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Closing the Gap or Reaching the Ceiling: An Exploratory Trend Analysis of The Black White Achievement Gap in Texas


Jemimah Lea Young

University of North Texas, jemimah.young@unt.edu

Jamaal R. Young

University of North Texas, jamaal.young@unt.edu

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The academic achievement gap is an intriguing issue in educational research across the nation, as well as one of the most serious educational issues facing the United States (Hannaway & McKay, 2001). Across most measures of educational success, African American students consistently perform at a lower level than their counterparts (Lavin-Loucks, 2006). In the state of Texas, much like many other states, there continues to be an academic achievement gap analogous to the aforementioned performance trends, as evident in the delineation of accountability standards. This is arguably most evident in the Texas achievement differences between Black and White student performance on the State of Texas Assessments of Academic Readiness (STAAR). Yet, similar disparities were present on previous assessments administrations by the state of Texas.

Texas, like many states, has increased standards and academic accountability to motivate teachers, parents, and students to work to elevate this academic dilemma, as federally mandated by No Child Left Behind (NCLB) and more recently the Every Student Succeeds Act (ESSA). Much of the motivation comes from the "high-stakes" decisions that are based on the assessment results, affecting subsequent tracking, promotion, and graduation in some school districts (Heubert & Hauser, 1999). Some school districts use test scores in performance appraisals, and merit pay decisions all in the name of accountability (Linn, 2000). Furthermore, the pressures of these accountability measures unfortunately fall on the lowest performing students in the school which are consistently students of color, particularly Black students.

Some researchers posit that the accountability system in the state of Texas is a rather effective model for an academic accountability system. For example, Texas schools are required to demonstrate separately that the within the average scores of each racial subgroup, the student pass rate on the Texas Assessment of Knowledge and Skills (TAKS) are all increasing. If not, the

school is faced with the threat of a state takeover (Viadero, Johnston, & Editorial Projects in Education, 2000). Disaggregating data was not best practice in many states until states like Texas recognized the utility of this practice. For instance, New York did not start breaking down test data by student subgroups until the NCLB required that they do so, beginning in the 2002-2003 school year (Hoff, 2006).

Much of the research supporting the superiority of the Texas accountability system refers to the consistent increase in academic performance on the Texas assessments by underrepresented populations during the decade after the first high stakes assessment was administered (Grissmer & Flanagan, 1998; Grissmer et al., 2000). During this period, the difference between the percentage of White and Black students that pass Texas examinations diminished. Subsequently, the Texas accountability system became the blueprint for the NCLB, and thus lead many states to emulate the Texas Accountability system (Hoff, 2006).

Despite the tremendous success professed by educators and legislators in Texas, some researchers believe that the gap was superficial because of the constraints of the accountability system on White student performance. In a study by Klein, Hamilton, McCaffrey, and Stecher (2000), which compared Texas student scores on the National Assessment of Educational Progress (NAEP) and the Texas Assessment of Academic Skills (TAAS), the authors suggested that the narrowing of the achievement gap between White students and students of color was due to large gains in the mean scores of students of color and subsequent smaller gains in score of White students due to the effects of a testing ceiling. The *ceiling effect* refers to the systematic constraint of scores on a test for students that consistently score near the top range of scores. In the state of Texas, this equates to average passing rates of approximately 90% and above for

White students across for several years, while the pass rates of other populations are at much lower levels of proficiency and increase over time, thus “closing” the achievement gap.

This is important to note as researchers, educators, and policy makers may interpret the results of such accounts as valid, and make subsequent decisions based on this information. If teachers believe that the achievement gaps are narrowing in Texas, they will continue the current course of action and not attempt to create activities that will engage the ever-growing population of diverse learners. Furthermore, policymakers may rapidly increase academic standards at a pace corresponding to the trends in Texas, and subsequently hinder the education of many students of color. Thus, the purpose of this study is to identify historic trends in the Black-White Achievement gap in Texas that indicate the presence of a test ceiling. Two research questions guide this exploratory analysis.

1. What are the trends in the Black-White Achievement gap on the TAAS and TAKS?
2. How do Black student pass rates on the TAAS and TAKS compare to White student pass rates?

The History and Structure of Texas Accountability

The affect of State accountability systems on students of color garner mixed reviews. Some evidence indicates that forms of accountability, such as a state test, can improve the achievement of students of color (Giroux & Schmidt, 2004). This is despite considerable opposition to standardized testing amongst educators and parents of color. The state of Texas is one of the states to boast increases in the academic achievement of students of color through standardized testing. So much so that many have called the tremendous growth during the decade of the TAAS administrations the “Texas miracle”. Appropriately, Texas has a long and rich tradition of standardized testing that spans several decades and exam evolutions.

The Texas accountability system began to increase academic standards, as well as student and teacher accountability in the late 80's and early 90's (Hannaway & McKay, 2001; Hoff, 2006; Viadero et al., 2000). During this period, the state of Texas implemented several exams as part of their plan to continuously increase standards each decade, but the system was initiated at a level only slightly above the current level of academic performance. To force schools to provide better-quality instruction for all, in the late 80's and early 90's Texas began a statewide accountability system that requires schools to go beyond raising student's overall average scores on state exams (Viadero et al., 2000). The first Texas accountability system was based on a series of examinations of basic skills.

The first assessment used by the state of Texas was administered in 1980, the Texas Assessment of Basic Skills (TABS) which was designed to test minimum competencies (Jerald, Business Roundtable, & Education Trust, 2001). Educators across the nation proclaimed that the success of the Texas accountability system was almost entirely due to the basic skills set that were addressed by the examined (Jerald et al., 2001). Yet, this was part of the state's plan to incrementally increase standards every ten years to provide students and educators adequate time to increase classroom standards. For example, in the first year, Texas set a goal that 30 percent of students would pass the state's exams in reading and mathematics, and the state gradually increased that percentage over time (Hoff, 2006). Furthermore, the state of Texas was one of the first states to disaggregate scores according to race. This allowed educators to monitor the performance of underrepresented populations, whose scores would remain uninterrupted if all the scores remained aggregated. This prompted other states to begin to disaggregate scores to assess achievement gaps in their states.

