Assessing Gender Gaps in Reading Proficiency among Black Students in Texas: Evidence from Statewide Data

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Abstract

This study provides a comprehensive, statewide analysis of gender disparities in reading accomplishment among Grade 4 Black students in Texas, covering three academic years (2016-2017, 2017-2018, and 2018-2019). Using archival data from the Texas STAAR Reading Assessment, this research investigated differences in performance between Black boys and Black girls through three reporting categories: (1) comprehension across genres, (2) literary texts, and (3) informational texts. Findings revealed that Black girls consistently outperformed Black boys, with statistically significant differences observed in each reporting category and each school year. The performance gap was evident in all phases of reading proficiency, with Black girls achieving higher percentages at the Approaches, Meets, and Masters Grade level standards. Specifically, the results demonstrated that more Black girls met the minimum expectations and reached advanced proficiency levels compared to their male counterparts. Effect sizes for these disparities were small yet consistent, suggesting persistent gender-based differences. The findings from this study underscore the importance of considering gender in designing reading interventions and resource allocations within schools. Enhanced understanding of these achievement gaps can inform the development of policies to support the academic growth of all Black students in Texas. Recommendations are provided for further research on gender dynamics in reading proficiency among different demographic groups and policy changes to address the identified disparities.

Keywords: Reading achievement, Black students, Grade 4, Texas, STAAR Reading Assessment, Gender-based analysis, Academic performance

1. Introduction

Research consistently indicates that gender differences exist in reading achievement, with girls outperforming boys across various metrics and age groups [1]. In a broad analysis of U.S. student data over three decades, Reilly et al. [2] documented a clear progression: gender disparities in reading and writing skills emerge in Grade 4 and grow wider as students advance in grade level. The study observed that girls constantly scored higher than boys through the proficiency spectrum, from essential to advanced levels, with no significant decline in these differences over time (1988–2015). Reilly et al. also found that girls were more expected to attain advanced proficiency, while boys were often overrepresented among lower-performing readers and writers. Given that reading proficiency is foundational to academic success and lifelong learning, scholars have examined the underlying causes and trajectories of reading development across genders [3][4].

Research spanning multiple countries and regions has echoed these findings. Mullis et al. [3] analyzed data from 50 countries, contributing to the Progress in International Reading Literacy Study in a large-scale international study. They found that girl's constantly outdone boys in reading achievement, with boys scoring higher than girls in none of the countries analyzed. In a focused survey of kindergarten students in the United States, Wei et al. [5] found that girls not only started with higher reading scores than boys but also exhibited more rapid growth in reading skills as they advanced. Additional studies, including those by Camarata and Woodcock [6] and Chatterji [7], have documented that girls often enter school with more substantial reading and language skills. This advantage generally persists through elementary school and into adolescence.

While national and international studies offer valuable insights into gender-based reading differences, state-specific assessments allow for more localized insights. The State of Texas Assessments of Academic Readiness (STAAR) test, introduced in Texas in the 2011–2012 academic years, provides a robust platform for understanding these dynamics within the state. The STAAR test measures students' grasp of the Texas Essential Knowledge and Skills (TEKS) standards, starting from Grade 3. Focusing on this assessment, McGown [8] found that Texas Grade 3 girls consistently outperformed boys across various reading categories. This finding was later confirmed by Harris [4] in a study of Grade 4 students. Harris's analysis demonstrated that girls scored significantly higher than boys across all STAAR reading reporting categories, including comprehension across genres, literary texts, and informational texts. Furthermore, McGowan's [8] and Harris's [4] studies indicated that a higher percentage of girls met the grade-level passing standards than boys in each year of data analyzed.

Research on gender differences in other subjects, such as social studies and science, reveals contrasting trends. For instance, Dietrich et al. [9] found that Texas boys consistently outperformed girls in social studies skills over eight years, while Vijil et al. [10] documented similar patterns in science, with boys outperforming girls across multiple school years. However, in reading, gender gaps typically favour girls, suggesting that both subject-specific and gender-specific interventions may be required to address the unique needs of boys and girls in different academic areas.

Gender differences in reading are also significant among Texas English learners, a growing demographic within the state. Schleeter et al. [11] analyzed STAAR Reading scores among Texas Grade 3 English learners. They found that girls consistently outperformed boys in reading across three school years, mirroring trends observed in other demographics. With over 580,000 English learners enrolled in Texas public schools as of the 2020–2021 school years [12], addressing these disparities is crucial for ensuring equitable educational opportunities across all groups.

Regarding Black students specifically, Washington et al. [13] conducted a detailed analysis of language and reading skills among low-income Black boys and girls from similar socioeconomic backgrounds. Evaluating seven reading and language outcomes, Washington et al. found that Black girls demonstrated higher reading comprehension, vocabulary, and fluency proficiency than Black boys in Grades 4 and 5. This study also highlighted a faster growth trajectory in reading skills for Black girls, with Black boys showing a marked decline in reading fluency by Grade 5. These findings emphasize the need for targeted interventions to address racial and gender disparities in reading achievement.

Before the Every Student Succeeds Act [14][21], which required states to disaggregate test scores by gender, there was limited accountability for tracking gender-based differences in reading. Although racial achievement gaps were monitored under previous federal mandates,

gender disparities were often overlooked, resulting in a lack of targeted support for boys and girls who may have differing educational needs. This shift in accountability through the Every Student Succeeds Act presents an opportunity to address gender-based disparities within racial and ethnic subgroups more directly. Given that only a third of U.S. children read at grade level [15], it is essential to identify and address performance gaps across all demographics to promote equitable academic achievement.

