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Article

Economic Status Differences in Reading Performance: A Multiyear Study of Grade 4 Black Boys in Texas

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Abstract

In this statewide, multiyear analysis conducted in the United States, the extent to which Grade 4 Black boys differed in their reading performance on the Texas state-mandated reading assessment as function of their economic status (i.e., economically disadvantaged and not economically disadvantaged) was determined. Analysis of three school years of Texas statewide data yielded statistically significant differences in reading by the economic status of Black boys. In all three school years and in all three reporting categories, Black boys who were in poverty answered statistically significantly fewer items correctly than Black boys who were not in poverty. Similarly, statistically significantly lower percentages of Black boys who were in poverty met the three grade level standards than Black boys who were not in poverty. Implications for policy and for practice, along with recommendations for future research, were provided.

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Introduction

In 2019, the average percentage of children who lived in poverty was 29% and over 7,000,000 children are negatively influenced by poverty (National Center for Children in Poverty, 2019) in the United States. This percentage means that almost one in five children lives in poverty. Among all children under 18 years in the United States, 38% live in families with low incomes and 17% are regarded as being poor. Children are overrepresented among the poor as they represent 23% of the population but comprise 32% of all people in poverty. Many more children live in families with incomes just above the poverty threshold (National Center for Children in Poverty, 2019).

According to Jones et al. (2017), poverty is the strongest predictor of learning challenges and poor academic outcomes for children. For the past several decades, increased focus has been placed on the relationships of poverty and reading (e.g., Conradi et al., 2016; Reardon, 2013). As student poverty increases, reading performance becomes increasingly poorer. Sharkins et al. (2017) established that students living in poverty have poorer academic performance than their more affluent peers. As with grades, graduation rates, college admission, and degree completion, students in poverty underperform more privileged students on standardized assessments (Lee & Slate, 2014).

In the United States of America, 58% of Black children live in low-income homes. This statistic is more than double the percentage of White children, 26%. Triple the amount of Black children (30%) live in poor homes than White children (10%) and more than triple the amount live in deep poverty, 14%, compared to 4% of White children under the age of 18 (National Center for Children in Poverty, 2019).

With respect to the state of interest for this article, Texas, researchers have investigated the relationships of poverty to the reading performance of Texas Grade 3 students. McGown (2016) conducted a study to determine the extent to which differences were present for Texas Grade 3 students on the State of Texas Assessment of Academic Readiness (STAAR) Reading test as a function of their economic status. Statewide data from the 2012-2013, 2013-2014, and 2014-2015 school years on the three Grade 3 STAAR Reading

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Reporting Categories were analyzed for three groups of students: students who did not qualify for the federal free or reduced price lunch program (i.e., Not Poor), students who qualified for the reduced price lunch program (i.e., Moderately Poor), and students who qualified for the free lunch program (i.e., Extremely Poor) student groups. McGown (2016) established the presence of a stair-step effect for all three school years in all three reporting categories. Texas Grade 3 students who were Extremely Poor had statistically significant lower reading scores than students who were Moderately Poor and students who were Not Poor. Students who were Moderately Poor had lower reading test scores that students who were Not Poor all three school years. Regarding overall passing rates, McGown (2016) documented that students who were Extremely Poor had lower passing rates on the STAAR Level II Final Satisfactory Performance Standard in reading that students who were Moderately Poor and students who were Not Poor. Moreover, students who were Moderately Poor had lower passing rates that students who were Not Poor. Statistically significant results were present in all three school years.

In a similar study but of Grade 4 Texas students, Harris (2018) analyzed STAAR Reading test scores using the same three student economic groups as McGown (2016). Data were analyzed for the 2012-2013, 2013-2014, and 2014-2015 school years. Statistically significant differences were established in not only overall reading performance, but also in all three Reading Reporting categories in all three years examined. The higher the degree of poverty, the lower STAAR Reading test scores were. Moreover, the higher the degree of poverty, the lower the percentages of students who met the passing standard on the STAAR Reading exam. A stair step pattern existed. Aligned with the findings from McGown's (2016) investigation on Texas Grade 3 students, economic achievement gaps in reading were clearly present for Texas Grade 3 students.

Recently, Hamilton and Slate (2019) documented the presence of differences in reading achievement for Hispanic and Black students by their economic status. They compared the reading performance of Texas students who were in poverty to their peers who were not economically disadvantaged. Utilizing data from the 2015-2016 state mandated reading assessment, statistically significant differences were established in the reading performance of Hispanic and Black children as a function of poverty. Statistically significantly lower percentages of Hispanic and Black children who were economically disadvantaged met the three Grade Level Reading Standards on the assessment than their counterparts who were not economically disadvantaged. Almost twice as many (59.2%) Hispanic students who were Not Poor met the standard in reading than Hispanic students who were Poor (29.1%). Nearly triple the percentage of Hispanic students (35.6%) who were Not Poor performed at the Masters Grade Level standard than Hispanic students (13.9%) who were Poor. More than twice as many Black students (50.7%) who were Not Poor met the reading assessment standards than Black students (21.8%) who were Poor. The gap at the Masters Grade Level standard widened even more as only 9.4% of Black students who were Poor achieved mastery whereas 29.4% of Black students who were Not Poor achieved mastery. Hamilton and Slate (2019) recommended that researchers replicate their study to determine the extent to which their results were generalizable to students at other grade levels.

In 2017, Harris and Slate analyzed the reading performance of Texas Grade 3 students to determine the effects of poverty on the reading achievement of Grade 3 Black boys from the 2015-2016 administration of the STAAR test. Three levels of performance existed, Phase I or unsatisfactory performance, Phase II or satisfactory, and Phase III or advanced performance. As the poverty level increased, reading performance decreased. A stairstep effect was present, as the percentage of Black boys who were Extremely Poor increased, the percentage of Black boys who met the reading standard decreased.

In a two-decade examination of historical racial/ethnic disparities in academic achievement by economic status, Paschel et al. (2018) examined the interaction of race/ethnicity and poverty gaps in both mathematics and reading achievement from 1986-2005 for White, Black, and Hispanic students in three age groups (5-6, 9-10, and 13-14. They established that, across the 20-year time period, gaps between White students in poverty and students of color in poverty increased, whereas the gaps between White students and Hispanic students who were not in poverty narrowed. They concluded that understanding the nature of achievement gaps requires the examination of race/ethnicity and income simultaneously.