The second of these assessments was the Texas Educational Assessment of Minimum Skills (TEAMS). This exam was initialized in response to the Texas House Bill 72 (1984) (Jerald et al., 2001). The bill mandated a new basic skills assessment program for mathematics reading, and writing at grades 1, 3, 5, 7, 9, and 11. In 1990 the state of Texas introduced the Texas Assessment of Academic Skills (TAAS), which was a criterion-referenced exam. According to the Texas Education Agency (1999), the TAAS was intended to be comprehensive and to measure higher-order thinking skills and problem-solving ability. Accountability was increased during the 1991-1992 school year when for the first time tenth grade students were required to pass the TAAS before graduating. This marked the implementation of the high stakes decision connected to the Texas accountability systems. In addition, the state began to classify schools and districts into four categories on the basis of test scores, drop-out rates, and attendance rates. The categories are: "exemplary," "recognized," "acceptable," and "low-performing" (Hannaway & McKay, 2001). The accountability system remained relatively unchanged until 2003, when in accordance with their plan to slowly increase standards every few years the state of Texas began to require students to pass the TAAS before promotion in certain grade levels.

A little over a decade passed before the state of Texas introduced the current educational accountability system. This system was centered on the Texas Educational Knowledge and Skills (TEKS) which are the set of objectives that Texas teachers were required use as guides for teaching. Along with this set of objectives came the Texas Assessment of Knowledge and Skills (TAKS), which were completely revamped to reflect the increase in rigor. The major difference in this assessment is that the exit level examination was completely revised. The exit-level exam was moved from the tenth grade to the eleventh grade. This forced students to pass the exam with fewer opportunities to retest before graduation. Furthermore, in addition to mathematics and

language arts, science and social studies assessments were added to the exit level examine. Thus, all core curriculum teachers became accountable for the material covered in their classroom as well as the comprehension of the material by the students in their class.

Subsequently, the state of Texas has recently changed their assessment to the State of Texas Assessment of Academic Readiness (STAAR), and modified and realigned the TEKS to match the expectations required for the new assessment. Initially, the STAAR was designed to simulate an end of course exam model that would require four years of mathematics, science, English and social studies for graduation, but this decision was revisited and revised after its initial implementation. From 1980 until the present, the Texas accountability system has evolved steadily and with consistent student improvement, however, a closer examination of the testing results are necessary to eliminate the ceiling effect as a mediating factor.

Methodology

This exploratory trend analysis utilized a descriptive research design to collect, analyze, and interpret Texas achievement data through the lens of trend analysis. Black and White student pass rates were collected from the years 1993 until 2012. The data spans the TAAS and TAKS testing administrations and represents the results of 70 individual examinations. During the TAAS administration period, the trend analysis includes reading, writing, and mathematics examinations administered between 1993 and 2002. The TAKS administration period encompasses results from English language arts, mathematics, science, and social studies examinations administered from 2003 until 2012. Only existing level data were included in this study, thus the TAAS administrations include 10th grade student data and the TAKS administrations include 11th grade student data. TAAS and TAKS results are reported in terms of the percentage of students passing or meeting the performance levels based on "cut-off"

scores. This reporting practice does lead to limitations in data analysis. For example, the difficulty of achieving a passing status or a certain level of performance (such as "proficient") may vary between exam administrations as well as within a testing program over time. However, since changes effect the performance of all students across the administrations, pass rates were used for the sake of data consistency. In addition, modifications are made to the test which increase or decrease difficulty through the administration. Since the ramification for students and teachers remain the same across administrations, the use of pass rates is a feasible data presentation option.

Results

The achievement gap trends for 10th grade reading from 1993 until 2002 are presented in figure 1. The data suggest that the Black-White achievement gap shrank from an approximate 30% difference to less than 5% difference. Figure 2 represent the growth analysis results for Black and White students on the reading TAAS from 1993 until 2003. This figure presents an estimate of the overall growth trend based on the line of best fit for the student pass rates on the reading TAAS. The slope of the line of best fit line was used as an approximate of the group overall growth rate. This suggests that Black students increased their pass rates by approximately 4% per year, compared to an approximate 1% yearly growth in White student pass rates.

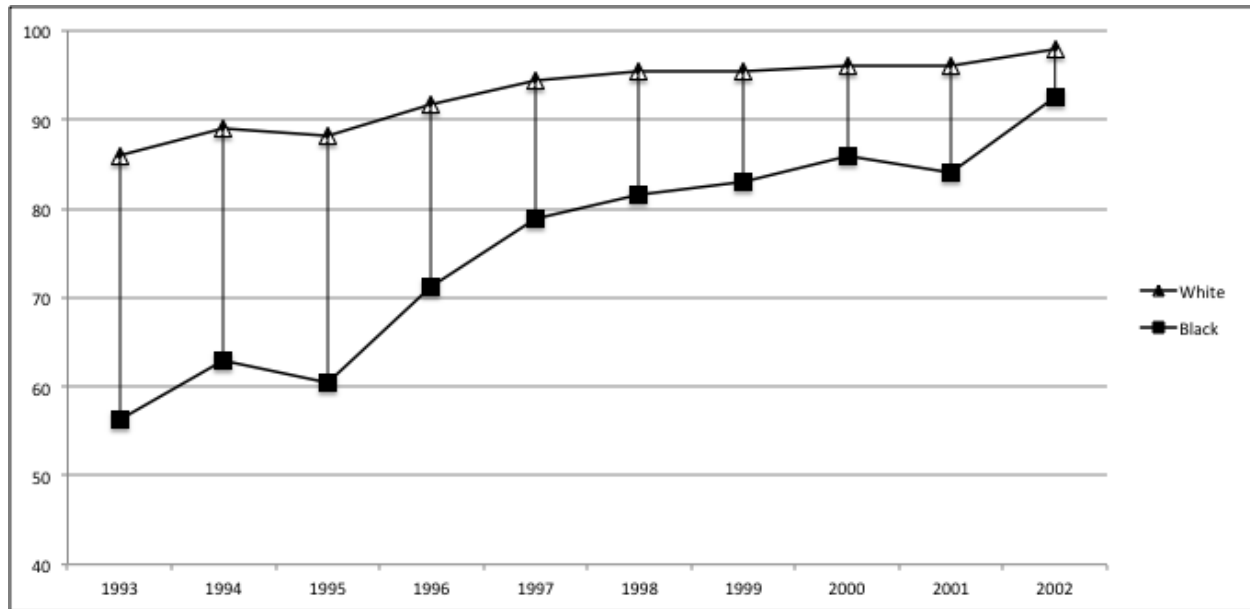


Figure 1. Black and White student Achievement gap trends in pass rates on the TAAS Reading from 1993 until 2002

