

## Differences in Grade 3 Reading by the Economic Status of Students of Color: Much Cause for Concern

Heather A. Hamilton <sup>a</sup>, John R. Slate <sup>a,\*</sup>,

<sup>a</sup> Department of Educational Leadership, Sam Houston State University, Huntsville, TX 77340, United States.

\*Corresponding Author: [profslate@aol.com](mailto:profslate@aol.com) DOI: <https://doi.org/10.34256/ajir19410>

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**Abstract:** The purpose of this study was to determine the degree to which the economic status (i.e., Economically Disadvantaged, Not Economically Disadvantaged) of Grade 3 Hispanic students and Black students was related to their reading achievement. Texas statewide data on the state-mandated reading assessment for the 2015-2016 school year were analyzed. Inferential statistical procedures, used on statewide archival data, revealed statistically significant differences as a function of poverty for Hispanic and Black students. Statistically significantly lower percentages of students of color who were economically disadvantaged met the three Phase-in standards on the state-mandated reading assessment than their counterparts who were not economically disadvantaged. Given the importance of strong reading skills at Grade 3, our results are cause for concern. Implications of these findings and recommendations for future research are discussed.

**Keywords:** PEIMS, Texas, Grade 3, STAAR, Economic Status, Black Students, Hispanic Students.

### 1. Introduction

The academic achievement of students in poverty [1-5] has been explored a great deal in the extant research literature. Black students have historically lagged behind all student groups in academic achievement, and Hispanic students also trail White and Asian students in standardized achievement tests [6-9]. Without question, researchers have established that poverty has adverse effects on student academic achievement. Regardless of their economic status, educators work tirelessly to understand students in poverty and how to provide educational opportunities for all students.

In a study directly related to this article, [7] analyzed reading performance on

the Texas state-mandated assessment, the State of Texas Assessment of Academic Readiness (STAAR), for Grade 3 students for the 2012-2013 school year through the 2014-2015 school years. In all of the different reading measures she analyzed, statistically significantly lower reading performance was documented for Grade 3 students in poverty than for their peers who were not economically disadvantaged. Results were consistent across the three years of Texas statewide data that she examined. [7] commented on the need to address these achievement gaps, already present in Grade 3, because of the importance of literacy as an essential life skill.

In a related investigation, [6] analyzed Texas statewide reading data on Grade 4 students for the same three years as [7]. [6] established the presence of statistically significantly lower reading scores in all instances for Grade 4 students in poverty than for their Grade 4 peers who were not economically disadvantaged. Similar to [7], results were commensurate across all three school years. Of note was that [6] discussed the continued presence of achievement gaps in reading in Grade 4, as well as increases in the percentage of Grade 4 students who did not meet the minimum levels of performance on the STAAR Reading exam.

The effects of poverty on academic achievement are paramount because Black and Hispanic students are disproportionately likely to be economically disadvantaged [10]. Results of state accountability policies in Texas for Black and Hispanic students have been negative [2]. In Texas in 2016, Black students were the least likely to graduate on time [11]. Hispanic students were the next lowest group, and these two student populations were below the average [11].

In response to the pressure placed on schools as a consequence of high-stakes testing, dramatic action is being taken in an attempt to close achievement gaps. In a study encompassing almost 500 elementary schools, 80% of districts reported an increase in reading instruction in response to high-stakes testing [12, 1]. In these schools, the average increase in reading instructional minutes per week was 141. This resulted in a decrease of 60 minutes per day in non-tested areas, including social studies, science, PE, art/music, and recess. In economically disadvantaged schools, concern for test scores leads to year-long test prep units consisting of memorization and rote procedures [1]. When eliminating all aspects of student choice to keep the focus on standardized testing, educators lose opportunities to allow students to take charge of their own learning and build

engagement [1]. The students needing the most are receiving the least.

In the State of Texas, the population consists of 3,489,798 families with 6,927,328 children [10]. Of these children, 1,697,981, or 25%, live in poverty [10]. According to the 2019 Texas Education Agency data, more than 60% of students who are enrolled in Texas public schools are living in poverty. The high percentage of students in this group underscores the importance of providing a quality education for all.

