

Summary Points

- The definition of reading on “grade level” has changed over time in Arkansas, along with changing assessments.
- Black and Hispanic students are **twice as likely** as White students to be low achieving in reading in third grade.
- Low income students are **twice times as likely** to be low achieving in reading in third grade compared to their wealthier peers.
- Only **12%** of students who are low achieving in reading in third grade catch back up to the state average by high school.
- Hispanic students that were initially low-achieving are demonstrating improvements in reading comparable to their more advantaged peers.

Long-Term Outcomes of Low Achieving Third Grade Readers

This brief examines long-term academic outcomes for students who demonstrate low reading achievement in third grade. Following three cohorts of students from third grade through early high school, we find that students who are behind in third grade are unlikely to ever read proficiently. Economically disadvantaged students, Black students, and male students demonstrate less improvement in reading achievement over time than other types of students.

Introduction

Third grade is a critical point in the educational process where having proficient reading skills begins to affect achievement and continued learning. Research has shown that students who do not read on grade level in third grade are unlikely to catch back up to their peers, achieve grade level reading each year, and their chances of graduating on time are reduced.¹ Typically after third grade, instructional emphasis shifts from “learning to read” to “reading to learn”, and there is less instruction dedicated to simple reading skills. Those that are still struggling to read have increased difficulty at this point attaining those basic skills and then also have trouble achieving in other academic subjects where these skills are required.

In this brief, we follow the reading scores of three cohorts of Arkansas public school students from 3rd grade through early high school to determine how initial low achievement is related to reading achievement over time.

This Brief

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We analyze the demographic makeup of the low achieving groups to see which groups are at-risk for being low performing. We also analyze the demographic makeup of the groups of students who “catch up” to see which students are having success achieving reading proficiency.

In January of 2017, the Arkansas Department of Education launched a new program called R.I.S.E (Reading Initiative for Student Excellence) committed to establishing community partnerships and initiating school activities that create a positive culture of reading and strengthening reading instruction by training teachers in the science of reading.²

After the first teacher training sessions in summer 2017, three R.I.S.E. elementary schools saw double-digit gains in reading scores³, but more recent assessment data did not show similar improvement. So far, more than 350 schools in Arkansas have agreed to participate in the R.I.S.E. initiative. Given the great effort Arkansas is making to remedy the problem of low 3rd grade reading levels, we suggest that it is critical to understand the trends of reading proficiency in 3rd grade for Arkansas students, and if reading achievement improves as they progress through the school system.

Using historical performance trends as a baseline, we will be better able to evaluate the success of new programs intended to improve student reading achievement and associated long-term outcomes.

Table 1: Grade Makeup of Each Cohort by Year— shaded cells represent grades not included in the analyses

| | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|----------|---------|---------|---------|---------|---------|---------|---------|----------|----------|
| Cohort 1 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9 | Grade 10 | Grade 11 |
| Cohort 2 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9 | Grade 10 |
| Cohort 3 | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9 |

Grouping Procedure

Reading scores were examined for three groups of students, following them from the third grade through the ninth or tenth grade, depending on available data. Students took the Arkansas Benchmark exam from the beginning of analysis until spring 2014. They took the PARCC exam in spring 2015 and the ACT Aspire exam from spring 2016 until present. Proficiency rates for Arkansas third graders have fluctuated greatly over time (from a high of 82% of 3rd graders identified as proficient in reading in 2012 to 38% in 2017-18) as the state has changed exams and associated scoring scales. For this analysis, students' reading scores for each year were standardized so that they could be compared over time as exams changed.

These standardized scores, also called z-scores, represent each student's relative performance compared to all other students in the same grade in Arkansas, such that a z-score of 0 represents the state average, any score lower than 0 is below average, and any score higher than 0 is above average. This means that students were evaluated in comparison to the Arkansas grade level average, not the national average or proficiency standards. It is important to note that Arkansas average reading scores have been consistently lower than national average scores.⁴ Students were designated as "low achieving" in reading in the third grade if their reading score was a half standard deviation below the state average, evident by a z-score of -0.5 or lower. Overall, we identified 24% of the 3rd grade students we examined as low achieving readers.

Demographics of 'Low Achievers'

There were significant disparities in the demographic makeup of each low-achieving group. The proportions that students from several demographic categories comprise of the low achieving group and the representation of students with those demographic characteristics in the total data set are compared. Black and Hispanic students were overrepresented in the low achieving group compared to their representation in the entire population considered, while their White peers were underrepresented. Male students, students who qualified for free or reduced price lunches (FRL), and students who were English Language Learners (ELL) were also overrepresented in the low achieving group. This means that students who were Black, Hispanic, poor, or English Language Learners were more likely to be low-achieving readers in the 3rd grade.

