

POLICY BRIEF

Improving High Schools as a Strategy for Closing California's Achievement Gap

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Overview

High schools play a critical role in preparing students for careers, college, and citizenship. Thus, disparities in educational outcomes from high school may contribute to long-term disparities in educational, economic, and social outcomes throughout adulthood. At the same time, reducing these disparities may play a critical role in reducing disparities in adult outcomes and improving the lives of the state's most disadvantaged

student populations. This paper examines the nature of the achievement gap in California high school outcomes. It then reviews the research literature on what features of high schools have been shown to contribute to the student achievement and then discusses alternative strategies the state could pursue to reduce the high school achievement gap.

California's High School Achievement Gap

Existing data show sizeable disparities in a number of achievement outcomes from California's high schools. For example, Asian students represented 12 percent of all high school students in 2005-06, but only 6 percent of dropouts [1]. Conversely, Asians represented 15 percent of all high school graduates and 23 percent of all high school graduates who met the course requirements for admission to California State University and University of California. Similarly, white students were under-represented among dropouts (21%) relative to their representation in the population of all high school students (34%), and over-represented in the population of college graduates (40%) and even more over-represented in the population of (a)-(g) high school graduates (45%).

In contrast, Black students only represented 8 percent of all high school students in 2005-06, but 15 percent of all dropouts. Similarly, Hispanics represented 43 percent of all high school students, but 56 percent of all dropouts. On the other hand, Blacks only represented 5 percent of all (a)-(g) graduates and Hispanics only represented 25 percent of all (a)-(g) graduates.

Similar disparities are evident in test scores. Asians represented 10 percent of all students who took the California Standards Test (CST) in English Language Arts as 11th graders in 2005, but 15 percent of all students who scored at or above the proficient level. Similarly, whites represented 37 percent of all test takers, but

51 percent of all students who scored proficient. On the other hand, Blacks represented 8 percent of all test takers, but only 5 percent of all proficient students. Hispanics represented 40 percent of all test takers, but only 23 percent of all students who scored at the proficient level.

Disparities also exist for economically disadvantaged students, English learners (ELs), and students with disabilities. For example, ELs represented 16 percent of all high school students in 2005-06, but 33 percent of all high school dropouts. Disparities appear to be even greater in terms of test score performance. For

example, ELs represented 15 percent of all CST test takers in 2005, but only 2 percent of the students who scored proficient. Students with disabilities represented 9 percent of all test takers, but only 1 percent of students who scored proficient. And economically disadvantaged students represented 39 percent of all test takers, but only 21 percent of all proficient students.

It should be noted that disparities in 11th grade test scores mirror disparities in grade 8 test score three years earlier, suggesting that the achievement gap neither improved nor worsened in high school.

Research on High Schools

Three different research methods have been used to study the effectiveness of high schools. Although the research using these methods is extensive, much of it is limited in

its ability to identify the salient features of high schools that contribute to student success.

Case Studies

One popular method for studying high schools is to conduct case studies of schools that have somehow been identified as effective. Case studies can provide rich and detailed descriptions of the origins, practices, and outcomes of schools, but cannot, by themselves, determine which features of schools are critical to their success. In fact, they cannot determine whether the school is actually effective in producing good outcomes for students. The reason is that other factors could account for the schools' apparent success. For example, many successful schools, particularly charters and magnet schools, require students and parents to choose the school and perhaps fill out an application. Some schools may have entrance requirements or require parental involvement. These so-called "selection" effects can result in a

student body that is different than the student bodies of other schools. Thus, case studies are unable to determine whether the outcomes of the school are due to the characteristics of the school or the characteristics of the students.

Correlational Studies

Another method for studying high schools is to use statistical models to test the relationship between student outcomes and an array of student and school characteristics. These studies are often based on large-scale studies involving large samples of students and schools, and a broad array of data based on student, parent, teacher, and administrator surveys; student test scores; and institutional data, such as student transcripts. Because the data are collected over a number of years, the studies

can be used to examine changes in student outcomes over time. The statistical models used in these studies are able to control for differences in observed student characteristics to help determine to what extent differences in student outcomes are attributed to differences in student or school characteristics. And recent advances in statistical modeling techniques do allow these studies to estimate causal effects [2]. But not all correlational studies use these more sophisticated techniques, so not all studies can establish a strict causal connection between school characteristics and student outcomes. And despite the wide array of data collected in these studies, they may not be able to identify all of the factors related to student success; nonetheless, these studies do provide valuable evidence on the effectiveness of high schools.

