

Education Opportunity Gaps



Executive Summary

An individual's access to early education, school resources, advanced classes, and experienced teachers may affect educational achievements such as test scores, graduation rates, and future income levels. Social factors that may influence access to educational opportunities include race, gender, socioeconomic status, internet access, parental education, English-speaking abilities, and location. While socioeconomic status is a major predictor of achievement gaps, opportunity gaps exist between racial groups even when controlling for family wealth. Because opportunity gaps can arise early in life, programs that focus on early childhood education tend to be very effective at closing long-term achievement gaps.

Highlights

- In addition to demographic factors, school-level characteristics such as teacher experience and educational resource availability are associated with achievement gaps in education.
 - Students of minority groups, low socio-economic status, and residing in low economic communities have less internet and computer access, in addition to arts, music, and advanced STEM classes, than their non-minoritized peers.
- Black, Hispanic, and Native American students are more likely than white students to attend schools where 20% or more of the teachers are first year teachers. Across U.S. school districts, 23% have large differences in average teacher salaries (greater than \$5,000) between schools with the highest and lowest percentage of Black and Hispanic students.
- High achieving early learners that are economically disadvantaged have test scores that decrease over time, and tend to have worse eventual socioeconomic and life outcomes (e.g., higher incarceration rates).
- Expanding access to early childhood programs like Head Start is a proven way to close achievement gaps.

Limitations

- Research investigating interventions and solutions for closing racial achievement gaps is difficult because the long timeframes involved make intentionally designed experiments difficult to implement.

Research Background

Opportunity and Achievement Gaps

An opportunity gap is an inequality in the inputs (opportunities) between two or more groups. Opportunity gaps are often associated with factors that are commonly interrelated, such as race,

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gender, family wealth, community wealth, internet access, parental education, English-speaking abilities, and location. Unequal inputs to specific groups can result in unequal outputs (i.e. achievement gaps), which are often measured by academic test scores (Figure 1), graduation rates, and income. Educational opportunity gaps result in outcome differences that can begin as early as 9 months of age¹ and become more apparent throughout the lifespan. Therefore, efforts to close achievement gaps often start during early childhood education.

