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Examination of School Value-Added Growth by Student Population

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Summary Points

- On average, African American students demonstrate persistently lower school-level academic growth scores in ELA and mathematics than other student populations.
- On average, African American students in elementary grades demonstrated large declines in school-level ELA and math growth scores in 2021.
- The findings are descriptive not causal, so the reasons for low growth scores for African American students are unclear.
- Districts should examine the growth rates of their African American students and make changes to increase African American students' growth and achievement in ELA and math.

Examination of School Value-Added Growth by Student Population

In this brief, we assess the relationship between Arkansas' school-level value-added content growth scores for student racial and programmatic groups. We find that on average, African American students receive lower growth scores than other student groups, and that African American elementary students demonstrated large drops in growth since COVID.

Introduction

Arkansas education stakeholders have a powerful tool to examine how well schools are educating their students. It is not achievement on state assessments, but academic growth. Academic growth is an important measure because it measures how much students have improved given where they started, not just whether students meet grade-level content expectations. Meeting grade level expectations is highly correlated to student demographic characteristics, like poverty, that students experience outside of school.

Academic growth, however, indicates how much students have learned compared to other students across the state with similar test score histories. This allows an apples-to-apples comparison of student learning in English Language Arts and mathematics. Whether students are on grade level, well below grade level, or well above grade level, all students can grow academically.

This Brief

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Academic Growth

A part of Arkansas' school accountability system under the Every Student Succeeds Act, academic growth scores are calculated for students in grades 3-10 based on performance on the annual state assessment, ACT Aspire. The growth score calculates how each student's score changed from prior assessments, and then compares that to the growth made by students with similar prior test scores. Student growth values are calculated to have an average score of 80 at each grade level and in each content area.

Student-level growth scores in English Language Arts (ELA) and mathematics are averaged and reported by school and grade level. The school- and grade-level average scores typically range from 70 to 90.

A school-level growth score of 80 reflects that, on average, students at the school made the same improvement in ELA and mathematics as similar students across the state.

A school-level growth score greater than 80 indicates that, on average, students at the school made greater improvement in ELA and mathematics than similar students across the state.

Conversely, a school-level growth score lower than 80 reflects that, on average, students at the school made less improvement in ELA and mathematics than similar students across the state.



Figure 1: Arkansas’ average ELA growth score, math growth score and ELP scores, 2017-18, 2018-19, and 2020-21.

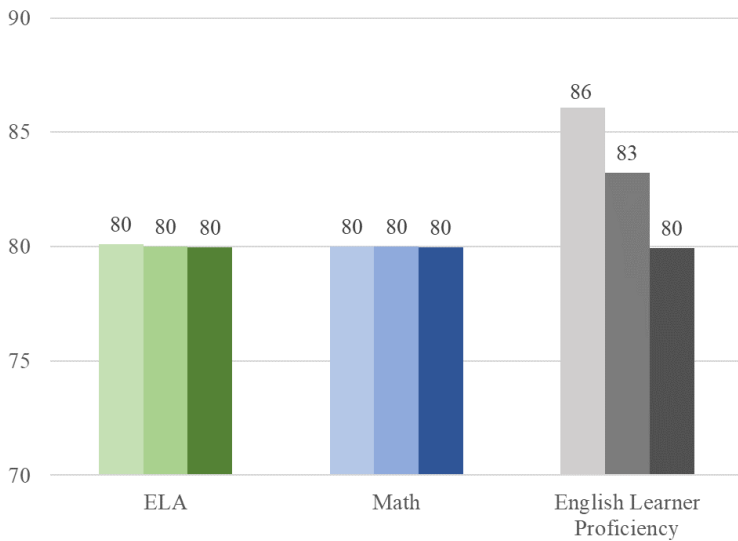


Table 1: Arkansas’ average school-level ELA and math growth scores, 2017-18, 2018-19, and 2020-21.

Grade	Year	ELA			Math		
		2017-18	2018-19	2020-21	2017-18	2018-19	2020-21
3 rd		80.0	80.1	79.9	80.0	80.3	79.9
4 th		80.0	79.9	80.3	79.9	79.9	80.0
5 th		80.1	80.0	80.1	79.9	80.0	80.0
6 th		80.2	80.2	80.1	80.1	80.2	80.1
7 th		80.3	80.0	80.0	80.2	80.1	80.0
8 th		80.2	80.1	80.1	80.2	80.1	80.0
9 th		80.4	80.2	80.2	80.4	80.2	80.0
10 th		79.6	79.3	79.3	79.4	79.4	79.6

We can make comparisons about student learning by school across years because the growth values are calculated to have an average of 80 each year. In years like 2021, where the percentage of students meeting grade level achievement expectations decreased substantially throughout the state, growth scores can identify schools in which students decreased less than was typical for Arkansas students with similar test score histories.

