and also achieve higher than their African-American counterparts. The choice of immigration was linked to a higher likelihood of graduating from high school (Pinder, 2012). Pinder found this to be closely related to the Afro-Caribbean students having a more positive view of schooling than African-American students.

Family attitudes about school can fundamentally impact the student. Families whose older generations had positive experiences at school tend to produce children who have positive school experiences (Ladson-Billings, 2006). Students whose parents were reluctant students tended to have more negative school experiences. Dupper and Poertner (1997) found that family

involvement produces higher-achieving students; families who have more positive attitudes about school tend to be more involved in education.

Microaggressions

Microaggressions are subtle and covert behaviors, at times unintentional, that cause marginalized groups to feel alienated (Applebaum, 2019). They are perpetrated against members of marginalized groups due to their affiliation with these groups (Nolte-Yupari & Bailey Jones, 2019). While microaggressions are usually small and seem innocuous (Roxas & Vélez, 2019), they have a profound impact, especially as Black people experience them every day (Applebaum, 2019). People of color often experience fatigue as a consequence of the cumulative effect of the microaggressions (Roxas & Vélez, 2019). Fatigue results from the victim of the microaggression having to explain to the perpetrator that he or she did something wrong (Nolte-Yupari & Bailey Jones, 2019). Microaggressions have been found to have particularly harmful mental effects on the victims (Forrest-Bank & Cuellar, 2018). The stress from experiencing race-related microaggressions results in higher susceptibility to anxiety disorders for Black adolescents (McNeil Smith et al., 2019). Dotterer and James (2018) found that 97% of Black students surveyed reported they had experienced at least one microaggression in the past two weeks. Microaggressions can be categorized as microassaults, microinsults, and microinvalidations (Baker, 2019). Some microaggressions happen between peers, but teachers, administration, and other school personnel also demonstrate these behaviors toward Black students. Research showed that microaggressions negatively impacted grades and engagement and increased feelings of depression and anxiety (Dotterer & James, 2018). Middle and high school students experience the most significant negative impact because they develop their own identity during this phase of their lives (Dotterer & James, 2018). Microaggressions negatively

impact the relationship between Black students and teachers because they result in conflict (Baker, 2019). Black males reported feeling like their teachers often subtly hinted that they were disinterested in Black students (Goings & Bianco, 2016).

Because many microaggressions can appear to be compliments, students who report them often experience disbelief, as they are accused of overreacting or being too sensitive (Applebaum, 2019). Because microaggressions are covert and difficult to interpret, some of the psychological distress from microaggressions may be caused by the victim having to process how to respond (Forrest-Bank & Cuellar, 2018). At times, victims have a difficult choice: reporting the microaggression and risk a person in authority refusing to believe it happened and excusing it or allowing microaggressions happen. An example of microaggression is teachers classifying Black student behaviors as defiant more often than they classify White student behavior as defiant (Baker, 2019).

Baker (2019) creates a framework outlining defiance as a strategy Black students use to cope with experiencing microaggressions at school. Developing teacher understanding of microaggressions and the techniques communities of color use to process and heal from them is paramount for pedagogically responding to microaggressions at school (Roxas & Vélez, 2019). In order to cultivate racially-responsive, anti-racist classrooms, teachers actively combat microaggressions in the classroom.

Young people who have a strong sense of belonging in their racial or ethnic group tend to experience less psychological distress after microaggression (Forrest-Bank & Cuellar, 2018). Forrest-Bank and Cuellar (2018) found a correlation with strong ethnic identity and a smaller psychological effect of microaggression; students who had a strong ethnic identity seemed to anticipate microaggression and were therefore more prepared to handle them emotionally.

Acting White Hypothesis

One popular explanation of the achievement gap is the acting White hypothesis (Wildhagen, 2011). This hypothesis postulates that when Black students are experiencing high academic achievement, they are accused by their peers of acting White, which causes these high-achieving students to hold back on academics and underperform in order to stop the negative attention (Wildhagen, 2011). This hypothesis has never been validated through testing (Toldson & Owens, 2010). Tyson, Darity, and Castellino (as cited in Wildhagen, 2011) have found that both Black students and White students who excel academically are subject to negativity from their peers. In Wildhagen's (2011) research, the measure researchers used to measure acting White versus acting Black was the language the students use. Wildhagen (2011) argues that the language patterns are less easily adopted by Whites than any other measure of Black culture, like clothing or music. Therefore, Wildhagen attempted to look at Black students' choice to use Standard English and how that choice impacted their peer relationships.

Wildhagen (2011) found that Black students who were high-achieving academically were more likely to downplay their success, feel pressure to participate in sports, or be funny during class to offset the negative repercussions that achievement brought them. Their Black peers were more likely to give them negative attention for achievement (Wildhagen, 2011).

Wasserburg (2017) states that Black children display concern with what White people think about them or their schools. The students in his research knew that their school student body was predominantly Black and low-performing, and that knowledge affected student self-esteem and racial identity. The focus groups expressed worries about what others would think about their school if it kept performing poorly, especially White people who thought negatively

about the school (Wasserburg, 2017). Whether or not this impacts student desires to change behavior to fit in with White peers remains unproven.

Toldson and Owens (2010) assert that the Acting White hypothesis has no factual basis and is used more for criticism of Black culture. The authors believe the hypothesis implies that acting White will improve both academic performance and social standing, more specifically that Blackness is somehow inferior intellectually and socially. Toldson and Owens (2010) argue that there is no concrete evidence that Black students who adopt traditionally White qualities do better academically or socially. Critics of the Acting White hypothesis accuse proponents of the hypothesis of stating that academic underperformance of Black students is due to an attitude problem and can be easily fixed if students change their attitudes (Venzant Chambers & Spikes, 2016). Supporters of the Acting White hypothesis fail to take into account any other causes or factors in Black student underperformance (Venzant Chambers & Spikes, 2016), including institutional practices and procedures. Instead of focusing on the achievement gap as a personal failure for Black students, the policies and daily happenings of the public education system should be examined (Borunda et al., 2020).

The Acting White hypothesis is faulty for several reasons. Rather than blaming groups of students for their lack of academic success, the whole community should be working to solve the problem (Venzant Chambers & Spikes, 2016). Generalizations like the Acting White hypothesis place blame on the group that has been discriminated against and excluded from opportunities while failing to take all data into account (Noguera, 2008).

Test Bias

High-stakes standardized testing has never proven beneficial to Black students in urban areas (Stovall, 2018). Legislators and educational leaders originally intended standardized testing to exclude minority students from entering college, as universities did not find them desirable (Soares, 2012). Black students face racial barriers when taking standardized tests, and they are less likely to receive a high school diploma because of failing standardized tests (Schnidewind & Tanis, 2017). Administering more standardized testing is correlated with more students dropping out of high school (Othman, 2018). Students attending majority-Black schools typically take more standardized tests, receiving less time to learn material on which they are tested (Hagopian, 2016). Schnidewind and Tanis (2017) state that challenging high-stakes testing and opting out is an important part of racial school reform.

When reviewing standardized test questions for racial bias, Soares (2012) found that the questions on which Black students outperform White students do not appear on the finalized versions of the SAT. All of the questions chosen for the verbal part of the SAT were White advantage questions (Soares, 2012). One of the focuses of education reform has been an increase in standardized testing. Policymakers state that education reform should improve success and achievement of all students, especially minority students (Fensham & Cumming, 2013).

A notable phenomenon resulting from test bias is named the Zip Code Effect. Students standardized test scores are higher in zip codes with more wealth and lower in zip codes with less wealth (Hagopian, 2016). Standardized test results seem to more reliably predict students socioeconomic status than academic ability (Soares, 2012). Authentic performance-based assessment, not standardized tests, is the best way to assess minority students (Hagopian, 2016).

Since Black students and poorer students perform worse on standardized testing, test reform is necessary, so that all students have the opportunity to be successful.

Test bias exists in pre-service teacher exams, another barrier preventing Black educators from entering into the workforce (Goings & Bianco, 2016). Black pre-service teachers score lower on Praxis I and Praxis II tests than their White counterparts (Goings & Bianco, 2016). Certain tests, like the California state teacher licensure test, have drawn criticism due to being full of cultural bias (Sandles, 2020). Even though there is a nationwide shortage of Black educators (Bazemore-Bertrand & Handsfield, 2019), Black pre-service teachers are still required to take the Praxis tests, even though it will likely prevent them from becoming educators (Sandles, 2020). Some researchers have questioned whether the test scores serve to measure fitness for teaching or cultural competence (Sandles, 2020).

Special Education Representation

Many educators and school leaders use standardized testing as the measure to indicate which students need additional support from special education programs. A disproportionate number of Black students are identified for special education services (Farkas et al., 2020), so much so that the United States Department of Education legislation contains specific requirements for the ratio of Black students to White students who can be identified for special education services in public school systems. School personnel are required to report the numbers to prove compliance (Grindal et al., 2019). There is a nation-wide belief that Black students are inappropriately over-identified for these services (Farkas et al., 2020), especially in the American South where Black students are 2.88 times more likely than White students to be identified as having an intellectual disability (Morgan et al., 2020). Woodson and Harris (2018) found there is

a statistically significant relationship between student race and likelihood to be referred for special education services. Teacher race and likelihood of special education referral have a statistically significant relationship (Woodson & Harris, 2018). Discrimination based on race and based on disability are interrelated, according to Robinson and Norton (2019). Because of the relationship between racism and ableism, Black students face over-identification for special education services (Woodson & Harris, 2018; Robinson & Norton, 2019).

Farkas et al. (2020) and Grindal et al. (2019) state that because of the wealth gap between Black families and White families, Black children are more likely to be born in harmful circumstances such as low birth weight or exposure to toxins, so Black student overrepresentation in special education programs is necessary. Grindal et al. (2019) find that the referral rate of Black students with disabilities is directly related to racial bias.

Black students are more likely to be placed in a separate education setting once identified for special education services, reminiscent of segregated education (Grindal et al., 2019). Morgan et al. (2020) state that some school staff appear to view special education identification as a reason to segregate a student and marginalize him/her for being of a minority race. The researchers postulate that segregating due to special education status may be a reason that Black students in the American South are more likely to be identified for special education services. Contrastingly, Woodson and Harris (2018) found that White students were more likely to be identified for special education services in their study. Their study consisted of fictitious students who were described to teachers, and the teachers chose whether or not to refer the student for special education services based on the description.

Certain disabilities garner more stigma than other disabilities (Robinson & Norton, 2019). For example, people with disabilities in the category of intellectual disability receive

more discrimination and stigma than those with disabilities in the category of speech and language impairment. Black students are overrepresented in the disability category of intellectual disability and underrepresented in the category of speech and language impairment (Morgan et al., 2017); White students are underrepresented in the disability category of intellectual disability and overrepresented in the category of speech and language impairment (Robinson & Norton, 2019). Students with unidentified speech and language impairment are more likely to feel isolated, drop out of high school, and ultimately face higher levels of because they did not receive special education services (Morgan et al., 2017). Since Black students and students whose families speak languages other than English are less likely to be identified and provided with special education services, they are more likely to suffer the negative effects of speech and language impairments even though minority students are more likely to have speech and language impairments (Morgan et al., 2017). Othman (2018) notes a difference between Black student identification for social and behavioral disabilities and disabilities that require a medical diagnosis. Othman (2018) notes that Black students are less likely to receive referrals for the disabilities with medical diagnoses than the disabilities where teachers identify students based on their professional judgments. Black students are more likely to receive referrals to special education based on behavior rather than academic need (Othman, 2018).

Farkas et al. (2020) suggest that districts where students have smaller achievement gaps have more proportionate representation of Black students in special education programs. At this time, the relationship cannot be claimed to be causal (Farkas et al., 2020). Grindal et al. (2019) postulates that teachers perceive minority students as lower achieving, contributing to their higher referral rate for special education. Farkas et al. (2020) found that minority students are identified for special education services at a higher rate because they struggle in school. Test bias

could contribute to the struggles, as educators use standardized test results to identify students who need to be screened for special education services.

Gifted services are a part of special education services in public schools. Nationally, Black students are underrepresented in gifted education programs whereas White students are overrepresented (Young et al., 2017). Black girls are the most underrepresented in gifted programs whereas White girls are the most overrepresented (Young et al., 2017).

Critical Race Theory

Critical Race Theory (CRT) states that although race is a social construct and not real, it has significant impacts in how every aspect of the world functions (Parker & Stovall, 2004). CRT was not developed to be a theoretical framework, but rather a space where minority people could share truths and stories that would not be discounted (Cabrera, 2018). CRT consists of counter-stories to the majority-White narrative spun in schools, showing the reality that minority-race students experience in public schools (Matias et al., 2014). Notable tenets of CRT in education are challenging the majority ideology and focusing on social justice (Cabrera, 2018).

Critics of CRT assert that the theory categorizes Black students as victims of racist systems rather than focusing on how to close any educational gaps (Zorn, 2018). In Zorn's (2018) article, he questions why CRT is "reductive" (p. 204), states that it enables students who are lower-performing academically to avoid improving, and insists it makes the nation angry. Zorn's (2018) article provided no data or experimentation; the article is the researcher's opinions arguing against CRT published in a peer-reviewed journal.

CRT focuses on the issue of race, yet it does not provide answers to other issues that minority-race people face (Parker & Stovall, 2004). Cabrera (2018) recommends researchers embed racism as a theory into CRT for a more holistic view. However, CRT provides valuable criticism of the everyday acts of racism that plague minority people (Parker & Stovall, 2004). By highlighting the experiences of Black students (Matias et al., 2014), CRT gives educators and students a view of the racism happening in schools, so the educators and students can act to combat and stop racism (Parker & Stovall, 2004). CRT is an oppositional, anti-racist system of research (Cabrera, 2018).

CRT asserts that the current state of United States education, a belief that if teachers ignore race and the role it is playing in systematic discrimination that it will disappear, is not effective (Parker & Stovall, 2004). Introduction of CRT into a teacher education program uncovered the majority-White student body in the program were resistant to embrace CRT (Matias et al., 2014). CRT required the teacher candidates embrace discomfort, reject a colorblind ideology, and learn about race (Matias et al., 2014).

White Privilege

White privilege is illustrated through American White populations benefitting while minority populations suffer (Borunda et al., 2020). Not all White Americans benefit, but a primary privilege of being White in America is that White Americans do not have to think about being White (Delano-Oriaran & Parks, 2015). Even in higher education, some groups and institutional leadership generally avoid race as a topic and even consider it a word not to be spoken (Beatty & Boettcher, 2019). Pre-service teachers, a predominantly White and female group, often report they are uncomfortable discussing race and prefer not to do it, leaving them

unprepared to best educate students living in poverty and minority-race students (Bazemore-Bertrand & Handsfield, 2019). Harper and Hurtado (as cited in Beatty & Boettcher, 2019) showed that White students overestimated Black student satisfaction with the racial equality in schools, an example of White privilege. As early as preschool, students show a preference for White peers (Kaczmarczyk et al., 2018). Delano-Oriaran and Parks (2015) approach White privilege as a threshold concept, one to be understood before moving on to topics like White supremacy.

White privilege is visible in schools through the omission of diversity in mission statements, overrepresentation of White men in administrative roles, and valuing traditional pedagogy and curriculum that is ineffective reaching Black students (Beatty & Boettcher, 2019). Power structures in schools and other organizations are developed from White privilege (Bazemore-Bertrand & Handsfield, 2019). It is an aspect of White privilege that the historical narrative follows White points of view, sometimes shutting out minority-race narratives (Stutts, 2020). When these narratives are presented, they are shown as anomalies, and curriculum presented downplays the suffering caused by discrimination (Stutts, 2020). Kaczmarczyk et al., (2018) explain that all teachers have to actively and vocally ally themselves with Black students and their families, be dedicated to combatting racial illiteracy, and teach about racism.

White Supremacy and White Fragility

White supremacy is a difficult topic for Americans to conceptualize and accept because American society excuses many of the outcomes by labeling them as meritocracy (Delano-Oriaran & Parks, 2015). Institutions, including schools, whose leaders value meritocracy contribute to the achievement gap (Williams, 2018). Meritocracy is an ideal that is touted when

trying to explain institutional racism, distracting people from seeing that not every student has the opportunity for success. Most students of color are disadvantaged and therefore excluded from meritocracy (Williams, 2018). Since Black students are excluded from the meritocracy, they struggle to achieve the same success as their White peers. When racist ideas that Black students are lazy and unmotivated circulate, it is easy for people to accept that there is an accessible meritocracy for all students (Sandles, 2020). A majority race which can succeed within a meritocracy benefits from the belief that anyone who is not successful is undeserving of success (Sandles, 2020).

After the election of Barack Obama as President of the United States in 2008, most Americans believed society was post racial, and racial inequality no longer existed in society (Delano-Oriaran & Parks, 2015). However, events such as the murders of Black church attendees in Charleston, SC illustrate that the United States has never achieved post-racial status (Stutts, 2020). Any murder of racial minorities, religious minorities, or activists fighting for equal rights is considered a display of White supremacy (Stutts, 2020).

Stovall (2018) states that White supremacy is very visible in American public education through the treatment of Black students, stating that schooling is a violence committed against Black students. Stovall (2018) recommends that school leaders recreate and reimagine the school culture in order to most effectively teach all students. Black student knowledge is frequently disregarded and eradicated in order to replace it with an Eurocentric knowledge base (Zygmunt & Cipollone, 2019). In fact, standardized testing was invented by White supremacists who believed that White males were intellectually superior (Hagopian, 2016). Standardized testing was implemented in schools in order to prove the theory of White superiority (Soares, 2012).

Leaders of the pre-K through collegiate American education system whose values include White supremacy contribute to the lack of Black educators (Rogers-Ard et al., 2019). The students in public schools are more diverse each year, yet the professors who teach education classes to pre-service teachers are mostly White and typically ineffective at reaching diverse populations (Rogers-Ard et al., 2019). Kaczmarczyk et al. (2018) explain that ignoring systematic racism and White supremacy in education is dangerous; ignorance of racial issues perpetuates racism and the privileges the majority group reaps.

Politics contribute to White supremacy. Borunda et al. (2020) cite specific examples of the forty-fifth President of the United States's speeches and explain that his rhetoric contributes to White supremacy. Borunda et al. (2020) further illustrate a need for an overhaul of the public education system: if the President of the United States can use imperialistic and nativist language in public statements and be accepted, stark changes are needed (Borunda et al., 2020). Bouie, 2017) credits his election for disproving that the United States has achieved a post racial status. When teachers can openly critique the tenants that sustain White supremacy, students will understand how destructive White supremacy is (Borunda et al., 2020).

One tenant of White supremacy is control of the narrative, speaking of Americans as if they are only White (Borunda et al., 2020). Another tenant is the use of language condoning White supremacy; when teaching history, teachers need to be vigilant of the language used (Smith Kondo, 2018). Referring to historical figures who kept slaves or participated in genocides as figures who should be celebrated by all people, or celebrating events which resulted in violence to non-White people, is using language to promote White supermacy (Borunda et al., 2020). Additionally, use of the pronoun *our* when teaching about White history and ancestors is problematic because White history and ancestors do not belong to all students (Borunda et al.,

2020). When examining a course syllabus, considering the needs of all students rather than the needs of only White students can prevent control of the narrative (Smith Kondo, 2018).

Another contributor to White privilege and supremacy is White fragility. White fragility is the phenomenon that occurs when a White person makes defensive moves to reduce discomfort after becoming racially stressed (Applebaum, 2019). In education, teachers may try to acknowledge racial inequities in order to create an anti-racist classroom (Borunda et al., 2020). When White students feel uncomfortable during these conversations, combatting White fragility means accepting the discomfort as an opportunity to grow rather than turning the conversation to another topic (Borunda et al., 2020). Being ignorant about blatant racial issues contributes to racism and students of color feeling uncomfortable in schools (McDonald et al., 2019).

In order to start reversing the effects White supremacy has left on Black students, Borunda et al. (2020) state, “The goal is that we respect our unique identities but develop our capacity to enter a sphere of solidarity with others who are not like us.” (p. 46) Considering the experiences and histories of others is essential for combatting White supremacy (Smith Kondo, 2018).