Statement of the Problem

With the inception of Every Student Succeeds Act (United Department of Education, 2017), academic performance by ethnicity/race is monitored, but in Texas, gender is not one of the monitored subgroups. As such, a decline in Black boys' knowledge could potentially be missed due to a lack of required monitoring. Taking into account that only a third of children in the United States read on grade level (Sanchez, 2018), it is imperative that all performance differences be identified. Hernandez (2011) concluded that 26% of students in poverty and who do not read on grade level in Grade 3 will not graduate from high school. Black and Hispanic students are much more likely to be economically disadvantaged, at a rate almost twice of the next-closest ethnic/racial group (National Center for Children in Poverty, 2017). The State of Texas has a 5% higher poverty rate than does the United States as a whole (National Center for Children in Poverty, 2017), and more than 60% of Texas public school students are classified as economically disadvantaged (Texas Education Agency, 2021). An investigation intof the reading performance of Grade 4 Black boys as a function of their economic status since the inception of the Every Student Succeeds Act in 2015 is needed.

The overarching purpose of this investigation was to determine the extent to which Grade 4 Black boys might differ in their reading performance on the Texas state-mandated assessment as a function of their economic status (i.e., Not Poor, Moderately Poor, and Extremely Poor). Specifically addressed was the degree to which Grade 4 Black boys differ in their understanding across genres, comprehension and analysis of literary texts, and comprehension and analysis of informational texts by the economic status. Also examined was their performance at the three different grade levels (i.e., student's standard, recommended, and advanced) as a function of their economic status. The final purpose was to determine the extent to which trends might be present in the reading performance of Grade 4 Black boys by their economic status across three school years.

Although researchers have conducted numerous investigations into the achievement gaps between White and Asian students and their Black counterparts, little concerted national or statewide effort has been addressed toward the education and social outcomes of Black males, in particular. Through investigating this issue, the intention is to add to the available research literature regarding the need for a specified office at the national or state level with a primary focus on the success of Black males in reading and other achievement indicators.

Research Questions

The following overarching research question were addressed in this study: What is the difference in the reading performance of Grade 4 Black boys as a function of their economics status (i.e., Not Poor, Moderately Poor, and Extremely Poor)? Specific sub-questions under this overarching research question were: (a) What is the difference in understanding across genres (i.e., STAAR Reading Reporting Category 1) by the economic status of Grade 4 Black boys?; (b) What is the difference in comprehension and analysis of literary texts (i.e., STAAR Reading Reporting Category 2) by the economic status of Grade 4 Black boys?; (c) What is the difference in comprehension and analysis of informational texts by the economic status of Grade 4 Black boys (i.e., STAAR Reading Reporting Category 3)?; (d) What is the difference in the Approaches Grade Level performance of Grade 4 Black boys by their economic status?; (e) What is the difference in the Meets Grade Level performance of Grade 4 Black boys by their economic status?; (f) What is the difference in the Masters Grade Level performance of Grade 4 Black boys by their economic status?; (g) What is the degree to which trends are present by the economic status of Grade 4 Black boys on the STAAR Reading Reporting Categories across three school years?; and (h) What is the degree to which trends are present by the economic status of Grade 4 Black boys on the STAAR Reading grade level Standards across three school years. The first six research questions will be repeated for the 2016-2017, 2017-2018, and 2018-2019 school years, whereas the last two research questions will involve a comparison of results spanning across all three school years.

Method

Research Design

A non-experimental causal-comparative research design was used in this study (Creswell, 2014; Johnson & Christensen, 2017). The independent variable cannot be manipulated, because of this type of non-experimental, causal comparative research. Archival data that was examined from past assessment results. The individual variables already occurred, and dependent variables were not controlled in this study design (Johnson & Christensen, 2017). The independent variable in this research study was the economic status of Black boys (i.e., economically disadvantaged, not economically disadvantaged) and the dependent variables that were analyzed is the performance of Black boys in each reporting category and grade level standards.

Students who were in the economically disadvantaged group were Grade 4 Black boys who qualified for either the reduced price meals or for free meals under the National School Lunch and Child Nutrition Program. Children whose families have an income of 130% or less of the Federal poverty guideline can receive free meals at school. Poverty guidelines begin at an annual income below $12,060 and increases depending on the number of family members in a household. Eligibility for free meals is 130% of the $12,060 figure, which would be an annual income of $15,678. This dollar amount increases as the number of family members increase (United States Department of Agriculture Food and Nutrition Services, 2017).

Children whose families have an income from 131% to 185% of the Federal poverty guideline are eligible for reduced-priced meals at school. Eligibility for reduced priced meals is 185% of the $12,060 figure, which would be an annual income of $22,311. This dollar amount increases as the number of family members increase (United States Department of Agriculture Food and Nutrition Services, 2017). Students who were not economically disadvantaged were Grade 4 Black boys who did not qualify for either the reduced price meals or for the free meals under the National School Lunch and Child Nutrition Program (United States Department of Agriculture Food and Nutrition Services, 2017).

Participants and Instrumentation

The STAAR test is the state testing program that was implemented in the 2011-2012 school year. The Texas Education Agency, in collaboration with the Texas Higher Education Coordinating Board and Texas educators, developed the STAAR program in response to requirements set forth by the 80th and 81st Texas legislatures. The STAAR is an assessment program, which starts when students are in Grade 3, intended to measure the extent to which students have learned and are able to apply the knowledge and skills defined in the state mandated curriculum standards, the Texas Essential Knowledge and Skills. Every STAAR question is directly aligned to the Texas Essential Knowledge and Skills currently implemented for the grade/subject or course being assessed

The STAAR Reading assessment has three reporting categories. In the Reading Reporting Category 1, students' ability to understand and to analyze a variety of texts across reading genres is assessed. Measured in the STAAR Reading Reporting Category 2 are students' ability to understand and to analyze literary texts. Assessed in the STAAR Reading Reporting Category 3 are students' ability to understand and to analyze informational texts. (Texas Education Agency STAAR Accountability Manual, 2016).