This study, therefore, seeks to expand upon existing research by focusing on gender differences in reading among Grade 4 Black students in Texas. Utilizing multiyear state wide data from the STAAR Reading Assessment, this investigation aims to determine the extent of performance gaps between Black boys and Black girls across various reading competencies and grade-level standards. By examining these disparities, this study offers valuable insights that may guide educational policies, intervention strategies, and resource allocations to better support Black students in Texas.

1.1. Statement of the problem

Despite efforts to promote equity in educational outcomes, gender-based differences in reading achievement remain critical, particularly among subgroups where performance gaps are most pronounced. Historically, initiatives such as the No Child Left Behind Act emphasized improvements in reading scores across all racial and socioeconomic demographics but did not require test results to be broken down by gender. Consequently, while attention has been directed toward narrowing the achievement gap between White students and students of color, gender-specific data within these racial subgroups have been mainly overlooked. With the introduction of the Every Student Succeeds Act in 2015 [22], however, states are now mandated to disaggregate performance data by gender, bringing new attention to disparities between boys and girls within each subgroup.

This gap mainly concerns reading, a foundational skill critical to long-term academic and career success. Statistics indicate that only a third of children in the United States are reading at grade level [15], underscoring the need to identify and address performance differences across all student demographics. In Texas, gender-based reading disparities within racial subgroups—especially among Black students—warrant close examination, as targeted interventions may be essential to fostering equitable academic outcomes for all students.

1.2. Purpose of the study

The primary purpose of this study was to assess the differences in reading achievement between Grade 4 Black boys and Black girls in Texas as measured by the state-mandated STAAR assessment. Specifically, the study evaluated the extent to which Black boys and girls varied comprehension and analysis across different texts, including diverse genres, literary works, and informational passages. Additionally, the study examined the students' performance across three proficiency benchmarks: Approaches Grade Level, Meets Grade Level, and Masters Grade Level. The final objective was to analyze trends in the reading performance of Black boys and Black girls over three consecutive academic years (2016-2017, 2017-2018, and 2018-2019).

1.3. Significance of the study

Research on gender-based differences in reading, such as those conducted by Harris [4], Logan and Johnston [1], McGown [8], and Reilly et al. [2], has been extensive. However, no

studies were identified that specifically investigated the impact of gender on literacy among Black elementary students in Texas as assessed by the STAAR exam. By concentrating on the reading achievement of Grade 4 Black boys and girls, this study sheds light on how gender influences literacy skills at the elementary level within this demographic. The findings of this study may benefit parents, advocates, and educational leaders, including principals, literacy coaches, and teachers, by highlighting areas where targeted literacy support can help Black students succeed. Moreover, these outcomes could aid educators in designing intervention programs, informing hiring practices, setting performance targets, and guiding budget allocation. Improving understanding of specific literacy gaps related to gender within racial groups benefits all students and enhances equitable educational practices.

1.4. Research questions

This study was directed by one primary research question: How do Black boys and Black girls in Grade 4 differ in reading performance? The following sub-questions were developed to address specific aspects of this central question: (a) To what extent do Black boys and Black girls differ in their ability to comprehend and analyze diverse texts (i.e., STAAR Reading Reporting Category 1)?; (b) How do Black boys and Black girls compare in their comprehension and analysis of literary texts (i.e., STAAR Reading Reporting Category 2)?; (c) In what ways do Black boys and Black girls differ in their comprehension and analysis of informational texts (i.e., STAAR Reading Reporting Category 3)?; (d) What are the differences in performance between Black boys and Black girls in achieving the Approaches Grade Level standard on the STAAR Reading exam?; (e) How do Black boys and Black girls compare in their performance at the Meets Grade Level benchmark on the STAAR Reading exam?; (f) What differences exist between Black boys and Black girls in achieving the Masters Grade Level standard on the STAAR Reading exam?; (g) What trends are evident in the STAAR Reading Reporting Categories for Grade 4 Black boys and girls across the 2016-2017, 2017-2018, and 2018-2019 school years?; and (h) What trends are observed in the STAAR Reading Grade Level Standards for Grade 4 Black boys and girls over these three school years? The first six questions were examined for each academic year from 2016-2017 to 2018-2019, while the last two questions addressed performance trends across all three years.

2. Method

2.1. Research design

This study employed a non-experimental, causal-comparative research design [18][20]. Archival data were used to analyze reading achievement among Black Grade 4 students in Texas public schools during the 2016-2017, 2017-2018, and 2018-2019 school years. The independent variable in this study was gender. In contrast, the dependent variables included the three STAAR Reading Reporting Categories (i.e., Reporting Category I, Reporting Category II, Reporting Category III) across the specified school years. Additional dependent variables were the Approaches Grade Level, Meets Grade Level, and Masters Grade Level standards on the Grade 4 STAAR Reading assessment for the three years analyzed. Due to the use of pre-existing data, the study's variables could not be manipulated, which limits the ability to establish cause-and-effect relationships [18][20].

2.2. Participants and instrumentation

This study's participants were Grade 4 Black students in Texas who took the STAAR Reading assessment in the 2016-2017, 2017-2018, and 2018-2019 school years. Data were obtained from the Texas Education Agency's Public Education Information Management System [23], focusing on students' reading performance across three STAAR Reading Reporting Categories. They were reporting Category 1 assessed students' abilities to understand and analyze a variety of text genres, while Reporting Category 2 focused on literary texts, and Reporting Category 3 evaluated comprehension of informational texts.