Arkansas’ school accountability model uses growth in ELA and math for the overall student population, and also incorporates increased language proficiency rates for students learning English. It is important to measure how effective our schools are in supporting students whose first language is not English, but it is not relevant to all schools in the state; fewer than 5% of students are English Learners in the majority of Arkansas schools (63%).

In addition to not being equally applicable to all schools, the English Learner proficiency score is more variable than the ELA and math growth. See Figure 1 for ELA and math statewide average growth scores compared to English Learner Proficiency scores in 2018, 2019, and 2021.

In light of the inconsistency of ELP scores, we examine just the growth for ELA and mathematics. These scores are relevant to the majority of schools in the state. We use the school-level growth scores for various student populations to examine if there are certain types of students that are not growing academically as much as their peers.

At the student level, the average ELA and math growth score is 80 for each grade level and content area every year. In Table 1, we present the average school-level growth score by grade and content area. When we examine school-level content growth by grade, we find that a score of 80 is the annual average in grades 3-9, while average school-level growth scores for 10th grade tend to be slightly lower in both ELA and math.

Content Growth by Student Race

Given that statewide average school-level growth is consistent by content area and by grade level we can examine variation in school-level growth in ELA and math by student racial group without concern that there are systematic differences by grade level or content area.

We limit our analysis to Caucasian, African American, and Hispanic students, as these are the racial groups with the largest enrollment in Arkansas public schools. About 60% of the student population is Caucasian, 20% of students are African-American, and 18% of students are Hispanic. In Figure 2, we present the average school-level growth scores in ELA by racial group for 2017-18, 2018-19, and 2020-21.

Hispanic students received the highest average school-level growth scores in ELA in each of the three years examined, indicating that Hispanic students in Arkansas schools are consistently making above-average growth in ELA knowledge and skills from one year to the next. Caucasian students have a score just slightly above the annual average of 80, indicated by the red line. African-American students consistently receive the lowest growth scores compared to Caucasian and Hispanic students. At 77.8 in 2021, African-American students' growth in ELA is statistically significantly lower than Caucasian and Hispanic students' ELA growth score.

As can be seen in Figure 3, average school-level math growth scores demonstrate a similar pattern, with Hispanic students obtaining the highest average math growth, followed by Caucasian students.

Figure 2: Average school-level ELA growth score by race, 2017-18, 2018-19, and 2020-21.

