

ACHIEVEMENT GAP

Virtually all countries try to meet two goals for the outcomes of their schools: getting high levels of student achievement while minimizing systematic gaps in performance. Dealing with these issues simultaneously frequently presents challenges and policy conundrums. The United States—the subject of this discussion—has felt the weight of these issues where the historic pressures of segregated education have been heightened by a steady influx of immigrants. Moreover, these problems intersect with residential location patterns so that many of the challenges are concentrated within a relatively small number of school districts. Dealing with goals related to the level and the distribution of performance can seldom be accomplished by using a single policy but in fact require multiple policies.

Most countries find that the performance of students varies systematically with a variety of characteristics. The largest concerns generally relate to family background, as defined by income, race, and ethnicity. The motivation behind these concerns is that schooling outcomes are known to relate closely to subsequent incomes and performance in the labor market. Thus, low achievement by children that is related to family incomes and ethnicity imply an intergenerational transmission of poverty. This entry summarizes data on current gaps in achievement and examines explanations that have been offered for these differences. It concludes by reviewing research on some key factors that could potentially have a significant impact on existing gaps -- racial segregation, teacher quality, and early childhood – and by considering their policy relevance.

Existing Achievement Gaps

It is important to understand the magnitude of achievement gaps that exist. In the aggregate, the United States has seen some convergence over time in school attainment by race and ethnicity. For the population age 25–29, there have been increases in high school completion and convergence across subgroups over the past two decades. In 1980, 89 percent of white students completed high school, while only 77 percent of blacks and 58 percent of Hispanics did so. By 2012, the differences in high school attainment had been cut in half, with completion rates of 95, 89 and 75 percent for whites, blacks, and Hispanics, respectively.

Yet the schooling statistics also show another distributional trend: Completion of college has significantly diverged between Whites and both Blacks and Hispanics. In 2012, 40 percent of Whites completed a bachelor's degree or more, while only 23 percent of Blacks and 15 percent of Hispanics reached this level. The diverging completion trends are particularly important given the rapid rise in returns to college over the past two decades. With the growth in the value of higher education, this differential rise in college attendance is not altogether surprising given the divergence of preparation for college.

But perhaps more important are the gaps in measured achievement of students. The United States has tracked the performance of students over time with the National Assessment of Educational Performance (NAEP). This assessment has consistently traced performance at different ages and in different subjects since the early 1970s. The best comparisons are at age 17, just before students either enter the labor market or continue on to college.

The gaps in achievement are truly stunning. While there has been some historic closure, particularly in the 1980s, the current differences are enormous. The Black-White gap in math in 2011, for example, places the average Black at the 19th percentile of the White distribution.

The Hispanic-White gap places the average Hispanic at the 26th percentile of the White distribution.

Explanations of Achievement Gaps

Enormous amounts of research have gone into understanding what causes these gaps. One of the first efforts to understand racial differences in achievement was the Coleman Report, an official government report issued in 1966 in response to the Civil Rights Act of 1964. The Coleman Report, officially titled *Equality of Educational Opportunity*, was widely interpreted as concluding that families were the most important influence on student achievement followed by each student's school peers; schools had little influence on achievement. However, that analysis has been heavily criticized for a variety of analytical reasons. Overwhelmingly important for the purposes here, however, is that it did not have good measures of differences either in school quality or family backgrounds. Indeed, subsequent attempts to sort out the impacts of families, schools, and peers have foundered on similar problems.

We do know that common measures of school quality—spending or other characteristics—are not closely related to achievement. On the other hand, variations in teacher effectiveness are important, reinforcing the general presumption that schools have a strong impact on students. It is just that the classic input measures of teacher quality are not very useful.

In reality, given our current knowledge, it is simply not possible to measure the relative importance of the various underlying causes for the existing gaps. We know that student achievement is strongly related to family background, but little attention has been given to how family background should be measured if one is looking for the causal structure. It is clear that we would like to eliminate the racial and ethnic gaps in achievement, both because of equity

goals and because of the impact of unfulfilled human capital possibilities. But, looking at policies to do so is not the same as knowing the causes of the existing gaps.

Racial Segregation in U.S. Schools

Over a long period of time, the United States has wrestled with problems related to racial segregation. Before the 1954 ruling of the U.S. Supreme Court in *Brown v. Board of Education*, a number of southern states had *de jure* segregation of schools, or segregation established by law. The Court ruled that this led to an inherently unequal system of education and called for desegregation of schools. This ruling led to a long series of actions, sometimes related to further Court decisions, that moved toward breaking up past racial concentrations. The movement away from *de jure* segregated schools was balanced by *de facto* segregation of schools outside of the South, where racial concentrations were the result not of legal restrictions but of residential patterns coupled with school assignment policies.

The research most directly related to questions of how racial concentration relates to achievement gaps focuses on whether peer racial composition, as opposed to desegregation actions per se, affects achievement of Blacks as well as other demographic groups. While this has been a difficult issue to research, the available evidence suggests that Black achievement is harmed by having schools with higher concentrations of Black students. (Current evidence does not indicate similar impacts for Hispanic students).

Nonetheless, because racial segregation in schools largely results from separation in residential location across jurisdictional lines, there are few legal or policy recourses that would lead to lessened racial concentrations. In part this is the case because, since the 1970s, the courts have taken an increasingly narrow view of actions toward reducing school segregation. In particular, consideration of interdistrict remedies was increasingly ruled out by the Supreme

Court. Perhaps the final limitation came in 2007 when the Court even struck down voluntary race-conscious plans operated within individual districts in cases involving Seattle, Washington, and Louisville, Kentucky.