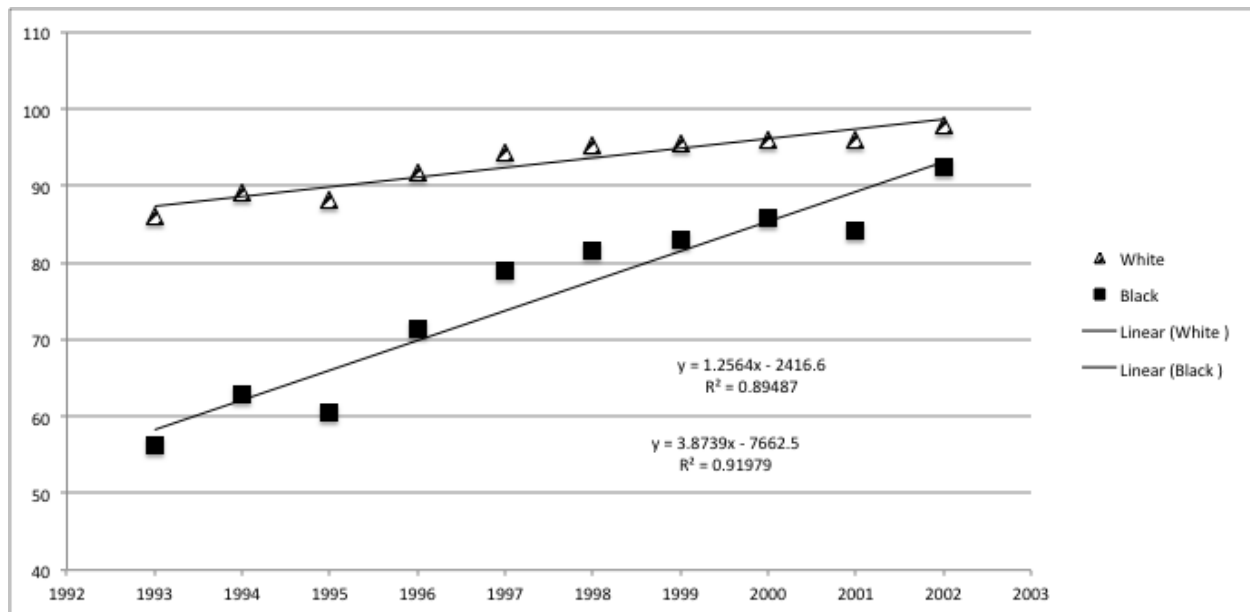


Figure 2. Growth Trends in Black and White student pass rates on the TAAS Reading from 1993 until 2002

The results of the TAAS writing administrations are presented in figures 3 and 4. The gap analysis suggest a large initial difference in pass rates of approximately 19%, however this difference is reduced to less than 6% by 2012. Black student growth trends were four times as large as White student growth trends with approximately 2% and .5% yearly growth increases respectively. However, it is important to note that across all TAAS writing administrations White student passed at a rate greater than 90%.



Figure 3. Black and White student achievement gap trends in pass rates on the TAAS Writing from 1993 until 2002

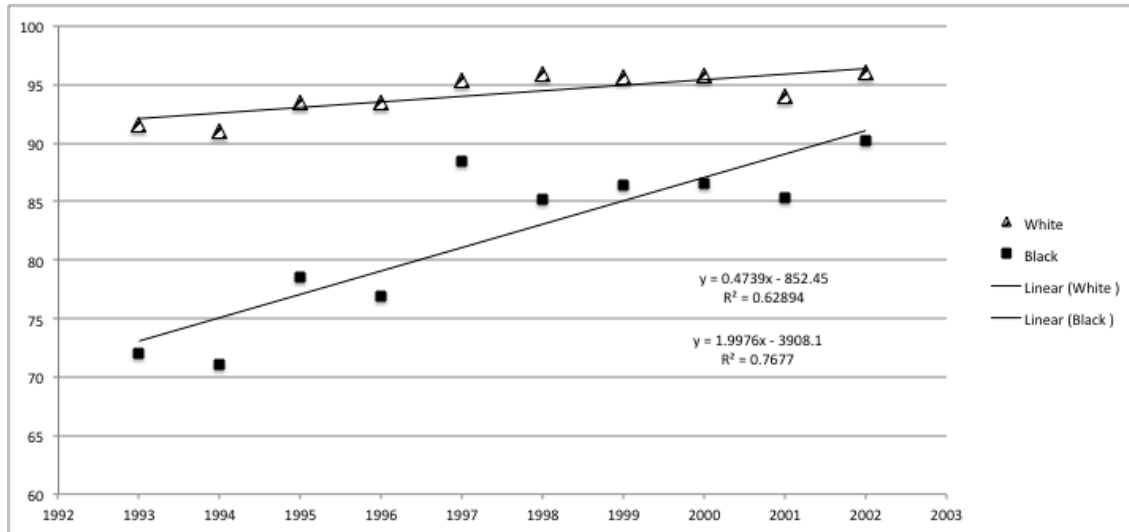


Figure 4. Growth Trends in Black and White student pass rates on the TAAS Writing from 1993 until 2002

The results on the TAAS mathematics exam show similar trends in the reduction of the gap between initial passing rates in 1993 and subsequent passing rates. The largest initial gap in passing rates is displayed in figure 3, with White students passing at 37% higher rate than Black students. By the 2002 administration, however, the gap is reduced to less than 11%. The results of the growth analysis suggest substantial growth for both White and Black students in mathematics pass rates between 1993 and 2003 as shown in figure 6. In mathematics, White students had an estimated 3% increase in pass rates per year, while Black student achieved an estimated 6% increase in pass rates per year. The trends in pass rates for the 1993 and 2002 TAAS administrations represent a consistent difference in the gaps in pass rates as well as a consistent difference in growth rates between Black and White students from year to year.