Participants in this study were Grade 4 Black boys in Texas who took the STAAR Reading assessment in the 2016-2017, 2017-2018, and 2018-2019 school years. Data were requested from the Texas Education Agency Public Education Information Management System. Analyses were conducted based on student economic status (i.e., economically disadvantaged, not economically disadvantaged), across the three STAAR Reading Reporting Categories (i.e., Reporting Category 1, Reporting Category 2, and Reporting Category 3), and across three grade level standards (i.e., Approaches Grade Level, Meets Grade Level, Masters Grade Level).

In addition to the STAAR Reading Reporting Categories, three performance level standards were analyzed in this study. In 2017, the Texas Education Agency introduced three performance levels to determine how well students performed on the STAAR Reading Assessment (Texas Education Agency, 2017). The Approaches Grade Level standard is assigned to students who do not meet the grade level passing score. Students in this category are not able to demonstrate a basic level of understanding the course expectations. This designation predicts that students will be likely to succeed in the next grade level or course with targeted academic interventions to assist in the student's academic progress. In the Meets Grade Level standard, students will be expected to succeed in the next grade level with some form of short-term, targeted academic interventions. Students who perform in the Masters Grade Level standard are expected to succeed in the next grade level and, as such, should require little to no academic intervention and are on track for college and/or career readiness (Texas Education Agency, 2017). Readers are directed to the Texas Education Agency website for further information regarding score validities and score reliabilities for the STAAR Reading Assessment.

Results

Prior to addressing the first three research questions regarding Reading Reporting Categories, the underlying assumptions of the MANOVA were checked. Although not all of the assumptions were met, Field (2013) contends that the MANOVA procedure is still appropriate to use. As such, a separate MANOVA was conducted for each school year and will be reported in that order.

Overall Reading Reporting Category Results for Black Boys

Regarding the 2016-2017 school year, the MANOVA revealed a statistically significant difference, Wilks' $\Lambda = .93$, $p < .001$, partial $\eta^2 = .07$, moderate effect size (Cohen, 1988), in overall reading performance between Grade 4 Black boys who were and were not poor. Concerning the 2017-2018 school year, the MANOVA revealed a statistically significant difference, Wilks' $\Lambda = .92$, $p < .001$, partial $\eta^2 = .08$, moderate effect size (Cohen, 1988), in overall reading performance between Grade 4 Black boys who were and were not poor. With respect to 2018-2019, the MANOVA revealed a statistically significant difference, Wilks' $\Lambda = .93$, $p < .001$, partial $\eta^2 = .07$, moderate effect size (Cohen, 1988), in overall reading performance between Grade 4 Black boys who were poor and not poor. In all three school years, effect sizes were moderate.

Reading Reporting Category 1 Results Across All Three School Years

Following the overall results of the MANOVA, univariate follow-up Analysis of Variance (ANOVA) procedures were conducted for all three school years. A statistically significant difference was yielded between by the economic status of Black boys in their Reading Reporting Category I performance in the 2016-2017 school year, $F(1, 10193) = 556.22$, $p < .001$, partial $\eta^2 = .05$, small effect size; in the 2017-2018 school year, $F(1, 7501) = 443.21$, $p < .001$, partial $\eta^2 = .06$, moderate effect size; and in the 2018-2019 school year, $F(1, 7644) = 438.66$, $p < .001$, partial $\eta^2 = .05$, small effect size. Effect sizes were small in two of the school years and moderate in one school year (Cohen, 1988).

In regard to the Reading Reporting Category I scores, the reading performance of Black boys in poverty was 11.21% lower than the average reading performance of Black boys who were not poor in the 2016-2017 school year; 16.19% lower in the 2017-2018 school year; and 16.41% lower in the 2018-2019 school year. In the 2016-2017 school year, Black boys who were not poor responded correctly on 55.76% of questions whereas Black boys who were poor only responded correctly to 44.55% of questions. In the 2017-2018 school year, Black boys who were not poor responded correctly on 74.78% of the questions whereas Black boys who were poor only responded correctly to 58.59% of the questions. Finally, in the 2018-2019 school year, Black boys who were not poor responded correctly to 74.80% of the questions whereas Black boys who were poor answered 58.39% of the questions correctly. Black boys who were not economically disadvantaged consistently answered more test items correctly than Black boys in poverty on the Reading Reporting Category I in all three school years. Table 1 contains the descriptive statistics for all three school years.

Table 1. Descriptive statistics for the Grade 4 STAAR reading reporting Category I scores by economic status for Black boys

School Year and Economic Status	*n*	*M%*	*SD%*
2016-2017			
Not Poor	2,062	55.76	20.68
Poor	8,131	44.55	21.06
2017-2018			
Not Poor	1,314	74.78	22.77
Poor	6,187	58.59	25.83
2018-2019			
Not Poor	1,358	74.80	24.08
Poor	6,286	58.39	26.62

Reading Reporting Category II Results Across All Three School Years

A statistically significant difference was yielded by the economic status of Black boys in their Reading Reporting Category II performance in the 2016-2017 school year, $F(1, 10193) = 602.49$, $p < .001$, partial $\eta^2 = .06$, moderate effect size; in the 2017-2018 school year, $F(1, 7501) = 559.06$, $p < .001$, partial $\eta^2 = .07$, moderate effect size; and in the 2018-2019 school year, $F(1, 7644) = 445.30$, $p < .001$, partial $\eta^2 = .06$, moderate effect size. Effect sizes were moderate in all three school years (Cohen, 1988).

In regard to the Reading Reporting Category II scores, the reading performance of Black boys who were economically disadvantaged was 11.64% lower than the average reading performance of Black boys who were not poor in the 2016-2017 school year; 16.36% lower in the 2017-2018 school year; and 14.15% lower in the 2018-2019 school year. In the 2016-2017 school year, Black boys who were not poor responded correctly on 56.26% of questions whereas Black boys who were poor only responded correctly to 44.62% of questions. In the 2017-2018 school year, Black boys who were not poor responded correctly on 71.19% of the questions whereas Black boys who were poor only responded correctly to 54.83% of the questions. Finally, in the 2018-2019 school year, Black boys who were not poor responded correctly to 67.11% of the questions whereas Black boys who were poor answered 52.96% of the questions correctly. Black boys who were not economically disadvantaged consistently answered more test items correctly than Black boys in poverty on the Reading Reporting Category II in all three school years. Table 2 contains the descriptive statistics for all three school years.