In addition to the reading categories, performance was analyzed across three levels introduced by the Texas Education Agency in 2017 [24]: Approaches Grade Level, Meets Grade Level, and Masters Grade Level standards. The Approaches standard indicates students who need targeted academic support to meet course expectations, while the Meets standard reflects students likely to succeed with minimal intervention. The Masters standard is achieved by students expected to progress with little to no additional support, indicating strong readiness for college or career paths. Analyses were conducted to assess differences in performance by gender and grade level across the three STAAR Reading Reporting Categories. For more information on the reliability and validity of STAAR scores, please consult the Texas Education Agency's documentation.

3. Results

Before addressing the primary research questions related to STAAR Reading Reporting Categories, the assumptions underlying the MANOVA procedure were evaluated. Although not all assumptions were met, Field [19] suggests that MANOVA is still an appropriate analysis method under these circumstances. Therefore, a separate MANOVA was conducted for each school year, with results reported sequentially.

3.1. Overall reading reporting category results for black boys and black girls

For the 2016-2017 school year, a MANOVA indicated a statistically significant difference in overall reading performance between Grade 4 Black boys and Black girls, with Wilks' Λ = .98, $p < .001$, partial $\eta^2 = .02$, indicating a small effect size (Cohen, 1988). Similarly, the 2017-2018 school year yielded a significant difference, Wilks' Λ = .98, $p < .001$, partial η^2 = .02, again reflecting a small effect size (Cohen, 1988). A significant difference was also observed in the 2018-2019 school year, Wilks' Λ = .98, $p < .001$, partial η^2 = .02, maintaining a small effect size across all three years [16].

3.2. Reading reporting category I results across all three school years

A statistically significant difference was found between Black boys and Black girls in their Reading Reporting Category I performance in the 2016-2017 school year, $F(1, 22621) = 143.61$, $p < .001$, partial $\eta^2 = .006$, indicating a below-small effect size (Cohen, 1988). In the 2017-2018 school year, the ANOVA yielded a significant difference with $F(1, 18122) = 38.00$, $p < .001$, partial $\eta^2 = .002$, reflecting a below-small effect size. A statistically significant difference was again observed for the 2018-2019 school year, $F(1, 18678) = 173.15$, $p < .001$, partial $\eta^2 = .009$, with effect sizes below small across all years.

Regarding Reading Reporting Category I scores, Black boys scored 3.39% lower than Black girls on average in the 2016-2017 school year, 2.39% lower in 2017-2018, and 5.02% lower in 2018-2019. In 2016-2017, Black girls answered 49.96% of questions correctly, while

Black boys answered 46.57% correctly. In 2017-2018, Black girls had 63.05% correct responses versus 60.66% for Black boys. Finally, in 2018-2019, Black girls answered 65.74% of questions correctly, compared to Black boys' 60.72%. Table 1 provides descriptive statistics for each school year.

Table 1. Descriptive statistics for the grade 4 STAAR reading reporting category I score for black boys and black girls for the 2016-2017, 2017-2018, and 2018-2019 school years

School Year and Gender	n	M%	SD%
2016-2017			
Boys	11,338	46.57	21.53
Girls	11,283	49.96	20.95
2017-2018			
Boys	8,716	60.66	26.24
Girls	9,406	63.05	25.89
2018-2019			
Boys	8,875	60.72	26.99
Girls	9,803	65.74	25.19

3.3. Reading reporting category II results across all three school years

In Reading Reporting Category II, which assesses understanding and analysis of literary texts, statistically significant differences between Black boys and Black girls were observed each school year. For the 2016-2017 school year, ANOVA results showed a substantial difference with $F(1, 22621) = 255.49$, $p < .001$, partial $\eta^2 = .01$, indicating a small effect size [16]

Similarly, the 2017-2018 school year yielded a significant difference, $F(1, 18122) = 183.43$, $p < .001$, partial $\eta^2 = .01$, reflecting a small effect size. Significant differences continued in the 2018-2019 school year, with $F(1, 18678) = 378.733$, $p < .001$, partial $\eta^2 = .02$, maintaining a small effect size across all years.

In Reading Reporting Category II scores, Black boys' performance averaged 4.14% lower than Black girls in 2016-2017, 4.69% lower in 2017-2018, and 6.51% lower in 2018-2019. For the 2016-2017 school year, Black girls answered 50.75% of questions correctly, while Black boys answered 46.61%. In 2017-2018, Black girls had a 61.52% correct response rate compared to Black boys' 56.83%. In 2018-2019, Black girls answered 61.43% of questions correctly, while Black boys had a 54.92% correct response rate. Table 2 presents the descriptive statistics across the three years.

Table 2. Descriptive statistics for the grade 4 STAAR reading reporting category II scores for black boys and black girls for the 2016-2017, 2017-2018, and 2018-2019 school years

School Year and Gender	n	M%	SD%
2016-2017			
Boys	11,338	46.61	19.77
Girls	11,283	50.75	19.21
2017-2018			
Boys	8,716	56.83	23.77
Girls	9,406	61.52	22.85
2018-2019			
Boys	8,875	54.92	23.20
Girls	9,803	61.43	22.48

3.4. Reading reporting category III results across all three school years

For Reading Reporting Category III, which assesses comprehension and analysis of informational texts, statistically significant differences were found between Black boys and Black girls in each of the three school years. In the 2016-2017 school year, ANOVA results showed a significant difference, $F(1, 22621) = 349.20$, $p < .001$, partial $\eta^2 = .02$, reflecting a small effect size [16]. The 2017-2018 school year also yielded a significant difference with $F(1, 18122) = 296.876$, $p < .001$, partial $\eta^2 = .02$, small effect size. In the 2018-2019 school year, a significant difference was again noted, $F(1, 18678) = 207.116$, $p < .001$, partial $\eta^2 = .01$, showing a small effect size consistently across years.