Teacher Quality

Perhaps the strongest and most consistent finding of recent research is the importance of teacher quality. The early work on teacher quality focused on measurable characteristics and background factors of teachers such as experience or type of training. The analysis of teacher effectiveness has largely turned away from attempts to identify specific characteristics of teachers. Instead attention has focused directly on the relationship between teachers and student outcomes. This outcome-based perspective, now commonly called value-added analysis, takes the perspective that a good teacher is simply one who consistently gets higher achievement from students (after allowing for other sources of student achievement such as family influences or prior teachers).

In a series of studies since 2000, outcome-based estimates find substantial variation in teacher contributions to achievement, supporting the interpretation that the earlier work simply had poor measures of teacher quality. For example, available results imply that having a teacher at the 75th percentile as compared to the 25th percentile of the quality distribution would move a student at the middle of the achievement distribution to the 58th percentile (in one academic year). The magnitude of such an effect is large relative to the typical measures of Black-White or Hispanic-White achievement gaps previously described.

While there is little evidence that teacher quality varies systematically with student characteristics (race, ethnicity, or income), the results suggest that improving the quality of teachers for disadvantaged groups could close substantial parts of the existing achievement gaps.

Early Childhood Education

A recent focus of policy discussions is preschool education. There are three arguments for why broad provision of preschool education is a good idea. First, the problems of disadvantaged children at entry to school have received increased attention, particularly with the availability of new longitudinal data for early childhood. The deficits in preparation of disadvantaged children are significant. For example, evaluations of the vocabulary of disadvantaged children find that they have been exposed to dramatically less vocabulary—more advantaged children at age 3 had vocabularies that were four times as large as disadvantaged 3-year olds. Moreover, the quality of parent-child communication was vastly different. These differences in preparation have potentially lasting effects on student outcomes.

Second, a variety of conceptual arguments for early investments in human capital—most notably by Nobel laureate James Heckman and his colleagues—have received scholarly and policy attention. They suggest that investments made early in life enhance learning later in school and even into careers.

Third, key studies with strong research designs have supported the efficacy of preschool education. The most well-known is the Perry Preschool Program, but others, such as the Abecedarian Program and the Early Training Program, also provide important evidence.

For these reasons, it is natural that discussions of preschool enter into the educational policy debate and into judicial proceedings and judgments. There are reasons to be favorably disposed to instituting expanded preschool programs for disadvantaged students. The idea has been to supplement what goes on in the home in order to provide stronger educational development. Such preschool investments recognize that it is easier to remediate earlier rather than later. At the same time, the limited number of models that has been evaluated provides

uncertain guidance about design of effective programs, particularly programs that reach male children.

Some Conclusions

The achievement gaps, particularly by race and ethnicity, have been large and persistent in the United States. The continued existence of these gaps is incompatible with widely held views of equity for society, because they indicate a persistence in economic disadvantages.

Correcting these problems, however, has proven difficult. First, there is genuine uncertainty about governmental policies that will systematically raise student achievement. Second, policy goals invariably include raising achievement of all students in addition to closing achievement gaps. If closing gaps meant simply redistributing good schools from the more advantaged to the less advantaged, there would be obvious political conflicts and there would be a conflict with goals to increase all achievement.

One policy that would potential improve minority achievement, particularly of black students, without harming white students would involve lessening the concentrations of black students in segregated schools. The range of potential policies is nonetheless very limited because there is little ability to move students across jurisdictional lines where most of the segregation exists.

Improving teacher quality particularly for minority students is one policy that holds promise. The best way to do this remains somewhat uncertain, although there are many on-going potential policy initiatives that might solve this. The largest problem is that teacher effectiveness is not closely related to common measures used to assess teacher quality such as experience or graduate training. Thus, it is difficult to regulate better teachers, and moving toward

improvements demands being able to evaluate teacher effectiveness directly. This remains a topic of much current debate and research.

Finally, a particularly attractive policy is providing improved early childhood education for disadvantaged students. Because education in the home and through other early experiences currently favors more advantaged students, better pre-school experiences of disadvantaged students would act to equalize early opportunities. This would tend to improve their preparation for school and to close achievement gaps without harming the more advantaged students. The policy issues in this realm relate to finding the best way to provide and to pay for this early childhood education.

Eric A. Hanushek

See also: Coleman Report, Equality of Educational Opportunity, Ethnicity and Race, Human Capital Theory and Education, Quality of Education

FURTHER READINGS

Fuller, Bruce. 2007. *Standardized childhood: The political and cultural struggle over early education*. Stanford, CA: Stanford University Press.

Hanushek, Eric A. 2001. "Black-white achievement differences and governmental interventions." *American Economic Review* 91, no. 2 (May): 24–28.

Hanushek, Eric A., and Steven G. Rivkin. 2012. "The distribution of teacher quality and implications for policy." *Annual Review of Economics* 4: 7.1–7.27.

Heckman, James J. 2006. "Skill formation and the economics of investing in disadvantaged children." *Science* 312, no. 5782 (June 30): 1900–1902.

NAEP Data Explorer, <http://nces.ed.gov/nationsreportcard/>.

Rivkin, Steven G., and Finis Welch. 2006. "Has school desegregation improved academic and economic outcomes for blacks?" In *Handbook of the Economics of Education*, edited by Eric A. Hanushek and Finis Welch. Amsterdam: North Holland: 1019–1049.

Witte, John F. 2007. "A Proposal for State, Income-Targeted, Preschool Vouchers." *Peabody Journal of Education* 82, no. 4: 617–644.