Table 2. Descriptive statistics for the Grade 4 STAAR reading reporting Category II scores by economic status for Black boys

School Year and Economic Status	*n*	*M%*	*SD%*
2016-2017			
Not Poor	2,062	56.26	19.66
Poor	8,131	44.62	19.11
2017-2018			
Not Poor	1,114	71.19	21.15
Poor	6,187	54.83	23.12
2018-2019			
Not Poor	1,358	67.11	21.41
Poor	6,286	52.96	22.63

Reading Reporting Category III Results Across All Three School Years

A statistically significant difference was revealed by the economic status of Black boys in their Reading Reporting Category III performance in the 2016-2017 school year, $F(1, 10193) = 721.80$, $p < .001$, partial $\eta^2 = .07$, moderate effect size; in the 2017-2018 school year, $F(1, 7501) = 573.53$, $p < .001$, partial $\eta^2 = .07$, moderate effect size; and in the 2018-2019 school year, $F(1, 7644) = 494.48$, $p < .001$, partial $\eta^2 = .06$, moderate effect size. In all three school years, effect sizes were moderate (Cohen, 1988).

In regard to the Reading Reporting Category III scores, the reading performance of Black boys who were economically disadvantaged was 13.27% lower than the average reading performance of Black boys who were not poor in the 2016-2017 school year; 17.57% lower in the 2017-2018 school year; and 15.52% lower in the 2018-2019 school year. In the 2016-2017 school year, Black boys who were not poor responded correctly on 48.59% of questions whereas Black boys who were poor only responded correctly to 35.32% of questions. In the 2017-2018 school year, Black boys who were not poor responded correctly on 69.19% of the questions whereas Black boys who were poor only responded correctly to 51.62% of the questions. Finally, in the 2018-2019 school year, Black boys who were not poor responded correctly to 67.09% of the questions whereas Black boys who were poor answered 51.57% of the questions correctly. Black boys who were not economically disadvantaged consistently answered more test items correctly than Black boys in poverty on the Reading Reporting Category III in all three school years. Delineated in Table 3 are the descriptive statistics for all three school years.

Table 3. Descriptive statistics for the Grade 4 STAAR reading reporting Category III Scores by economic status for Black boys

School Year and Economic Status	*n*	*M%*	*SD%*
2016-2017			
Not Poor	2,062	48.59	21.69
Poor	8,131	35.32	19.58
2017-2018			
Not Poor	1,314	69.19	23.59
Poor	6,187	51.62	24.28
2018-2019			
Not Poor	1,358	67.09	22.85
Poor	6,286	51.57	23.42

Results for the Approaches Grade Level Standard Over Three School Years

Student performance on the three STAAR Reading grade level standards was examined through the use of Pearson chi-square procedures. This statistical procedure was the most appropriate statistical procedure to use because dichotomous data were present for all three grade level standards (i.e., Met, Not Met) and for economic status (i.e., economically disadvantaged, not economically disadvantaged). Accordingly, chi-square procedures are appropriate when all variables are categorical (Field, 2013). Because a statewide sample size was present, the assumptions chi-square procedures were met.

Concerning the Approaches Grade Level standard by student economic status, the result for the 2016-2017 school year was statistically significant, $\chi^2(1) = 590.33$, $p < .001$, Cramer's V of .24, small effect size (Cohen, 1988). A statistically significantly higher percentages of Black boys who were not poor, 29.9% more, met the Approaches Grade Level standard than Black boys who were poor. Near three fourths of Black boys who were not poor met the standard whereas only 41.2% of Black boys who were in poverty met this standard. Table 4 contains the descriptive statistics for this analysis.

Table 4. Frequencies and percentages of Grade 4 STAAR reading performance at the approaches grade level standard by economic status for Black boys

School Year and Economic Status	Did Not Meet *n* and %age of Total	Met *n* and %age of Total
2016-2017		
Not Poor	(*n* = 596) 28.9%	(*n* = 1,466) 71.1%
Poor	(*n* = 4,782) 58.8%	(*n* = 3,349) 41,2%
2017-2018		
Not Poor	(*n* = 228) 17.4%	(*n* = 1,066) 82.6%
Poor	(*n* = 3,099) 50.1%	(*n* = 3,088) 49.9%
2018-2019		
Not Poor	(*n* = 240) 17.7%	(*n* = 1,118) 82.3%
Poor	(*n* = 2,997) 47.7%	(*n* = 3,289) 52.3%

With respect to the 2017-2018 school year, a statistically significant difference was yielded, $\chi^2(1) = 470.63$, $p < .001$, Cramer's V of .25, small effect size (Cohen, 1988). A statistically significantly higher percentages of Black boys who were not poor, 32.7% more, met the Approaches Grade Level standard than Black boys who were in poverty. More than 80% of Black boys who were not poor met the standard compared to less than 50% of Black boys who were poor. Table 4 contains the descriptive statistics for this school year.

Regarding the 2018-2019 school year, the result was statistically significant, $\chi^2(1) = 411.79$, $p < .001$, Cramer's V of .23, small effect size (Cohen, 1988). A statistically significantly higher percentages of Black boys who were not poor, 30% more, met the Approaches Grade Level standard than Black boys who were in poverty. As delineated in Table 4, more than 80% of Black boys who were not poor met the standard compared to only about 50% of Black boys who were economically disadvantaged.

Results for the Meets Grade Level Standard Over Three School Years

Concerning the Meets Grade Level standard by student economic status, a statistically significant difference was revealed for the 2016-2017 school year, $\chi^2(1) = 660.64$, $p < .001$, Cramer's V of .26, small effect size (Cohen, 1988). A statistically significantly higher percentage of Black boys who were not poor, 26.9% more, met the Meets Grade Level standard than Black boys who were in poverty. Almost 45% of Black boys who were not poor met the standard compared to only 17.9% of Black boys who were economically disadvantaged who met this grade level standard. Revealed in Table 5 are the descriptive statistics for this analysis.