Evaluation Studies

The most rigorous evidence on the effectiveness of high schools comes from evaluation studies. Evaluation studies are used to study the effectiveness of a wide variety of interventions, from single interventions, such as small classes, to comprehensive school reform (CSR) models [3]. There are a variety of research designs for conducting evaluation studies, and the rigor of the design dictates the ability to determine a causal connection between the intervention and student outcomes. The so-called “gold standard” in evaluation studies is the randomized experiment, more formally referred to as a *randomized controlled trial* (RCT), where students are randomly assigned to the intervention (experimental group) or the regular or non-reform program (control group). Because it is virtually impossible to randomly assign students to schools, an alternative design for evaluations of CSR models is to randomly assign reform models to schools. A more common evaluation design is the quasi-

experimental design that is not based on random assignment, but instead uses statistical techniques to control for differences in the characteristics of students attending experimental and control schools [2]. Results from rigorous evaluations can determine not only whether a particular intervention is effective, but also the magnitude of the effect, known as the *effect size* [4].

Although evaluation studies are able to establish a causal connection between the intervention and student outcomes, evaluation of whole-school or CSR models are not able to determine the specific causal mechanisms responsible for the outcome. CSR models typically involve a series of components, from structural features, such as creating small learning communities, to specific instructional components. Consequently, it is impossible from a whole-school evaluation to determine which components are critical to the models’ effectiveness—some components may be critical and others not—but the evaluation is unable to make this determination unless it was implemented in such a way that the effectiveness of specific components could be determined.

Measures of High School Performance

High school performance can be measured in different ways. Test scores are the most common measure of high school performance, but other measures are also important, such as dropout rates, graduation rates, and college-ready graduation rates. One reason for using multiple indicators of school performance is that some schools may perform better on one type of outcome than another. This may be especially true if the features critical to raising performance in one area are different than the features critical to raising performance in another area [5].

Features of Effective High Schools

Research has identified a wide array of factors that explain differences in high school performance. These factors can be grouped into two basic types: school *inputs*, which represent the features of schools typically provided from outside the school itself, such as resources, student composition, and structural features; and school *practices*, which represent how the school operates. A large body of empirical research has demonstrated that a number of specific school characteristics within these two domains can explain differences in student achievement. Yet the research findings are far from consistent.

Resources

Scholars have identified four types of resources that impact student outcomes: 1) fiscal resources, 2) material resources, 3) human resources, and 4) social resources [6]. Researchers have long debated whether fiscal resources contribute to school effectiveness [7,8,9,10,11,12,13]. Some economists have also argued that schools often do not utilize fiscal resources in the most efficient manner, in part because school funding is often tied to categorical programs that dictate how the funds are to be used [14]. Research has clearly demonstrated that material resources, particularly teachers, impact student performance, yet the research evidence is less clear on what specific characteristics of teachers matter. While the research shows that students tend to learn more from teachers who attended higher quality colleges and had higher test scores, research on the effects of other background characteristics—such as degrees, coursework, credentials, and experience—is generally inconclusive [15, p. 107]. The research literature further suggests that material or conventional school resources—

such as teachers' formal qualifications, books, facilities, and time—only offer the capacity to improve teaching and learning, but to do so requires the teachers' *personal or human resources*—such as their will, skills, and knowledge [16]. Finally, a growing body of research finds that *social resources*, which represent the social relationships or ties among students, parents, teachers, and administrators, are a key component of effective and improving schools [17,18,19,20,21].

Student Characteristics

The social composition of students in a school can influence student achievement above and beyond a student's individual social background [22]. Studies have found that the social composition of schools predicts school engagement, achievement, and dropout rates even after controlling for the effects of individual background characteristics of students [5,23].

Structural Characteristics

Structural characteristics of high schools include the school's location, size, and type of control, such as whether the school is a comprehensive high school, charter school, or alternative school. Students attending suburban schools generally perform higher than students attending urban or rural schools, controlling for other inputs such as teacher characteristics (e.g., [24]). Although an increasing number of California high school students attend non-traditional high schools, including charter schools, magnet schools, and continuation high schools, there is no research evidence that these structures are more effective than traditional high schools after controlling for the characteristics of the students served. Finally, there is some evidence in correlational studies that dropout rates are

generally lower in smaller schools, although one study found that achievement growth rates were also higher in larger school [5]. Evaluations of a number of comprehensive school reform models have found that they all are based on “small learning communities” of students and teachers [25].

School Practices

A number of school policies and practices have been shown to affect school performance. Some studies have found that school organizational practices, such as decision-making practices (including teacher and parental involvement in decision-

making), impact student achievement in middle and high schools (e.g., [23,26,27]). Other studies have found that teachers’ expectations and efficacy as well as their instructional practices impact student learning in high school [5,23,28]. Still other studies found that an array of indicators related to the social and academic climate of schools—such as the number of advanced academic courses taken by students, the amount of homework done by students, and teachers’ interest in students—impact a number of school performance indicators, including student achievement, engagement, and dropout [29].