In Table 3, we present the likelihood that will be identified as low achieving in 3rd grade reading. The number of students in the low achieving group is divided by the total number of students for each category to produce a percentage that represents the likelihood that a student with a particular demographic characteristic will be in the lowest scoring quartile of readers in 3rd grade.

As evidenced by Table 3, Black and Hispanic students are about twice as likely as their White peers to be designated as low achieving readers in 3rd grade. Students who qualify for free or reduced price lunches are about twice times as likely to be in this low reading group than their more advantaged peers. Male students are also more likely to be identified as low-achieving readers than their female peers.

Table 2: Demographic Characteristics of Total Cohorts and Students Demonstrating Low Reading Achievement in Third Grade

| | | N | Black | White | Hispanic | Male | FRL | ELL |
|-------------|---------------|--------|-------|-------|----------|------|-----|-----|
| All Cohorts | Total Cohort | 76,842 | 20% | 66% | 10% | 50% | 61% | 8% |
| | Low Achieving | 18,102 | 34% | 49% | 14% | 62% | 80% | 13% |

Table 3: Likelihood of Being Identified Low Achieving in Reading by Demographic Category (Cohorts 1-3 Combined)

| | | Overall | Black | White | Hispanic | Male | Female | FRL | Non-FRL | ELL | Non-ELL |
|-------------|-------------------------------|---------|--------|--------|----------|--------|--------|--------|---------|-------|---------|
| All Cohorts | N (Low Achieving) | 18,102 | 6,151 | 8,868 | 2,519 | 11,277 | 6,825 | 14,420 | 3,681 | 2,388 | 15,714 |
| | N (Total Cohort) | 76,842 | 15,660 | 50,812 | 7,967 | 38,239 | 38,602 | 46,688 | 21,233 | 6,418 | 70,424 |
| | Likelihood of Low Achievement | 24% | 39% | 17% | 32% | 29% | 18% | 31% | 17% | 37% | 22% |

Who Catches Up?

Arguably the more important question is: of these students who begin their academic careers behind in reading, are they improving toward reading proficiently? Overall, only 12% of students who demonstrated low reading ability in third grade had “caught up” to average reading performance by high school. For this analysis, we defined “catching up” as scoring at the state average on reading assessments in 8th, 9th, or 10th grade.

Given that our sample is limited to students who attended Arkansas public schools for seven years after demonstrating low reading achievement in 3rd grade, it is concerning that such a small percentage can read at the state average by high school. This provides support for the claim that third grade reading proficiency is so important. It is obviously a goal as a state to improve our state average overall, but for those that are struggling in third grade, it is especially difficult to catch up to the state average or achieve proficiency.

As expected, certain groups were more likely to reach the state average by high school. Table 4 highlights that economically advantaged students, White and Hispanic students and female students are more likely to reach average reading achievement by early high school than their Black, male, and economically disadvantaged peers.

It is important to analyze how this rigidity of upward movement and pathway to proficiency might look different for various groups of students. The following figures show the average standardized scores of the initially low achieving” student groups, separated by race and economic disadvantage, as they advance from third to ninth or tenth grade:

Figures 1 and 2 illustrate the changing reading achievement scores of initially low-achieving students from 3rd through 10th grade by FRL status and race. There is substantial improvement for all student groups between 3rd and 4th grade. Third grade is the assessment on which the low-achieving reading students in this analysis were identified, as well as the first year of formal testing that ‘counts’ toward school accountability measures. Although this could be due to measurement error on the 3rd grade assessment due to students’ lack of experience with formalized assessment, perhaps these improvements in reading are partly the result of 4th grade teachers and other school staff providing struggling students extra help and focused instruction. After 4th grade, we see certain groups make more growth than others. Hispanic and economically advantaged students are achieving almost a half standard deviation increase in achievement as a group, and White students are making approximately 0.4 standard deviation increase, while Black and low-income students are making closer to a quarter of a standard deviation increase in achievement.