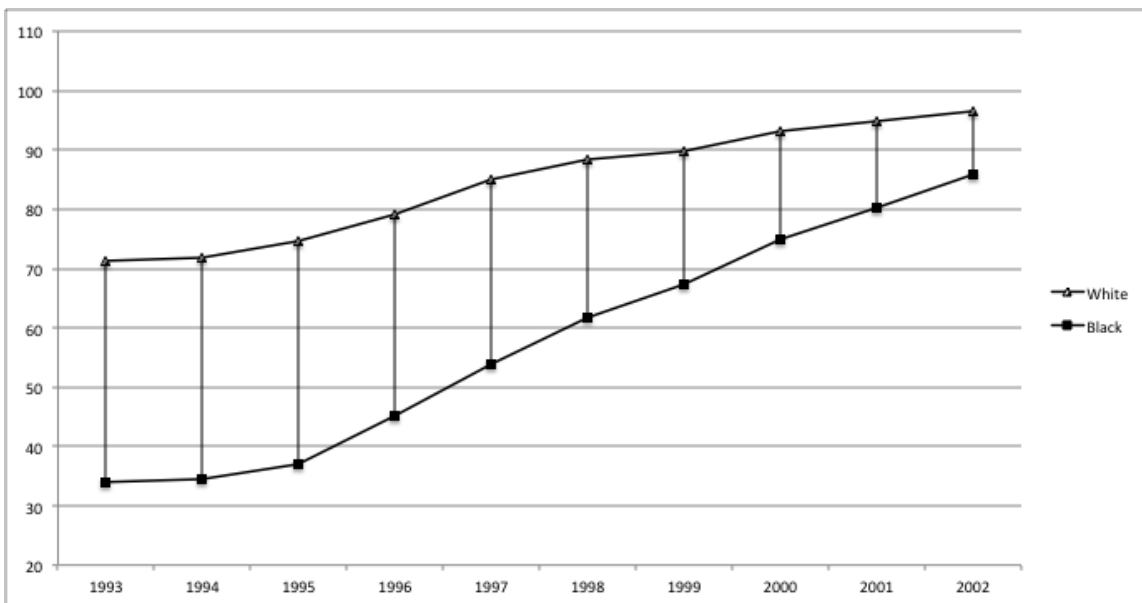


Figure 5. Black and White student achievement gap trends in pass rates on the TAAS Mathematics from 1993 until 2002

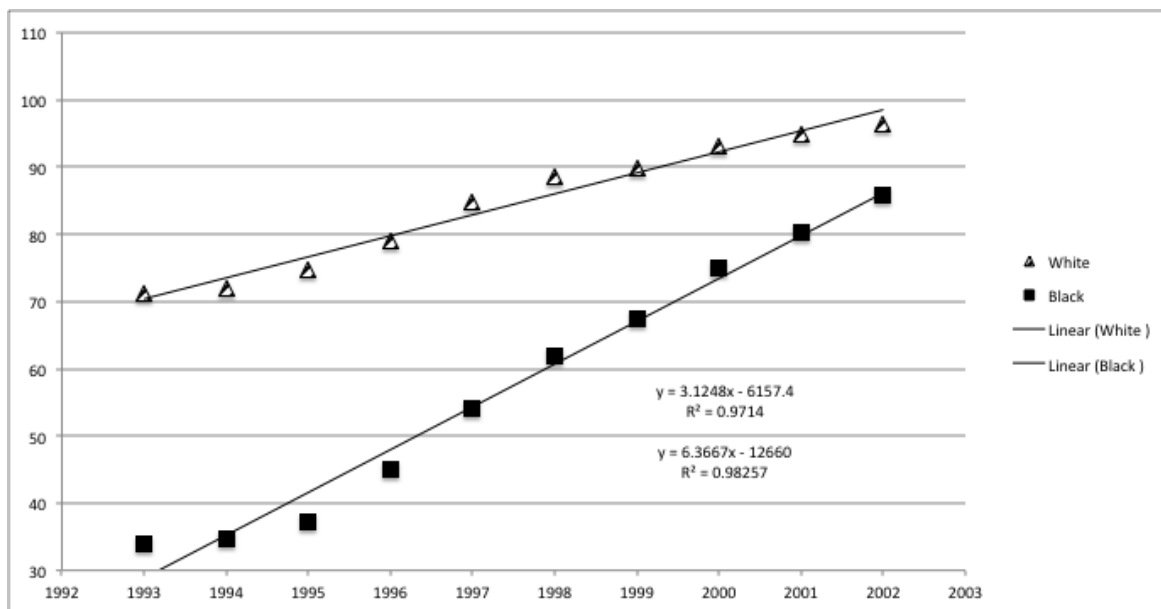


Figure 6. Growth Trends in Black and White student pass rates on the TAAS Mathematics from 1993 until 2002

In the 2003-2004 school year, the TAKS replaced the previous state assessment, TAAS. Initial scores in English Language Arts were relatively higher than initial scores in the reading and writing scores on the TAAS. Further the initial difference between White and Black student pass rates was only 9%. By 2012, this difference was only reduce by 3%, which led to a final pass rate gap of 6%.