Developing a Statewide Strategy for Reducing California’s Achievement Gap

How can research on effective high schools be used to reduce California’s high school achievement gap? Four strategies could be pursued:

Redistribute School Resources

One strategy would be to redistribute school inputs. To pursue this strategy not only requires information on which school inputs affect student achievement, but also their relative impact. One recent California study examined the distribution of several school inputs and practices—students, school and class size, teacher preparation, and high school curriculum—among high schools in California, and the extent to which changes in the distribution of these factors would produce changes in on high school student achievement in 11th grade in 1998 [24]. The study found that the factor that had the largest impact on student achievement—the socioeconomic status of the student body—was the most unequally distributed feature of the high schools in California, and the factor that had the least impact was class size, with teacher resources in between. One

way to pursue this strategy would be to redistribute students among schools, through a policy of racial or socioeconomic integration, without necessarily attempting to either improve the average student achievement across schools or the size of the achievement gap within schools.

Undertake Comprehensive School Reform

Another strategy would be to undertake comprehensive school reform in California’s lowest performing high schools. Rigorous evaluations of comprehensive high school reform models suggest a number of features of effective high schools [30]:

- A personalized learning environment for both students and teachers
- Rigorous and relevant instruction
- Supports for such students that address both with social and academic needs
- Connections to the real world to better engage students

Low performing high schools have high concentrations of racial and ethnic minorities and English learners. So targeting those high schools would help reduce the achievement gap statewide without necessarily reducing the size of the achievement gap within schools.

Adopt Proven Programs Targeting Disadvantaged Students

Instead of adopting school-wide programs to raise the achievement of all students, an alternative strategy is to adopt proven programs and target them to the most disadvantaged students within selected schools. For example, English learners (ELs) represent a large proportion of low

performing students, so allocating resources or adopting programs targeting those students would raise the achievement of those students and help to close the achievement gap with non-EL students.

Combine Comprehensive School Reform and Targeted Programs

A final strategy would be to adopt comprehensive school reform models together with targeted resources and proven strategies for disadvantaged students. If such a strategy were adopted in low performing schools with high concentrations of disadvantaged students, it could help improve the achievement of all students and help close the achievement gap.

Adopting a Course of Action

The relative effectiveness of these alternative strategies for reducing the size of the high school achievement gap in California depends upon three factors:

- The average student achievement across California high schools
- The size of the achievement gap within California high schools
- The distribution of students across California high schools

A simple simulation suggests that the fourth strategy mentioned above is likely to have

the biggest impact on reducing the achievement gap in California. But a more detailed analysis is necessary to provide a more precise estimate of the impact of these strategies. Beyond these technical considerations, it is also important to consider the institutional capacity and political feasibility of pursuing these various strategies. For example, there may be much less political support for policies designed to promote student integration than policies to target additional resources and programs on low performing high schools.

Policy Recommendations

This analysis leads to a number of policy recommendations:

Conduct a Detailed Analysis of the Achievement Gap in California High Schools

To better address the high school achievement gap in California requires better information on the size and nature of the achievement gap statewide. While the state collects information on the average

student achievement across all California high schools and the size of the achievement gap within all California high schools, it would also be useful to know how much of the achievement gap statewide is related to both of these factors (i.e., how much can be attributed to between-school versus within-school differences in students' achievement). Such information would help determine the relative effectiveness of the various strategies for reducing the achievement gap.

Collect and Synthesize Research Evidence on Effective High School Reform Models

To reduce the achievement gap will require adopting proven reform models and strategies. A number of private and public agencies have conducted evaluations of effective programs and reviewed the quality and nature of this research evidence. The state should collect and synthesize this research evidence so that it provides a guide to adopting reforms in selected, low performing high schools. The state should also consider synthesizing this information into a set of *high school reform standards*

based on research from comprehensive school reform models with proven effectiveness in raising high school achievement, along with implementation timetables and benchmarks that can serve as blueprints for low performing schools [31].

Undertake Trial High School Reform Models in “Lighthouse” School Districts

The state should recruit “lighthouse” school districts that have multiple low performing high schools to implement these high school reform standards [31]. The state would help recruit qualified external providers to work with the school districts. The district and the provider would develop a plan to implement the reforms based on the standards and implementation timetables. In exchange, the districts would be granted 1) waivers to use specified categorical state funds to support their reform efforts, and 2) temporary waivers from existing accountability sanctions during the initial implementation of the reforms. The state would evaluate the implementation and impacts of the reforms and, to the extent they were successful, they could be adopted in other districts.

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