None of these initially low-performing groups, even White or economically advantaged students, caught back up to the state average as a group. We do see that even though the low-achieving Hispanic students initially have very low average scores, they are able to make advancements comparable to those of White students, the most advantaged group. This is an exciting trend to observe because it indicates potential for a narrowing achievement gap between White and Hispanic students. In fact, on National Assessment of Educational Progress (NAEP) exams, the differences in scores between White and Hispanic students in Arkansas are smaller and narrowing more rapidly than national score differences.⁴

Table 4: Demographic Characteristics of Initially Low-Achieving Students who Achieve State Average in Reading by early High School

| | | | Overall | Black | White | Hispanic | Male | Female | FRL | Non-FRL | ELL | Non-ELL |
|-------------|---|---|---------|-------|-------|----------|--------|--------|--------|---------|-------|---------|
| All Cohorts | Low Achieving | N | 18,102 | 6,151 | 8,868 | 2,519 | 11,277 | 6,825 | 14,420 | 3,681 | 2,388 | 15,714 |
| | Reaching State Average by Early High School | N | 2,077 | 381 | 1,278 | 321 | 1,010 | 1,067 | 1,402 | 675 | 310 | 1,767 |
| | | % | 12% | 6% | 14% | 13% | 9% | 16% | 10% | 18% | 13% | 11% |

Figure 1: Average Reading Scores in Grade 3 through 10 by Economic Disadvantage (FRL) Status (Initially Low-Achieving Students, Cohorts 1-3 Combined)

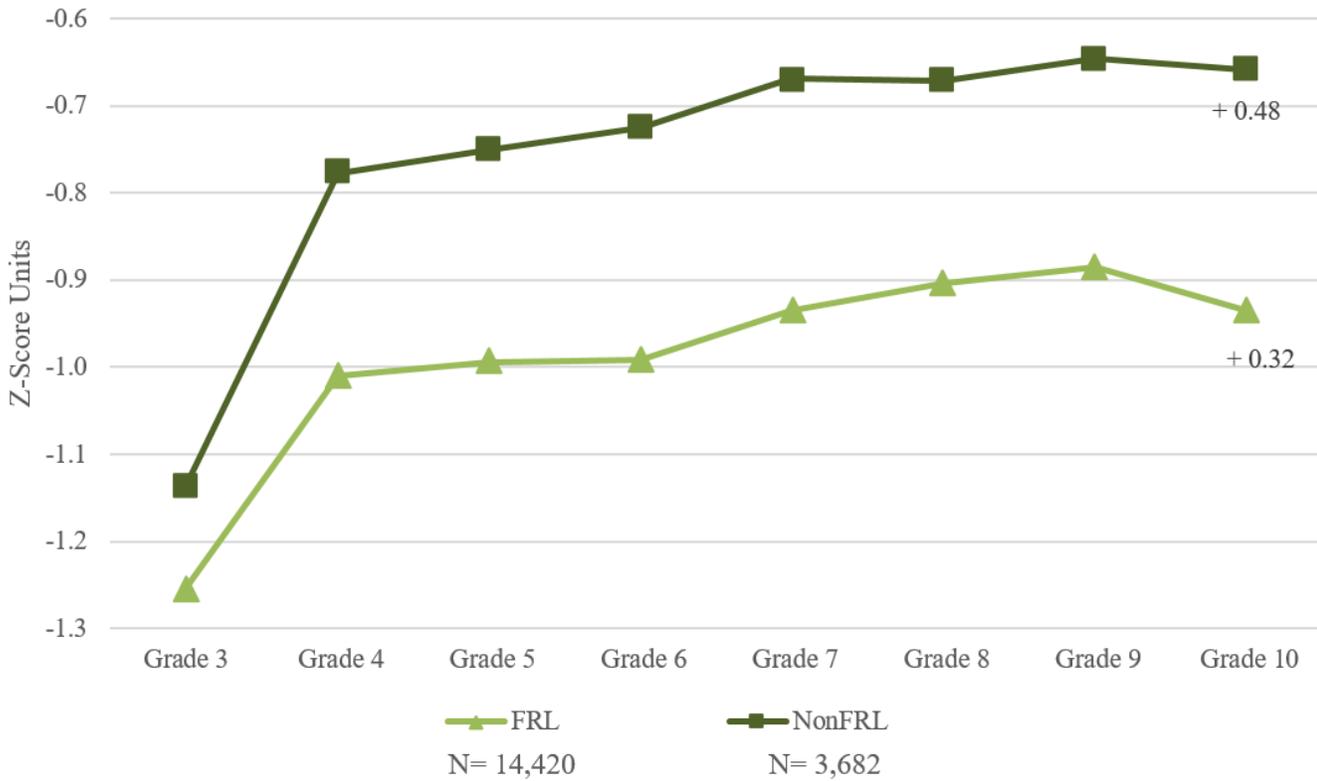
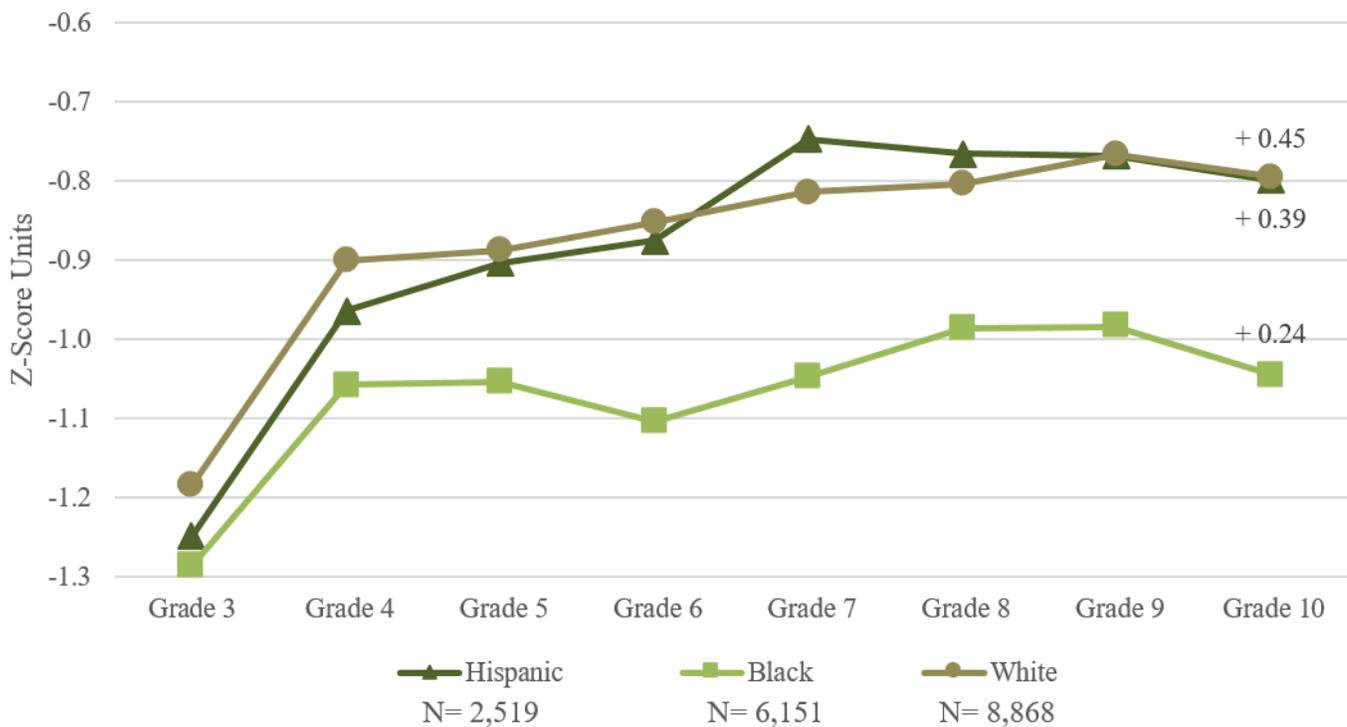