Regarding the Reading Reporting Category III scores, Black boys scored 5.21% lower than Black girls in 2016-2017, 6.35% lower in 2017-2018, and 5.01% lower in 2018-2019. In 2016-2017, Black girls answered 42.87% of questions correctly, compared to Black boys at 37.66%. For the 2017-2018 school year, Black girls had a 60.25% correct response rate, whereas Black boys had 53.85%. In 2018-2019, Black girls responded correctly to 58.57% of questions, while Black boys answered 53.56% correctly. Table 3 provides descriptive statistics for each school year.

Table 3. Descriptive statistics for the grade 4 STAAR reading reporting category III scores for black boys and black girls for the 2016-2017, 2017-2018, and 2018-2019 school years

School Year and Gender	*n*	*M%*	*SD%*
2016-2017			
Boys	11.338	37.66	20.61
Girls	11,283	42.87	21.28
2017-2018			
Boys	8,716	53.85	25.03
Girls	9,406	60.25	24.96
2018-2019			
Boys	8,875	53.56	24.07
Girls	9,803	58.57	23.43

3.5. Results for the approaches grade level standard across three school years

Student performance on the Approaches Grade Level standard for the STAAR Reading exam was analyzed using Pearson chi-square tests. For the 2016-2017 school year, results indicated a statistically significant difference between Black boys and Black girls, $\chi^2(1) = 234.63$, $p < .001$, with a small effect size of Cramer's V = .10 (Cohen, 1988). Black girls had a 10.2% higher rate of meeting this standard compared to Black boys. Table 4 presents the descriptive statistics for this analysis.

A statistically significant difference was also found in the 2017-2018 school year, $\chi^2(1) = 160.74$, $p < .001$, with Cramer's V = .09, indicating a below-small effect size. Black girls met the Approaches Grade Level standard at a rate 9.3% higher than Black boys, with 63.2% of Black girls meeting the standard compared to 53.9% of Black boys. Table 4 shows these statistics.

For the 2018-2019 school year, the analysis again revealed a significant difference, $\chi^2(1) = 240.91$, $p < .001$, with a small effect size of Cramer's V = .11. Black girls met the standard at an 11% higher rate than Black boys, with 67.3% of Black girls and 56.3% of Black boys achieving the Approaches level. Table 4 provides the detailed statistics for this school year.

Table 4. Frequencies and percentages of grade 4 STAAR reading performance at the approaches grade level standard for black boys and black girls for the 2016-2017, 2017-2018, and 2018-2019 school years

School Year and Gender	Did Not Meet n and %age of Total	Met n and %age of Total
2016-2017		
Boys	(n = 6,069) 53.5%	(n = 5,269) 46.5%
Girls	(n = 4,891) 43.3%	(n = 6,392) 56.7%
2017-2018		
Boys	(n = 4,014) 46.1%	(n = 4,702) 53.9%
Girls	(n = 3,459) 36.8%	(n = 5,947) 63.2%
2018-2019		
Boys	(n = 3,880) 43.7%	(n = 4,995) 56.3%
Girls	(n = 3,204) 32.7%	(n = 6,599) 67.3%

3.6. Results for the grade 4 STAAR reading performance at the meets grade level standard over time

For the Meets Grade Level performance standard, the 2016-2017 school year showed a statistically significant difference between Black boys and Black girls, $\chi^2(1) = 153.71$, p < .001, with Cramer's V = .08, indicating a below-small effect size (Cohen, 1988). Black girls met this standard 7.3% more often than Black boys, with nearly 30% of Black girls meeting the standard compared to less than 23% of Black boys. Table 5 contains the descriptive statistics for this school year.

2017-2018, a statistically significant difference was also observed, $\chi^2(1) = 122.42$, p < .001, with Cramer's V = .08, again showing a below-small effect size. Black girls met the Meets Grade Level standard 7.7% more often than Black boys, with over a third (35%) of Black girls meeting the standard compared to 27.3% of Black boys. These statistics are presented in Table 5.

For the 2018-2019 school year, the chi-square analysis indicated a statistically significant difference, $\chi^2(1) = 155.58$, p < .001, with Cramer's V = .09, indicating a below-small effect size. Black girls met the standard 8.4% more frequently than Black boys, with 33.7% of Black girls achieving the Meets Grade Level compared to 25.3% of Black boys. Table 5 provides detailed statistics for this school year.

Table 5. Frequencies and percentages of grade 4 STAAR reading performance that meets grade-level standards for black boys and black girls for the 2016-2017, 2017-2018, and 2018-2019 school years

School Year and Gender	Did Not Meet n and %age of Total	Met n and %age of Total
2016-2017		
Boys	(n = 8,772) 77.4%	(n = 2,566) 22.6%
Girls	(n = 7,911) 70.1%	(n = 3,372) 29.9%
2017-2018		
Boys	(n = 6,334) 72.7%	(n = 2,382) 27.3%
Girls	(n = 6,118) 65.0%	(n = 3,288) 35.0%
2018-2019		
Boys	(n = 6,626) 74.7%	(n = 2,249) 25.3%
Girls	(n = 6,500) 66.3%	(n = 3,303) 33.7%

3.7. Results for the masters' grade level standard across three school years

For the Master's Grade Level performance standard, a statistically significant difference was found between Black boys and Black girls in the 2016-2017 school year, $\chi^2(1) = 119.63$, $p < .001$, with Cramer's V = .07, indicating a below-small effect size (Cohen, 1988). Black girls met this standard 4.7% more frequently than Black boys, with nearly 15% of Black girls achieving the master level compared to about 10% of Black boys. Descriptive statistics for this school year are provided in Table 6.