Table 5. Frequencies and percentages of Grade 4 STAAR reading performance at the meets grade level standard by economic status for Black boys

School Year and Economic Status	Did Not Meet *n* and %age of Total	Met *n* and %age of Total
2016-2017		
Not Poor	(*n* = 1,139) 55.2%	(*n* = 923) 44.8%
Poor	(*n* = 6,672) 82.1%	(*n* = 1,459) 17.9%
2017-2018		
Not Poor	(*n* = 577) 43.9%	(*n* = 737) 56.1%
Poor	(*n* = 4,784) 77.3%	(*n* = 1,403) 22.7%
2018-2019		
Not Poor	(*n* = 688) 50.7%	(*n* = 670) 49.3%
Poor	(*n* = 4,963) 79.0%	(*n* = 1,323) 21.0%

With respect to the 2017-2018 school year, the result was statistically significant, $\chi^2(1) = 593.38$, $p < .001$, Cramer's V of .28, small effect size (Cohen, 1988). A statistically significantly higher percentages of Black boys who were not poor, 33.4% more, met the Meets Grade Level standard than Black boys who were in poverty. More than 55% of Black boys who were not poor met the Meets Grade Level standard whereas only 22.7% of Black boys who were economically disadvantaged met this standard. Table 5 contains the descriptive statistics for this school year.

Regarding the 2018-2019 school year, a statistically significant difference was revealed, $\chi^2(1) = 463.71$, $p < .001$, Cramer's V of .25, small effect size (Cohen, 1988). A statistically significantly higher percentages of Black boys who were not poor, 28.3% more, met the Meets Grade Level standard than Black boys who were in poverty. As delineated in Table 5, almost half of Black boys who were not poor met the Meets Grade Level standard compared to about 20% of Black boys who were economically disadvantaged who met this grade level standard.

Results for the Masters Grade Level Standard Across Three School Years

Concerning the Masters Grade Level standard for the 2016-2017 school year, a statistically significant difference was yielded, $\chi^2(1) = 510.21$, $p < .001$, Cramer's V of .22, small effect size (Cohen, 1988). A statistically significantly higher percentage of Black boys who were not poor, 16.9% more, met the Masters

Grade Level standard than Black boys who were in poverty. Almost a fourth of Black boys who were not poor met the Masters Grade Level standard whereas less than a tenth of Black boys who were economically disadvantaged met this grade level standard. Revealed in Table 6 are the descriptive statistics for this school year.

Table 6. Frequencies and percentages of Grade 4 STAAR reading performance at the masters grade level standard by economic status for Black boys

School Year and Economic Status	Did Not Meet *n* and %age of Total	Met *n* and %age of Total
2016-2017		
Not Poor	(*n* = 1,574) 76.3%	(*n* = 488) 23.7%
Poor	(*n* = 7,578) 93.2%	(*n* = 553) 6.8%
2017-2018		
Not Poor	(*n* = 951) 72.4%	(*n* = 363) 27.6%
Poor	(*n* = 5,590) 90.4%	(*n* = 597) 9.6%
2018-2019		
Not Poor	(*n* = 1,029) 75.8%	(*n* = 329) 24.2%
Poor	(*n* = 5,786) 92.0%	(*n* = 500) 8%

With respect to the 2017-2018 school year, the result was statistically significant, $\chi^2(1) = 313.82$, $p < .001$, Cramer's V of .21, small effect size (Cohen, 1988). A statistically significantly higher percentage of Black boys who were not poor, 18% more, met the Masters Grade Level standard than Black boys who were in poverty. In this school year, more than a fourth of Black boys who were not poor met the Masters Grade Level standard whereas less than a tenth of Black boys who were economically disadvantaged met his grade level standard. Table 6 contains the descriptive statistics for this analysis.

Regarding the 2018-2019 school year, a statistically significant difference was yielded, $\chi2(1) = 305.84$, $p < .001$, Cramer's V of .20, small effect size (Cohen, 1988). A statistically significantly higher percentage of Black boys who were not poor, 16.2% more, met the Masters Grade Level standard than Black boys who were in poverty. As presented in Table 6, almost a fourth of Black boys who were not poor met the Masters Grade Level standard whereas less than a tenth of Black boys who were economically disadvantaged met this grade level standard.

Trends in Reading Performance by Economic Status

In analyzing the reading achievement of Grade 4 Black boys in Texas across the three years of data that were examined, trends in scores were present by economic status. In each STAAR Reading Reporting Category and in all three years investigated, Black boys who were not poor outperformed Black boys who were poor. In regard to the Reading Reporting Category I scores, the reading performance of Black boys who were poor was 11.21% lower than the average reading performance of Black boys who were not poor in the 2016-2017 school year; 16.19% lower in the 2017-2018 school year; and 16.41% lower in the 2018-2019 school year. Black boys who were not poor consistently outperformed Black boys in poverty on the Reading Reporting Category I in all three school years of data analyzed.

Concerning the Reading Reporting Category II scores, the reading performance of Black boys who were poor was 11.64% lower than the average reading performance of Black boys who were not poor in the 2016-2017 school year; 16.36% lower in the 2017-2018 school year; and 14.15% lower in the 2018-2019 school year. Black boys who were not poor consistently outperformed Black boys in poverty on the Reading Reporting Category II in all three school years.

Regarding Reading Reporting Category III scores, the reading performance of Black boys who were poor was 13.27% lower than the average reading performance of Black boys who were not poor in the 2016-2017 school year; 17.57% lower in the 2017-2018 school year; and 15.52% lower in the 2018-2019 school year. Black boys who were not poor consistently outperformed Black boys in poverty on the Reading Reporting Category III in all three school years.

With respect to the three grade level standards, statistically significantly higher percentages of Black boys

who were not poor met these grade level standards than Black boys who were economically disadvantaged. Across all three school years, statistically significantly higher percentages of Black boys who were not poor met the Approaches Grade Level standard, 29.9% more in the 2016-2017 school year; 32.7% more in the 2017-2018 school year; and 30% more in the 2018-2019 school year than Black boys in poverty. Statistically significantly higher percentages of Black boys who were not poor met the Meets Grade Level standard, 26.9% more in the 2016-2017 school year; 33.4% more in the 2017-2018 school year; and 28.3% more in 2018-2019 school year, than Black boys who were in poverty. Statistically significantly higher percentages of Black boys who were not poor met the Masters Grade Level standard, 16.9% more in the 2016-2017 school year; 18% more in the 2017-2018 school year, and 16.2% more in the 2018-2019 school year than Black boys who were in poverty. These average percentages for both groups of Black boys are depicted in Figures 1 through 6.