Students living in poverty do not receive the same access to resources, and therefore struggle to achieve at the same level of those students who are not economically disadvantaged [3]. Additionally, these students often struggle not because of a lack of intelligence but because of a lack of background knowledge [1]. Students living in poverty not only are more likely to need additional assistance to learn social skills and catch up scholastically [2, 13], but also have fewer educational opportunities when compared to their upper and middle-class peers [11].

The purpose of this study was to determine the degree to which the economic status (i.e., Economically Disadvantaged, Not Economically Disadvantaged) of Grade 3 Hispanic and Black students in Texas schools was related to their reading achievement. Specifically examined was the relationship of poverty to the three State of Texas Assessment of Academic Readiness (STAAR) Reading standards for Hispanic and Black Grade 3 students in the 2015-2016 school year. To make these determinations, archival data from the Texas Education Agency Public Education Information Management System were analyzed.

The following research questions were addressed in this study: (a) What is the effect of economic status on the reading achievement of Grade 3 Hispanic students?; and (b) What is the effect of economic status on the reading

achievement of Grade 3 Black students? Reading achievement was comprised of the three STAAR Reading Phase-in standards. As such, six research questions were present in this research investigation.

Though literature on the effects of poverty on achievement is available [1-3, 13], little research on the role that economic status might play specifically with the reading achievement of Hispanic and Black students on the Grade 3 STAAR test in the State of Texas exists. This study was conducted to add to the literature available on this topic. Stakeholders who could benefit from this research include literacy teachers and specialists, curriculum directors, and district-level administrators.

## 2. Method

### 2.1 Research Design

By analyzing archival data, a causal comparative research design was present [14]. As with non-experimental research, extraneous variables could not be controlled. One categorical independent variable, economic status, was present. Three quantitative dependent variables, STAAR Reading Grade 3 Phase-in standards in the 2015-2016 school year, were present.

### 2.2 Participation and Instrumentation

Data were requested from the Texas Education Agency Public Education Information Management System through a Public Information Request form. Specifically requested were the Grade 3 STAAR Reading test scores and Phase-in standards for all students, as well as student demographic characteristics, for the 2015-2016 school year. The STAAR assessment is administered to public school students in Grades 3-8 [16]. The assessment measures three levels of success, which are (a) Approaches Grade Level, (b) Meets Grade Level, and (c) Masters Grade Level. These Phase-in standards attempt to

predict what level of success the student will attain in the following school year. Approaches Grade Level indicates the students will require intervention to be successful in the following school year [15]. Meets Grade Level indicates the students will most likely be successful in the following school year but may need some intervention [15]. Masters Grade Level indicates the students will be successful in the following school year without any intervention [15]. The [16] defines economically disadvantaged as qualifying for free or reduced lunch. Eligibility for free or reduced meals requires family income of 185% or less of the federal poverty line [17]. Students who did not qualify for the federal free or reduced lunch program were considered not poor, or not economically disadvantaged.

## 3. Results

To ascertain whether differences were present in the three Grade 3 STAAR Reading Phase-in standards (i.e., Approaches Grade Level, Meets Grade Level, or Masters Grade Level) by the economic status of students of color, Pearson chi-square analyses were conducted. This statistical procedure was viewed as the optimal statistical procedure to use because frequency data were present for the three Grade 3 STAAR Reading Phase-in standards and for poverty level. As such, chi-squares are the statistical procedure of choice when both variables are categorical [18]. In addition, with the large sample size, the available sample size per cell was more than five. Therefore, the assumptions for using a Pearson chi-square procedure were met.

For the first research question regarding the economic status of Hispanic students and their performance on the Approaches Grade Level standard, the result was statistically significant,  $\chi^2(1) = 4196.05, p < .001$ . The effect size for this finding, Cramer's V, was small, .20 [19]. As contained in Table 1, more than twice as many Hispanic students

who were economically disadvantaged did not reach the Approaches Grade level, compared to Hispanic students who were not poor.