In the 2017-2018 school year, the difference remained statistically significant, $\chi^2(1) = 75.15$, $p < .001$, with Cramer's V = .06, reflecting a below-small effect size. Black girls met the Master's Grade Level standard 4.5% more often than Black boys, with 16.7% of Black girls and 12.2% of Black boys reaching this standard. Table 6 shows the descriptive statistics for this analysis.

For the 2018-2019 school year, the analysis indicated a statistically significant difference, $\chi^2(1) = 63.78$, $p < .001$, with Cramer's V = .06, also reflecting a below-small effect size. Black girls met the Master's Grade Level standard 3.9% more frequently than Black boys, with almost 15% of Black girls and 10.5% of Black boys achieving this level. Table 6 provides the descriptive statistics for this school year.

Table 6. Frequencies and percentages of grade 4 STAAR reading performance at the master's grade level standard for black boys and black girls for the 2016-2017, 2017-2018, and 2018-2019 school years

School Year and Gender	Did Not Meet n and %age of Total	Met n and %age of Total
2016-2017		
Boys	(n = 10,228) 90.2%	(n = 1,110) 9.8%
Girls	(n = 9,642) 85.5%	(n = 1,641) 14.5%
2017-2018		
Boys	(n = 7,656) 87.8%	(n = 1,060) 12.2%
Girls	(n = 7,835) 83.3%	(n = 1,571) 16.7%
2018-2019		
Boys	(n = 7,944) 89.5%	(n = 931) 10.5%
Girls	(n = 8,395) 85.6%	(n = 1,408) 14.4%

3.8. Trends in reading performance by gender

In analyzing the reading performance of Grade 4 Black students in Texas over three years, consistent gender-based trends were evident. Across all STAAR Reading Reporting Categories and in each of the three years studied, Black girls outperformed Black boys. In Reading Reporting Category I, Black boys' scores were 3.39% lower than Black girls' in 2016-2017, 2.39% lower in 2017-2018, and 5.02% lower in 2018-2019. Black girls consistently answered more items correctly than Black boys across all three years.

In Reading Reporting Category II, Black boys scored 4.14% lower than Black girls in 2016-2017, 4.69% lower in 2017-2018, and 6.51% lower in 2018-2019. In all three school years, Black girls outperformed Black boys in answering questions related to literary texts.

In Reading Reporting Category III, Black boys scored 5.21% lower than Black girls in 2016-2017, 6.35% lower in 2017-2018, and 5.01% lower in 2018-2019. Black girls consistently scored higher than boys in informational text comprehension each year.

Regarding the three STAAR Reading Grade Level Standards, Black girls outperformed Black boys across all years. For the Approaches Grade Level standard, Black girls met this

standard at rates 10.2% higher than Black boys in 2016-2017, 9.3% higher in 2017-2018, and 11% higher in 2018-2019. For the Meets Grade Level standard, Black girls met this benchmark at rates 7.3% higher than Black boys in 2016-2017, 7.7% higher in 2017-2018, and 8.4% higher in 2018-2019. Finally, for the Master's Grade Level standard, Black girls outperformed Black boys by 4.7% in 2016-2017, 4.5% in 2017-2018, and 3.9% in 2018-2019. Figures 1 through 6 depict the average performance of Black boys and Black girls on these STAAR Reading measures.
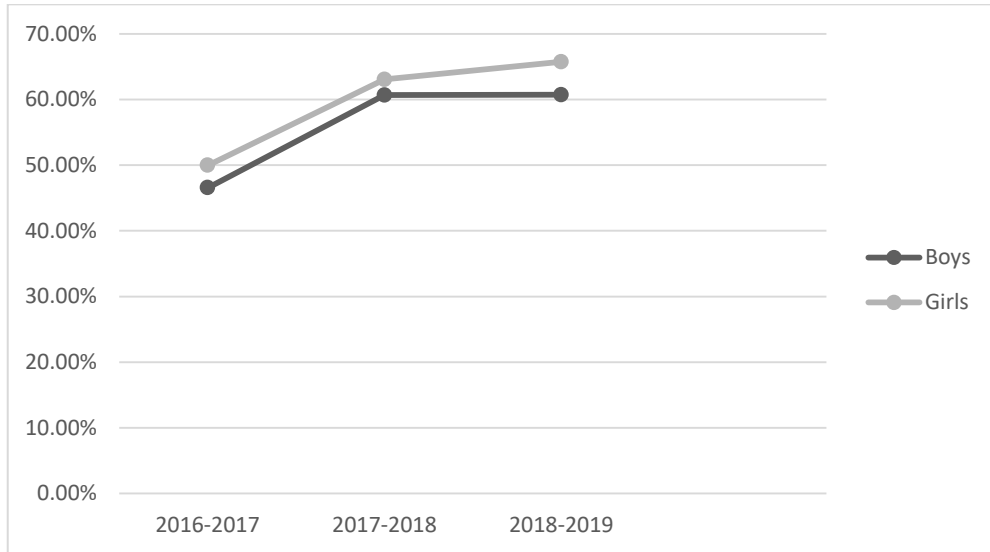
Figure 1. The average performance of black boys and girls on the grade 4 STAAR reading reporting category i for the 2016-2017, 2017-2018, and 2018-2019 school years
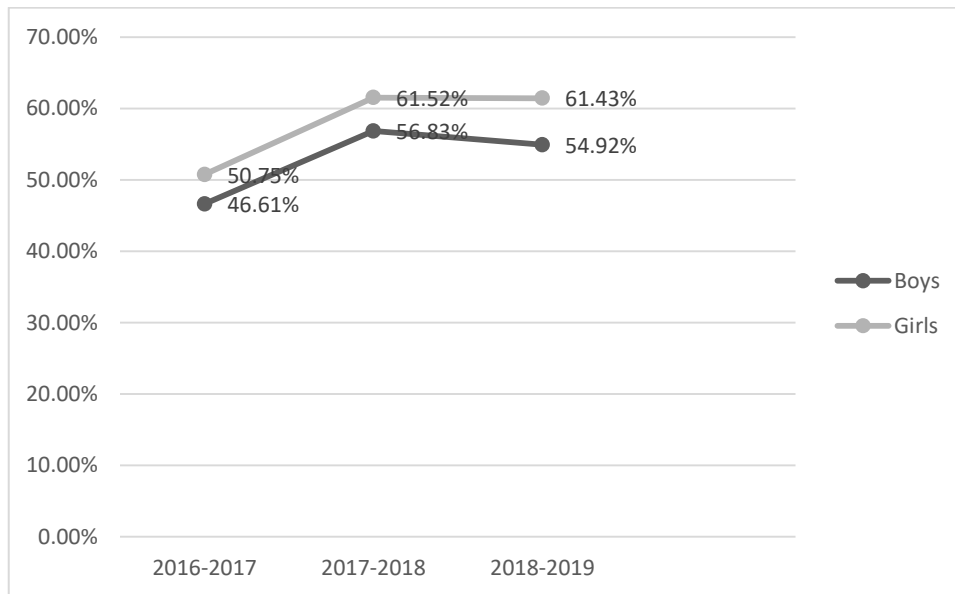