Colorblindness

Some who strive to be colorblind do more harm than good by treating everyone the same; refusing to see color reinforces the dominant culture and normalizes it (Williams, 2018). Researchers assert that colorblindness offers White protection--refusing to see the benefits and cost of being another race (Sandles, 2020). Critical Race Theory rejects a colorblind approach because race is a significant construct that needs to be acknowledged when studying how people interact with each other and the world (Kempf, 2020). Colorblind mindsets perpetuate a false

belief that society has achieved a post-racial status. Colorblind educational leaders contribute to the Black teacher story through creating a false belief that race does not matter when recruiting teacher candidates (Sandles, 2020). Attempting to avoid seeing race creates an educational environment in which teachers underserve Black students (Zorn, 2018). A fictional colorblind narrative of the education system allows the majority to avoid difficult truths and acknowledging problems (Sandles, 2020).

Stereotypes of Black Students and Predominantly-Black Schools

Stereotype threat theory states that Black students perform lower on standardized tests due to fears they will confirm stereotypes that Black students are less intelligent than their White peers (Whaley, 2018). Stereotype threat theory applies to any group of students; it can be applied when examining an achievement gap between male test scores and female test scores. Researchers also use the theory when examining the disparities between White and Black incarceration rates, but it is typically applied toward Black achievement and used to describe the racial achievement gap (Whaley, 2018).

Wasserberg (2017) states that students in predominantly-Black schools, even from an early age, understand that their schools are lower-performing and feel stereotyped by this negativity. He argues that Black students are unable to achieve at a higher level because of the stereotyping to which they are subjected. Black students report experiencing more test anxiety than White students (Wasserberg, 2011), and the majority-Black schools curriculum heavily consists of test preparation all day due to the initiatives in place to close the achievement gaps. Even though test preparation, low-level comprehension worksheets, and canned programs are commonly used to address an achievement gap, these programs do not help to close the gap at all

(Galda, 2010). Black student performance plummets when students discover a test they are taking is a diagnostic exam (Wasserberg, 2011), further illustrating that test preparation programs do not benefit Black students. Another component of test preparation programs is the push teachers feel to focus on the students who are considered bubble kids, those who score high enough to be likely to become proficient, leaving the lower-scoring students without much instruction or challenge (Smith et al., 2016).

Many predominantly-Black schools appear physically-decrepit (Dupper & Poertner, 1997), which causes the students attending the school to feel more self-conscious about the fact that they attend that school (Wasserberg, 2011). These schools additionally receive fewer resources (Klein, 2002). Most of these schools receive less money to spend on arts programs as well as academics, even though student creativity is a necessary skill to improve the United States's economy (Katz-Buonincontro, 2018). The childcare centers in the low-income neighborhoods feature televisions more prominently than books (Walker-Dalhouse, 2005). Since a large percentage of Black students attend predominantly minority schools, they are attending schools in communities with higher percentages of poverty and crime (Williams, 2014). Cross (2007) states that this reality should not be considered normal. Americans have accepted that predominantly-Black schools are lower-funded, lower-scoring, and less desired, and this attitude claims that inferior-quality education is acceptable for a minority group (Cross, 2007). Cohen et al. (2012) remind readers that per-student expenditure rates have been a problem in the United States since the 1910s. Americans reflect on that time in history as a time of racial discrimination yet accept funding predominantly-Black schools less than predominantly-White schools. More equitable funding in all public schools would facilitate higher-quality materials and programming (Cross, 2007).

Teachers frequently stereotype Black students as being passive or having limited oral response capabilities and criticize the students for these behaviors (Bowman et al., 2018). However, these are behaviors parents teach their Black children as survival skills to protect them from racism at school (Bowman et al., 2018). Rather than remediate those negatively impacted by the achievement gap, society punishes them (Cross, 2007). If minority students are not able to be successful attending public school, school staff view them as outsiders who conform to the culture and expectations of society (Cross, 2007).

Strategies to Close the Achievement Gap

In the 1960s, Benjamin Bloom (as cited in Guskey, 2005) noticed there was little pedagogical variety in classrooms he observed. He found a normal distribution in student achievement because all students were receiving instruction in the same way with the same amount of time to learn. As he suspected, very few students found these learning conditions ideal, creating achievement gaps. He became a champion for individualized learning and the use of assessment as an instructional tool. Bloom saw differentiation and personalization of learning as the key to closing achievement gaps (Guskey, 2005).

Several common sets of methodologies are proposed to close the American racial achievement gap in public schools. The first group of theorists believe the cause of the gap is the structure of the public school system. These theorists trust that a redistribution of resources would improve public education and opportunities for all students (Wildhagen, 2011). This would mean rezoning urban and inner-city school systems, so schools have more even student racial demographics and also more equitable resources.

The next group of theorists believe that the cause of the gap is cultural. This group does not support redistributing resources; they would rather teach more to standardized testing and focus on teaching White culture to all students (Wildhagen, 2011). The danger of this mindset is an implication that all students should embrace White culture in order to succeed (Wildhagen, 2011). Instead of removing some racial test bias in standardized tests, students of color learn the majority culture in order to succeed on standardized tests (Wildhagen, 2011).

Another strategy used to reduce the gap is to place students in smaller classes. Tennessee has previously been successful reducing the gap by reducing class size (Klein, 2002; Casey, 2004). Williams (2011) notes that smaller class sizes are a commonly used intervention to close the achievement gap in geographic areas other than Tennessee.

Klein (2002) furthermore emphasizes that the school leadership and teachers are responsible and able to close the achievement gap regardless of the reason for the gap's existence. Placing this responsibility on the educators, rather than the Black students and their families, progresses toward closing the gap. Gorey (2009) states that since there are so many factors that cause the gap, educators and school leaders would never be able to single-handedly close the gap. Gorey (2009) notes that simultaneous changes in social policy and gap closure provide promise. Progressive policies including goals to reduce or eliminate racism in schools have resulted in smaller achievement gaps (Gorey, 2009).

Below are several programs, initiatives, and ideas that show promise in reducing the gap or need more research to determine their ability to reduce the gap.

Mentoring Programs

Ricks (2014) discusses two mentoring programs and their successes, the Female Achievement Model of Excellence (F^2AME) and Connection, Awareness, Retraining, and Encouragement (CARE) program. Grills (as cited in Mitchell, 2013) states that mentoring is an old tradition and way for people to care for others. These programs were implemented in a public school system in order to support achievement for Black students specifically. The F^2AME program goals include improved motivation and work ethic, locus of control, sacrificing, and pride in achievement in order to increase resiliency, pride, and self-efficacy (Ricks, 2014). Collins (2018) states the F^2AME program results in Black girls having increased confidence in the STEM fields. The program results dispel any deficit-theory ideas that have been applied to Black students (Collins, 2018).

CARE stands for Connection, Awareness, Retraining, and Encouragement (Ricks, 2014). It is a holistic mentorship program designed to address all academic needs and prevent Black girls from falling behind in the educational system (Ricks, 2014). Black girls are a group that tend to be overlooked since they have experienced both the struggles of being female and being a racial minority. Supports for Black girls are essential (Ricks, 2014). The National CARES Mentoring Movement allows students to be paired with a mentor who is committed to listening to the students (Mitchell, 2013).

Ricks (2014) argues that these two programs are excellent mentorship programs that disrupt the systematic history of labeling and ignoring Black students. The program successes dispel fictional cultural deficit theories that have empowered educators to ignore Black students and assume they cannot be high-achieving (Collins, 2018). Focusing on their achievement and

providing supports for success worked well in the systems where the mentoring programs were utilized. More widespread implementation and research on these mentoring programs is needed to conclusively determine effectiveness at closing the gap across American public schools (Ricks, 2014).

Family Resource Centers (FRC)

A program designed to assist all students start school more prepared and ready is Family Resource Centers (FRC) (Dupper & Poertner, 1997). Jacobson and Engelbrecht (2002) explain that family awareness of their role in student success and helping students before school enrollment. Because parents of color encounter more obstacles obtaining assistance due to issues such as the time or location of the assistance, they do not always realize what assistance is available (Dupper & Poertner, 1997). FRC staff connect families to the assistance available (Jacobson & Engelbrecht, 2002).

There are currently 103 FRCs in the state of Tennessee, serving sixty-five counties and seventy-eight school systems (Tennessee Department of Education, 2020). Jacobson and Engelbrecht (2002) note that the purpose of the FRC staff is to partner with other community organizations and programs to help families identify and receive assistance. Dupper and Poertner (1997) add that assisting from the family level aids in achieving the goal of all students living in safe homes and acquiring the best quality education. The FRC staff do not have the sole responsibility of providing financial and other assistance to the families; they are a resource families can use to locate the assistance.

Family Resource Center staff collaborate to support the parents who need assistance and cannot obtain it otherwise (Dupper & Poertner, 1997). They can offer a wide variety of services,

including medical, mental health, housing, and job services to provide a more holistic approach to supporting families (Dupper & Poertner, 1997). FRC staff support families in more than academics and financial assistance. Gorey (2009) found that holistic programs were most successful in closing the academic gap, so FRCs should be examined in this context. Dupper and Poertner (1997) add that FRC resources can be especially helpful to families of color who are not represented in school staff demographics. These families can feel uncomfortable coming into a school and asking for help. FRCs do not have to be located in a school building, which can make families who are uncomfortable in a school feel more comfortable when they come to ask for assistance (Dupper & Poertner, 1997).

Most FRC staff focus on supporting families who are living in poverty. More Black families are living in poverty than White families (Williams, 2014). Specifically, in 2003, 46% of Black and Hispanic students lived in poverty, and 8% of White students lived in poverty (Walker-Dalhouse, 2005). In Nashville, one in three students lives in poverty, so Nashville FRC staff strive to address the social-emotional needs that come from the high stress students experience as they live in poverty (Dewey & Mitchell, 2014). The FRC staff in Nashville seek to support families by partnering with other community organizations, like United Way, in order to transition parents toward independence and students toward academic improvements (Dewey & Mitchell, 2014). Although FRC staff help all families, the focus on families living in poverty can benefit Black families in Tennessee public school districts (Dewey & Mitchell, 2014).

In Tennessee, many of the school systems which consistently make it to the state Exemplary Schools list have Family Resource Centers (Tennessee Department of Education, 2020). Loudon County and Maryville City have been exemplary in 2017, 2018, and 2019 and

have FRCs that served 645 and 332 families, respectively, in the 2018-2019 school year (Tennessee Department of Education, 2020; Tennessee Department of Education, 2017; Tennessee Department of Education, 2018; Tennessee Department of Education, 2019). In addition, the 2018 and 2019 exemplary Athens City School system contains an FRC (Tennessee Department of Education, 2018; Tennessee Department of Education, 2019; Tennessee Department of Education, 2020). Alcoa, Lenoir City, Murfreesboro, Tipton County, and Wilson County have FRCS and were exemplary in 2019 (Tennessee Department of Education, 2020; Tennessee Department of Education, 2019). In order to be an exemplary school systems, achievement for all students, regardless of race or socioeconomic status, needs to be high. Schools with large achievement gaps are unable to qualify for exemplary status (Tennessee Department of Education, 2019). The continued appearance of school systems with active FRCs on the exemplary list may suggest that the supports that FRC staff provide low-income students helps reduce gaps. More research on this topic is needed before concluding the two have a causal relationship.

Social and Emotional Programs

A program used to target low-achieving students, most of whom are Black, is the Student Success Skills (SSS) program (Miranda et al., 2007). The SSS program is utilized to ehnahce three areas for students to be more successful: cognitive skills including goal setting and progress monitoring, social skills including listening and teamwork, and self-management skills including motivation and anger (Miranda et al., 2007; Webb et al., 2019). The SSS program components meet the requirements for the Collaborative for Academic, Social, and Emotional Learning organization, the members of which determine if social and emotional learning programs positively impact student academic and behavioral achievement (Webb et al., 2019). In the

Miranda et al. (2007) study, students at multiple grade levels received instruction in the SSS skill areas from counselors. Miranda et al. (2007) built on prior studies in order to determine how effective the SSS program was at closing achievement gaps. The findings of the Miranda et al. (2007) study reported that the SSS program is effective at increasing participant test scores. The SSS program goal is to equip students to better manage their behavior in classes, resulting in an increase of confidence, leading to higher academic achievement (Webb et al., 2019). Adding skills instruction for students who appear to be struggling academically was beneficial for the students, but no conclusive evidence was found that directly links the SSS program to improvement of academic achievement (Webb et al., 2019). There are few studies examining direct links between student academic achievement and the SSS program.

Another social and emotional educational program particularly useful for Black students is the Mastering Our Skills and Inspiring Character (MOSAIC) approach (Hatchimonji et al., 2017). Hatchimonji et al. (2017) focused on a large urban middle school with a majority non-White and low-income population. This school was among the worst-performing in its state when the MOSIAC approach was introduced. However, survey data after implementing MOSIAC showed that the school culture improved for three years (Hatchimonji et al., 2017). Strong character and social skill education is a component of college success, similar to English and mathematical competency (Hatchimonji et al., 2017). Although no data regarding academic performance was collected during this study, the improvement in school culture shows promise.

Pre-K Programs

Wenglinsky (2004) explains that a significant portion of the achievement gap starts before students enter kindergarten. Gopalan (2019) asserts that the gap is already present when

students enter school in kindergarten, suggesting the importance of Pre-K programs. Pre-K program staff have an important role in helping children develop the social and academic skills necessary for success (Curby et al., 2009, Gormley et al., 2017). Curby et al. (2009) also cite the positive impact that Pre-K programs have on student academic achievement. Pre-K program curriculum can expose children to important academic concepts before enrolling in kindergarten (Gormley et al., 2017).

Venzant Chambers and Spikes (2016) state that White students are more likely to have Pre-K preparation, therefore embarking upon their formal education more prepared than their Black peers. Minority Students enrolled in Pre-K programs may achieve higher later in their academic careers (Venzant Chambers & Spikes, 2016).

Gormley et al. (2017) examines the Tulsa pre-K program effect on middle school performance. Researchers selected Tulsa because the pre-K program has been an established program, includes high-quality programming, and a significant number of students participate in the program (Gormley et al., 2017). In the Gormley et al. (2017) study, the researchers found that pre-K enrollment had a statistically significant positive impact on math scores, enrollment in honors courses, and the students were less likely to be retained in their grade level. In this particular study, there was a less pronounced impact for Black students compared to other subgroups (Gormley et al., 2017). The Curby et al. (2009) study showed less of a positive impact for Black students in pre-K programs, even though students in all subgroups showed gains from attending pre-K.

Contrastingly, the Bassok (2010) research shows different effect. Black children enrolled in preschool scored significantly higher than their Black peers who were not enrolled in

preschool (Bassok, 2010). This particular study concluded that Black children benefitted more from a preschool program than their White peers (Bassok, 2010). Both studies (Bassock, 2010 and Gormley et al., 2017) show that Black students benefit from Pre-K programs. Bassock (2010) contrasts with Curby et al. (2009) and Gormley et al. (2017) by showing Black students benefit academically more than their White peers when enrolled in Pre-K programs.

Family Involvement

Pinder (2011) demonstrated that students with more family involvement in education performed better throughout school. Parents who are more involved tend to have higher expectations for academic performance, so children do better in school (St. Mary et al., 2018). Dupper and Poertner (1997) assert that higher levels of parental involvement result in more consistent school attendance and more positive attitudes about schooling; Latunde and Clark-Louque (2016) add that higher levels of parental involvement can result in higher rates of identification for gifted and talented programs, enrollment in Advanced Placement courses, and gaining admittance to more prestigious colleges and universities. A positive relationship between school staff and families lead to heightened student success (Venzant Chambers & Spikes, 2016). Families who are more involved in their children schooling are more likely to meet school staff and develop positive relationships (Venzant Chambers & Spikes, 2016).

Toldson and Owens (2010) found that Black students are less likely to have parental pressure placed on them to attend college; however, Black parents and White parents place equal pressure on their children to study. Toldson and Owens (2010) also found that Black fathers education had a significant impact on their sons academic achievement, and Black mothers education had a significant impact on their daughters academics. This impacts Black males

significantly, as their fathers are less likely to have gone to college than Asian-Americans and European-Americans (Toldson & Owens, 2010). The greatest predictor of high academic achievement for Black students was having parents who verbalize they are proud of them and that they are doing a good job (Toldson & Owens, 2010).

When examining the connection between student achievement and parental involvement, it is necessary to avoid insinuating that Black students, as a whole, are not achieving as much as White students because their parents are not involved (Latunde & Clark-Louque, 2016). This is simply not true; many Black parents are involved in the community, school, and academics (Latunde & Clark-Louque, 2016). Insinuations and generalizations are damaging to the relationship between Black families and the school staff (Latunde & Clark-Louque, 2016). Rather than viewing the family and school staff as enemies, these two groups should partner together to help students be successful (Borunda et al., 2020). A damaged and strained relationship between the school and family could factor into the achievement gap for some students (Borunda et al., 2020).

Family involvement can help teachers unfamiliar with Black culture to celebrate and appreciate the body of knowledge Black students bring to their classrooms (Bowman et al., 2018). Connecting the curriculum with elements of students culture can reinforce the learning occurring (Bowman et al., 2018). Many Black children struggle with differing expectations at home and at school; a strong partnership between teachers and families can help children succeed in spite of the differences (Bowman et al., 2018). Partnership and connections between home and school could work to resolve the different expectations (Borunda et al., 2020).

It is inaccurate to assume that Black parents are uninvolved parents (Latunde & Clark-Louque, 2016). One of the top coping strategies for Black adolescents experiencing racism is to rely on the family for support (McNeil Smith et al., 2019). Black families are supporting their students, especially with dealing with the microaggressions and racism encountered in the school, so to assume otherwise is overgeneralizing and inaccurate (McNeil Smith et al., 2019).

Family involvement is so important in education that Gallagher (2016) studied one classroom where a teacher strove to replicate a family dynamic in her classroom. Her students were successful in this environment, and Gallagher (2016) credited their success to her ability to create a family environment in her classroom. Gallagher (2016) noted that her classroom management skillfully allowed students to have differences that were not stigmatized, and they all felt safe attending her class because of the focus on familial relationships.

Necessity of Black Educators

Black educators have long been noted for their ability to have a positive impact on the academic achievement of Black students (Carroll, 2017), yet the number of Black candidates in teacher preparation programs is declining (Bazemore-Bertrand & Handsfield, 2019). In fact, Black educators comprise only seven percent of the teaching population in the United States (Griffin & Tackie, 2016, as cited in Williams, 2018) even though the number of Black students in American schools has surpassed the number of White students (Maxwell, 2004, as cited in Ramsay-Jordan, 2020). The underrepresentation of Black teachers is a factor in the racial achievement gap (Egalite et al., 2015). Black students are less likely to receive punitive disciplinary action, less likely to be misidentified in Special Education Programs, and more likely to graduate on time when taught by Black educators (Rogers-Ard et al., 2019). Egalite et

al. (2015) showed that students perform better in math and reading when taught by a teacher of the same race or ethnicity. Specifically, Black students experience a positive academic impact when taught by Black male teachers (Wright, 2015, as cited in Sandles, 2020). The benefits of having Black teachers outweigh the inconvenience of having to recruit Black pre-service teaching candidates (Wood & Joicus, 2013). Furthermore, White teachers can be unaware of the White privilege in their classrooms (Wood & Joicus, 2013) and often apply cultural deficit theories to their Black student learning (Ramsay-Jordan, 2020).