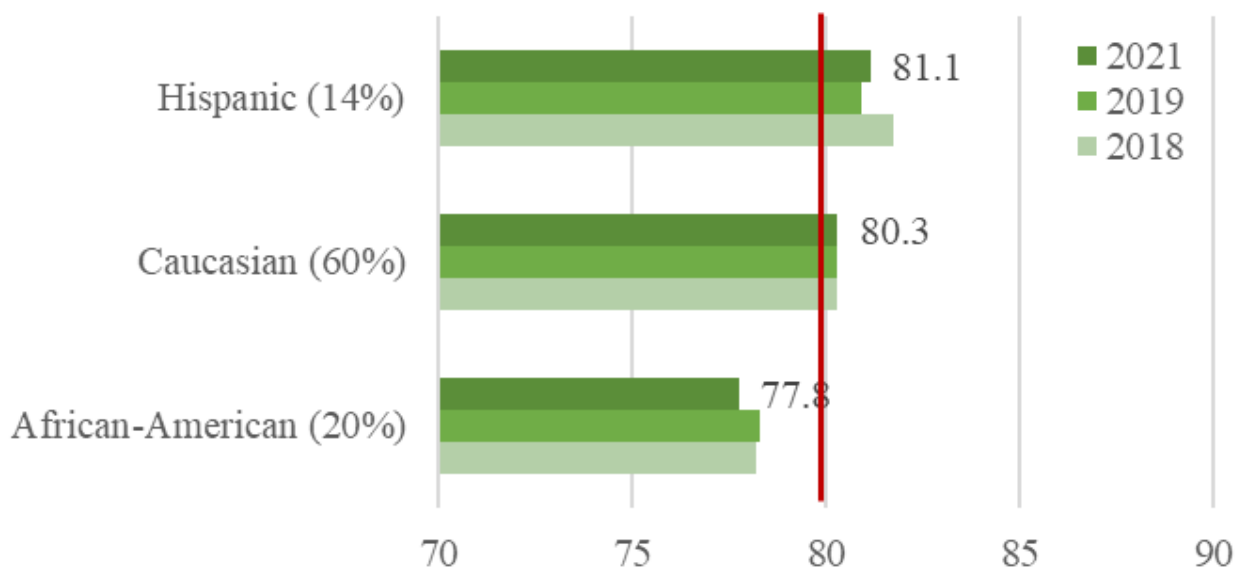
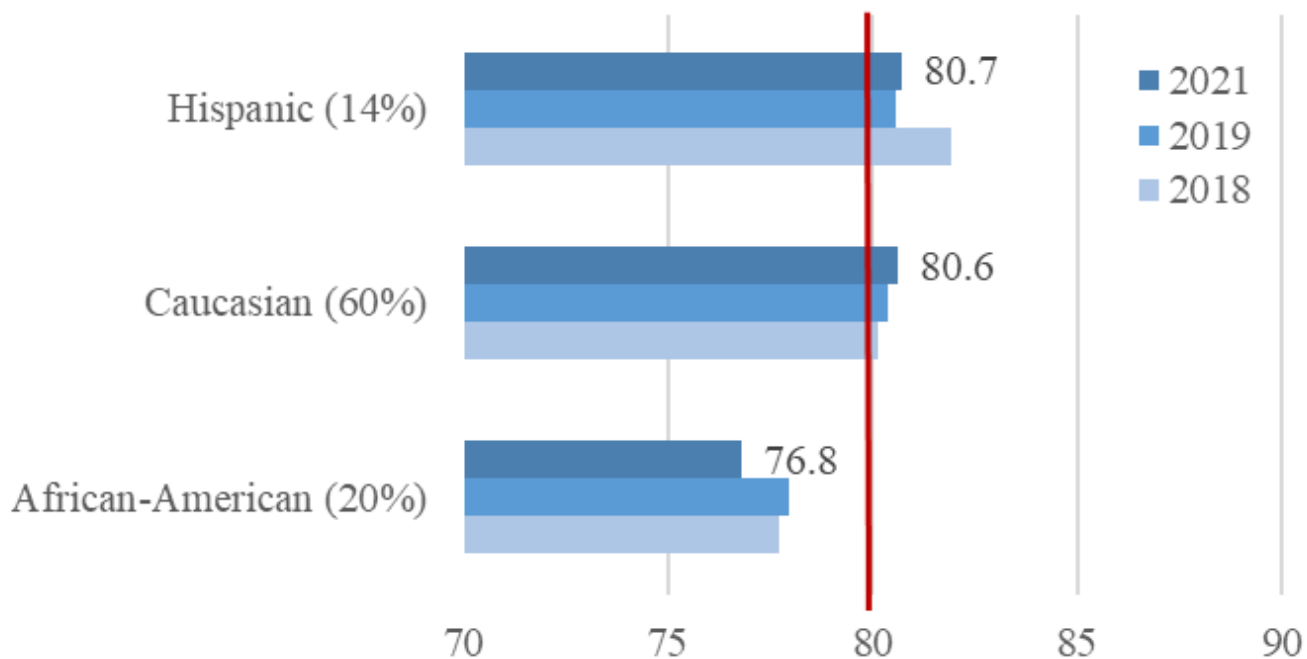


Figure 3: Average school-level math growth score by race, 2017-18, 2018-19, and 2020-21.



As in ELA, African-American students consistently receive the lowest math growth scores compared to Caucasian and Hispanic students. At 76.8 in 2021, these students' growth in math is statistically significantly lower than Caucasian and Hispanic students' growth score.