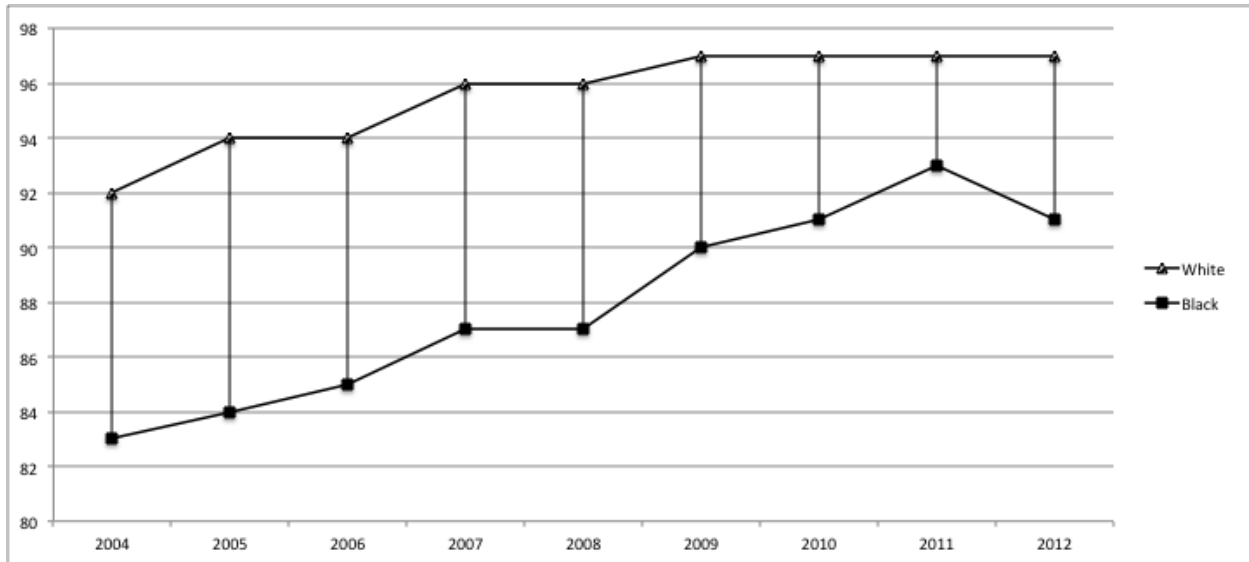


Figure 7. Black and White student achievement gap trends in pass rates on the TAKS English Language Arts from 2004 until 2012

The results of the growth analysis in figure 8 suggest pass rate growth from year to year was approximately 1.2% per year for Black students and approximately 0.6% per year for White students. These data are consistent with the data from the TAAS, thus indicating that Black students have greater gains, which is suggested over time on the assessment. However, White student pass rates began once again above 90% initially and remained above 90% throughout the administrations.

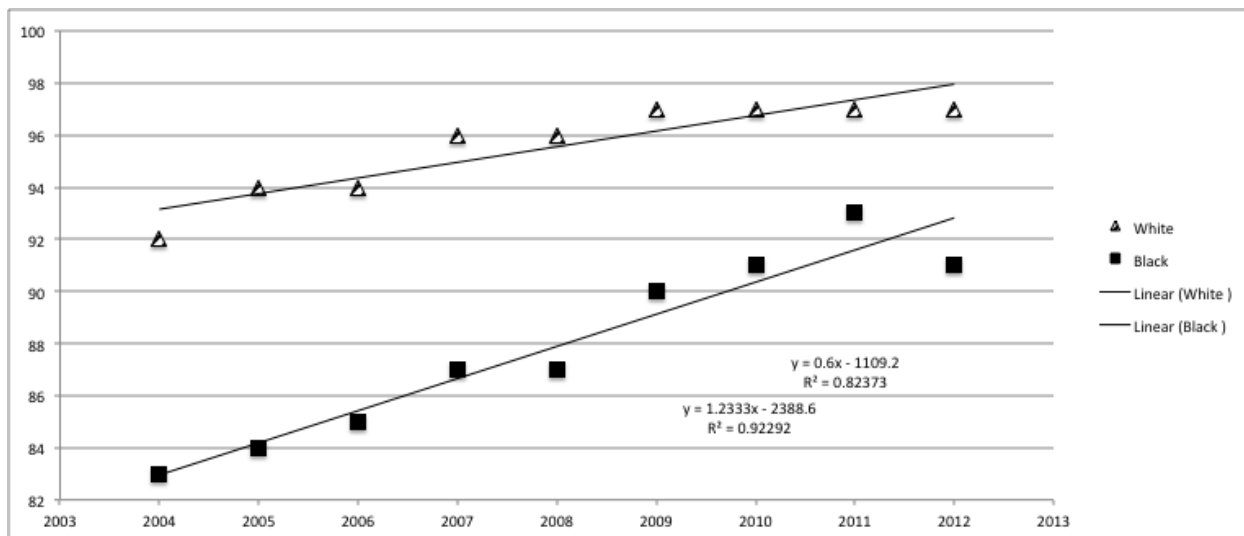


Figure 8. Growth Trends in Black and White student pass rates on the TAKS English Language Arts from 2004 until 2012

The mathematics pass rates for both Black and White students are inconsistent across the TAKS administrations. The initial gap in pass rates was 18% and the final pass rate gap 11%. This is the first instance where the final gap in pass rates remained higher than 10%. The growth analysis suggest that the pass rate data does not adequately fit a linear pattern for either group, given the low R2 values presented in figure 10.

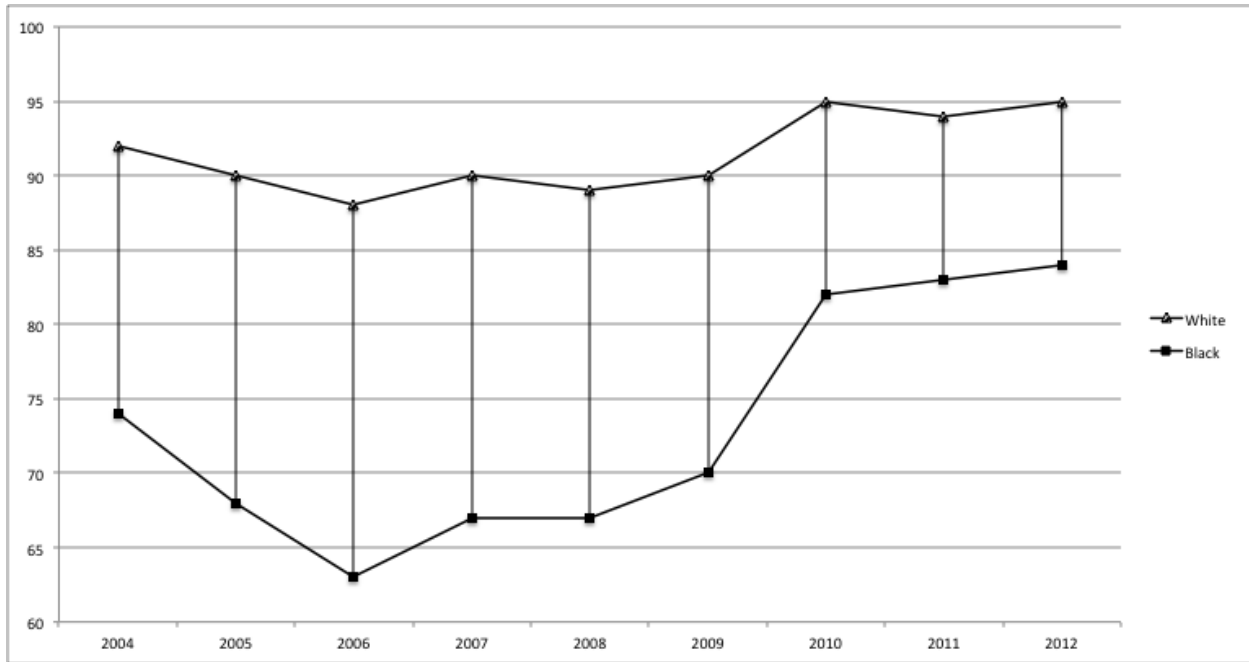


Figure 9. Black and White student achievement gap trends in pass rates on the TAKS Mathematics from 2004 until 2012