Unfortunately, Black educators face unique challenges (Carroll, 2017). Black teachers are expected to be more than educators in their buildings; they are expected to mentor, save, parent, be activists, and be community leaders (Carroll, 2017), placing immense pressure and responsibility on these individuals who are often only trained in pedagogy (Sandles, 2020). Black teachers professional, racial, and ethnic identities are interwoven (Skerrett, 2008; Chavez & Guido-DiBrito, 1999; Tatum, 1997 as cited in Williams, 2018). The F_2AME and CARE mentoring programs require Black teachers to be the mentors for students, placing another commitment on Black teachers (Ford et al., 1997). Additionally, Black teachers face more disciplinary resistance from their students than their White colleagues face (Sinha, 2018) while also juggling the pressure to act White in order to relate to their colleagues (Williams, 2018). Communities ultimately see Black teachers as responsible for all Black student success or lack thereof in school, even when these students are shared with White teachers (Sandles, 2020).

Another positive impact of hiring Black teachers, as noted by Venzant Chambers and Spikes (2016), is that Black teachers and administrators understand the necessity of affirming Black culture. Venzant Chambers and Spikes (2016) note that Black school leaders are more

likely to develop a culture of empathy for Black students. In one study, Black students reported that the adults in their schools cared much less and were less involved with their success than the White students at the same school (St. Mary et al., 2018). When asked to describe an effective educator, Black students used the word caring (St. Mary et al., 2018), illustrating the necessity of a culture of empathy and therefore the importance of employing Black educators (Venzant Chambers & Spikes, 2016).

The Tennessee Department of Education Educator Race and Ethnicity Data (2020) from 2018-2019 contains data showing that twelve percent of teachers and twenty percent of administrators in the state are Black. Ford et al. (1997) state that the number of minority students is increasing while the number of minority teachers is decreasing. Most students will graduate from high school without ever meeting a Black teacher or school leader (Ford et al., 1997), especially a male Black teacher (Goings & Bianco, 2016).

When Black teachers are hired, they are difficult to retain (Ford et al., 1997). A huge contributing factor in the difficulty to hire and retain Black teachers is that many have had negative experiences in schooling themselves (Ford et al., 1997). Because of the racial exclusion most Black students feel in school, they become teachers who do not feel like they completely belong in the school environment (Williams, 2018). Additionally, Black teachers are assigned to under-resourced schools in low-income areas disproportionately and deal with the struggles of these difficult assignments (Rogers-Ard et al., 2019). Black teachers who participate in alternative teacher education programs, such as all-online programs, are viewed as more suitable to teach in high-poverty areas, which already have higher-than-average turnover (Sandles, 2020). Black teachers report feeling as if they need to prove they are qualified to teach White students

even though they are certified and highly-qualified educators (Sinha, 2018). Sinha (2018) explains that stakeholders assume Black educators have agendas when dealing with racial situations and are often described as angry when reporting racial incidents. Black educators face more obstacles once hired than their White colleagues do (Ford et al., 1997; Williams, 2018).

Rogers-Ard et al. (2019) challenge the role teacher education programs play in maintaining a majority-White pool of teacher candidates and reinforcing institutional racism. Rogers-Ard et al. (2019) recommend using Grow Your Own (GYO) programs to transition toward antiracist schools. GYO programs empower school leaders to identify, recruit, and train teachers for the school systems they attended as students (Rogers-Ard et al., 2019). Although GYO programs are not a perfect solution for the problem, they are necessary if leaders wish to disrupt the current system that is not producing a proportionate number of Black educators in the public education system (Rogers-Ard et al., 2019).

Since there is a shortage of Black teachers, educating White pre-service teachers to teach students of color more effectively is essential (Williams, 2018). Williams (2018) highlights the importance of decriminalizing Black students' behavior, raising academic expectations, encouraging them to contribute their voices, and to stop marginalizing their histories. Providing White teachers with professional development on more effectively reaching students of color can aid during the Black teacher shortage (Williams, 2018).

Another way to incorporate inclusive practices during a Black teacher shortage is to represent Black students in literature they read. In one study, when Black girls read literature that included Black girls, they reported more self-affirmation and were able to better understand the text (Tiera Greene, 2016). Swapping a White character for a Black character improved student

understanding of reading material (Tiera Greene, 2016). Similarly, Black males need literature that is culturally relevant (Wood & Joicus, 2013). Kaczmarczyk et al. (2018) stress the importance of using racially diverse literature to facilitate conversations about all student cultures, race, and racism. Students in a study reported that when they felt the material taught in school was culturally relevant, they were more interested, illustrating the need to represent all students, especially those underrepresented in their school staff, in curriculum (St. Mary et al., 2018).

Although Black teachers can help reduce the gap, Smith Kondo (2018) notes that not all Black and Brown teachers are inherently equipped to reach all learners, an attitude which is ultimately harmful to the perception of Black and Brown teachers. Along with hiring Black educators, schools should focus on inclusive practices, such as promoting diverse literature, and providing professional development so all teachers can reach all students (Kaczmarczyk et al., 2018).

Implicit Bias Training

Implicit bias training is a common approach for organizational leadership to use to attempt to fight racism in their organizations (Applebaum, 2019). Implicit biases are prejudices held by people who do not realize they have these prejudices (Kempf, 2020). The training is designed for people to identify their biases and understand how they can turn into microaggressions or other behaviors that marginalize minority groups. Applebaum's (2019) research focused on implicit bias training in universities. Applebaum (2019) argues that implicit bias trainers reinforce racism rather than eradicating it by stating that people who claim to be colorblind and hold no implicit biases act on their biases without considering the ramifications of

their actions. Additionally, implicit bias trainers request trainees to confess their biases after identifying them- an action that can prove to be problematic to the confessor because other colleagues present in the training may use the confessions of bias against the confessor (Applebaum, 2019). Participants tend to report they embrace all cultures and have no biases, skewing the data from self-reporting (Boysen, 2010). Furthermore, a common method of delivering implicit bias training is through online trainings, which has not been proven effective (Kempf, 2020).

As implicit bias training becomes more common in schools in an effort to increase racial equity (Kempf, 2020), examining the effects of implicit bias training in order to assure school personnel professional development time is spent in effective ways is recommended. There remains a lack of research on the effectiveness of implicit bias training everywhere and especially in schools. Most of the research on implicit bias training is focused on corporations and police departments, as the attention on police violence disproportionally perpetrated on minority races has increased (Kempf, 2020). Of note is the Jackson (2018) study on implicit bias trainings in a police department.

Jackson (2018) investigated implicit bias trainings hosted by police departments and found they fail to perform due to eight criteria. First, the trainers acknowledge racism as an inevitable part of human thinking. Jackson found the trainings start with a trainer acknowledging that racism is going to occur because employees of police departments are human, therefore negating any feelings of responsibility that trainees should have to reduce their biases (Jackson, 2018). Kempf (2020) asserts trainers need to approach the acknowledgment that every human has bias with caution, in order to prevent trainees from misunderstanding that bias is acceptable

because everyone has them. If a trainee believes the implicit biases they hold are normal, the trainee may not work as hard to overcome this bias (Jackson, 2018).

Next, the trainings reinforce stereotypes of Black and Latinx guilt and White innocence (Jackson, 2018). The training Jackson attended featured a clip from a movie where two Black men carjack a White couple followed by a slide stating that stereotypes can be true (Jackson, 2018). Rather than challenging participant biases, the trainer reinforced a stereotype. No explanation for the reason behind the clip and statement about stereotypes was given in the research, and there was no more information about whether or not this was an isolated incident in the training.

Implicit bias trainers favor denouncing explicit racism for coded racism (Jackson, 2018). The training included time when a trainer taught participants language they could use to describe Black suspects in a way that would not directly state they were suspicious because of their race (Jackson, 2018). Rather than use coded racism, Boysen (2010) recommends implicit bias trainers teach participants strategies they can use to combat biases. Jackson (2018) found the training seemed to confuse participants about how to react to racism. One day of the training, the officers learned that they were more likely to shoot Black suspects and should probably consider that before taking action (Jackson, 2018). However, the next day, trainers presented research that officers tend to wait longer before shooting Black suspects, and the wait time was equated to officer lives lost (Jackson, 2018). When the participants asked why the information received was contradictory, the trainers told the participants that the purpose of the training was to receive information, so the participants did not learn actionable steps to reduce their biases (Jackson, 2018).

Additionally, the trainers worked to relieve the guilt and shame associated with racism, rather than teach participants that racism was wrong (Jackson, 2018). One of the tenets of the training was that learning cannot occur when the student is experiencing guilt and shame; however, research shows that the best way to correct an action is to cause the learner discomfort associated with an old way of acting (Jackson, 2018). Boysen (2010) recommends implicit bias trainers take the emotional needs of the trainees into account and allow time to debrief for emotional support rather than teaching that implicit biases are acceptable. Instead of taking the opportunity to connect racist actions with negative emotions in order to reduce participant perpetuation of racist actions, the trainers empowered participants to feel comfortable with the old habits that needed to change (Jackson, 2018). Having negative emotions associated with implicit bias is a predictor of a future reduction in the bias, so it is recommended that implicit bias trainers allow trainees to spend time being uncomfortable with their biases (Boysen, 2010).

Implicit bias trainers promote broad approaches over community-focused approaches (Jackson, 2018). In the researcher's observations of implicit bias trainings, she found that the trainers focus on the science, placing the findings of psychologists over the humanity of marginalized communities (Jackson, 2018). At times, the trainer prioritization of science implied that the marginalized communities misunderstand racism and science (Jackson, 2018). Focusing more on the victims of implicit bias could combat participant future usage of microaggression and microinvalidation (Boysen, 2010). Understanding that implicit biases impact human beings is equally important to understanding the psychological science behind the implicit biases (Jackson, 2018).

The researcher found the trainers treat racism and other forms of discrimination interchangeably (Jackson, 2018). Although the training was marketed as antiracist, significant

time was spent discussing gender and sexual orientation discrimination (Jackson, 2018). These other forms of discrimination were addressed similarly to racial discrimination, rather than acknowledging them each as unique problems and biases (Jackson, 2018).

Lastly, Jackson (2018) found the trainings give White participants total control over defining the word racism. After the training was over, an implicit-bias trained officer was told a story of a woman experiencing racist profiling from a police officer. Instead of denouncing the actions of the officer, he was adamant that the officer was doing his job, and that there must be something that the Black woman has done wrong (Jackson, 2018). Boysen (2010) asserts that people who show more overt forms of racism staunchly believe they are not racist. The officer in the story misunderstands or rejects the goals of the implicit bias training he has just completed and has not changed his own viewpoints of racism. Instead, he has redefined the word racism to better suit his interests (Jackson, 2018). He has also committed a microinvalidation, rejecting the reality of the situation the Black person has experienced (Boysen, 2010).

Although implicit bias trainings are conducted with good intention, Jackson's (2018) study of implicit bias trainings used in police departments shows the lack of effectiveness. Rather than depending and relying on implicit bias trainings to reeducate teachers who need to become antiracist, other approaches, namely critical race theory, are needed in conjunction (Kempf, 2020).

Tennessee Targeted School Improvement Plan

In the Targeted School Improvement Resource Guide, there are seven steps listed to improve student test scores and reduce the gap between subgroups (Tennessee Department of Education, 2019). The first step is to promote a positive school climate by setting high

expectations, holding all students and staff members accountable for high achievement, training the staff in adverse childhood experiences, and implementing inclusive attendance and discipline procedures (Tennessee Department of Education, 2019). In step two, school staff implement high-quality core instruction (Tennessee Department of Education, 2019). The guidance listed in the document is to have good-quality instructional materials, follow the evaluation process, and engage students in reading and writing tasks throughout the day (Tennessee Department of Education, 2019). Step three is to train staff and use the response to intervention with fidelity (Tennessee Department of Education, 2019). In step four, positive behavioral support is implemented in the schools (Tennessee Department of Education, 2019). The authors of the resource guide suggests school staff ensure the behavior supports are specific to racial minorities and economically disadvantaged subgroups, reviewing all data on behavior in relation to racial minorities and economically disadvantaged subgroups, and involving students and families in creating the discipline policies and procedures (Tennessee Department of Education, 2019). Step five relates to social and personal competences; students are taught to manage emotions, set goals, have positive relationships with school staff and each other, and to make good decisions (Tennessee Department of Education, 2019). Health and wellness are the focus of step six (Tennessee Department of Education, 2019). This includes physical and mental health and wellness (Tennessee Department of Education, 2019). However, the authors of the resource guide provides no specific information on how to support this vital component of student well-being. The final step is to promote a post-secondary and career-going culture in schools (Tennessee Department of Education, 2019). All students are to receive information and guidance on post-secondary and career options while they are still in school (Tennessee Department of Education, 2019). There are additional supports for first-generation college

students, and the main focus of data during this step is on ACT data (Tennessee Department of Education, 2019).

There are contact people for each step of the document, but by May of 2020, most of these employees have moved to other positions outside of the Tennessee Department of Education. Tennessee is not the only state in the Southeast working to reduce the achievement gap. Neighboring state North Carolina has a similar plan.

North Carolina Eleven Point Plan

Wenglinsky (2004) points out that North Carolina educational leaders had developed a plan to reduce the achievement gap for all subgroups. This plan includes the following steps. First, school leaders and staff work to eliminate disproportionate numbers of minority students in special education programs (Wenglinsky, 2004). Next, they identify the minority children who are close to achieving at a proficient or advanced level (Wenglinsky, 2004). After, they provide professional development for teachers that is centered around teaching ethnically diverse groups of students (Wenglinsky, 2004). Additionally, local college and university faculty partner to educate prospective teachers on the needs of ethnically diverse groups of students (Wenglinsky, 2004). School system leaders provide pay increases for teachers who work in schools with larger achievement gaps, and they hold all staff accountable for closing the achievement gap (Wenglinsky, 2004).

Partnerships

In order to narrow the achievement gap, Catelli (2006) proposes more partnerships between K through 12 systems and colleges and universities. From the 1960s, college staff have partnered with school system staff to attempt to improve academics (Catelli, 2006). Some

strategies used in this partnership historically have been to recruit minority and lower SES students to attend the colleges, provide teachers with professional development, and change policies in K through 12 to try to improve student achievement (Catelli, 2006). However, the partnerships were funded predominantly by businesses and corporations (Catelli, 2006). The issue with introducing corporate funding into school programs and initiatives is that business leaders greatly benefit from certain groups of students, especially those of racial and ethnic minorities, underachieving (Spring, 1993). While it might appear wonderful that corporation leadership wants to train highly-qualified future employees through the public school system, "business wants compliant and well-trained workers at the lowest possible wages" (Spring, 1993, p. 2). It is not in the best interest of business leadership to educate every citizen to achieve at the highest potential (Spring, 1993). Another connection between business and the achievement gap is that in the 1990s, the achievement gap and wage gap moved similarly (Casey, 2004). Some partnerships may help schools, but school leaders might be wary of partnerships with businesses and corporations (Catelli, 2006).

Another form of corporate intervention is charter schools (Stovall, 2018). Charter schools recently gained huge popularity in disenfranchised communities in New Orleans, Chicago, and Newark, but community leaders should fight against this (Stovall, 2018). Legislators and the Secretary of Education under the Trump administration, Betsy DeVos, push for vouchers for students in disenfranchised communities to attend charter schools, diverting funds from public schools to the corporate charter schools, harming public schools and decreasing their funding (Stovall, 2018). In Tennessee specifically, the first state school voucher program was approved in 2019 and is set to begin in the 2021-2022 school year (EdChoice, 2020). Funding for this program comes from public school funding in order to pay tuition for students in the Nashville

and Memphis areas attending private and charter schools (EdChoice, 2020). The connections between business and the achievement gap show a need for other forms of intervention (Stovall, 2018).

Partnerships with universities and communities can provide teachers with professional development on teaching social justice and developing an antiracist curriculum (Zygmunt & Cipollone, 2009). Zygmunt and Cipollone (2019) outline a community partnership with a school that results in the entire community becoming more conscious of racism in their community and making progress rectifying it (Zygmunt & Cipollone, 2019). The authors teach pre-service teachers and explain that they intentionally work with the teacher candidates to teach racism awareness and prevention (Zygmunt & Cipollone, 2019).

The Gap Grows

A troubling truth about the achievement gap is that it is already present when students enter school, and it only continues to grow each year that students are educated (Williams, 2011). There is a racial achievement gap when students enroll in kindergarten, and it persists through high school and college (Gopalan, 2019). This gap widens as each cohort of students progress to the next grade level (Cross, 2007). In math, the gap remains consistent through elementary school, widens in middle school, and levels out again in high school (Casey, 2004). The gap is wider in math than in literacy (Casey, 2004). Although multiple initiatives have been implemented and legislation against the achievement has been enacted, the gap continues to persist today (Williams, 2011). In addition to academics, the gap exists in art education, with fewer Black students receiving an art education than their White peers (Katz-Buonincontro, 2018). Furthermore, Black students score lower on art and music tests than White students (Katz-

Buonincontro, 2018), illustrating a need for Black students to have a robust art and music education.

Bowman et al. (2018) explain the growth of the gap: many Black children arrive at school for the first time with a different body of knowledge than the White students. Black students know many things, but they do not know the skills taught in Kindergarten programs upon arrival (Bowman et al., 2018). Immediately, teachers assume they have delays compared to the White students since Black students do not know the same information (Bowman et al. 2018). Compounding this, more Black students grow up in poverty (Bouie, 2017). Children growing up in poverty typically have smaller vocabularies than children of a higher socioeconomic status (Bowman et al., 2018). Therefore, Black students are less likely to understand verbal directions and stories read aloud, learning less of the content and curriculum and increasing the academic achievement gap each day (Bowman et al., 2018).

Another way researchers determine that the achievement gap exists is by examining the number of classes characterized as being composed of low-achieving students (Smith et al., 2016). Smith et al. (2016) found that in the 1985-1986 school year, there were approximately the same percent of students in lower-achieving classes as there were in 2016. Had the United States made progress reducing any achievement gaps, there would be a lower percent of students currently enrolled in those classes (Smith et al., 2016).

The type of testing a researcher conducts may incorrectly show that the achievement gap narrows in high school ("More Blacks are Taking SAT II Achievement Tests, yet the Racial Scoring Gap is Widening", 2009). For example, if a researcher examines the racial scoring gap for the SAT II test, there is a small or no gap at all, due to the fact that all students who take this

highly specialized test are the highest of achievers. The article “More Blacks are Taking SAT II Achievement Tests, Yet the Racial Scoring Gap is Widening” (2009) explains that the students who take the SAT II additionally come from high schools with teachers who prepare them well, so the test scores in general are typically higher than those of other tests.

However, the scores on the SAT II tests have proven an increase in the racial score gap since 2008 (“More Blacks are Taking SAT II Achievement Tests, Yet the Racial Scoring Gap is Widening”, 2009). The phenomenon is due to Black students receiving less preparation than their White classmates (“More Blacks are Taking SAT II Achievement Tests, Yet the Racial Scoring Gap is Widening”, 2009). More Black students are taking the test, and the gap between Black student and White student scores is widening (“More Blacks are Taking SAT II Achievement Tests, Yet the Racial Scoring Gap is Widening”, 2009).

Additionally, the gap is evident in college enrollment and degree rates (Brown, 2011). According to Brown (2011), the Bachelor’s degree attainment rate for White students was 33%, and the rate for Black students was only 17%. The widening of the gap as students progress through K through 12 school ultimately impacts the college graduation rates (Brown, 2011). Also, the achievement gap persists in adult literacy rates (Cohen et al., 2012). Cohen et al. (2012) showed that the literacy rates between Black adults and White adults had a sizeable difference, illustrating that the achievement gap does not close during adulthood.

Tracking

One reason the gap might widen in each year is tracking (Venzant Chambers & Spikes, 2016). Tracking is a technique used to place students in ability-based classes (Williams, 2011). Because the achievement gap is present before students reach kindergarten, more minority

students are placed in lower-level classes and more majority students are placed in higher-level classes (Williams, 2011). Venzant Chambers and Spikes (2016) note that Black students are more likely to be placed in a lower tracking group than their intelligence would warrant; Dotterer and James (2018) state that this is an example of a microaggression. Race plays a significant role in referral to academic tracks, with Black students being referred to lower tracks at a higher rate than their White peers (Ramsay-Jordan, 2020). Allowing Black students to be part of a higher track acknowledges their potential (Venzant Chambers & Spikes, 2016).