Figure 2: Average Reading Scores in in Grade 3 through 10 by Race (Initially Low-Achieving Students, Cohorts 1-3 Combined)



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Conclusion and Implications

The goal of this brief was to determine the characteristics of Arkansas students who are low level readers in 3rd grade, and to examine the extent to which these students are able to catch back up to their peers. We found the following:

- Students who were Black or Hispanic, male, or economically disadvantaged were more likely to be low-level readers in 3rd grade, compared to their White, female, and economically advantaged peers.
- The proportion of students who were low-level readers in 3rd grade that reached the state average by high school was 12%.
- White students were more likely to “catch up”, compared to their Black and Hispanic peers. However, Hispanic students were more likely to “catch up” compared to their Black peers, and further analysis revealed that the White-Hispanic achievement gap in Arkansas is smaller than that of the nation and is continuing to narrow
- Economically advantaged students were more likely to catch up to the state average, compared to their less advantaged peers.

Arkansas students face large and persistent racial and socioeconomic disparities in third grade reading scores. Very few of our students who are underperforming in third grade ever catch up to the state average. Our hope is that Arkansas’ average reading scores will continue to increase and all students will grow to read proficiently, but it is evident that special attention needs to be given to low income and racial minority students and students who are struggling with basic reading skills in third grade.

Programs must be carefully monitored to determine what, if any, impact they are having on changing the long-term outcomes for students who, as demonstrated in this research, are likely to continue to struggle to read proficiently throughout their educational experience. Schools and districts should carefully examine the progress of their struggling readers and consider the effectiveness of any interventions that are being implemented.

We must continue to work to ensure that all students, especially racial minority students and those living in poverty, are leaving elementary school as competent readers, equipped with the literacy foundation necessary for future academic success.

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