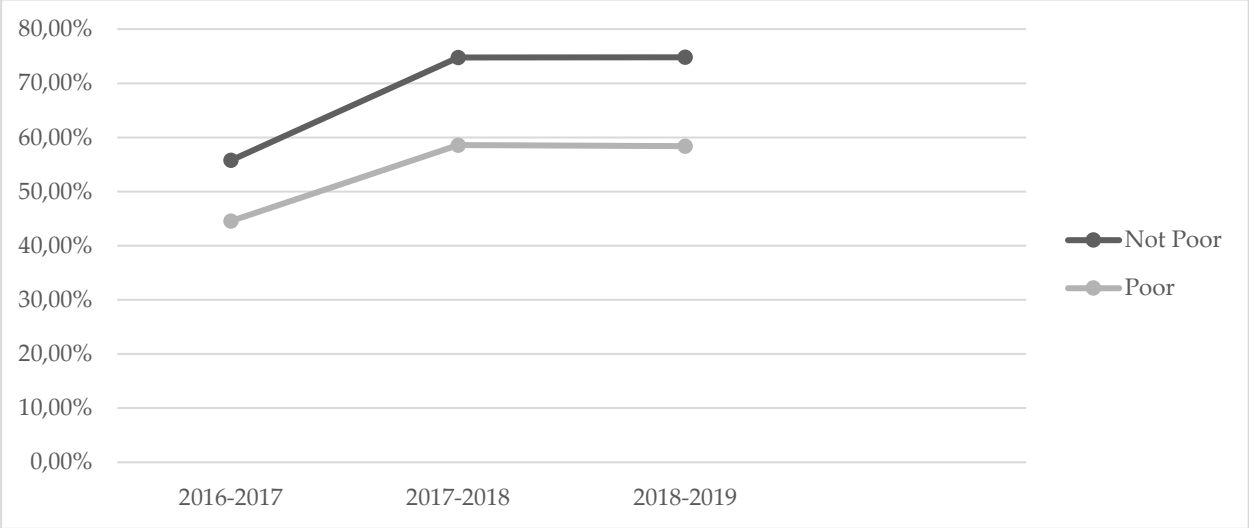

Figure 1. Average performance on the Grade 4 STAAR Reading Reporting Category I by the economic status of Black boys

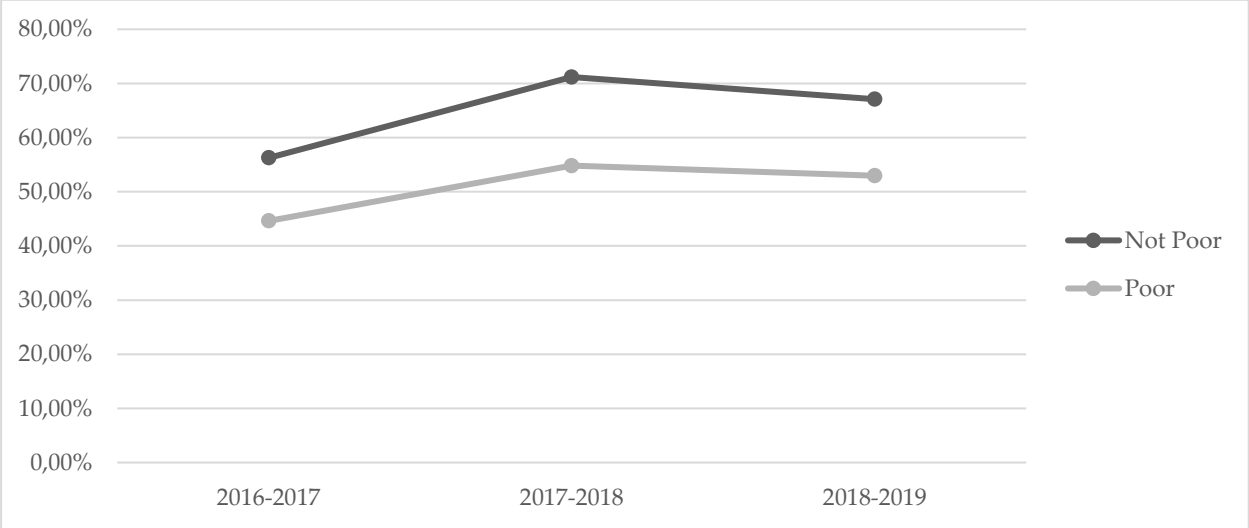

Figure 2. Average performance on the Grade 4 STAAR Reading Reporting Category II by the economic status of Black boys

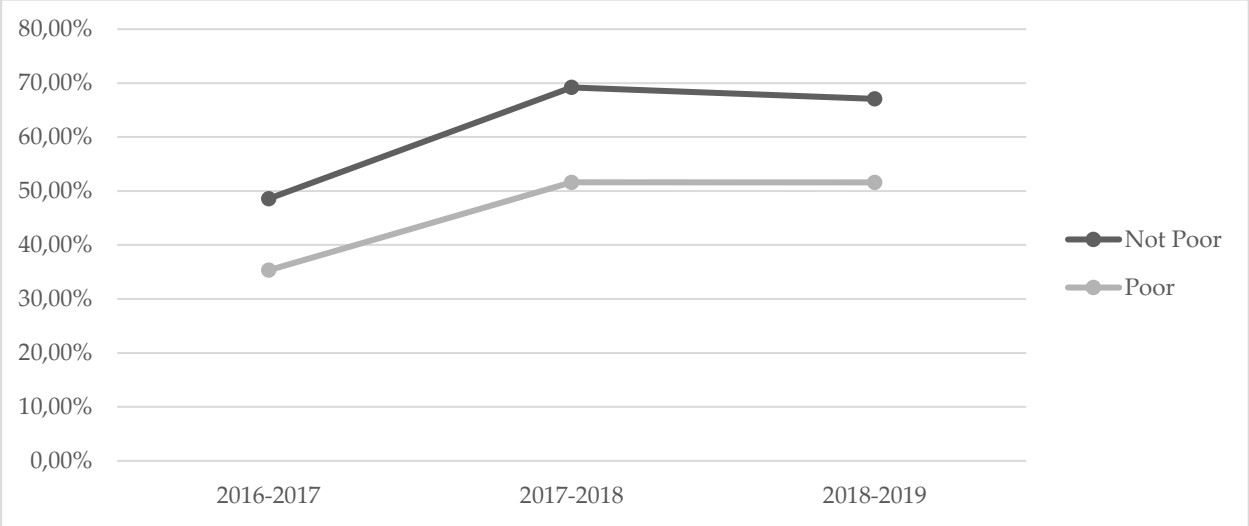

Figure 3. Average performance on the Grade 4 STAAR Reading Reporting Category III by the economic status of Black boys