Classes for older students are more likely to be ability-grouped, and Williams (2011) states that tracking exacerbates the growth of the gap. Therefore, grouping students based on ability, or tracking, contributes to the phenomenon of the gap widening, as many Black students in tracking groups have been in a lower group for many years (Venzant Chambers & Spikes, 2016). Lower-track students are in classes where teachers present material at a slower pace and do not cover as much material (Smith et al., 2016). Students in these classes do not have the same educational opportunities as the students in higher-track classes (Venzant Chambers & Spikes, 2016). One of the resources lower-track students do not have access to is the more-experienced teachers (Smith et al., 2016). Smith et al. (2016) state that low-track classes are typically taught by teachers who do not perceive that they have the ability to get students interested in the course material. Whereas, the higher-track classes are taught by the experienced, confident, and proven teachers (Smith et al., 2016). Research shows that students are unable to overcome the negative effects of a series of unskilled teachers (Casey, 2004). Inability to access the classes taught by skilled teachers can have long-term and lasting negative impacts (Casey, 2004). Contrastingly, students in a class with a teacher trained in literacy passed tests at twice the

rate as their peers in classes with untrained teachers, illustrating the benefits of being taught by effective educators (Walker-Dalhouse, 2005).

Tracking has a psychological effect on Black students as well as the academic effect (Tabron & Venzant Chambers, 2019). The students who are placed in the higher-achieving tracks feel isolated from the other Black students since they do not take classes together (Tabron & Venzant Chambers, 2019). As a result, even if Black students are in the higher track classes, they experience negative consequences from tracking.

Another reason the achievement gap could widen is student perceptions of teachers (St. Mary et al., 2018). Elementary students are more likely to think about their teachers positively and look up to them (St. Mary et al., 2018), which could positively impact their academic performance. By middle school, students are less likely to report positive descriptors of their teachers (St. Mary et al., 2018). Without a teacher Black students respect, relate to, and like, Black students may become disengaged in the curriculum.

Theoretical Framework

Upon examination of the data to determine the movement of the achievement gap, this movement will be analyzed using the public education cultural theory theoretical framework developed by the researcher during this study. After reading about Ogbu's cultural ecological theory (as cited in Pinder, 2012), the researcher rejected the idea that Black students are underperforming due to Black culture and lack of home support, as Ogbu suggests in the cultural ecological theory. Another rejected framework was the cultural deficit framework that explains that Black students are not as capable of academic achievement as White students (Wasserburg, 2017). There are multiple layers contributing to the underperformance of Black students in our

nation, and the factors are magnified as students progress through public school and understand how they are marginalized in society beyond school. A framework with a holistic approach that does not put blame on the oppressed group needs to be used in order to accurately understand why Black students are unable to score higher on standardized tests.

The public education cultural theory framework provides a multifaceted explanation as to why student scores differ so much by race. The public education cultural theory framework considers historical factors, the structure of public education, corporate intervention in public education, political factors, racism, and societal bias to be some of the forefront factors that contribute to the achievement gap between Black students and White students.

The history of public education and its exclusion for decades of Black students provides context for the public education cultural theory framework. Black students are newer to public education, establishing them from the beginning as outsiders who need to attend White schools in order to be successful, implying that predominantly Black schools were inferior (Carroll, 2017). Although the intentions of *Brown v. Board of Education of Topeka, Kansas* may have been good, the implications contributed to negative stereotypes toward Black students and Black teachers (Carroll, 2017). Understanding that the history of public education in the United States first denied Black students a right toward an education and then implied that predominantly-Black schools and Black teachers were inferior is key toward examining the racial gap in academic performance.

The structure of public education additionally contributes toward Black student inability to perform at higher levels in this theoretical framework. The zoning of public schools first ensures that the lowest-funded inner-city schools serve a predominantly Black student

demographic (Wasserberg, 2011). Even if Black students attend a better-funded suburban school, they will likely be subjected to tracking, another structure that prevents Black student achievement (Venzant Chambers & Spikes, 2016; Williams, 2011). Tracking ensures students who are identified as lower-achieving do not have the same academic opportunities as their peers and offers few opportunities for Black students to move to higher tracks (Venzant Chambers & Spikes, 2016). Black students are more likely to be wrongly identified as lower-achieving, even when their data is similar to their White peers (Venzant Chambers & Spikes, 2016). The structure of public schools benefits majority students while keeping minority students from achieving full potential, another important factor in the public education cultural theory framework.

The researcher desired to include political factors in the theoretical framework because political factors impact public education greatly. Politicians in America are constantly changing; perceived economic and social problems are additionally changing (Spring, 1993). Because politicians are motivated by self-interest and rarely have any educational experience, they rely on educational ideals to make decisions, so American education stays in a constant state of turmoil (Spring, 1993). When forced to choose between benefiting economics or education, more governors will choose to benefit economics (Spring, 1993). State assessment programs are controlled by governments, so the phenomenon of the achievement gap is made more visible because of the reporting of this data. It is necessary to understand the involvement of politicians and influence of politics in public education in order to holistically view the achievement gap.

Although the election of President Obama signaled a hope that America had entered a post-racialism society (Ricks, 2012), the truth is The United States is still suffering from its over-

400 year use of race to stratify society (Warren, 2012). Warren (2012) argues that President Obama was used by White Supremacists in order to hide the fact that racism is definitely prevalent in The United States. The sheer number of theoretical frameworks used in racist ways to explain data showing that Black students perform at lower rates than White students, like the cultural ecological theory and the cultural deficit framework, shows that racism is firmly rooted in American culture. The public education cultural theory framework only seeks to explain that Black students have not been allowed to achieve full potential, and any sign of underachievement is not their fault.

To holistically understand what Black students work against in order to achieve success in United States public schools, the public education cultural theory framework will be used in this study. The purpose of creating a new theoretical framework was to ensure Black students are not blamed for their unequal access to education, Black culture is not blamed for Black students being prevented from achieving higher test scores, and future research can further examine the causes of the achievement gap.

Summary

The history of United States public education ensured that White students had more opportunities and resources than Black students (Carroll, 2017). The ruling of *Brown v. Board of Education of Topeka, Kansas* signaled hope that Black students could achieve equal rights, yet the way schools were integrated racially continued the stereotype that Black schools were inferior to White schools (Ricks, 2012). The historical discrimination of Black students caused an achievement gap between Black students and White students (Carroll, 2017).

An achievement gap is a significant difference between measurable test scores between two groups (Applebaum, 2019). While achievement gaps exist between a multitude of groups, the Black and White achievement gap has persisted historically due to several reasons.

Black students receive heavier and more frequent disciplinary action from their teachers and administrators, often leading to lower school attendance due to out-of-school suspensions (Gopalan, 2019). In the past thirty years, the wealth gap between Black and White Americans has widened, causing most Black Americans to be in the low socioeconomic status group (Bouie, 2017). Students with low socioeconomic status have to overcome more obstacles in order to be high achievers in school (Cross, 2007).

Microaggressions are covert racist comments and actions that minority people experience on a frequent basis (Baker, 2019). Microaggressions cause students to disengage with teachers, classmates, and school personnel who perpetrate the microaggressions (Applebaum, 2019; Baker, 2019; Dotterer & James, 2018).

A theory for Black underperformance in school is the acting White hypothesis. This hypothesis states that Black students who succeed in school experience the negative effects of peers accusing them of acting White (Toldson & Owens, 2010). This can cause them to perform poorly purposefully or to stop caring about school in order to fit in better (Wildhagen, 2011). Many researchers (Borunda et al., 2020; Toldson & Owens, 2010; Venzant Chambers & Spikes, 2016) reject this hypothesis because it puts the blame of underperformance on the students who are victims.

Standardized tests were invented to propel White male students to success and suppress success of Black students (Soares, 2012). Since its implementation in public schools, standardized testing has proven biased against Black students, takes valuable time away from learning curriculum, and prevents Black students from graduating high school and entering their desired careers (Hagopian, 2016; Schnidewind & Tanis, 2017; Stovall, 2018).

Black student overrepresentation in special education programs illustrates another form of racial bias (Farkas et al., 2020; Grindal et al., 2019; Morgan et al., 2020). Black students are especially overrepresented in special education programs in the United States South (Morgan et al., 2020). Since there is a relationship between racism and ableism, disproportionate recommendation that Black students be tested for learning disabilities can be a form of racism (Robinson & Norton, 2019).

White privilege, White supremacy, and White fragility impact schools as well (Borunda et al., 2020; Stutts, 2020; Bazemore-Bertrand & Handsfield, 2019). White privilege is a series of structures and rules that benefit people of the majority (Borunda et al., 2020). Many White people are so accustomed to receiving the special privileges of being part of a majority that they do not even realize this privilege exists (Borunda et al., 2020). American public schools were created under a system that benefits the majority, so White students and school employees experience more comfort as a result of White privilege (Beatty & Boettcher, 2019). Schools show White supremacy through majority-White decision-makers (Stutts, 2020). Curriculum focuses on White and Eurocentric achievements and narratives (Stutts, 2020). White fragility causes conversations about White privilege and supremacy to be avoided because they are

uncomfortable conversations, barring change from occurring (Beatty & Boettcher, 2019; Bazemore-Bertrand & Handsfield, 2019).

Stereotypes of Black students and majority-Black students are overwhelmingly negative (Wasserburg, 2017). As the acting White hypothesis demonstrated, many stereotypes of Black students and majority-Black schools hold the victims, the students, responsible for not achieving equivalently to their White peers (Noguera, 2008; Venzant Chambers & Spikes, 2016). Majority-Black schools are typically underfunded, contributing to unequal resources, fewer experienced teachers, and students feeling self-conscious about their schools (Wasserburg, 2011; Wasserburg, 2017).

Several strategies to close the achievement gap exist. Mentoring programs have been successful in several areas (Ricks, 2014). Mentoring programs target at-risk students and provide them with extra support (Ricks, 2014). Family Resource Centers (FRCs) help remove barriers for families in financial distress, so the students can be comfortable and able to learn (Dewey & Mitchell, 2014; Dupper & Poertner, 1997; Gorey, 2009).

Focusing on the social and emotional needs of all students is important (Miranda et al., 2007). Approaches such as MOSAIC and Student Success Skills (SSS) education can provide strategies for students who need academic or social support (Miranda et al., 2007). Pre-K programs, especially for minority students or low socioeconomic status students, have been connected with higher reading test scores later in the academic career (Curby et al., 2009; Gormley et al., 2017). Family involvement is positively related to student academic achievement (Latunde & Clark-Louque, 2016; Pinder, 2011; Venzant Chambers & Spikes, 2016).

Black educators are a necessity for academic success and closing the racial academic gap (Carroll, 2017; Egalite et al., 2015; Rogers-Ard et al., 2019). However, many barriers exist that prevent Black students from becoming educators, and once they become educators, Black teachers face more barriers (Carroll, 2017; Rogers-Ard et al., 2019; Sinha, 2018). Implicit bias training is a strategy used to close the academic gap and make schools more racially inclusive, but the effectiveness is not yet determined (Applebaum, 2019) or found to be ineffective (Jackson, 2018). Either way, the best practice is to pair implicit bias training with other antiracist strategies and trainings (Kempf, 2020). Tennessee and neighboring state North Carolina educational leaders have published several steps for educators and administrators to use to close the academic achievement gap (Tennessee Department of Education, 2019; Wenglinsky, 2004). Partnerships between business and school leadership exist as a strategy to close the gap, but their effectiveness is debated (Catelli, 2006; Stovall, 2018).

Unfortunately, the achievement gap between Black students and White students grows as students age (Williams, 2011). The gap starts before students enter school, and it increases each year as students progress to higher grade levels (Gopalan, 2019; Williams, 2011). Tracking, also called ability-based grouping, may contribute to this gap, as suggested by several researchers (Smith et al., 2016). Tracking keeps Black students in lower classes with fewer opportunities and less skilled teachers while separating them from their White peers in higher track classes (Casey, 2004; Smith et al., 2016; Venzant Chambers & Spikes, 2016; Williams, 2011).

Chapter 3. Methods

The purpose of this chapter is to describe the research methodology used in this study. This research seeks to describe the achievement gap between Black students and White students in grades three through eight in the three geographic regions (East, Middle, and West) in Tennessee. The researcher questioned if any of the three regions had been significantly more successful in narrowing the gap between Black and White student achievement.

The researcher conducted a quantitative, non-experimental, comparative analysis, utilizing the test scores from the 2017-2018 and 2018-2019 school years. The goal was to describe the achievement gap between Black students and White students in grades three through eight for each of the geographic regions in Tennessee. The scores for third through fifth grade and sixth through eighth grade in English and Language Arts and in Math were analyzed using Statistical Programming for the Social Sciences (SPSS) software in a Chi Squared test. Twelve two-by-two contingency matrixes were created to calculate the expected frequency. One matrix was created for each research question. Data were analyzed in SPSS using the Chi Squared test to compare the population proportions for the score groups. These tests were conducted for each research question in order to see which population sample proportions were statistically equivalent.

Research Questions and Null Hypotheses

Twelve research questions and associated null and alternate hypotheses guided the research for this study. The questions focus on the achievement gap between Black students and White students in Tennessee.

1. Is the population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$1: The population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery is statistically equal.

   H_a1: The population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery is not statistically equal.

2. Is the population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$2: The population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery is statistically equal.

   H_a2: The population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery is not statistically equal.

3. Is the population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$3: The population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery is statistically equal.

   H_a3: The population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery is not statistically equal.

4. Is the population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$4: The population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery is statistically equal.

   H_a4: The population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery is not statistically equal.

5. Is the population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$5: The population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a5: The population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

6. Is the population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$6: The population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a6: The population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

7. Is the population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$7: The population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a7: The population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

8. Is the population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$8: The population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

   H_a8: The population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

9. Is the population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery statistically equal?

   $H_0$9: The population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery is statistically equal.

   H_a9: The population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery is not statistically equal.

10. Is the population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery statistically equal?

    $H_0$10: The population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery is statistically equal.

    H_a10: The population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery is not statistically equal.

11. Is the population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery statistically equal?

    $H_0$11: The population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery is statistically equal.

    H_a11: The population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery is not statistically equal.

12. Is the population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery statistically equal?

    $H_0$12: The population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery is statistically equal.

    H_a12: The population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery is not statistically equal.

Researcher Role

The researcher has worked in education for eight years—seven years as a seventh grade ELA teacher at a public school in Tennessee and one year as an English as a Second Language teacher at a public school in Tennessee. The researcher's students 2018 and 2019 test scores are part of the seventh grade ELA data for the school system in which she teachers, but this data is compiled with other seventh grade ELA teachers within the same school system. Confidentiality and integrity were maintained during this study. No identifiable information was collected during this study to allow identification of any participants.

The researcher role in this study was to collect and analyze the data in order to describe them. The data were publicly available on the Tennessee Department of Education website. The researcher did not conduct observations or interviews, as this was a quantitative research project.

Sample

The researcher used a sample of the third through eighth grade population in the state of Tennessee in the 2017-2018 and 2018-2019 school years.

The East Tennessee CORE District includes twenty-two school systems in fourteen counties in Tennessee. The school systems are as follows: Alcoa City, Anderson County, Blount County, Campbell County, Claiborne County, Clinton City, ETSD, Grainger County, Jefferson County, Knox County, Lenoir City, Loudon County, Maryville City, Monroe County, Morgan County, Oak Ridge City, Oneida City, Roane County, Scott County, Sevier County, Sweetwater City, and Union County (Tennessee Department of Education, 2020).

The First Tennessee CORE District includes seventeen school systems in ten counties in Tennessee. The school systems are as follows: Bristol City, Carter County, Cocke County,

Elizabethton City, Greene County, Greeneville City, Hamblen County, Hancock County, Hawkins County, Johnson City, Johnson County, Kingsport City, Newport City, Rogersville City, Sullivan County, Unicoi County, and Washington County (Tennessee Department of Education, 2020).

The Southeast CORE District includes fourteen school systems in nine counties in Tennessee. The school systems are as follows: Athens City, Bradley County, Cleveland City, Dayton City, Etowah City, Grundy County, Hamilton County, Marion County, McMinn County, Meigs County, Polk County, Rhea County, Richard City, and Sequatchie County (Tennessee Department of Education, 2020).

The Upper Cumberland CORE District includes seventeen school systems in sixteen counties. The school systems are as follows: Bledsoe County, Cannon County, Clay County, Cumberland County, Dekalb County, Fentress County, Jackson County, Macon County, Overton County, Pickett County, Putnam County, Smith County, Trousdale County, Van Buren County, Warren County, White County, and York Institute (Tennessee Department of Education, 2020).

The Mid-Cumberland CORE District includes sixteen school systems in eleven counties. The school systems are as follows: Cheatham County, Dickson County, Franklin SSD, Houston County, Humphreys County, Lebanon SSD, Metro Nashville, Montgomery County, Murfreesboro City, Robertson County, Rutherford County, Stewart County, Sumner County, TSB, Williamson County, and Wilson County (Tennessee Department of Education, 2020).

The South Central CORE District includes sixteen school systems in fourteen counties. The school systems are as follows: Bedford County, Coffee County, Fayetteville City, Franklin

County, Giles County, Hickman County, Lawrence County, Lewis County, Lincoln County, Manchester County, Marshall County, Maury County, Moore County, Perry County, Tullahoma City, and Wayne County (Tennessee Department of Education, 2020).

The Southwest CORE District includes twenty-one school systems in twelve counties. The school systems are as follows: Achievement schools, Arlington Municipal, Bartlett Municipal, Chester County, Collierville Municipal, Decatur County, Fayette County, Germantown Municipal, Hardeman County, Hardin County, Haywood County, Henderson County, Lakeland Municipal, Lauderdale County, Lexington City, Jackson-Madison County, McNairy County, Millington Municipal, Shelby County, Tipton County, and WTSD (Tennessee Department of Education, 2020).

The Northwest CORE District includes twenty-three school systems in nine counties. The school systems are as follows: Alamo City, Bells City, Benton County, Bradford SSD, Carroll County, Crockett County, Dyer County, Dyersburg City, Gibson County SSD, Henry County, Hollow Rock-Bruceton SSD, Humboldt SSD, Huntington SSD, Lake County, McKenzie SSD, Milan SSD, Obion County, Paris SSD, South Carroll SSD, Trenton SSD, Union City, Weakley County, and West Carroll SSD (Tennessee Department of Education, 2020).