Figure 2. The average performance of black boys and girls on the grade 4 STAAR reading reporting category ii for the 2016-2017, 2017-2018, and 2018-2019 school years
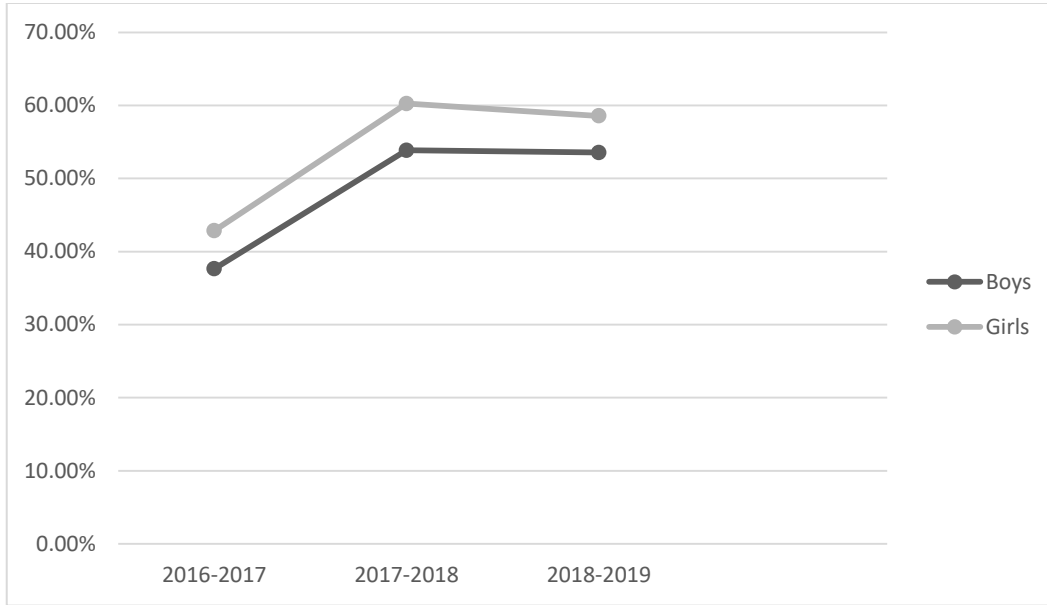
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Figure 3. The average performance of black boys and girls on the grade 4 STAAR reading reporting category iii for the 2016-2017, 2017-2018, and 2018-2019 school years
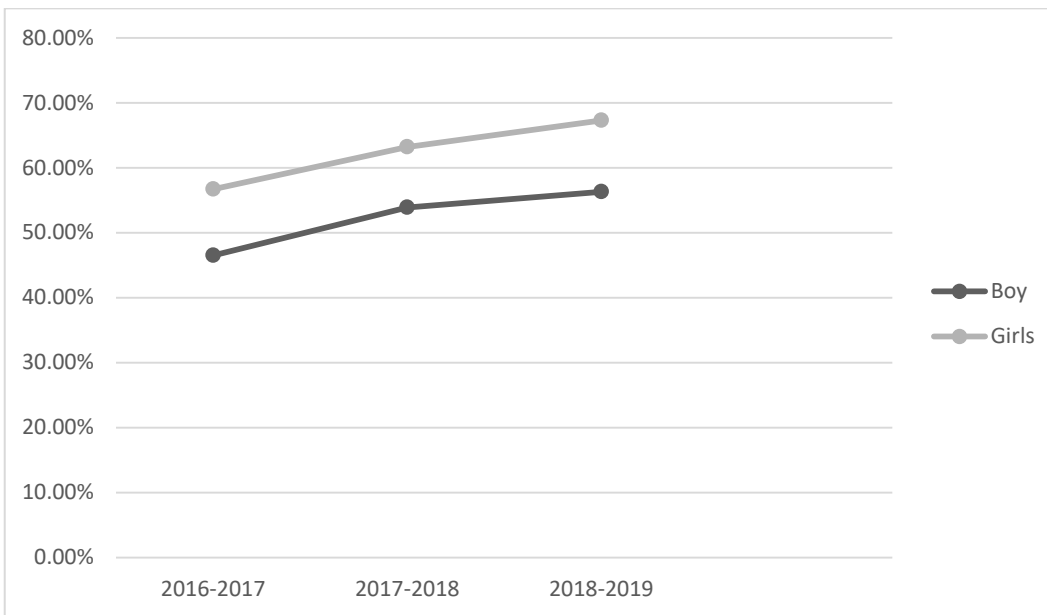