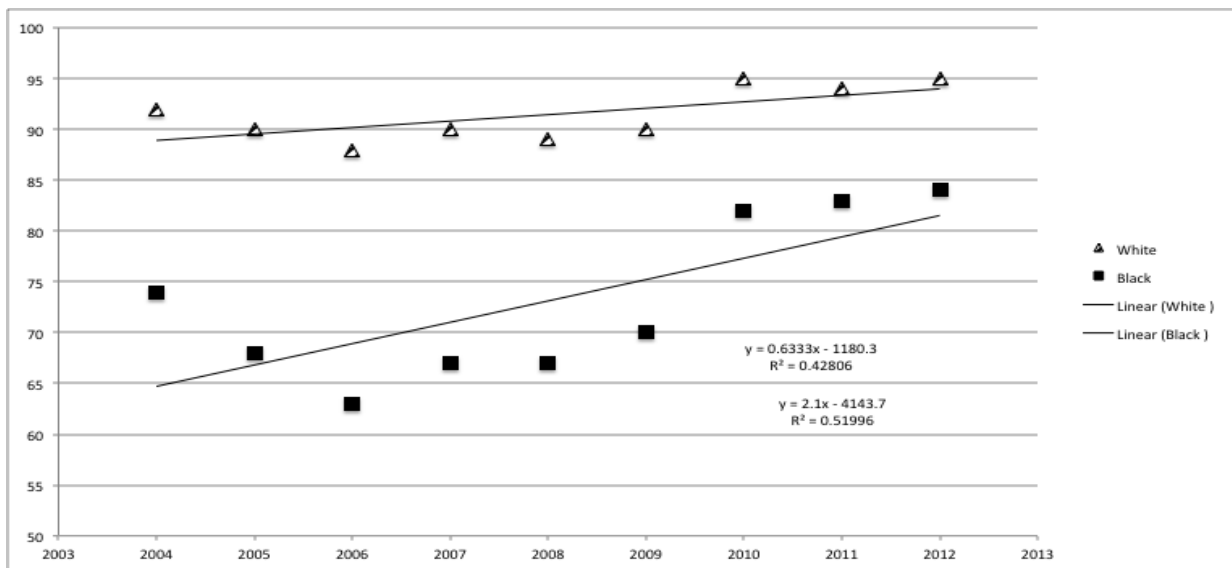


Figure 10. Growth Trends in Black and White student pass rates on the TAKS Mathematics from 2004 until 2012

The science and mathematics TAKS data have similar features and trends. This gap in pass rates was 18% and was reduced to 8% by the final administration. The overall shape of the data for both groups indicates fluctuations in student pass rates, that initially declined from 2004 to 2006, then increased until 2010, and finally increased again from 2011 until 2012. This is possibly attributed to alterations in the cut-off scores that caused fluctuations in student pass rates.

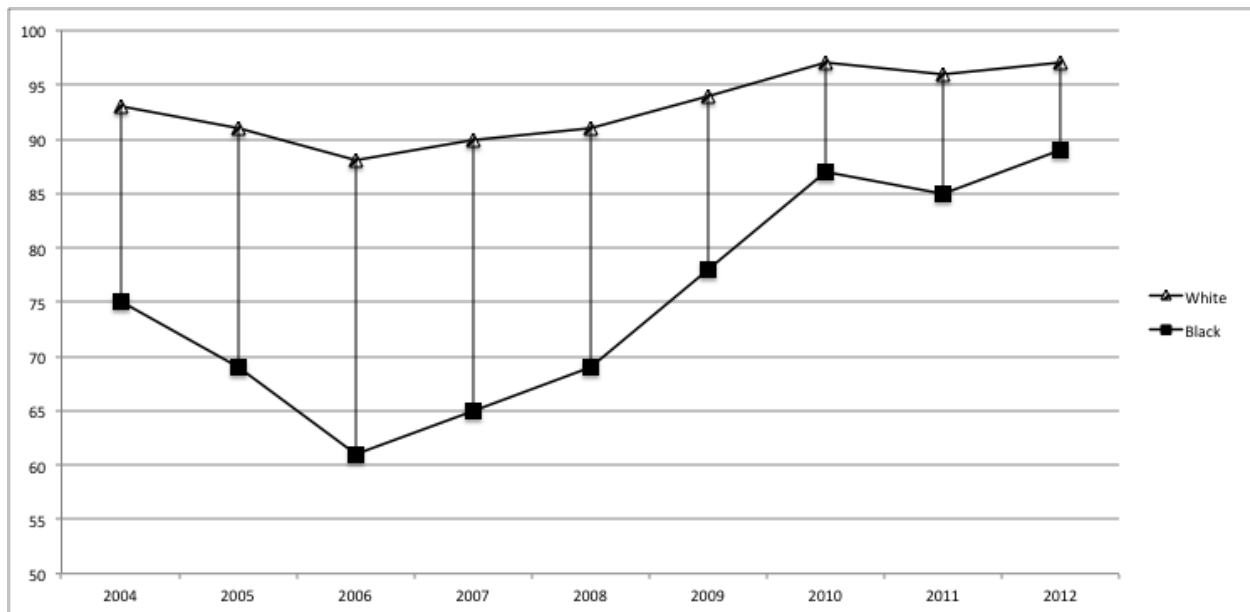


Figure 11. Black and White student achievement gap trends in pass rates on the TAKS Science from 2004 until 2012

The growth analysis results for science were similar to the results for mathematics. The data in Figure 12 suggest that the growth trajectories in pass rates for science do not follow a linear progression. This can be explained by the fluctuations in performance across the administrations. The social studies administration were unique as both Black and White student pass rates were consistently above 90%. The initial and final difference in pass rates was 3%. However, there

were fluctuation in performance across the administrations. The growth data for the social studies administrations was not adequately fit to a straight line, which can also be explained by the fluctuations in student pass rate data over the administrations.