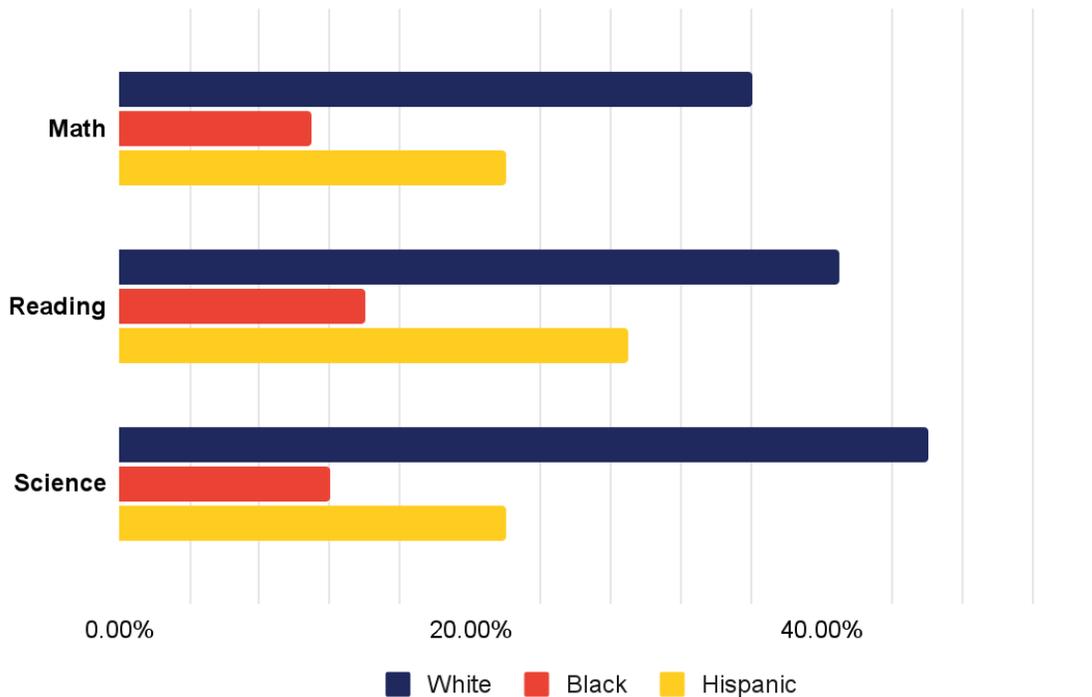


Figure 1. Proficiency Rates of Missouri Students. Shown are the average percentage of Missouri students scoring *NAEP Proficient* or above in 2015 assessments. Achievement gaps appear between the White, Black, and Hispanic students in various subject areas. Data from the National Assessment of Educational Progress (NAEP, nationsreportcard.gov).

Identifying Opportunity Gaps in Education

Race and socioeconomic status are often associated and may be the primary explanation for the opportunity gaps between Black and White students.² This is likely due to differences in access to well-trained teachers and other educational resources. However, there are other factors independent of socioeconomic status that can lead to achievement gaps. A study of 2,868 school districts across the United States found that, in addition to socioeconomic status, parent educational attainment is associated with high Black/White academic achievement gaps.³ Even when controlling for parental incomes, the eventual incomes of Black male students were lower than their White peers in 99% of census tracts.⁴ Differences in access to opportunities have led to low upward economic mobility for Black students along with high downward economic mobility.⁴

Teacher Quality

Teacher experience is positively associated with student achievement. The largest increase in student achievement is associated with teaching experience gained over the first few years of teaching.⁵ Black, Hispanic, and Native American students are more likely than White students to attend schools where 20% or more of the teachers are first year teachers.⁶ Black and Hispanic students are also more likely go to schools where a large proportion of teachers do not meet state teaching certifications.⁶ While the number of uncertified teachers at public schools tends to be low, they are often concentrated in schools in urban and rural locations and schools with high proportions of historically marginalized groups.⁷

Finally, 23% of school districts have a difference in average teacher salaries greater than \$5,000 between schools with the highest and lowest percentage of Black and Hispanic students.⁶ Higher teacher salaries have been shown to be correlated with better student outcomes and decreased dropout rates.⁸

Educational Resources

Gaps in access to arts, music, and advanced STEM classes appear between groups in and out of school based on race, income, and location.⁹ In the midwest, 35% of schools do not have a full time visual arts teacher.⁹

Access to computers and the internet is not evenly distributed across all racial, socio-economical, and rural/urban groups. Black children are 8.8% less likely to have broadband internet access compared to White children, and Hispanic children are 4.2% less likely than their White peers.¹⁰ There are also gaps in internet access based on English language proficiency, population density, household income, and education level of the head of household. For more general information on internet access and online education in Missouri, see previously published Science Notes on [broadband deployment](#) and [online education](#).

Identifying Achievement Gaps in Education

An Ohio-based study following high-achieving third graders showed that economic disparities negatively impact academic achievement.¹¹ All of the students involved were initially high achievers, but exhibited divergent outcomes based on socioeconomic status and race. The results showed that economically disadvantaged students tended to have test scores drop more over time, have lower ACT/SAT scores, and lower college enrollment than students who were not economically disadvantaged. Similar results were found for Black and Hispanic students compared to White students, with only 26% of Black early high achievers going on to four-year colleges compared to 57% of White early high achievers. These trends in Ohio have been shown nationally in the U.S. Department of Education *Condition of Education* annual reports.¹²

Addressing Education Achievement Gaps

Research indicates that opportunity gaps can be closed through early investments in pre-school education programs, including Head Start. In a comparison of schools across the U.S. that adopted Head Start programs at different times, researchers found that increased funding for

pre-school and K12 had positive outcomes for poorer students, and the outcomes were most beneficial when both programs had increased funding.¹³ These benefits include increased academic achievement and lifetime earnings along with decreased incarceration rates. While all groups had improved outcomes from Head Start programs, disadvantaged populations benefited the most.¹⁴

Achievement gaps have been shown between Black and White students even within relatively highly funded schools with low student to teacher ratios.³ While federal programs that base school funding on tests, such as No Child Left Behind, have been tried, the effect on closing the Black and White student gap has been modest.¹⁵ Research investigating interventions and solutions for closing racial achievement gaps is difficult because the long timeframes involved make intentionally designed experiments difficult to implement.

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