Below is a table with total population for each county and percent of the population that is Black or African American:

Table 1

Counties in Tennessee, Total Population, Percent Black or African-American, and Their Geographic Region

County	Total Population[1]	Percent Black or African-American[2]	Geographic Region
Anderson County	76,482	4.1	East Tennessee
Blount County	131,349	3.0	East Tennessee
Campbell County	39,583	0.5	East Tennessee
Claiborne County	31,756	1.1	East Tennessee
Grainger County	23,145	1.0	East Tennessee
Jefferson County	54,012	2.1	East Tennessee
Knox County	465,289	8.9	East Tennessee
Loudon County	53,054	1.6	East Tennessee
Monroe County	46,357	2.2	East Tennessee
Morgan County	21,579	3.7	East Tennessee
Roane County	53,140	2.7	East Tennessee
Scott County	22,039	0.3	East Tennessee
Sevier County	97,892	1.4	East Tennessee
Union County	19,688	0.5	East Tennessee
Carter County	56,351	1.7	East Tennessee
Cocke County	35,774	2.1	East Tennessee
Greene County	69,087	2.2	East Tennessee
Hamblen County	64,569	4.5	East Tennessee
Hancock County	6,549	0.6	East Tennessee
Hawkins County	56,530	1.5	East Tennessee
Johnson County	17,778	2.2	East Tennessee
Sullivan County	157,668	2.3	East Tennessee
Unicoi County	17,761	0.5	East Tennessee
Washington County	128,607	4.5	East Tennessee
Cheatham County	40,439	2.1	Middle Tennessee
Davidson County	692,587	27.4	Middle Tennessee
Dickson County	53,446	4.1	Middle Tennessee
Houston County	8,263	3.0	Middle Tennessee
Humphreys County	18,486	2.8	Middle Tennessee
Montgomery County	205,950	21.3	Middle Tennessee
Robertson County	71,012	7.8	Middle Tennessee
Rutherford County	324,890	16.3	Middle Tennessee
Stewart County	13,561	1.9	Middle Tennessee
Sumner County	187,149	8.3	Middle Tennessee
Williamson County	231,729	4.5	Middle Tennessee

Wilson County	140,625	7.5	Middle Tennessee
Benton County	16,184	2.6	West Tennessee
Carroll County	28,020	10.1	West Tennessee
Crockett County	14,328	14.1	West Tennessee
Dyer County	37,320	14.5	West Tennessee
Gibson County	49,045	18.1	West Tennessee
Henry County	32,358	7.6	West Tennessee
Lake County	7,411	28	West Tennessee
Obion County	30,267	10.8	West Tennessee
Weakley County	33,415	7.7	West Tennessee
Bedford County	49,038	8.4	Middle Tennessee
Coffee County	55,700	4.0	Middle Tennessee
Franklin County	41,890	5.2	Middle Tennessee
Giles County	29,503	10.3	Middle Tennessee
Hickman County	25,063	5.0	Middle Tennessee
Lawrence County	43,734	1.8	Middle Tennessee
Lewis County	12,086	2.1	Middle Tennessee
Lincoln County	34,117	7.0	Middle Tennessee
Marshall County	33,683	6.5	Middle Tennessee
Maury County	94,340	12.0	Middle Tennessee
Moore County	6,411	2.5	Middle Tennessee
Perry County	8,064	2.4	Middle Tennessee
Wayne County	16,558	6.7	Middle Tennessee
Bradley County	106,727	5.2	East Tennessee
Grundy County	13,346	0.7	East Tennessee
Hamilton County	364,286	19.3	East Tennessee
Haywood County	17,335	50.6	East Tennessee
Marion County	28,575	4.1	East Tennessee
McMinn County	53,285	3.9	East Tennessee
Meigs County	12,306	1.6	East Tennessee
Polk County	16,898	0.7	East Tennessee
Rhea County	33,044	2.2	East Tennessee
Sequatchie County	14,876	0.8	East Tennessee
Chester County	17,276	9.4	West Tennessee
Decatur County	11,706	3.0	West Tennessee
Fayette County	40,507	27.5	West Tennessee
Hardeman County	25,220	42.2	West Tennessee
Hardin County	25,776	3.3	West Tennessee
Henderson County	27,847	7.8	West Tennessee
Lauderdale County	25,825	35.1	West Tennessee
Madison County	97,605	37.7	West Tennessee
McNairy County	25,832	6.1	West Tennessee
Shelby County	935,764	54.3	West Tennessee
Tipton County	61,581	18.5	West Tennessee
Bledsoe County	14,755	7.7	Middle Tennessee

Cannon County	14,462	1.8	Middle Tennessee
Clay County	7,717	1.6	Middle Tennessee
Cumberland County	59,673	0.7	Middle Tennessee
Dekalb County	20,138	2.0	Middle Tennessee
Fentress County	18,217	0.5	Middle Tennessee
Jackson County	11,758	0.6	Middle Tennessee
Macon County	24,265	1.2	Middle Tennessee
Overton County	22,068	0.7	Middle Tennessee
Pickett County	5,082	0.3	Middle Tennessee
Putnam County	78,843	2.4	Middle Tennessee
Smith County	19,942	2.3	Middle Tennessee
Trousdale County	11,012	11.4	Middle Tennessee
Van Buren County	5,765	0.9	Middle Tennessee
Warren County	40,878	3.8	Middle Tennessee
White County	27,107	1.8	Middle Tennessee

[1] ("2018 Population Estimates for Tennessee Counties," 2018)

[2] ("QuickFacts," 2020)

Instrumentation

The researcher used the existing test data from the Tennessee Department of Education website for this study. Data were gathered from the Tennessee Department of Education website. This website contains multiple reports for each year of test data. The researcher filtered and sorted the data by grade level, subject area, race, and other demographic indicators.

The instrument used to measure student academic achievement was the TNReady test. For this study, the TNReady English and Language Arts and Math scores were used. For the years of test data accessed in this study, the 2017-2018 and 2018-2019 school years, the TNReady test has been taken on paper and pencil in a teacher-monitored classroom environment. Teachers receive training in administering this test and in test security in order to protect test reliability and validity.

Data Collection

The study was approved by the East Tennessee State University Institutional Review Board. The Tennessee Department of Education publishes public files with information that the researcher accessed. No student names or any other identifiable information are published with the data on the Tennessee Department of Education website. In order to protect students' privacy, the data are unable to be traced to any student. Certain school systems' grade bands with small percentages of minority populations are not included in the study, as the data could be used to identify students. The data accessed was compiled by grade level, subject area, and race.

In the 2017-2018 and 2018-2019 TNReady district reports, student achievement is filtered by level of proficiency. The number of students who score on track or mastery is reported for each test, grade level, subject area, and racial demographic.

Data Analysis

The independent variable for this study was student race (Black or White). The dependent variables in this study were third through fifth grade and sixth through eighth grade ELA level of proficiency for 2017-2018 and 2018-2019, third through fifth grade and sixth through eighth grade Math level of proficiency for 2017-2018 and 2018-2019, gap between Black and White student achievement in ELA for 2017-2018 and 2018-2019, and the gap between Black and White student achievement in Math for 2017-2018 and 2018-2019. The researcher used TNReady ELA and Math test scores for this study.

When the researcher accessed the number of students by school system who scored On Track or Mastered on each test, she compiled that information into a table. The table was turned into a two-by-two contingency matrix calculating the expected frequency of students achieving a

certain test score in order to enhance the data analysis. The matrix data was then uploaded into SPSS and analyzed using a Chi Squared test. The results of the Chi Squared test determined if there were significant achievement gaps for Black and African American students compared to the White peers.

Reliability and Validity

The Tennessee Department of Education does not report all TNReady data for certain school systems, academic tests, and racial demographic groups. The small population of omitted scores could have a statistically significant larger or smaller gap than districts with more equal percentages of Black students and White students. At the time of publication, the Tennessee Department of Education had not responded to any of the researcher inquiries into the reason certain data are omitted from publication.

The researcher chose to examine two years of data, 2017-2018 and 2018-2019 because these are the two most recent consecutive years of TNReady data. The 2016-2017 year produced no data due to cancelation of the TNReady testing by the Tennessee Department of Education, and the 2019-2020 school year provided no data due to COVID-19. For reliability, the researcher chose to use two consecutive years of recent data using the same test; therefore, the 2017-2018 and 2018-2019 years provide the most reliability.

Ethical Considerations

The researcher placed student privacy at the forefront of priorities during this research. Student data was collected, reported, and analyzed using methods that prevent any student identity from being discovered and connected to this research. The reporting in this dissertation shows the total number of students in a geographic region (composed of multiple school

systems) scoring in two combined mastery levels for a three-year grade band. Therefore, there is no identifiable data that could be traced to an individual.

This research was non-experimental, so the Institutional Review Board (IRB) determined that it was not research involving human subjects and did not need to approve the project.

Chapter Summary

In order to describe the achievement gaps between Black students and White students in grades three through eight in the three geographic regions of Tennessee, the researcher compared the achievement gaps between Black students and White students in each of the three geographic regions. Twelve research questions and associated null hypotheses guided the research. The researcher conducted a quantitative, non-experimental, comparative analysis. The sample contains students who were in grades three through eight in Tennessee during the 2017-2018 and 2018-2019 school years who took the TNReady test. This test is the standardized test that Tennessee educators give students to assess their mastery of the standards taught. This data is published publicly by the Tennessee Department of Education personnel on their website, accessible to anyone.

In this study, the independent variable was student race, either Black or White. The data was analyzed in SPSS using the Chi Squared test. The researcher used two-by-two contingency matrixes to calculate expected frequencies of population. Some data was not reported by the Tennessee Department of Education and could not be included in the research. The researcher worked with the IRB at ETSU and determined the project was not human subjects research.

Chapter 4. Research

The purpose of this chapter is to describe the data using narratives, quantitative results, tables, figures, and graphs.

Decades after slavery was abolished, some still characterize Black students as intellectually inferior (Spring, 1993). Cross (2007) describes public education in the United States as a "system of apartheid education" (p. 252) because of the persisting achievement gaps. Even further, the achievement gap contributes to racial inequality in the United States, especially through direct economic repercussions (Casey, 2004). Even though its history would suggest otherwise, public education exists in the United States so that all students, regardless of any demographic factor, can actualize their potential (Borunda et al., 2020).

Research Question 1

Is the population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery statistically equal?

$H_0$1: The population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery is statistically equal.

H_a1: The population proportion of Black and White elementary school ELA students in East Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number one, a chi-square analysis was conducted for elementary ELA scores for Black and White students. The results were significant. $\chi 2$ (1, N=121,766) =1732.38, p<.001. Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar chart in Table 2 shows the population proportion of Black students scoring on-track and mastered is much lower than the population proportion White students scoring on-track and mastered. Black students are only reporting 19.7% on-track and mastered while the White students are reporting 39.2% on-track and mastered. For each group to be statistically equal, one would have expected the population proportions to be around 37.1%. Black students do not appear to have the same proportion as White students who are on-track and mastered for the TNReady test. Black students are reporting 80.3% of the population as below and approaching while White students are reporting 60.8% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 62.9% for both groups.

In conclusion, the data suggests that Black elementary students and White elementary students in East Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered for the TNReady assessment.

Table 2

SPSS Outputs for East TN Elementary ELA

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	123994	100.0%	0	0.0%	123994	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	2508	10254	12762
		% within Race	19.7%	80.3%	100.0%
		% within Score	5.5%	13.0%	10.3%
		% of Total	2.0%	8.3%	10.3%
	White	Count	42684	68548	111232
		% within Race	38.4%	61.6%	100.0%
		% within Score	94.5%	87.0%	89.7%
		% of Total	34.4%	55.3%	89.7%
Total		Count	45192	78802	123994
		% within Race	36.4%	63.6%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	36.4%	63.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1732.382[a]	1	.000		
Continuity Correction[b]	1731.573	1	.000		
Likelihood Ratio	1887.711	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	1732.368	1	.000		
N of Valid Cases	123994				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 4651.36.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.118	.000
	Cramer's V	.118	.000
N of Valid Cases		123994	

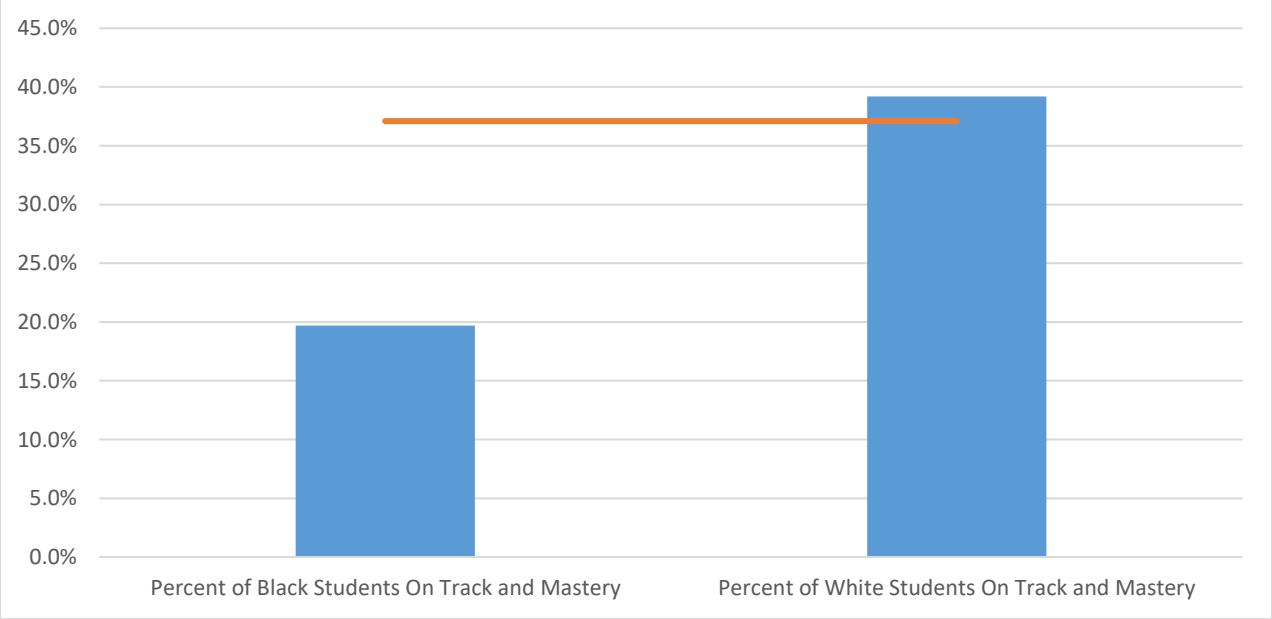

Table 3

2x2 Contingency Matrix for East TN Elementary ELA

East Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Elementary School ELA					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	2508	4736	10254	8026	12762
White	42684	40456	66320	68548	109004
Total	45192	45192	76574	76574	121766

Research Question 2

Is the population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery statistically equal?

$H_0$2: The population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery is statistically equal.

H_a2: The population proportion of Black and White middle school ELA students in East Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number two, a chi-square analysis was conducted for middle school ELA scores for Black and White students. The results were significant. χ^2 (1, N=115,660) =1051.33, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar graph in Table 4 show the population proportion of Black students and White students scoring on-track and mastered was not equal. Black students are only reporting 18.0%

on-track and mastered while the White students are reporting 36.4% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 35.2%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 82% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 63.6% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 64.8% for both groups.

In conclusion, the data suggests that Black middle school students and White middle school students in East Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 4

SPSS Outputs for East TN Middle School ELA

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	115660	100.0%	0	0.0%	115660	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	1372	6230	7602
		% within Race	18.0%	82.0%	100.0%
		% within Score	3.4%	8.3%	6.6%
		% of Total	1.2%	5.4%	6.6%
	White	Count	39360	68698	108058
		% within Race	36.4%	63.6%	100.0%
		% within Score	96.6%	91.7%	93.4%
		% of Total	34.0%	59.4%	93.4%
Total		Count	40732	74928	115660
		% within Race	35.2%	64.8%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	35.2%	64.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1051.326[a]	1	<.001		
Continuity Correction[b]	1050.521	1	<.001		
Likelihood Ratio	1163.632	1	<.001		
Fisher's Exact Test				<.001	<.001
Linear-by-Linear Association	1051.317	1	<.001		
N of Valid Cases	115660				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 2677.20.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.095	<.001
	Cramer's V	.095	<.001
N of Valid Cases		115660	

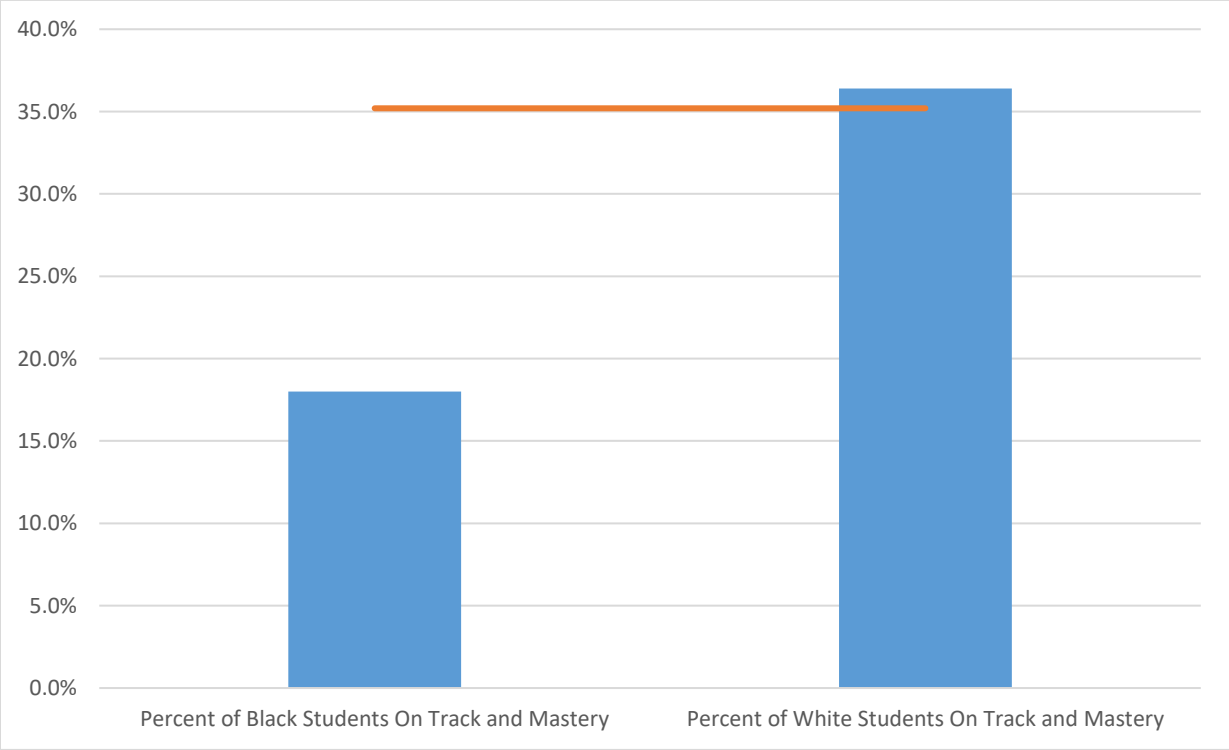

Table 5

2x2 Contingency Matrix for East TN Middle School ELA

East Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Middle School ELA					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	1372	2677	6230	4925	7602
White	39360	38054	68698	70003	108058
Total	40732	40732	74928	74928	115660

Research Question 3

Is the population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery statistically equal?

$H_0$3: The population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery is statistically equal.

H_a3: The population proportion of Black and White elementary school math students in East Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number three, a chi-square analysis was conducted for elementary school math scores for Black and White students. The results were significant. χ^2 (1, N=124,983) =2504.991, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

Table 6's bar chart shows the population proportions for Black students and White students scoring on-track and mastered is not equal. Black students are only reporting 22.3% on-track and mastered while the White students are reporting 44.2% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 41.7%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 77.7% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 55.8% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 58.3% for both groups.