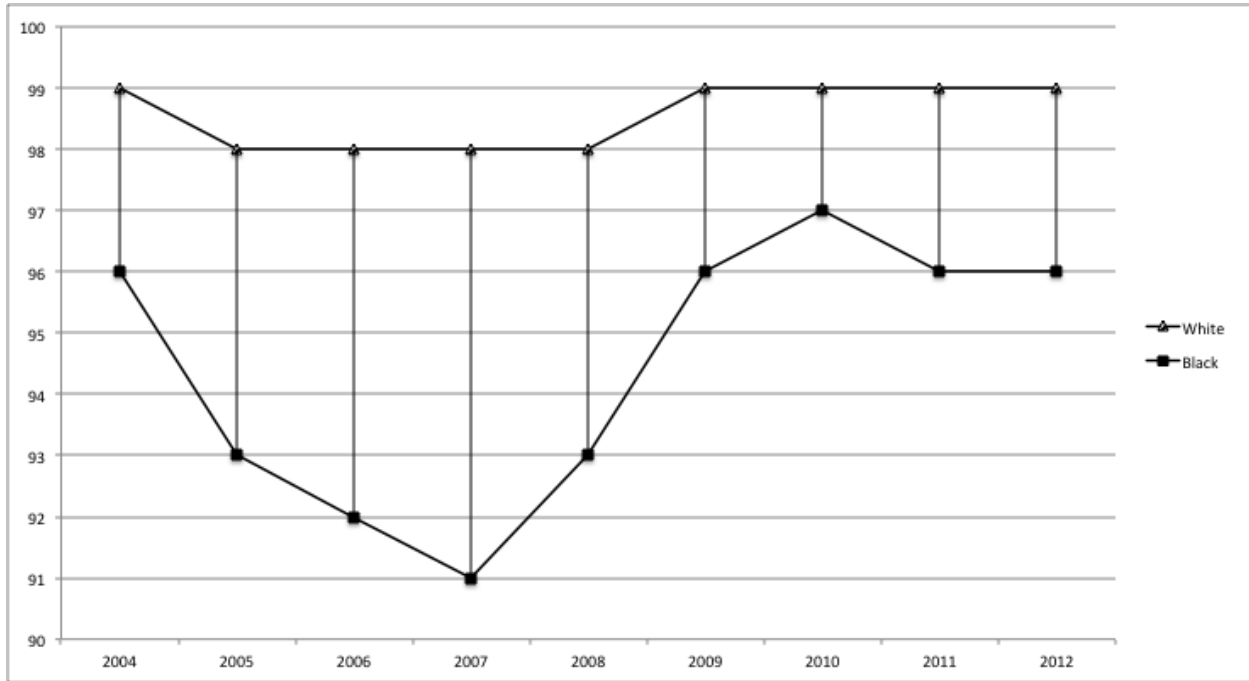


Figure 13. Black and White student achievement gap trends in pass rates on the TAKS Social Studies from 2004 until 2012

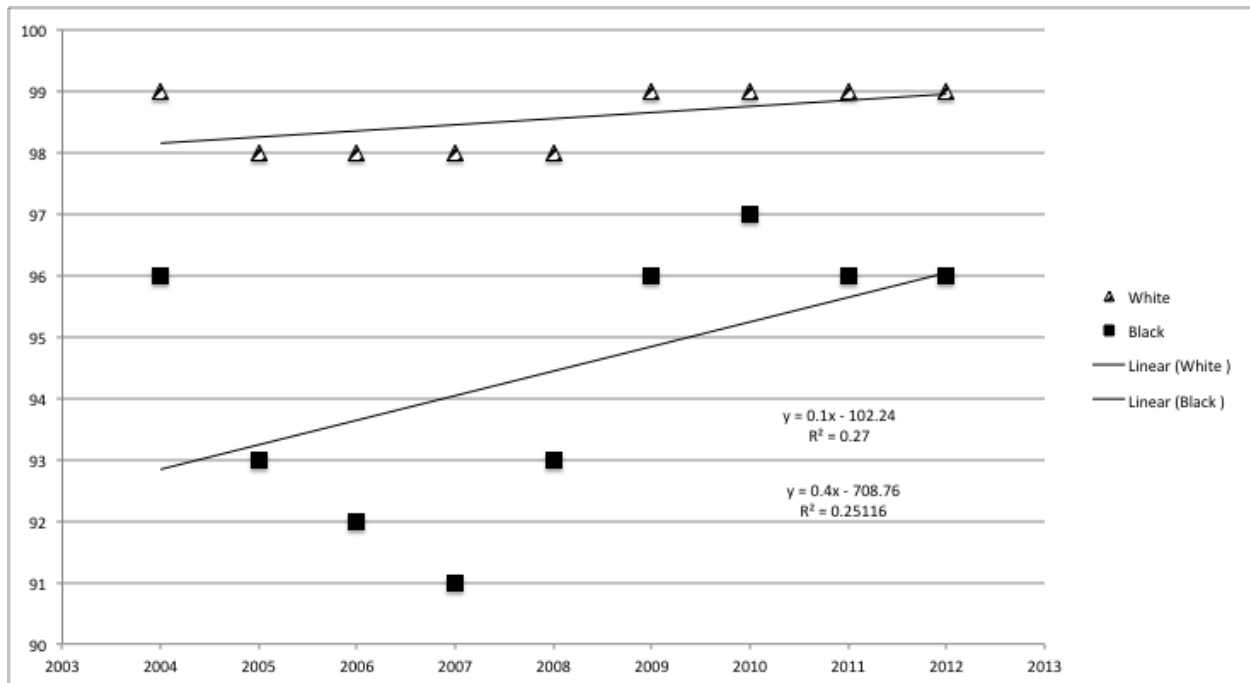


Figure 14. Growth Trends in Black and White student pass rates on the TAKS Social Studies from 2004 until 2012

Discussion

The purpose of this study was to investigate the influences of the “ceiling effect” on the achievement gap between White and Black students in the state of Texas. Texas has a rich history in educational accountability and is viewed by many as a viable blueprint for educational accountability. Texas began its accountability system in the early 90’s and managed to seemingly close the academic achievement gap between White and Black students. Yet as Linton (2002) states these results may not represent the closing of the achievement gap due to the “ceiling effect”. The data in this study suggest that White students pass the TAAS and the TAKS at 90% or above on most administrations. While, Hannaway and McKay (2001) suggest that while pass rates for white students are very high, well above 90%, the skills tested by the TAAS lack rigor

and that many students are close to “topping out” on the test. This does not diminish the significance of the substantial increases in performance on the skills tested (p. 12).