Content Growth by Program Participation

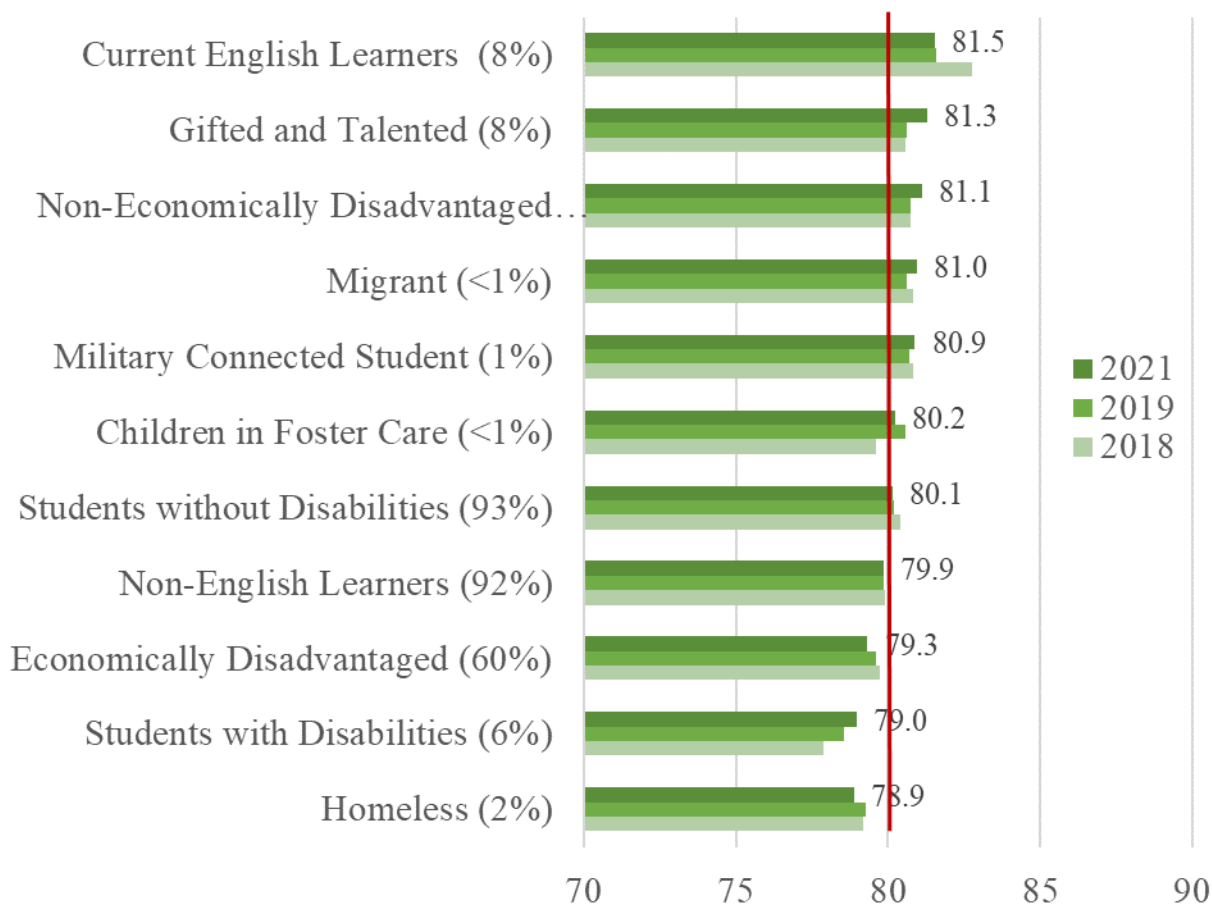
We next examine school-level average ELA and math growth scores by student program participation, including Economically Disadvantaged, English Learners, Students with Disabilities, and Gifted and Talented.

Average school-level ELA growth scores are presented in Figures 4. Current English Learners, who are students receiving support in learning to speak, listen, read, and write in English, demonstrated the highest growth in ELA in all year examined. Although some stakeholders believe that it is more difficult for high achieving students to demonstrate growth, the consistently above-average ELA growth of students identified as Gifted and Talented indicates that this perception is untrue. Non-economically disadvantaged students, Migrant students, and students from military connected families also demonstrate higher than average ELA growth.

Children in foster care, students without disabilities, and non-English learners demonstrate average growth. Prior to 2021, students who had leaner English and were exited from the English Learner program demonstrated higher than average growth, but in 2021 their growth in ELA was average.

Student groups that consistently demonstrate below average growth in ELA are economically disadvantaged, students with disabilities, and homeless students. The growth of these student groups, however, is near average growth.