In conclusion, the data suggests that Black elementary school students and White elementary school math students in East Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 6

SPSS Outputs for East TN Elementary Math

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	124983	100.0%	0	0.0%	124983	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	3184	11116	14300
		% within Race	22.3%	77.7%	100.0%
		% within Score	6.1%	15.3%	11.4%
		% of Total	2.5%	8.9%	11.4%
	White	Count	48915	61768	110683
		% within Race	44.2%	55.8%	100.0%
		% within Score	93.9%	84.7%	88.6%
		% of Total	39.1%	49.4%	88.6%
Total		Count	52099	72884	124983
		% within Race	41.7%	58.3%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	41.7%	58.3%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2504.991[a]	1	.000		
Continuity Correction[b]	2504.089	1	.000		
Likelihood Ratio	2682.046	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	2504.971	1	.000		
N of Valid Cases	124983				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5960.94.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.142	.000
	Cramer's V	.142	.000
N of Valid Cases		124983	

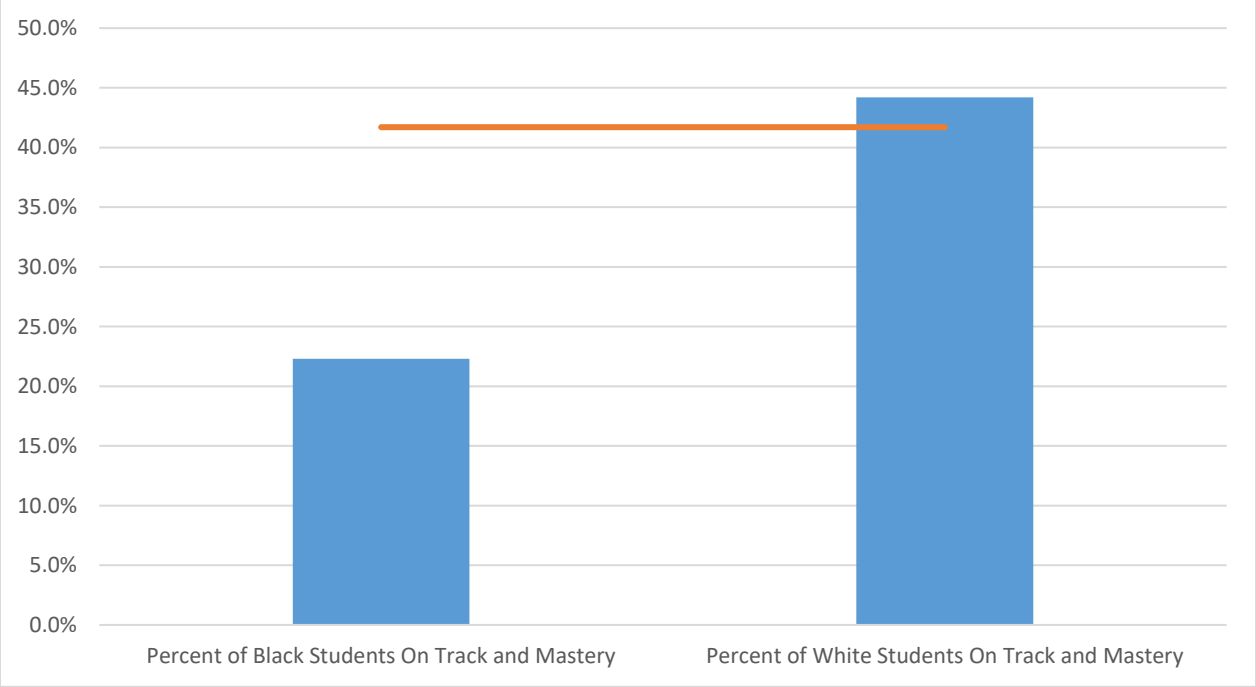

Table 7

2x2 Contingency Matrix for East TN Elementary Math

East Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Elementary School Math					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	3184	5961	11116	8339	14300
White	48915	46138	61768	64545	110683
Total	52099	52099	72884	72884	124983

Research Question 4

Is the population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery statistically equal?

$H_0$4: The population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery is statistically equal.

H_a4: The population proportion of Black and White middle school math students in East Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number four, a chi-square analysis was conducted for elementary school math scores for Black and White students. The results were significant. χ^2 (1, N=114,093) =1712.920, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar graph in Table 8 show the population proportion of Black students and White students scoring on-track and mastered was not equal. Black students are only reporting 16.8% on-track and mastered while the White students are reporting 38.3% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 36.5%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 83.2% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 61.7% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 63.5% for both groups.

In conclusion, the data suggests that Black middle school students and White middle school students in East Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 8

SPSS Outputs for East TN Middle School Math

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	114093	100.0%	0	0.0%	114093	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	1578	40066	41644
		% within Race	3.8%	96.2%	100.0%
		% within Score	16.8%	38.3%	36.5%
		% of Total	1.4%	35.1%	36.5%
	White	Count	7813	64636	72449
		% within Race	10.8%	89.2%	100.0%
		% within Score	83.2%	61.7%	63.5%
		% of Total	6.8%	56.7%	63.5%
Total		Count	9391	104702	114093
		% within Race	8.2%	91.8%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	8.2%	91.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1712.920[a]	1	.000		
Continuity Correction[b]	1711.994	1	.000		
Likelihood Ratio	1913.488	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	1712.905	1	.000		
N of Valid Cases	114093				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 3427.72.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.123	.000
	Cramer's V	.123	.000
N of Valid Cases		114093	

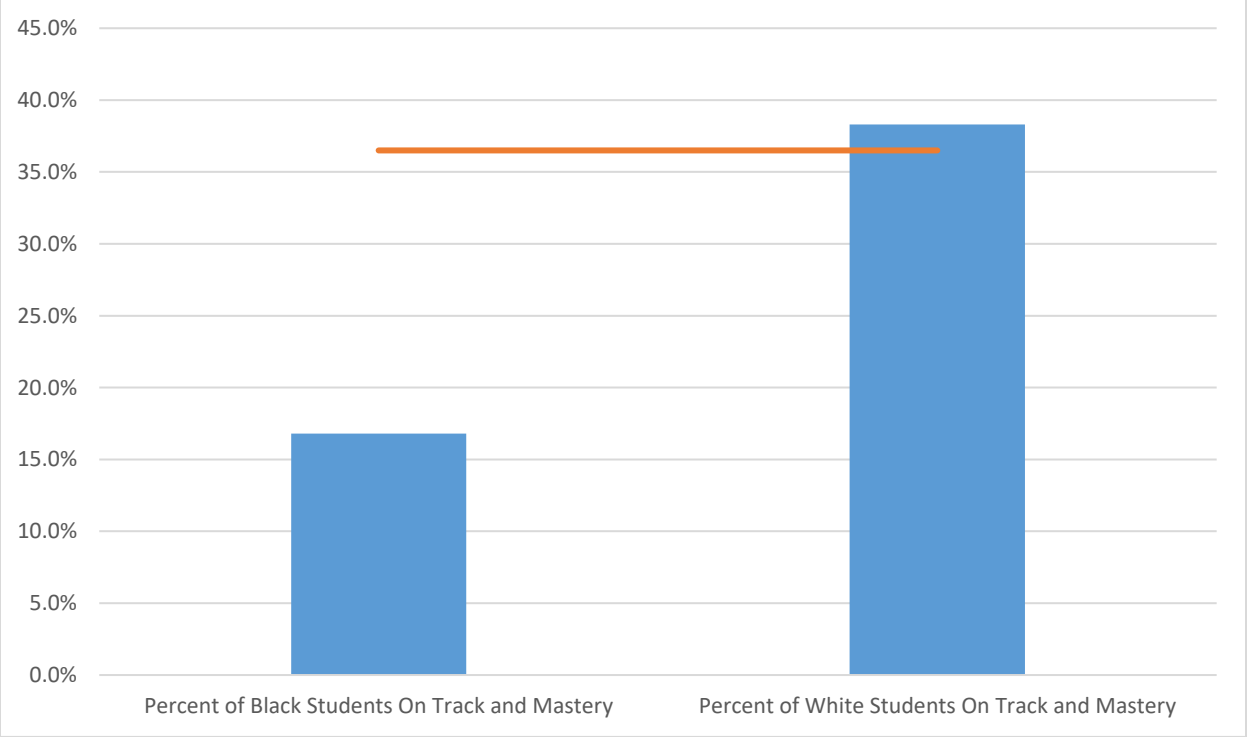

Table 9

2x2 Contingency Matrix for East TN Middle School Math

East Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Middle School Math					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	1578	3428	7813	5963	9391
White	40066	38216	64636	66486	104702
Total	41644	41644	72449	72449	114093

Research Question 5

Is the population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery statistically equal?

$H_0$5: The population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

H_a5: The population proportion of Black and White elementary school ELA students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number five, a chi-square analysis was conducted for elementary ELA scores for Black and White students. The results were significant. $\chi 2$ (1, N=127,443) =1623.502, p<.001. Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar chart in Table 10 shows the population proportion of Black students scoring on-track and mastered is much lower than the population proportion White students scoring on-track

and mastered. Black students are only reporting 28.9% on-track and mastered while the White students are reporting 45.2% on-track and mastered. For each group to be statistically equal, one would have expected the population proportions to be around 43.0%. Black students do not appear to have the same proportion as White students who are on-track and mastered for the TNReady test. Black students are reporting 71.1% of the population as below and approaching while White students are reporting 54.8% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 57.0% for both groups.

In conclusion, the data suggests that Black elementary students and White elementary students in Middle Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered for the TNReady assessment.

Table 10

SPSS Outputs for Middle TN Elementary ELA

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	127443	100.0%	0	0.0%	127443	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	4968	12234	17202
		% within Race	28.9%	71.1%	100.0%
		% within Score	9.1%	16.8%	13.5%
		% of Total	3.9%	9.6%	13.5%
	White	Count	49867	60374	110241
		% within Race	45.2%	54.8%	100.0%
		% within Score	90.9%	83.2%	86.5%
		% of Total	39.1%	47.4%	86.5%
Total		Count	54835	72608	127443
		% within Race	43.0%	57.0%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	43.0%	57.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1623.502[a]	1	.000		
Continuity Correction[b]	1622.834	1	.000		
Likelihood Ratio	1683.828	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	1623.489	1	.000		
N of Valid Cases	127443				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7401.52.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.113	.000
	Cramer's V	.113	.000
N of Valid Cases		127443	

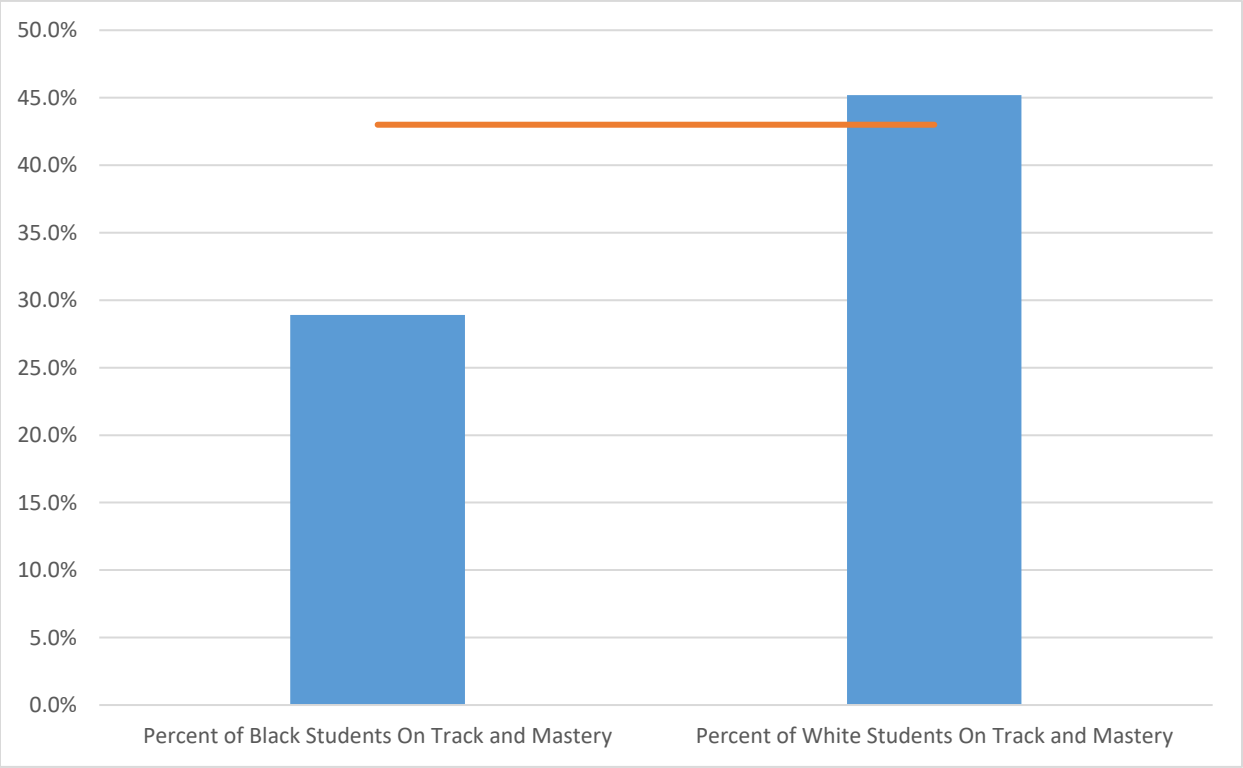

Table 11

2x2 Contingency Matrix for Middle TN Elementary ELA

Middle Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Elementary School ELA					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	4968	7402	12234	9800	17202
White	49867	47433	60374	62808	110241
Total	54835	54835	72608	72608	127443

Research Question 6

Is the population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery statistically equal?

$H_0$6: The population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

H_a6: The population proportion of Black and White middle school ELA students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number six, a chi-square analysis was conducted for middle school ELA scores for Black and White students. The results were significant. χ^2 (1, N=117,207) =1552.673, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar graph in Table 12 show the population proportion of Black students and White students scoring on-track and mastered was not equal. Black students are only reporting 24.5% on-track and mastered while the White students are reporting 41.3% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 39.8%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 75.5% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 58.2% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 60.2% for both groups.

In conclusion, the data suggests that Black middle school students and White middle school students in Middle Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 12

SPSS Outputs for Middle TN Middle School ELA

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	117207	100.0%	0	0.0%	117207	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	3442	10607	14049
		% within Race	24.5%	75.5%	100.0%
		% within Score	7.4%	15.0%	12.0%
		% of Total	2.9%	9.0%	12.0%
	White	Count	43164	59994	103158
		% within Race	41.8%	58.2%	100.0%
		% within Score	92.6%	85.0%	88.0%
		% of Total	36.8%	51.2%	88.0%
Total		Count	46606	70601	117207
		% within Race	39.8%	60.2%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	39.8%	60.2%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1552.673[a]	1	.000		
Continuity Correction[b]	1551.949	1	.000		
Likelihood Ratio	1642.646	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	1552.659	1	.000		
N of Valid Cases	117207				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5586.42.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.115	.000
	Cramer's V	.115	.000
N of Valid Cases		117207	

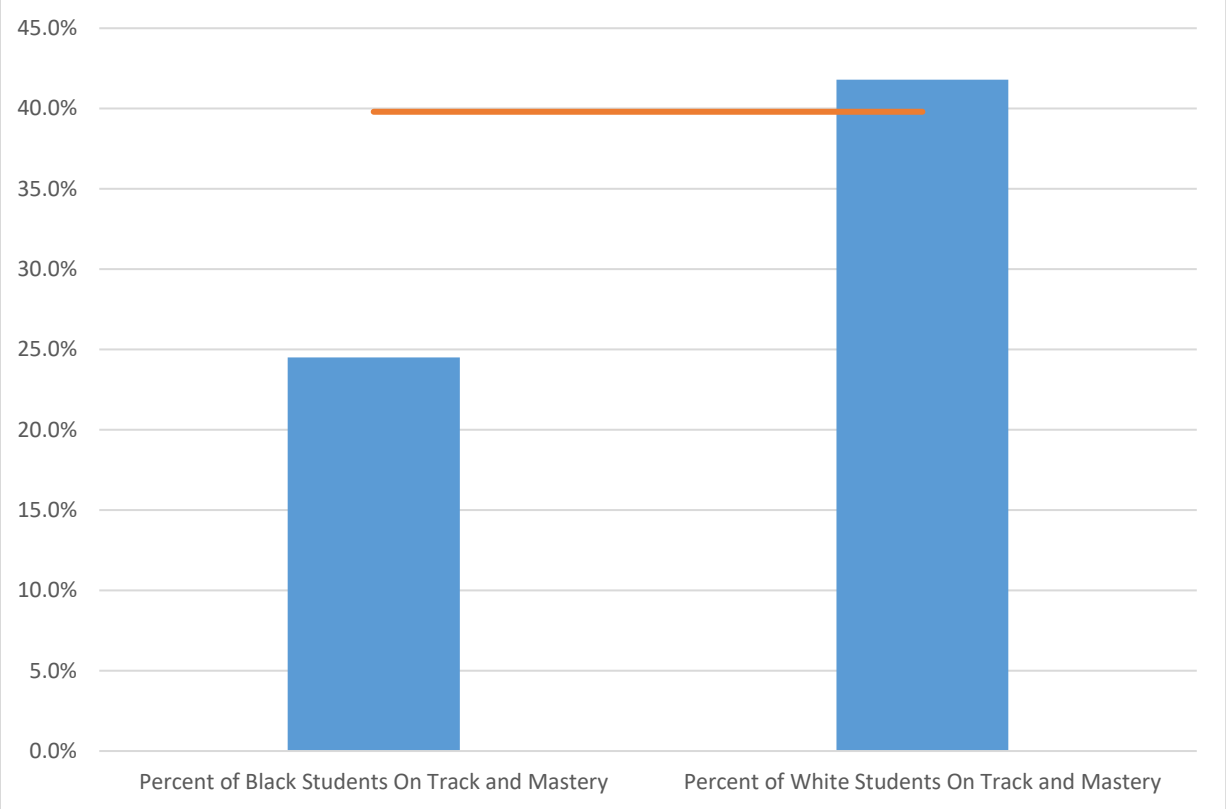

Table 13

2x2 Contingency Matrix for Middle TN Middle School ELA

Middle Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Middle School ELA					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	3442	5586	10607	8463	14049
White	43164	41020	59994	62138	103158
Total	46606	46606	70601	70601	117207

Research Question 7

Is the population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery statistically equal?

$H_0$7: The population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

H_a7: The population proportion of Black and White elementary school math students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number seven, a chi-square analysis was conducted for elementary school math scores for Black and White students. The results were significant. χ^2 (1, N=129,337) =2080.809, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

Table 14 bar chart shows the population proportions for Black students and White students scoring on-track and mastered is not equal. Black students are only reporting 36.0% on-track and mastered while the White students are reporting 54.2% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 51.7%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 64.0% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 45.8% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 48.3% for both groups.

In conclusion, the data suggests that Black elementary school students and White elementary school math students in Middle Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 14

SPSS Outputs for Middle School Elementary Math

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	129337	100.0%	0	0.0%	129337	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	6534	11625	18159
		% within Race	36.0%	64.0%	100.0%
		% within Score	9.8%	18.6%	14.0%
		% of Total	5.1%	9.0%	14.0%
	White	Count	60289	50889	111178
		% within Race	54.2%	45.8%	100.0%
		% within Score	90.2%	81.4%	86.0%
		% of Total	46.6%	39.3%	86.0%
Total		Count	66823	62514	129337
		% within Race	51.7%	48.3%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	51.7%	48.3%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2080.809[a]	1	.000		
Continuity Correction[b]	2080.078	1	.000		
Likelihood Ratio	2098.734	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	2080.793	1	.000		
N of Valid Cases	129337				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8777.01.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.127	.000
	Cramer's V	.127	.000
N of Valid Cases		129337	

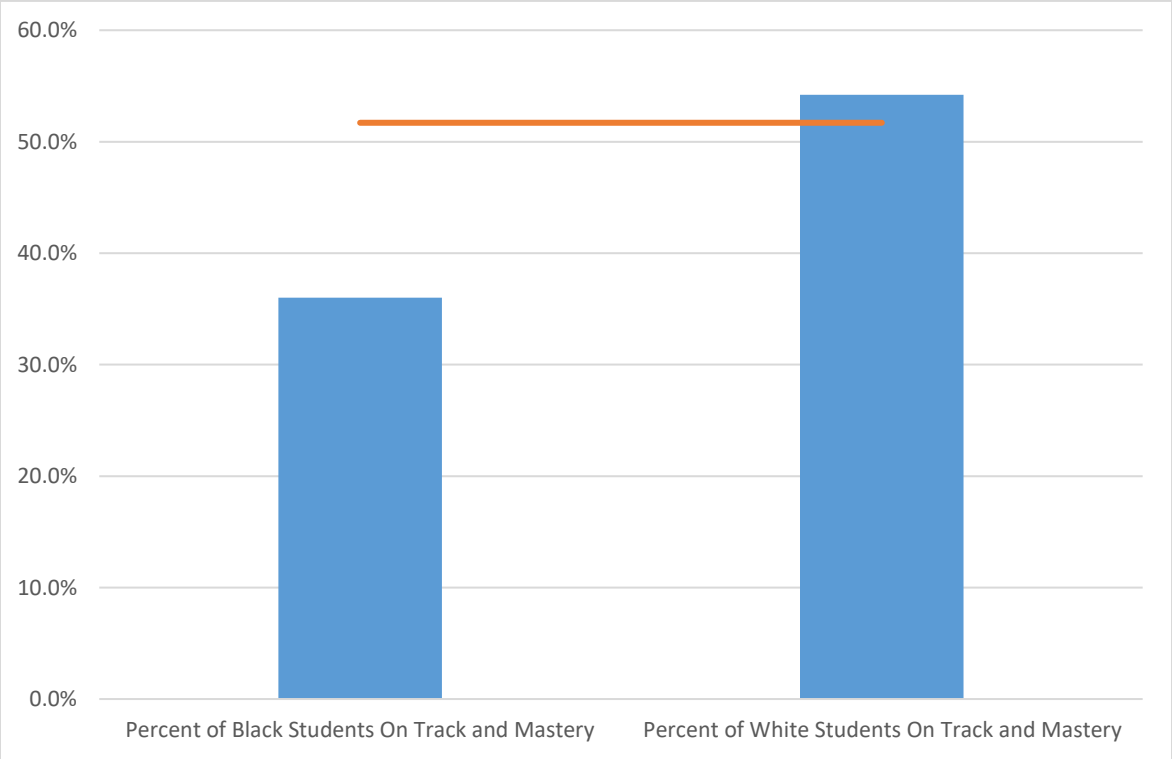

Table 15

2x2 Contingency Matrix for Middle TN Elementary Math

Middle Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Elementary School Math					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	6534	9382	11625	8777	18159
White	60289	57441	50889	53737	111178
Total	66823	66823	62514	62514	129337

Research Question 8

Is the population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery statistically equal?