Figure 4. Percentages of black boys and girls who met the grade 4 STAAR reading approach grade-level standard in the 2016-2017, 2017-2018, and 2018-2019 school years
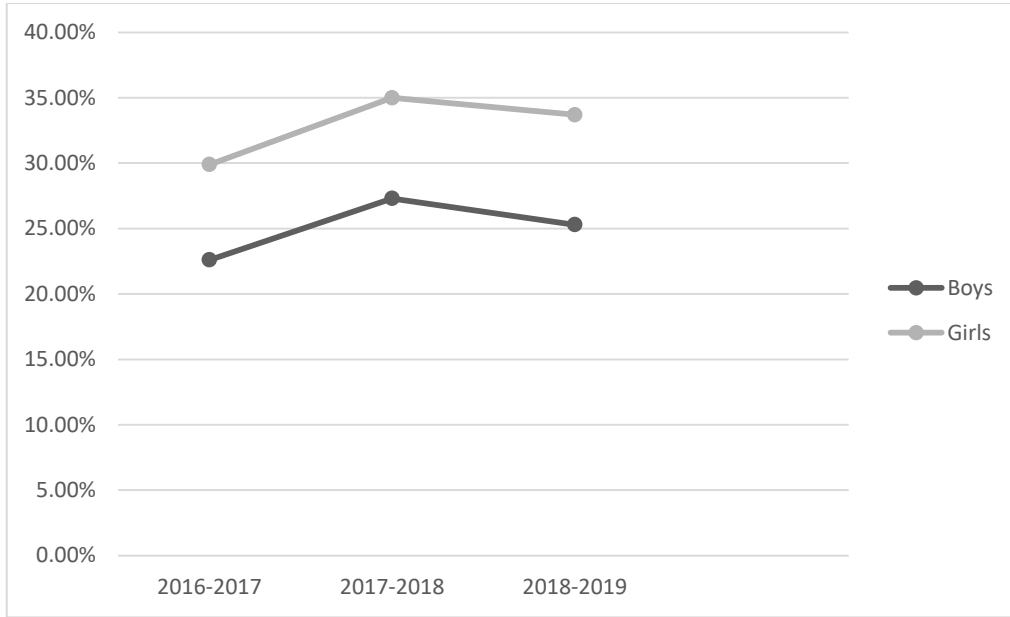
Figure 5. Percentages of black boys and girls who met the grade 4 STAAR reading meet grade-level standards in the 2016-2017, 2017-2018, and 2018-2019 school years
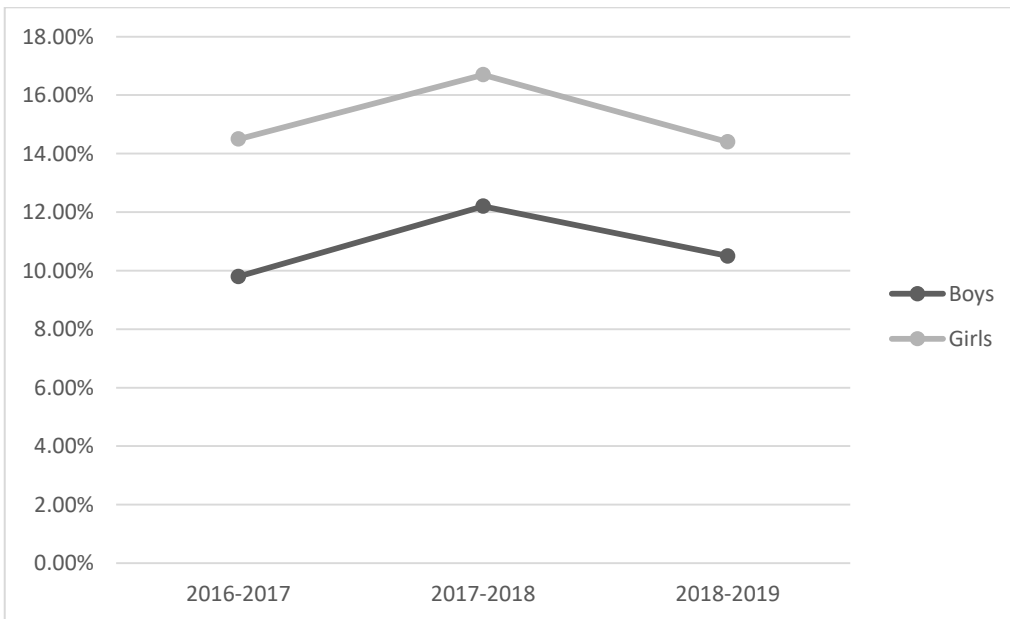

Figure 6. Percentages of black boys and girls who met the grade 4 STAAR reading masters grade level standard in the 2016-2017, 2017-2018, and 2018-2019 school years.