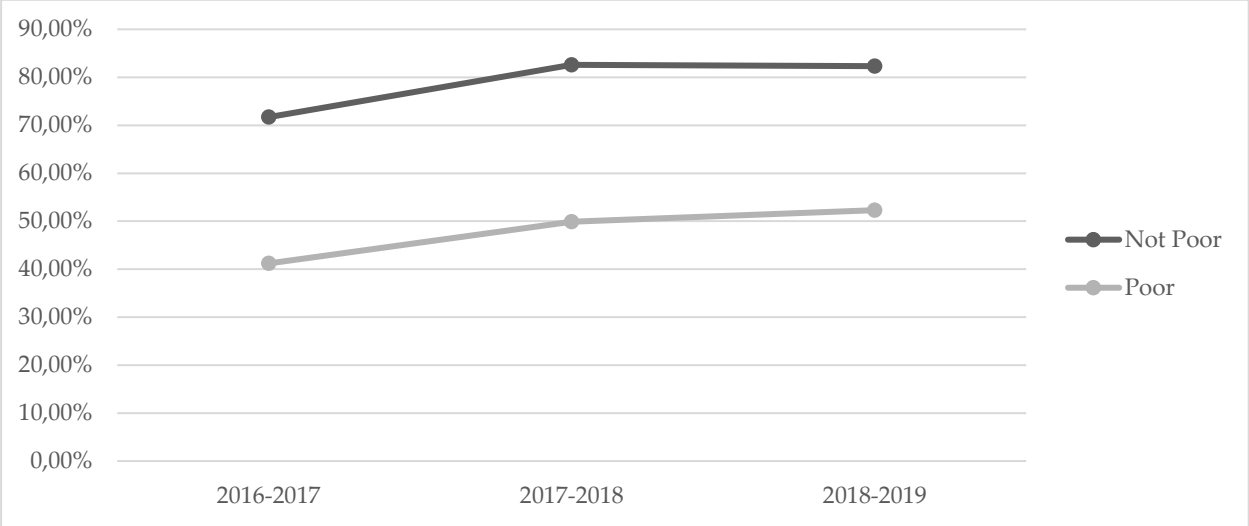

Figure 4. Percentage of Black boys who met the Grade 4 STAAR Reading Approaches Grade Level standard

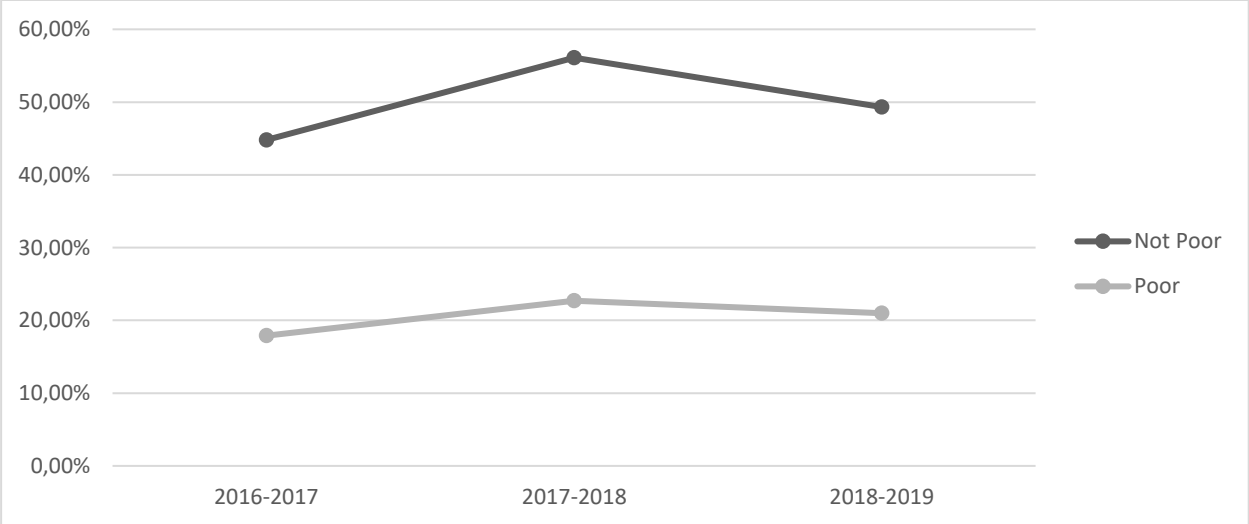

Figure 5. Percentage of Black boys who met the Grade 4 STAAR Reading Meets Grade Level standard