In regard to the Meets Grade Level performance level of Hispanic students as a function of their economic status, the result was statistically significant,  $\chi^2(1) = 6073.85, p < .001$ . The effect size for this finding, Cramer's V, was small, .23 [19]. As revealed in Table 1, approximately 70% of Hispanic students who were economically disadvantaged did not attain the Meets Grade Level standard, compared to only 40% of Hispanic students who were not poor. Finally, for the Masters Grade Level performance level of Hispanic students as a function of their economic status, the result was statistically significant,  $\chi^2(1) =$

4955.03,  $p < .001$ . The effect size for this finding, Cramer's V, was small, .22 [19]. As delineated in Table 1, slightly more than 86% of Hispanic students who were poor did not attain the Masters Grade Level, compared to just over 64% of Hispanic students who were not poor. For the second research question on reading performance as a function of the economic status of Black students, the result was statistically significant,  $\chi^2(1) = 979.58, p < .001$ . The effect size for this finding, Cramer's V, was small, .22 [19]. As revealed in Table 2, more than twice as many of Black students who were poor did not perform at the Approaches Grade Level, compared to Black students who were not economically disadvantaged.

**Table 1. Frequencies and Percentages of Grade 3 Reading STAAR Performance of Hispanic Students by Economic Status**

Reading Performance and Group Membership	Met Standard	Did Not Meet Standard
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
Approaches Grade Level		
Poor	( <i>n</i> = 54,351) 63.5%	( <i>n</i> = 31,235) 36.5%
Not Poor	( <i>n</i> = 16,548) 87.8%	( <i>n</i> = 2,290) 12.2%
Meets Grade Level		
Poor	( <i>n</i> = 25,008) 29.2%	( <i>n</i> = 60,578) 70.8%
Not Poor	( <i>n</i> = 11,125) 59.1%	( <i>n</i> = 7,713) 40.9%
Masters Grade Level		
Poor	( <i>n</i> = 11,889) 13.9%	( <i>n</i> = 73,697) 86.1%
Not Poor	( <i>n</i> = 6,699) 35.6%	( <i>n</i> = 12,139) 64.4%

**Table 2. Frequencies and Percentages of Grade 3 Reading STAAR Performance of Black Students by Economic Status**

Reading Performance and Group Membership	Met Standard	Did Not Meet Standard
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
Approaches Grade Level		
Poor	( <i>n</i> = 8,377) 53.6%	( <i>n</i> = 7,264) 46.4%
Not Poor	( <i>n</i> = 3,021) 81.7%	( <i>n</i> = 676) 18.3%
Meets Grade Level		
Poor	( <i>n</i> = 3,403) 21.8%	( <i>n</i> = 12,238) 78.2%
Not Poor	( <i>n</i> = 1,873) 50.7%	( <i>n</i> = 1,824) 49.3%
Masters Grade Level		
Poor	( <i>n</i> = 1,474) 9.4%	( <i>n</i> = 14,167) 90.6%
Not Poor	( <i>n</i> = 1,088) 29.4%	( <i>n</i> = 2,609) 70.6%

In regard to the Meets Grade Level performance of Black students as a function of their economic status, the result was statistically significant,  $\chi^2(1) = 1259.34$ ,  $p < .001$ . The effect size for this finding, Cramer's  $V$ , was small, .25 [19]. Almost 80% of Black students who were economically disadvantaged did not reach the Meets Grade Level performance, compared to just under half of Black students who were not poor. Table 2 contains the descriptive statistics for this analysis. Finally, for the Masters Grade Level achievement of Black students by their economic status, the result was statistically significant,  $\chi^2(1) = 1041.23$ ,  $p < .001$ . The effect size for this finding, Cramer's  $V$ , was small, .23 [19]. Over 90% of Black students who were poor did not perform at the Masters Grade Level, compared to 20% fewer of Black students who were not poor. Revealed in Table 2 are the descriptive statistics for this analysis.