4. Discussion

This study examined the extent of gender-based differences in reading performance among Texas Grade 4 Black students over three years. The STAAR Reading, Reporting Categories analysis revealed statistically significant differences between Black boys and Black girls

across all school years. In each reporting category, Black girls consistently scored higher than Black boys and met grade-level performance standards at higher rates.

In each STAAR Reading Reporting Category, Black boys had lower scores than Black girls each year. The gaps were at least 2% across all reporting categories, with the most significant gaps appearing in Reporting Category II, where differences ranged from over 4% to 6.5%. Reporting Category III showed similarly significant gaps, with differences reaching up to 6.4% in the 2017-2018 school year.

The analysis of the three Grade-Level Performance Standards for all three years also revealed that a smaller percentage of Black boys met each standard compared to Black girls. Effect sizes for reading performance differences between genders remained below small across each Grade-Level standard. The only exception was the Approaches Grade-Level standard in 2016-2017, where the effect size reached a small level.

4.1. Connections to existing literature

This study's findings align with previous research indicating gender-based disparities in reading achievement among students. The results corroborate national and international studies on gender differences in literacy, such as those by Logan and Johnston [1], Mullis et al. [3], Reilly et al. [2], and Wei et al. [5], all of whom documented a trend of girls outperforming boys in reading assessments. Similarly, research on Texas students using the STAAR assessment found that girls achieved higher reading scores than boys, confirming a gender gap in favor of female students [4][8][11].

In particular, the current study aligns with findings on gender differences among Black students. For example, Washington et al. [13] investigated language and reading abilities in Black students from low-income backgrounds, revealing that Black girls generally outperformed Black boys and demonstrated slightly faster comprehension growth. The gender differences identified in this study for Grade 4 Black students on the STAAR Reading assessment are consistent with these prior observations and contribute to the broader understanding of literacy performance disparities [17].

4.2. Implications for policy and practice

The findings of this study suggest several implications for policy and practice based on observed gender disparities in reading achievement among Grade 4 Black students. From a policy perspective, one impactful approach to drive change is analyzing student performance data to inform school improvement plans, which can serve as strategic roadmaps. In Texas, while performance data is routinely examined and used to hold districts accountable for economically disadvantaged students, subgroups within these categories, such as gender, are not individually analyzed. Including gender as a factor in these data analyses would allow schools and districts to create more targeted improvement plans that address specific gaps in reading performance among Grade 4 Black students.

Addressing achievement gaps based on gender within subgroups may require educators to adopt more customized support strategies. Current practices often employ a one-size-fits-all approach, which may be insufficient for addressing the unique needs of different student groups. Engaging school leaders, teachers, curriculum developers, and administrators in focusing on gender differences within subgroups could lead to more effective strategies to close performance gaps. Supporting Black boys and girls in differentiated ways, especially in foundational literacy skills, could impact their academic and career readiness. To achieve this,

schools may need to prioritize curriculum adjustments and interventions that address specific challenges each gender faces.

4.3. Recommendations for Future Research

Based on this study's findings, several directions for future research are suggested. First, researchers should investigate whether similar gender gaps exist in other grade levels, content areas, and within additional ethnic groups to determine if these trends are consistent. Second, studies should examine how gender influences reading achievement differently across socioeconomic groups to uncover unique socio-economic interactions. Third, conducting similar studies in other states with different assessment tools would be beneficial for determining the generalizability of these findings beyond Texas. Fourth, future research should isolate Grade 4 Black boys and girls based on economic status to assess if financial factors amplify or mitigate these gender differences. Lastly, incorporating qualitative or mixed-method approaches could offer a deeper understanding of the factors influencing academic achievement within gender and racial subgroups.

5. Conclusion

This study aimed to assess the extent of gender-based differences in reading achievement among Grade 4 Black students in Texas, using three years of STAAR Reading assessment data. The findings consistently demonstrated that Black girls outperformed Black boys in all three reading categories (i.e., diverse texts, literary texts, and informational texts) and across the three performance standards (Approaches, Meets, and Masters Grade Level). These results reveal an enduring gender disparity in literacy achievement within this demographic, reflecting trends in other national and international research that girls generally excel over boys in reading performance [1][2][3].

The implications of this gender gap are far-reaching, as literacy is a foundational skill that influences academic success, future educational opportunities, and career readiness. Black boys' lower performance levels in reading may indicate a need for interventions that address specific barriers, such as instructional practices that do not cater equally to both genders or motivational factors that may influence engagement in literacy. These findings support calls for education policy that mandates a more granular analysis of subgroup performance, including gender, within existing racial and economic categories, allowing for more targeted improvement plans in schools.

Differentiated instructional strategies could be vital to addressing these disparities in educational practice. Literacy interventions acknowledging gender differences in learning styles, classroom engagement, and content interest may help close the performance gap. Additionally, enhancing teacher training on culturally responsive and gender-sensitive pedagogies could empower educators to effectively support both Black boys and Black girls, fostering literacy skills that recognize each group's unique strengths and challenges.

In summary, this study's findings underscore the importance of addressing gender disparities in literacy from early grades, given their potential impact on long-term educational outcomes. Further research exploring similar gaps in other grades and contexts and the role of socio-economic factors could provide a fuller understanding of the systemic issues influencing literacy achievement. Addressing these gender-based performance gaps will ensure that all students, regardless of gender, have equitable access to literacy success.

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