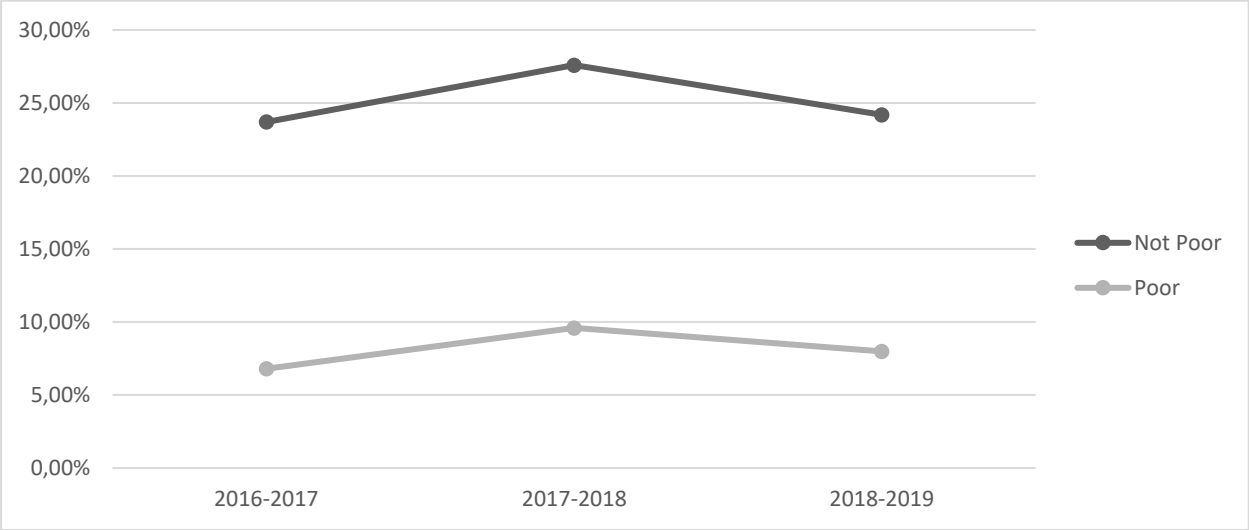

Figure 6. Percentage of Black boys who met the Grade 4 STAAR Reading Masters Grade Level standard

Discussion

Analyzed in this investigation was the extent to which differences were present in the reading performance of Texas Grade 4 Black boys by their economic status. Three years of statewide data on the three Grade 4 STAAR Reading Reporting Categories and on three grade level standards were compared for Black boys who were in poverty and who were not in poverty. Statistically significant results were present in all reporting categories and all grade level standards.

In each of the three STAAR Reading Reporting Category results in all three years were analyzed. Black boys who were poor had statistically lower scores that Black boys who were not poor. In each reporting category, the gap between the two student groups was at least 11% with Black boys who were poor scoring lower. The largest gaps were in the 2017-18 and 2018-19 school years, ranging from 14% to over 17.5% differences in performance.

Similarly, in each of the three grade level standards in all three years investigated, statistically significantly lower percentages Black boys who were poor met these three grade level standards Black boys who were not in poverty. Differences in the percentage of students meeting the Approaches Grade Level standard ranged from 29.9% to 32.7% across the three years; 26.9 to 33.4% at the Meets Grade Level standard; and 16.2% to 18% at the Masters Grade Level standard with a larger number of Black boys who were not poor meeting the standards. The largest differences in each performance level existed in the 2017-18 school year with a 32.7% difference at the Approaches Grade Level standard; 33.4% at the Meets Grade Level Standard; and 18% at the Masters Grade Level standard.

Connections to Existing Literature

According to Jones et al. (2017), poverty is the strongest predictor of learning challenges and poor academic outcomes for children. For the past several decades, increased focus has been placed on the relationships of poverty and reading (e.g., Conradi et al., 2016; Reardon, 2013). As student poverty increases, reading performance becomes increasingly poorer. In terms of Black boys and socio-economic status, research indicates a stairstep effect was present, and as the percentage of Black boys who were Extremely Poor increased, the percentage of Black boys who met the reading standard decreased. These results of this research were congruent with that of other researchers who have addressed the relationships between poverty and reading (Harris & Slate, 2017; McGown, 2016; Paschel et al., 2018).

Implications for Policy and Practice

Regarding policy implications, one of the most important ways for schools and districts to address the differences that are currently reflected in STAAR Reading testing related to Black boys and economic status is to be more deliberate in monitoring gender as a subgroup. Currently, data are analyzed, and districts are held accountable for the success of students who are poor, but no subgroup data are examined within that group. In other words, when the state begins to change policies that require the measurement, or monitoring, of gender and economic status as a subgroup, they will have taken the first step to addressing the problem by no longer missing the problem. In short, they will begin to identify the performance differences and begin to investigate reading performance as a function of economic status. A better analysis of subgroups would allow all stakeholders, including school leaders, teachers, content specialists, curriculum writers and district-level administrators to better meet the specific needs of subgroups when planning for campus improvement.

Concerning practice implications, one of the most important first steps to addressing the gap in reading achievement with Black boys who are poor, is to no longer accept some long-practiced, yet ineffective solutions. Because of the volume of issues and challenges facing educators, it is, unfortunately, common to attempt a "one size fits all solution" to problems that require a more tailored approach. With a strong understanding of the problems, often identified with accurate and specific data, practices can be refined to specifically address the fact that Black boys and students who were poor are not achieving at the same rate as Asian and White students in relation to reading. With a clear picture of the reality, all stakeholders can combine their efforts to focus on solutions specific to this subgroup by differentiating support based on sex and economic status. Once the solutions are identified, they must be put into campus improvement plans, the blueprints for change. Literacy can be a stumbling block for many students and the realities of those struggles have lifelong impact in college readiness, career readiness, future earnings, and the ability to build generational wealth thus impacting the entire Black community. Therefore, high school principals, district level administrators, and teachers must strengthen their curriculum in the younger grades and target students struggling.

Recommendations for Future Research

Several recommendations for future research can be offered based on the results of this statewide, multiyear investigation. First, researchers should determine if similar gaps exist in other grade levels such as Grade 8 Reading and English I and II End of Course exams. Second, analyzing data from other content areas such as Mathematics would help to determine if these trends are only identified in Reading. Thirdly, research focused on identifying differences within other ethnic groups such as Hispanic, White, and Asian groups. Fourth, researchers should examine how economic status may affect the reading achievement of Black girls differently and determine any economic and socio-economic differences that may be a function of the differences. Fifth, researchers should conduct this study in other states using other assessments to determine if similar trends exist, findings presented herein would be generalizable to other states. Last, researchers should include qualitative and mixed studies to obtain a better understanding regarding the relationship to academic achievement within a racial group based on gender and economic status. Family structure, parents educational background, and experiences with trauma would all be good topics for investigation within ethnic groups.

Conclusion

Clearly established in this multiyear, statewide investigation were statistically significant differences in reading by the economic status of Black boys. For all three reporting categories and for all three grade level standards, Black boys in poverty had lower reading test scores than Black boys who were not economically disadvantaged. Moreover, lower percentages of Black boys in poverty met the three reading grade level standards than Black boys who were not economically disadvantaged. Congruent with the results of other researchers (e.g., Harris, 2018; Lee & Slate, 2014; McGown, 2016; Sharkins et al., 2017), poverty clearly affects student achievement.

Declarations

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