$H_0$8: The population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery is statistically equal.

H_a8: The population proportion of Black and White middle school math students in Middle Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number four, a chi-square analysis was conducted for elementary school math scores for Black and White students. The results were significant. χ^2 (1, N=114,934) =2071.303, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar graph in Table 16 show the population proportion of Black students and White students scoring on-track and mastered was not equal. Black students are only reporting 26.0% on-track and mastered while the White students are reporting 45.7% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 43.0%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 74.0% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 54.3% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 57.0% for both groups.

In conclusion, the data suggests that Black middle school students and White middle school students in Middle Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 16

SPSS Outputs for Middle TN Middle School Math

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	114934	100.0%	0	0.0%	114934	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	4204	11695	15899
		% within Race	26.4%	73.6%	100.0%
		% within Score	8.5%	17.9%	13.8%
		% of Total	3.7%	10.2%	13.8%
	White	Count	45253	53782	99035
		% within Race	45.7%	54.3%	100.0%
		% within Score	91.5%	82.1%	86.2%
		% of Total	39.4%	46.8%	86.2%
Total		Count	49457	65477	114934
		% within Race	43.0%	57.0%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	43.0%	57.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2071.303[a]	1	.000		
Continuity Correction[b]	2070.518	1	.000		
Likelihood Ratio	2168.472	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	2071.285	1	.000		
N of Valid Cases	114934				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6841.46.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.134	.000
	Cramer's V	.134	.000
N of Valid Cases		114934	

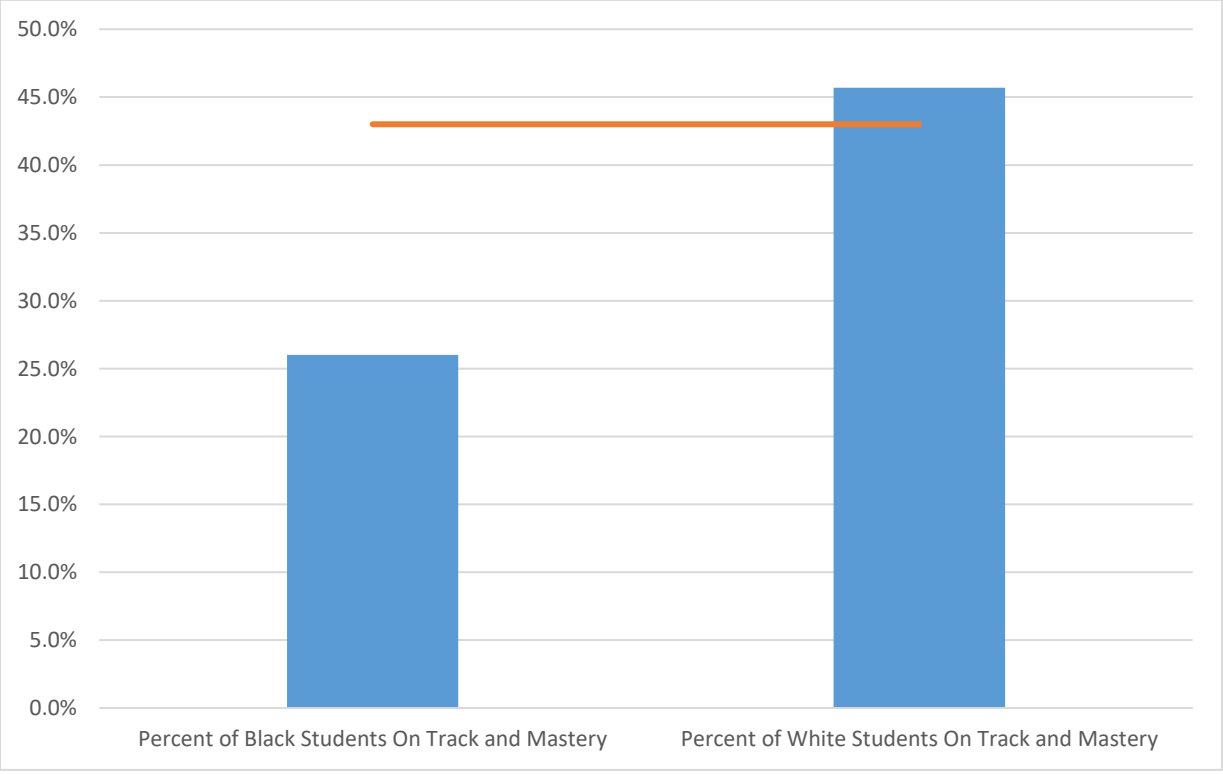

Table 17

2x2 Contingency Matrix for Middle TN Middle School Math

Middle Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Middle School Math					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	4104	6791	11695	9008	15799
White	45253	42566	53782	56469	99035
Total	49357	49357	65477	65477	114834

Research Question 9

Is the population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery statistically equal?

$H_0$9: The population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery is statistically equal.

H_a9: The population proportion of Black and White elementary school ELA students in West Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number nine, a chi-square analysis was conducted for elementary school ELA scores for Black and White students. The results were significant. χ^2 (1, N=85,425) =6006.535, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar chart in Table 18 shows the population proportion of Black students scoring on-track and mastered is much lower than the population proportion White students scoring on-track

and mastered. Black students are only reporting 21.1% on-track and mastered while the White students are reporting 46.0% on-track and mastered. For each group to be statistically equal, one would have expected the population proportions to be around 32.5%. Black students do not appear to have the same proportion as White students who are on-track and mastered for the TNReady test. Black students are reporting 78.9% of the population as below and approaching while White students are reporting 54.0% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 67.5% for both groups.

In conclusion, the data suggests that Black elementary students and White elementary students in West Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered for the TNReady assessment.

Table 18

SPSS Outputs for West TN Elementary School ELA

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	85425	100.0%	0	0.0%	85425	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	9748	36515	46263
		% within Race	21.1%	78.9%	100.0%
		% within Score	35.1%	63.3%	54.2%
		% of Total	11.4%	42.7%	54.2%
	White	Count	18013	21149	39162
		% within Race	46.0%	54.0%	100.0%
		% within Score	64.9%	36.7%	45.8%
		% of Total	21.1%	24.8%	45.8%
Total		Count	27761	57664	85425
		% within Race	32.5%	67.5%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	32.5%	67.5%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6006.535[a]	1	.000		
Continuity Correction[b]	6005.399	1	.000		
Likelihood Ratio	6051.944	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	6006.465	1	.000		
N of Valid Cases	85425				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12726.68.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.265	.000
	Cramer's V	.265	.000
N of Valid Cases		85425	

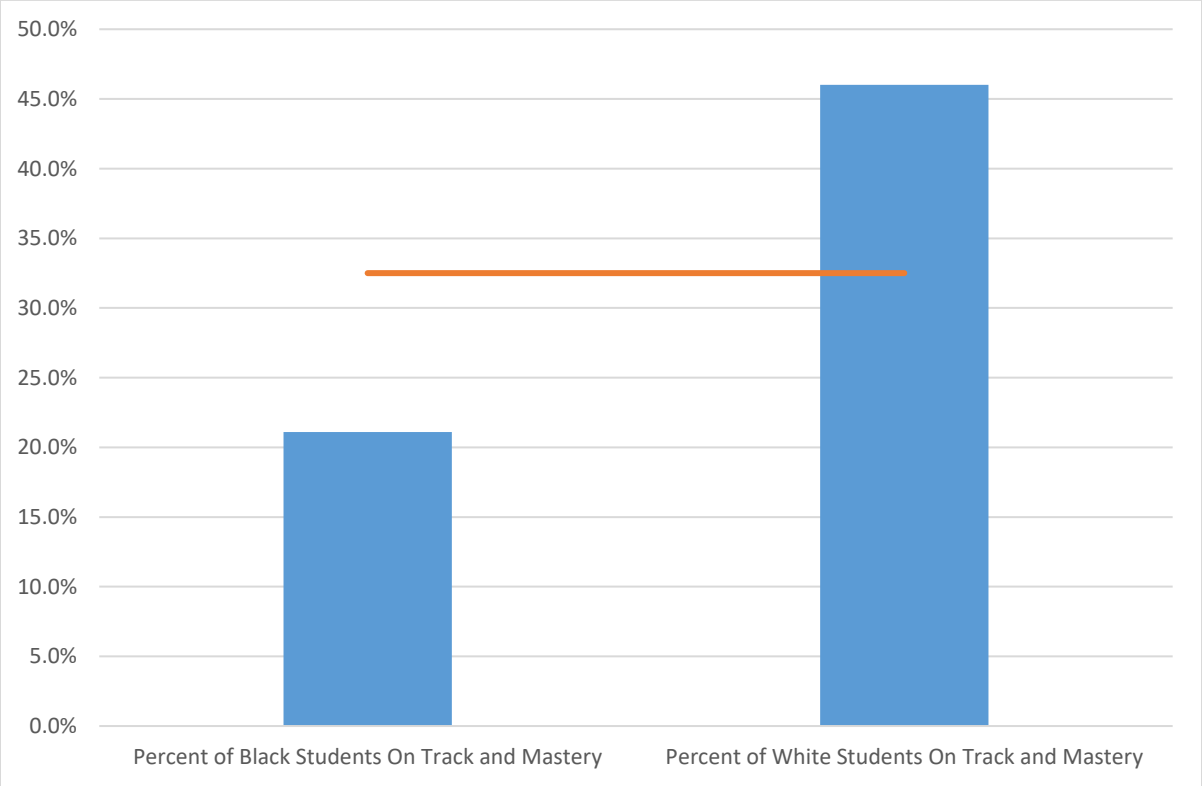

Table 19

2x2 Contingency Matrix for West TN Elementary ELA

West Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Elementary School ELA					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	9748	15034	36515	31229	46263
White	18013	12727	21149	26435	39162
Total	27761	27761	57664	57664	85425

Research Question 10

Is the population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery statistically equal?

$H_0$10: The population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery is statistically equal.

H_a10: The population proportion of Black and White middle school ELA students in West Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number ten, a chi-square analysis was conducted for middle school ELA scores for Black and White students. The results were significant. χ^2 (1, N=67,417) =4459.376, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar graph in Table 20 show the population proportion of Black students and White students scoring on-track and mastered was not equal. Black students are only reporting 17.9%

on-track and mastered while the White students are reporting 42.1% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 31.8%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 82.1% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 57.9% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 68.2% for both groups.

In conclusion, the data suggests that Black middle school students and White middle school students in West Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 20

SPSS Outputs for West TN Middle School ELA

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	67417	100.0%	0	0.0%	67417	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	5152	23645	28797
		% within Race	17.9%	82.1%	100.0%
		% within Score	24.1%	51.4%	42.7%
		% of Total	7.6%	35.1%	42.7%
	White	Count	16257	22363	38620
		% within Race	42.1%	57.9%	100.0%
		% within Score	75.9%	48.6%	57.3%
		% of Total	24.1%	33.2%	57.3%
Total		Count	21409	46008	67417
		% within Race	31.8%	68.2%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	31.8%	68.2%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4459.376[a]	1	.000		
Continuity Correction[b]	4458.259	1	.000		
Likelihood Ratio	4650.537	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	4459.310	1	.000		
N of Valid Cases	67417				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9144.80.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.257	.000
	Cramer's V	.257	.000
N of Valid Cases		67417	

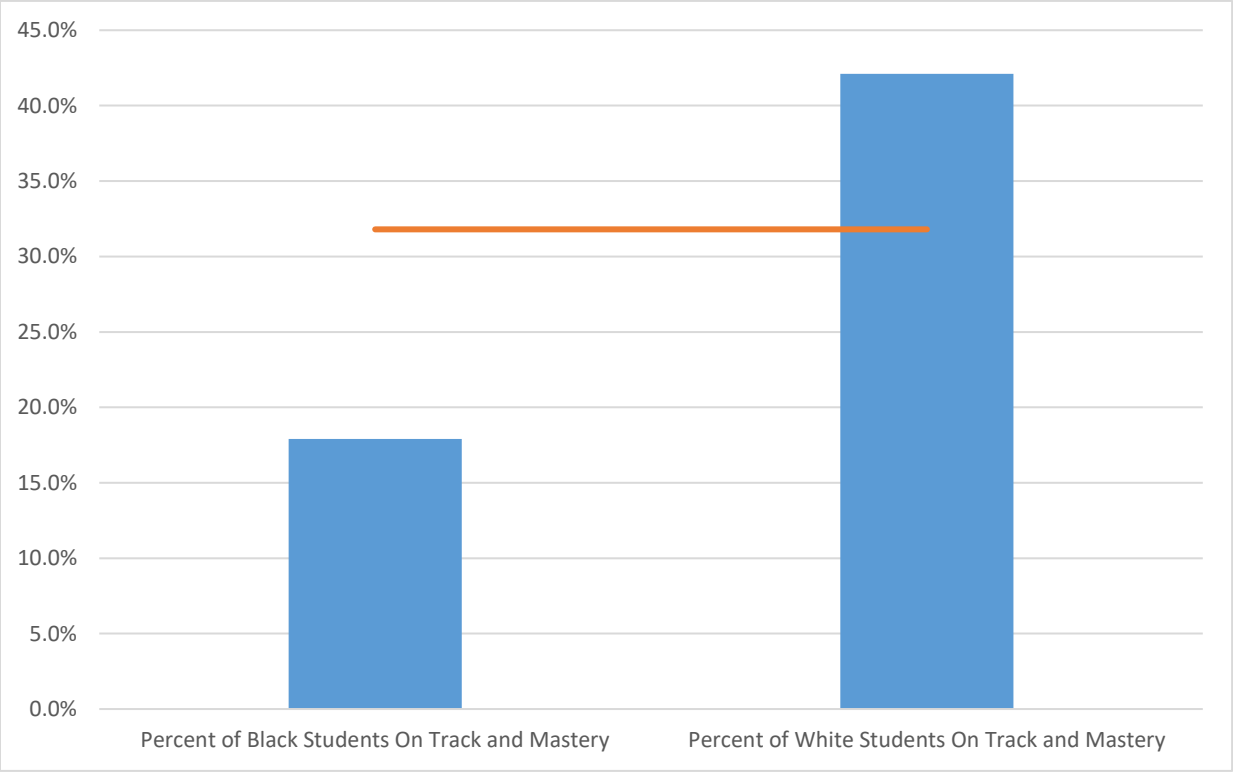

Table 21

2x2 Contingency Matrix for West TN Middle School ELA

West Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix Middle School ELA					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	5152	9145	23645	19652	28797
White	16257	12264	22363	26356	38620
Total	21409	21409	46008	46008	67417

Research Question 11

Is the population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery statistically equal?

$H_0$11: The population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery is statistically equal.

H_a11: The population proportion of Black and White elementary school math students in West Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number seven, a chi-square analysis was conducted for elementary school math scores for Black and White students. The results were significant. χ^2 (1, N=73,925) =2014.467, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

Table 22 bar chart shows the population proportions for Black students and White students scoring on-track and mastered is not equal. Black students are only reporting 38.3% on-track and mastered while the White students are reporting 54.8% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 46.9%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 61.7% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 45.2% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 53.1% for both groups.

In conclusion, the data suggests that Black elementary school students and White elementary school math students in West Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 22

SPSS Outputs for West TN Elementary Math

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	73925	100.0%	0	0.0%	73925	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	13654	21954	35608
		% within Race	38.3%	61.7%	100.0%
		% within Score	39.4%	55.9%	48.2%
		% of Total	18.5%	29.7%	48.2%
	White	Count	21010	17307	38317
		% within Race	54.8%	45.2%	100.0%
		% within Score	60.6%	44.1%	51.8%
		% of Total	28.4%	23.4%	51.8%
Total		Count	34664	39261	73925
		% within Race	46.9%	53.1%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	46.9%	53.1%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2014.467[a]	1	.000		
Continuity Correction[b]	2013.805	1	.000		
Likelihood Ratio	2024.963	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	2014.440	1	.000		
N of Valid Cases	73925				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16696.86.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.165	.000
	Cramer's V	.165	.000
N of Valid Cases		73925	

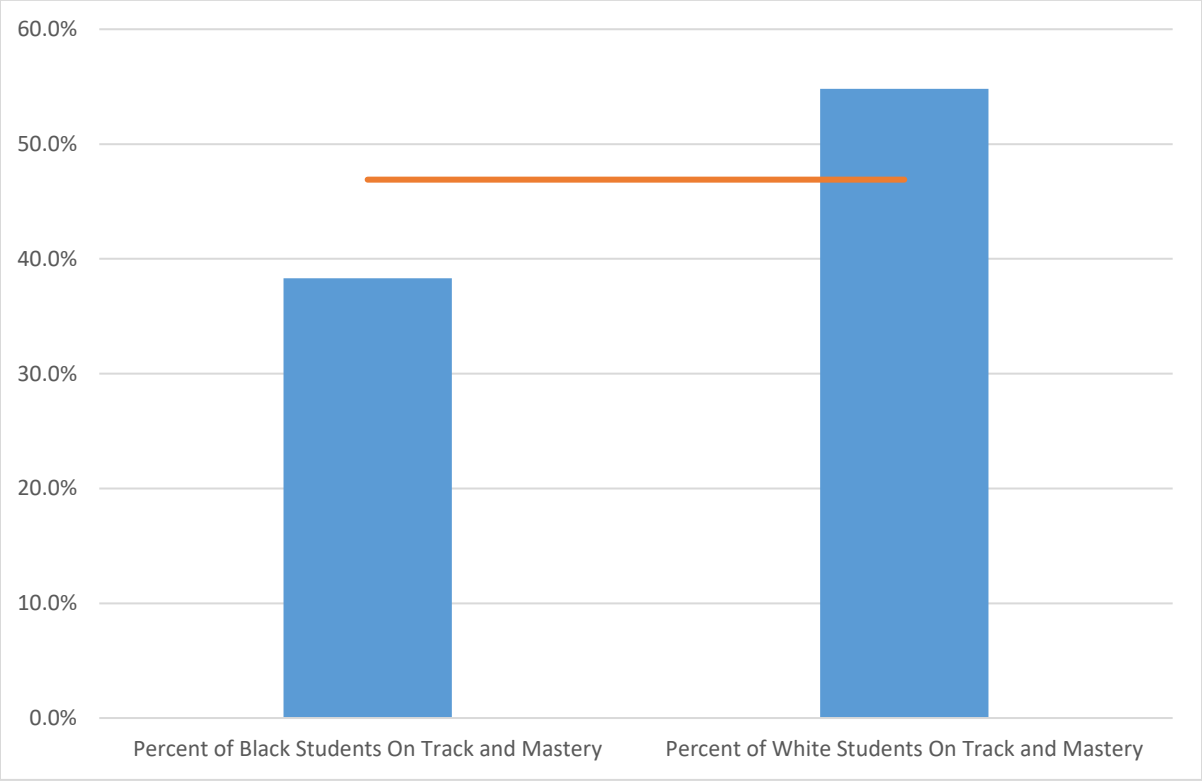

Table 23

2x2 Contingency Matrix for West TN Elementary Math

West Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Elementary School Math					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	13654	16697	21954	18911	35608
White	21010	17967	17307	20350	38317
Total	34664	34664	39261	39261	73925

Research Question 12

Is the population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery statistically equal?