Figure 4: Average school-level ELA growth score by student programs, 2017-18, 2018-19, and 2020-21.



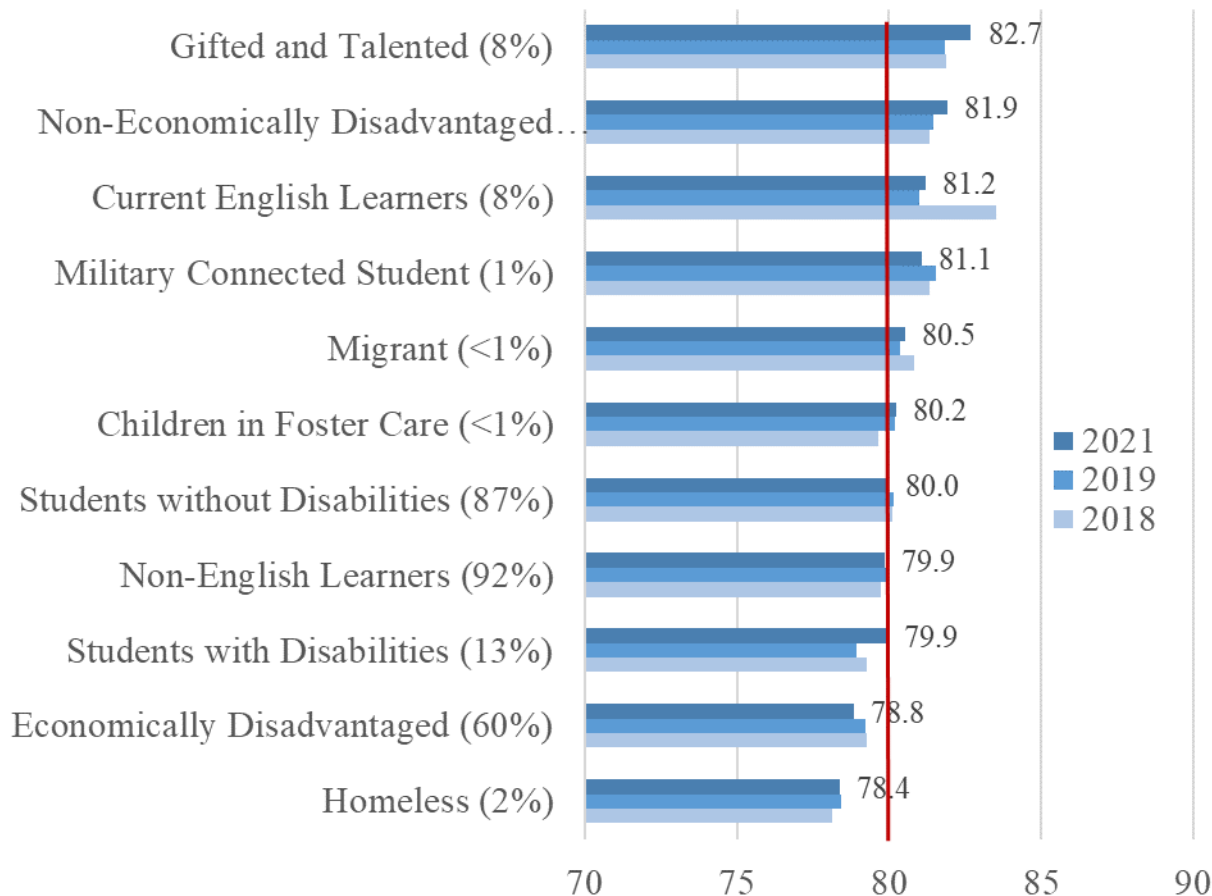
In math, Gifted and Talented students consistently received the highest growth scores over the years examined. This reinforces that higher achieving students can also demonstrate growth, with the average school-level math growth score for G/T students a standard deviation about the state average of 80. Non-economically disadvantaged students, current English Learners, students from military connected families, and migrant students consistently demonstrate greater than average increases in their math ability and skills.

Children in foster care, students without disabilities, and non-English learners demonstrate average growth in math.

Similar to ELA growth, student groups that consistently demonstrate below average growth in math are students with disabilities, economically disadvantaged students, and homeless students. In 2021, however, the math growth of students with disabilities was essentially the same as the average for the state.