#### 4. Discussion

Examined in this study was the extent to which differences were present in the reading performance of Grade 3 Black students and Hispanic students in Texas by their economic status in the 2015-2016 school year. Statewide data on the three Grade 3 STAAR Reading performance levels of (a) Approaches Grade Level, (b) Meets Grade Level, and (c) Masters Grade Level were analyzed. In all six research questions, statistically significant results were present.

Poverty matters. By the standards assessed on the STAAR Reading test, students in poverty are not meeting reading grade level standards. Hispanic students who were poor had statistically significantly lower reading performance than Hispanic students who were not poor at every measure. The gap began with 36% of Hispanic students who were poor not achieving at the Approaches Grade Level

standard compared to only 12% of Hispanic students who were not poor for a gap of 24%. At the Meets Grade Level standard, 70% of Hispanic students who were poor did not achieve the standard, compared to 40% of Hispanic students who were not poor, indicating a larger gap of 30%. The gap was 22% at the Masters Grade Level standard due to 86% of Hispanic students who were poor not achieving the standard compared to 64% of Hispanic students who were not poor.

The differences are just as stark for Black students. The gap began with 46% of Black students who were poor not achieving at the Approaches Grade Level standard compared to only 18% of Black students who were not poor for a gap of 28%. At the Meets Grade Level standard, 78% of Black students who were poor did not achieve the standard, compared to 49% of Black students who were not poor, indicating a larger gap of 29%. The gap was 20% at the Masters Grade Level standard due to 91% of Black students who were poor not achieving the standard compared to 71% of Black students who were not poor.

##### 4.1 Implications for Policy and for Practice

Given the findings previously delineated here, several implications are present for policy and for practice. With respect to policy, the State of Texas has identified the need for additional support to provide educational assistance to low-income students [20]. The importance of early literacy was addressed in the most recent education legislation bill [21]. Continued assessment of the effects of this bill is necessary for lawmakers to understand if the impact of their legislation is having the intended effect. The willingness to make adaptations at the next opportunity must be seized to truly demonstrate the needs of students in

poverty—especially students of color in poverty—are of importance.

With respect to practice, an increasing inability to meet the Grade Level standards indicates the need for immediate remediation to avoid future failures, a potential lack of college-readiness, or students dropping-out of school. One out of every six children who do not read on grade level by Grade 3 will not graduate high school on time [22]. Additionally, 26% of students who have lived in poverty for at least one year and are not reading on level in Grade 3 will not graduate from high school [22]. To close gaps early, stellar instruction in K-2 is necessary because these results are not only indicative of what was learned during Grade 3. The process of reading requires use of multiple skills, necessitating the student gather and use information [23]. Teachers at all elementary levels must be trained how to teach the basic fundamentals of literacy acquisition. Too many students, particularly students of color, are leaving the primary grades without the ability to read, necessitating training for teachers who would normally only teach application of reading strategies.

#### **4.2 Recommendations for Future Research**

Based upon the findings of this empirical, statewide analysis, recommendations for future research can be made. Researchers are encouraged to replicate this study at other grade levels. Determining if these results can be generalized to the grade level, or are indicative of a larger problem, would provide information for educators. Additionally, extending this study to other subjects or other student demographic characteristics, such as gender and English Language Learner status, will provide additional information. Replicating the study in other states would also provide information regarding the generalizability of the results

delineated here to students of color who are living in poverty in other states.

#### **5. Conclusion**

Evidence from this study may be interpreted to mean that poverty has clear and detrimental effects on reading achievement. Despite schools with students of poverty receiving additional federal funding with the goal of equalizing the educational playing field, these students still achieve at a lower rate than their peers who are not poor. In regard to overall trends, Black students performed at a lower rate than Hispanic students in the 2015-2016 school year. As efforts conducted to mitigate these achievements gaps have not been successful, it is of great importance that attempts continue. Educational leaders should take note to amend educational practices. Not only are students in poverty at a high risk of not succeeding, Black students who are poor are not being successful at a higher rate than Hispanic students. This information is a wake-up call that students are failing, and change is needed.

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