Critics of the Texas education system charge that scores on TAAS have increased substantially because teachers there are narrowly “teaching to the test.” That is, they instruct students how to answer specific test questions, or forms of test questions, rather than teaching the knowledge and skills that will enable students to pass the test. In other words, when knowledge is only good for test taking, it is really not much good at all (Jerald et al., 2000, p. 13). Yet others attribute the phenomenon to the tests ability to constrain the performance of White students at the test ceiling (Linton, Kester, & Cassidy, 2002). Linton, Kester, and Cassidy (2002) suggest that the narrowing of difference in percentages of students passing the TAAS is a result of a *ceiling effect*.

Linton, Kester, and Cassidy (2002) conduct a causal-comparative study to investigate the differences between White, African American, and Hispanic scores on the 5th, 8th, and 10th grade TAAS reading and mathematics test between 1996 and 2000. The results of their study indicated that across all groups, test scores increased at a statistically significant level. However, the scores for African American and Hispanic students tended to move from the lower score range to the mid to upper score range, while the scores for White students were consistently concentrated at the upper score range (Linton et al., 2002). Thus, Linton et al. (2002) concluded that the scores of the White students were constrained by the test ceiling and that the achievement gap would be more evident without this constraint. An important question is whether or not similar trends are present with the student data from the TEKS.

Nevertheless, the achievements of the Texas accountability system during the TAAS administrations appear more successful in closing the achievement gap than the TAKS

administration efforts. Some possible explanations for this trend could be that the increase in rigor coupled with the inclusion of science and social studies assessments on the TAKS. This may have been overwhelming for students and teachers as previous testing administrations did not place the same emphasis on these content areas. Yet, the achievement gap between White students and Black students performance on the social studies and language arts TAKS exhibit similar positive trends. For example, the achievement gap in social studies between White and Black students is marginal given the 90% pass rates of both subgroups.

Due to the apparent increases in the academic achievement gap in some subject areas, the state of Texas is steadily increasing teacher preparation, technology access, and parental involvement in order to reverse the current trends. In addition, it is important that the data provided by this study is interpreted and disseminated through a lens of equity. According to Gutierrez (2008) there are four dimensions to equity: (a) *access*, (b) *achievement*, (c) *identity*, and (d) *power*. Although this study seemingly only addresses the dimension of achievement, it is important to view student achievement through the aforementioned equity framework. First, one must understand that Black students achievement patterns were not stagnate and increased substantially across all administrations. Although an achievement gap remained between Black and White students, this does not mean that the efforts of the students, parents, and administrators were unsuccessful. If *achievement* is focused on patterns of growth within groups and not the gaps between groups, the results may have practical and intellectual merit. In addition, patterns of within group growth should be praised as they indicate students are receiving *access* to instruction and resources that led to subsequent increases in their achievement. Therefore, we suggest that teachers, parents, and researchers begin to interpret

achievement gap data through the lens of equity and begin to seek opportunities to “pattern praise” or promote measures and activities that promote patterns of increase not decrease.

The Texas accountability system has acquired a strong reputation as an effective accountability system, due to its perceived ability to narrow the academic achievement gap between White students and underrepresented populations in the state of Texas. Texas has consistently retained its status as a forerunner in improving performance of its students across the state, as well as narrowing the achievement gap, as measured by each testing administration (Hannaway & McKay, 2001). The most fundamental element of school reform is improving educational opportunities for all children who attend public schools and would demand more thorough accountability schemes, expanded choice programs, and more testing (Giroux & Schmidt, 2004, p. 217). Therefore, the state of Texas is in a position to revisit the fundamental elements of school reform in an attempt to counteract the current increases in the academic achievement gap in Texas.

Conclusion

The scholastic importance of this study is to provide a fresh lens to the achievement gap discussion by examining the prevalence of the ceiling effect in Texas assessment data. We characterize this perspective as “fresh” because our goal was to illuminate how the ceiling effect can mask results of educative merit to culturally and linguistically diverse students. The impact of the ceiling effect is multifaceted. Given the complex nature of the ceiling effect, it is important to unpack its effect in relation to access, identity, and power. Issues of access are at the center of the opportunity to learn debate. Scholars hypothesize that if opportunities to learn are increased then achievement will follow suit. Unfortunately, the converse is not typically the case. For instance, as the achievement gap is narrowed, school districts may not continue to provide the

resources and services that increase opportunities to learn. Likewise, embedded in the rhetoric of narrowing achievement gaps are notions of power and academic superiority.

Achievement gaps are traditionally assessed using middle class White students as the control or academic standard, thus perpetuating ideals that middle class Whiteness is the standard to which all other groups should aspire. Furthermore, as students of color close in on the coveted standard, tests are revamped and the target is once again beyond their reach. Finally, academic and cultural identities are influenced by achievement gap discussions built on results moderated by the ceiling effect. Historically, standardized assessments lack explicit connections to the cultural funds of knowledge of students of color. The absence of these funds of knowledge creates a curricular discontinuity between the students' environment and classroom expectations. Nonetheless, teachers work to bridge these cultural knowledge gaps only to have the expectations change before their efforts come to fruition. These systemic testing travesties can be to the detriment of the academic and professional identities of many students of color.

In conclusion, given that the new testing administration is currently underway – the State of Texas Assessment of Academic Readiness (STAAR), it is imperative that researchers begin to postulate how these trends will affect instructional outcomes in a broader context. Moreover, the implications of effective instruction as a means to close the achievement gap may warrant further investigation. If with each testing administration the initially wide gap becomes increasing narrow, only to be replaced with a new testing administration, one must consider whether we are truly closing the achievement gap or perpetually reaching a ceiling.

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