While there is variation in growth scores between student racial and program groups, the student group with the lowest average growth score is African Americans.

Figure 5: Average school-level math growth score by student programs, 2017-18, 2018-19, and 2020-21.



African-American Growth by Grade

Each year, student growth in ELA and math is calculated to have an average score of 80 for each grade across the state. Examining the growth scores by grade for African American students can identify if growth in ELA and math is particularly low in specific grade levels or certain years.

Average school-level ELA growth scores for African-American students are presented by grade for 2017-18, 2018-19 and 2020-21 in Figure 6. In all grade levels, African-American growth in ELA is below the state average of 80, indicated by the red line. Average ELA growth scores for African American students declined in 2021 in 3rd, 4th, and 6th grades. The lowest growth scores are in 3rd grade, with a score of 75.4 about 2 standard deviations below average 3rd grade ELA growth for all students in the state.

Average school-level math growth scores for African-American students are presented by grade for 2017-18, 2018-19 and 2020-21 in Figure 7. In all grade levels, African-American growth in math is below the state average of 80, indicated by the red line. Average math growth scores for African American students declined in 2021 for 3rd-7th grades, with particularly large declines in 3rd and 4th grades. The lowest growth scores in 2021 were in 3rd and 4th grades, with values greater than 2 standard deviations below statewide average math growth.

Figure 6: Average school-level ELA growth score for African American students, by grade, 2017-18, 2018-19, and 2020-21.

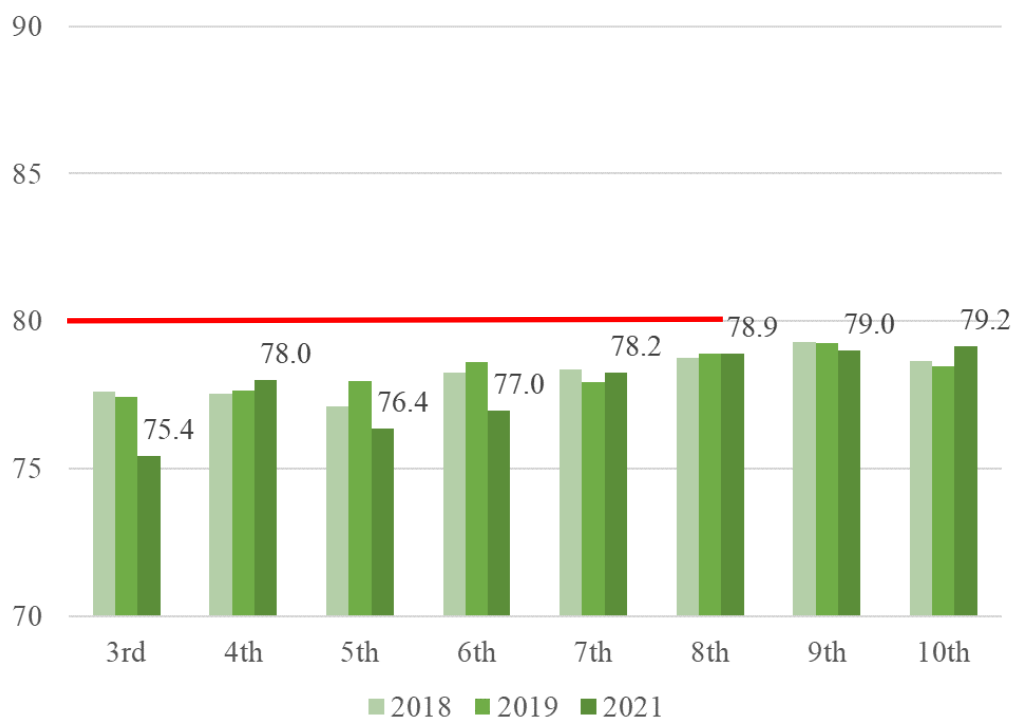
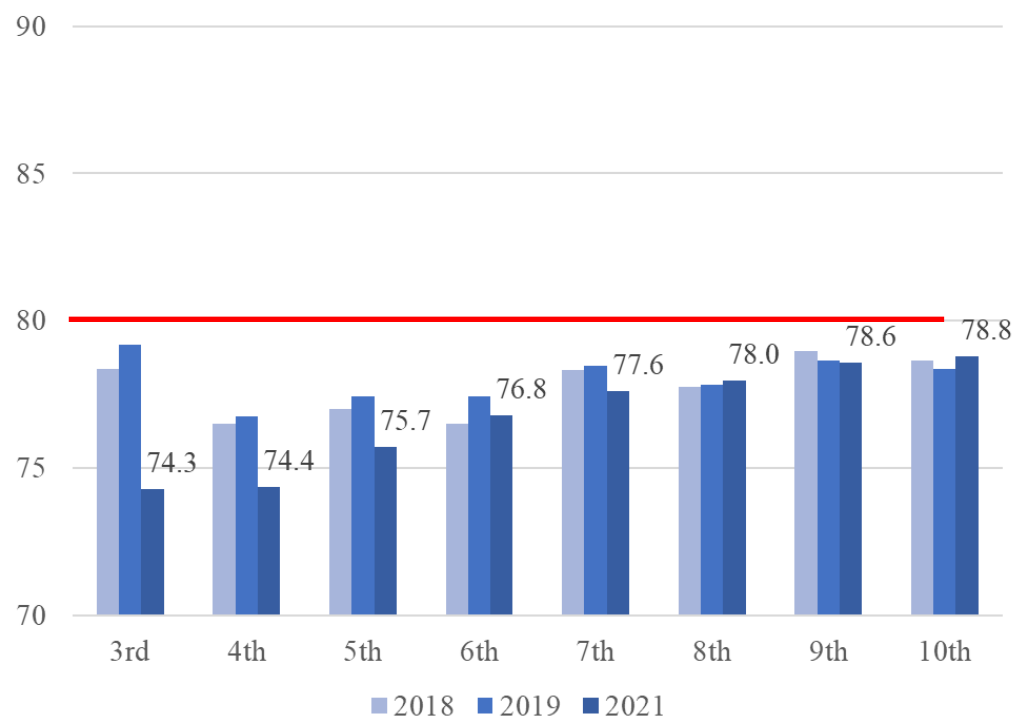