$H_0$12: The population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery is statistically equal.

H_a12: The population proportion of Black and White middle school math students in West Tennessee who are scoring on-track and mastery is not statistically equal.

Analysis

In order to analyze research question number twelve, a chi-square analysis was conducted for elementary school math scores for Black and White students. The results were significant. χ^2 (1, N=45,225) =7.946, p<.001.Black students appear to have a significant proportion of their population not scoring in the on-track and mastered levels of the TNReady assessment.

The bar graph in Table 24 show the population proportion of Black students and White students scoring on-track and mastered was not equal. Black students are only reporting 45.1% on-track and mastered while the White students are reporting 46.8% on-track and mastered. For each group to be statistically equal, we would have expected the population proportions to be around 46.5%. While White students appear to report proportions close to the expected value, Black students do not appear to have the same proportion as white students who are on-track and mastered for the TNReady test. For the Black student population, the data shows that 54.9% of the Black middle school population is listed as below and approaching while the White middle school students are reporting 53.2% below and approaching. For each group to be statistically equal, one would have expected the population proportions to be around 53.5% for both groups.

In conclusion, the data suggests that Black middle school students and White middle school students in West Tennessee who are scoring on-track and mastered are not statistically equal. Black students do show a lower proportion of students scoring in the on-track and mastered levels for the TNReady Assessment.

Table 24

SPSS Outputs for West TN Middle School Math

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Race * Score	45225	100.0%	0	0.0%	45225	100.0%

Race * Score Crosstabulation

			Score		
			On Track and Mastered	Below and Approaching	Total
Race	Black	Count	3881	4724	8605
		% within Race	45.1%	54.9%	100.0%
		% within Score	18.5%	19.5%	19.0%
		% of Total	8.6%	10.4%	19.0%
	White	Count	17133	19487	36620
		% within Race	46.8%	53.2%	100.0%
		% within Score	81.5%	80.5%	81.0%
		% of Total	37.9%	43.1%	81.0%
Total		Count	21014	24211	45225
		% within Race	46.5%	53.5%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	46.5%	53.5%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.946[a]	1	.005		
Continuity Correction[b]	7.878	1	.005		
Likelihood Ratio	7.954	1	.005		
Fisher's Exact Test				.005	.003
Linear-by-Linear Association	7.945	1	.005		
N of Valid Cases	45225				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 3998.35.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.013	.005
	Cramer's V	.013	.005
N of Valid Cases		45225	

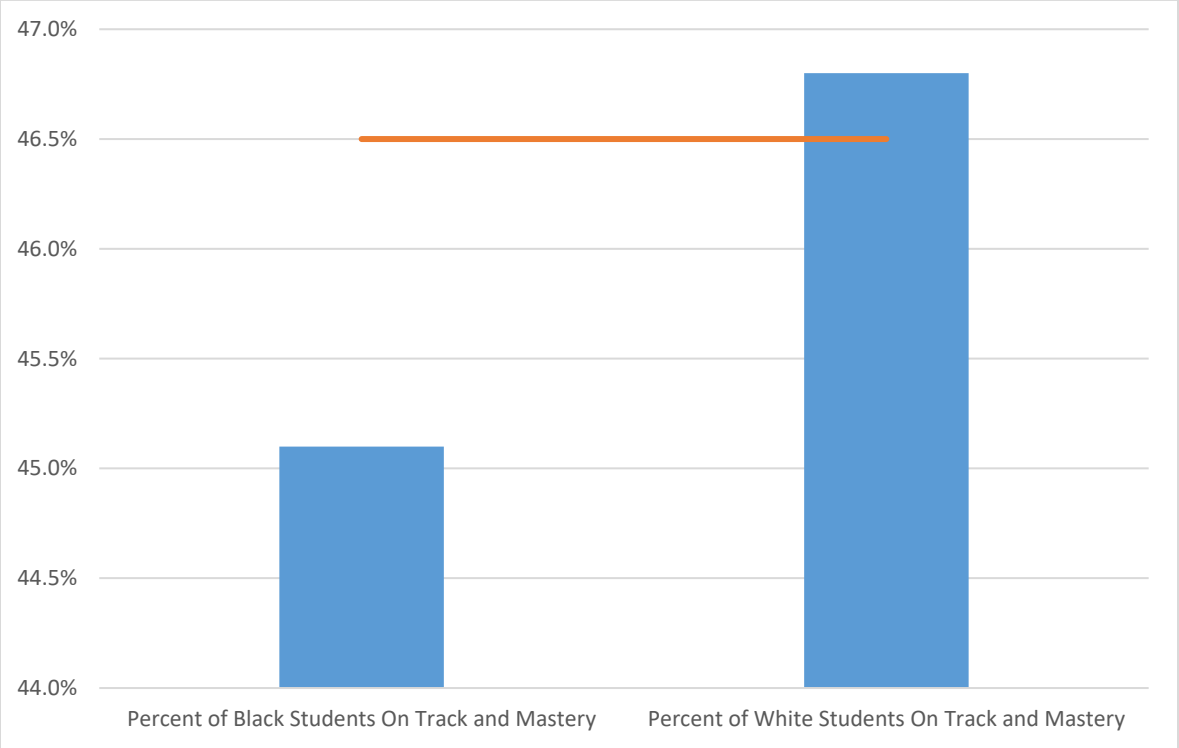

Table 25

2x2 Contingency Matrix for West TN Middle School Math

West Tennessee 2018 and 2019 TNReady Scores 2x2 Contingency Matrix					
Middle School Math					
	Fo	Fe	Fo	Fe	
	On-Track/Mastery	On-Track/Mastery	Below/Approaching	Below/Approaching	Total
Black	3881	3998	4724	4607	8605
White	17133	17016	19487	19604	36620
Total	21014	21014	24211	24211	45225

Chapter 5. Findings, Conclusions, and Recommendations

Statement of Problem

The purpose of this study was to describe the Black achievement gap in the three geographic regions in Tennessee. The researcher used data from the 2017-2018 and 2018-2019 school years to compare Mathematics and English and Language Arts scores in the three through five and six through eight grade bands.

The data were sorted by geographic region in order to determine which areas in Tennessee have racial achievement gaps. The twelve areas described were East TN Elementary ELA, East TN Middle School ELA, East TN Elementary Math, East TN Middle School Math, Middle TN Elementary ELA, Middle TN Middle School ELA, Middle TN Elementary Math, Middle TN Middle School Math, West TN Elementary ELA, West TN Middle School ELA, West TN Elementary Math, and West TN Middle School Math.

The independent variable for this study was student race (Black or White). The dependent variables in this study were third through fifth grade and sixth through eighth grade ELA level of proficiency for 2017-2018 and 2018-2019 and third through fifth and sixth through eighth grade Math level of proficiency for 2017-2018 and 2018-2019.

The data were analyzed using a chi squared test in SPSS to determine if there were statistically significant differences between Black students and White student scores. The data were also sorted in a 2x2 contingency matrix to calculate the expected frequencies of populations scoring in each category and compare expected frequencies to observed frequencies.

Discussion and Conclusions

Of the twelve areas described, only one had no statistically significant difference in Black and White student scores, West TN Middle School Math (test statistic = 7.946). The other eleven areas had significant differences, showing a racial achievement gap. Interestingly, as shown in Table 26, the other three West TN scores showed larger differences between Black students and White students than most of the East TN and Middle TN scores with the West TN Elementary math (2014.467) having a smaller difference than West TN ELA scores (elementary = 6006.535, middle = 4459.376).

Table 26

Ranking of Achievement Gaps from Largest to Smallest

Geographic Region, Age, and Subject	**Test Statistic Value**
West Tennessee Elementary ELA	6006.535
West Tennessee Middle School ELA	4459.376
East Tennessee Elementary Math	2504.991
Middle Tennessee Elementary Math	2080.809
Middle Tennessee Middle School Math	2071.303
West Tennessee Elementary Math	2014.467
East Tennessee Elementary ELA	1732.382
East Tennessee Middle School Math	1712.920
Middle Tennessee Elementary ELA	1623.502
Middle Tennessee Middle School ELA	1552.673

East Tennessee Middle School ELA	1051.326
West Tennessee Middle School Math	7.946

An analysis of Table 26, a ranking of the test statistics from highest value (largest achievement gap) to smallest value (smallest achievement gap), shows the following pieces of information: the six smallest gaps included one West Tennessee group, two Middle Tennessee groups, and three East Tennessee groups; the six smallest gaps included two elementary groups and four middle school groups; and the six smallest gaps included two math groups and four ELA groups.

Although all three geographic regions of Tennessee have significant achievement gaps between Black students and White students, an analysis of six areas with the smallest gaps showed that only one of the four West Tennessee groupings is included in the six smallest gaps. Analysis indicates it has the largest overall gaps since three of the four West Tennessee groupings are included in the six largest gaps. Two of the four Middle Tennessee groupings are in the six smallest gaps, and two are in the six largest gaps, as expected. Three of the East Tennessee groups are in the six smallest gaps, and only one is in the six largest gaps, indicating East Tennessee is the geographic region with the smallest achievement gaps. However, it should be noted that just because the East Tennessee achievement gaps were smaller than other geographic regions, their achievement gaps were still statistically significant and show a necessity to provide a more equitable educational experience for Black students.

Contrary to research presented in Chapter 2 illustrating that the gaps grows as students progress in school (Cross, 2007; Williams, 2011), the analysis of Tennessee's 2017-2019 data shows larger gaps in elementary school than in middle school. The three smallest achievement

gaps analyzed were middle school data. Four of the six smallest achievement gap groups were middle school data.

From the information in Table 26, one can conclude that Tennessee has higher achievement gaps in math than in ELA since there were four math groups in the top six and only two ELA groups in the top six. Math is more objective than ELA is, so it is interesting that there are higher gaps in math. St. Mary et al. (2018) stated that when Black students read materials they felt were more culturally relevant, they were more engaged in learning. Perhaps ELA teachers in Tennessee have incorporated culturally relevant literature into the curriculum to provide a more equitable educational experience. On the other hand, the bar charts presented in Chapter 4 illustrated more students in Tennessee of both racial subgroups perform below and approaching in ELA than they do in math. Perhaps instead of closing a gap, there was a smaller gap to begin with since more students perform in the lower category in ELA in Tennessee. Casey's (2004) research also showed the achievement gap between Black students and White students is higher in math than it is in literacy.

Tennessee legislation includes incentives for closing the racial achievement gap along with other demographic subgroup gaps in their exemplary school program. Although there are incentives for schools to close this gap, the test scores in 2017-2018 and 2018-2019 show the gap is still strong.

In conclusion, the analyzed data can be utilized to demonstrate that the state of Tennessee has racial achievement gaps in most geographic regions, subject areas, and grades three through eight. None of the three geographic regions has closed the racial achievement gap. For the two years analyzed, the gap is largest in West Tennessee Elementary ELA and smallest in West TN Middle School Math.

Implications for Practice

Since achievement gaps in Tennessee appear in each of the three geographic regions in grades three through eight for both ELA and math, further research that could potentially produce areas where gaps have been closed is recommended. Schools who educate students more equitably and produce smaller gaps could be studies in order to replicate and imitate the best practices, so all students can potentially achieve higher.

The researcher suggests the following for practice:

- Educate all teachers about achievement gaps and the history of systematic discrimination in American public schools, starting with preservice teachers. After educating about the achievement gaps, focus on teaching preservice teachers and current educators how to provide a more equitable educational experience for all students.
    - Equip teachers with the ability to recognize racist, White-centric, microaggressive, and colorblind language and materials, so they can combat the use of these in their classrooms and schools.
    - Teach educators to combat negative stereotypes of any student.
    - Reform disciplinary practices that disproportionately target students of color and remove them from the classroom as punishment for any infractions. Favor disciplinary practices that keep students in the classroom.
    - Empower educators to partner more with families of all students, especially those of different cultural or racial backgrounds.
- Resource allocation increases need to be established in the area of social and emotional programs to strengthen student perceptions of inclusion and respect.

- Invest more time and attention into mentoring programs, so all students have a trusted adult with whom they can connect.
- Partner more with Family Resource Centers and ensure all students have what they need to be successful in school, especially those of a lower socioeconomic status.
- More equitably distribute government funding for schools, so inner-city schools and schools in poorer neighborhoods have supplies, state-of-the-art programming, and experienced teachers.

Implications for Future Research

Several studies can be conducted in order to further explore the racial achievement gap in Tennessee:

- First, examining the Asian, Hispanic, and Native American gaps would provide a more comprehensive view of the population of Tennessee public schools.
- Splitting the data by CORE Region would provide a closer look to see if certain regions are closing this gap.
- Another interesting perspective would be to examine the achievement gaps of the schools designated reward schools by the state of Tennessee. One component of becoming a reward school is to close the achievement gap. A long-term study to determine if the achievement gap stays closed or if it widens again would be enlightening.
- Morgan et al.'s (2020) research shows that Black students are more likely to be identified for special education services in certain areas. Analyzing the rates of Black special education identification versus White special education identification by Tennessee CORE District is another recommendation this researcher has for further research. Those

rates could then be compared to the achievement gaps by CORE District to see if there is a relationship, as suggested by Farkas et al. (2020).

- Examining the Exemplary districts' and schools' racial achievement gaps could provide insight into whether or not the Exemplary district and school designation helps schools in Tennessee close achievement gaps.

Chapter Summary

Of the twelve subject areas, geographic regions, and age groups analyzed, West TN Middle School Math was the only area that did not have a statistically significant difference between the Black student and White student scores. This reveals that although Tennessee has incentive closing gaps between Black students and White students, there is improvement to be done.

The research aligned with the Casey (2004) research, showing the gaps in math were larger gaps than those in ELA. The research conflicted with the Cross (2007) and Williams (2011) studies, showing the middle school gaps were smaller gaps than the elementary school gaps. Although statistically significant, the East Tennessee gaps were smaller gaps than those of Middle Tennessee and West Tennessee.

In order to best serve students in Tennessee, more specific research finding school staff and leadership who have successfully closed achievement gaps is needed. These best practices can be imitated and replicated in each school in the state to attempt to close the gap. Additionally, focusing on changing educator attitudes toward minority communities, reinventing racist disciplinary policies, and more equitable funding of school are some of the researcher recommendations to close achievement gaps.

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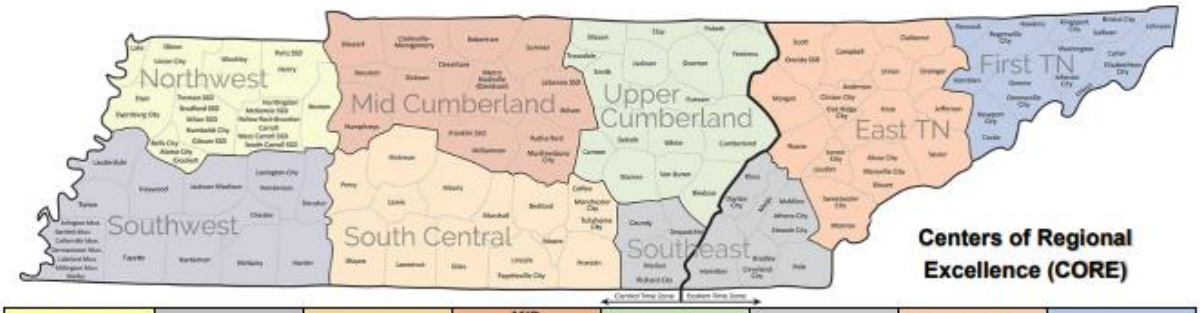
Appendix: CORE Map



NORTHWEST Pennye Thurmond	SOUTHWEST Patrice Martin	SOUTH CENTRAL Bill Byford	MID CUMBERLAND Christie Southerland	UPPER CUMBERLAND Janice Fox	SOUTHEAST Sharon Harper	EAST TENNESSEE Dominique Davis	FIRST TENNESSEE Mia Hyde
UT Martin 466 Clement Hall 210 Hurt St. Martin, TN 38229 (731) 881-7565	100 Berryhill Dr. Jackson, TN 38301 (731) 265-0409	200 Dover St. Suite 106 Shelbyville, TN 37160 (931) 488-3050	1240 Foster Ave, Nashville, TN 37210 (615) 532-3270	448 Neal St. Suite C Cookeville, TN 38501 (931) 303-4743	1501 Riverside Dr. Suite 240 Chattanooga, TN 37406 (423) 260-1168	2761 Island Home Blvd. Building 419 Knoxville, TN 37920 (865) 594-9445	207 North Boone St Suite 100 Taylor Office Bldg Johnson City, TN 37604 (423) 434-6490
Districts: Alamo City Bells City Benton County Bradford SSD Carroll County Crockett County Dyer County Dyersburg City Gibson County SSD Henry County Hollow Rock-Bruceton SSD Humboldt SSD Huntington SSD Lake County McKenzie SSD Milan SSD Obion County Paris SSD South Carroll SSD Trenton SSD Union City Weakley County West Carroll SSD	**Districts:** Achievement Schools Arlington Bartlett Chester Collierville Decatur Fayette Germantown Harderman Hardin Haywood Henderson Lakeland Lauderdale Lexington Jackson-Madison McNairy Millington Shelby Tipton WTSD	**Districts:** Bedford County Coffee County Fayetteville City Franklin County Giles County Hickman County Lawrence County Lewis County Lincoln County Manchester County Marshall County Maury County Moore County Perry County Tullahoma City Wayne County	**Districts:** Cheatham County Dickson County Franklin SSD Houston County Humphreys County Lebanon SSD Metro Nashville Montgomery County Murfreesboro City Robertson County Rutherford County Stewart County Sumner County TSB Williamson County Wilson County	**Districts:** Bledsoe County Cannon County Clay County Cumberland County DeKalb County Fentress County Jackson County Macon County Overton County Pickett County Putnam County Smith County Trousdale County Van Buren County Warren County White County York Institute	**Districts:** Athens City Bradley County Cleveland City Dayton City Etowah City Grundy County Hamilton County Marion County McMinn County Meigs County Polk County Rhea County Richard City Sequatchie County	**Districts:** Alcoa City Anderson County Blount County Campbell County Claiborne County Clinton City ETSD Grainger County Jefferson County Knox County Lenoir City Loudon County Maryville City Monroe County Morgan County Oak Ridge Oneida City Roane County Scott County Sevier County Sweetwater City Union County	**Districts:** Bristol City Carter County Cocke County Elizabethton City Greene County Greeneville City Hamblen County Hancock County Hawkins County Johnson City Johnson County Kingsport City Newport City Rogersville City Sullivan County Unicoi County Washington County
WEST TENNESSEE *44 DISTRICTS*			MIDDLE TENNESSEE *49 DISTRICTS*			EAST TENNESSEE *53 DISTRICTS*	

(Tennessee Department of Education, 2020) Retrieved August 2, 2020, from https://eplan.tn.gov/documentlibrary/ViewDocument.aspx?DocumentKey=1320237&inline=true

VITA

HALEY BLISS DIRMEYER

Education:

Ed.D. Educational Leadership, concentration in School Leadership, East Tennessee State University, Johnson City, Tennessee, 2021

Ed.S. Education, University of Central Missouri, Warrensburg, Missouri, 2016

M.A. Education, Wilkes University, Wilkes-Barre, Pennsylvania, 2015

B.S. Multidisciplinary Studies, Tennessee Technological University, Cookeville, Tennessee, 2013

Professional Experience:

Teacher, Montgomery Ridge Intermediate School; Maryville, Tennessee, 2013-present.