Figure 7: Average school-level math growth score for African American students, by grade, 2017-18, 2018-19, and 2020-21.



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Conclusion

Arkansas' value-added growth scores can provide education stakeholders valuable insight into how much students in grades 3-10 across the state are learning compared to students with similar state test score histories. This analysis leveraged school and grade-level average growth scores in ELA and math to examine variation in growth scores by student race and program participation. We found that African American students persistently had the lowest statewide and grade-level growth rates in both ELA and math over the three years examined.

We would not expect this finding, as, unlike proficiency or achievement rates, growth scores are not strongly correlated with school characteristics such as the percentage of economically disadvantaged students enrolled, class size, or public school expenditures. The finding that African American students, on average, are consistently experiencing low growth relative to other students in the state with similar prior test scores is surprising. The finding is particularly disconcerting, as African Americans are less likely to be meeting grade level standards than all other student groups except students with disabilities. On 2021 administration of the state assessment, only 15% of African American met or exceeded grade level standards in 10th grade English Language Arts, and only 5% met or exceeded grade level standards in 10th grade mathematics. African American students need to be growing at the fastest rate if they are going to reach grade level targets and have the skills needed to meet their post-secondary goals.

These trends don't illuminate why African American students demonstrate lower growth in ELA and math, or why African American students in early elementary grades demonstrated such large declines in average growth in math through COVID, but the data do indicate that the anemic growth of our African American students is an area of significant concern.

There are schools across the state, however, where African American students are demonstrating high levels of academic growth. We identified twelve schools that were consistently in the top 10% of the state for African American students' growth. These schools ranged from 3% to 59% African American enrollment and from 24% to 70% economically disadvantaged enrollment.

We will continue to try to identify what school characteristics may be supporting high rates of learning for African American students. Perhaps their practices can be shared with schools around the state where African American students are struggling to grow their learning of ELA and math.

References

All data used in this research are publicly available from the Arkansas Department of Elementary and Secondary Education. <https://myschoolinfo.arkansas.gov>.

Note: Growth scores are not available for 2020 due to school closures resulting from COVID

Data visualization of academic growth by student population available at: <https://public.tableau.com/app/profile/office.for.education.policy.university.of.arkansas>

More information about Arkansas' Value-Added Growth model can be found at: [ADE School Growth Explanation.pdf \(arkansas.gov\)](https://ade.arkansas.gov/Value-Added-Growth-Explanation.pdf)



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