GAINING GROUND

High Schools Closing the Achievement Gap

Sharon Anderson
Robert Fitzgerald
Rosio Bugarin
Sarah Calderon
Kristie Porter

Elliott Medrich
Project Director

MPR Associates, Inc.
Berkeley, CA

U.S. Department of Education
Office of Vocational and Adult Education
Introduction

This report presents the results of an analysis of state assessment data designed to identify high schools that are closing the achievement gap between African-American and Hispanic students, on one hand, and white students on the other. The analysis was conducted on data provided by ten states (Arkansas, California, Delaware, Indiana, Kentucky, Missouri, Oregon, South Carolina, Texas, and Wisconsin) and the District of Columbia. The report looks at two different measures of the achievement gap: a comparison of student performance at the school level versus overall performance at the state level; and a comparison of student performance within a school. The gap-closing high schools identified here have shown consistent progress over four years in reducing the test score gap between white and nonwhite students in reading and/or mathematics on either of these measures.

Background

The 2001 No Child Left Behind Act (NCLB) signaled a renewed commitment to raising the overall level of academic achievement in the nation’s schools and to helping low-performing students catch up to their higher-achieving peers. With the passage of NCLB, measuring and eliminating achievement disparities now holds the force of law. NCLB has focused attention on and provided funding for closing the achievement gap, making this goal a national priority for the first time.

Among the NCLB provisions, the one most directly focused on closing the achievement gap is the requirement that every child meet state-defined goals for student achievement by 2013–2014. To document progress toward these goals, states are required to establish benchmarks to measure achievement and to report test results by student subgroups categorized by racial/ethnic background, special education status, English proficiency, and eligibility for free and reduced-price school lunch. Using these subgroup data, states must identify schools not making “adequate yearly progress” (AYP) for all subgroups. Repeated failure to meet AYP goals triggers a series of costly remedial measures, ranging from tutoring for some students to the dissolution of substandard schools.

The requirement that schools collect and report student performance data by subgroup is critical for measuring and monitoring the size of the achievement gap over time. An important and potentially far-reaching consequence of this provision is the improvement of state data systems necessary to monitor accountability. Although many states have instituted some form of school report card over the last decade, until recently most were unable to report their student test results by subgroup at the school level, as required by NCLB. Consequently, describing the difference in achievement between white students and their Hispanic and African-American peers at the school level (the gap examined in most relevant research studies) has been difficult.
This report uses data from states that can provide historical student assessment results by race/ethnicity at the school level to calculate the achievement gap and to identify high schools that, over the course of four years, are closing the achievement gap—specifically the gaps between white and Hispanic students and between white and African-American students. Because few states have the necessary data systems in place or have consistently used the same standardized assessment for four years or more, data from only ten states and the District of Columbia are reported. If state student data systems improve with the implementation of NCLB, more states will be able to conduct these kinds of analyses in the future.

Defining and Measuring the Achievement Gap

NCLB explicitly aims to eliminate persistent differences in academic achievement among identifiable subgroups of students, but the federal government is not alone in this effort. In recent years, interest in narrowing the gap has inspired numerous studies and reports sponsored by organizations such as The Education Trust (2001, 1999a, 1999b); the Council of the Great City Schools (2004; Lewis et al., 1999; Snipes et al., 2002); the Brookings Institution (Chubb and Loveless, 2002; Jencks and Phillips, 1998); the College Board (1999); and the National Science Foundation (Kim et al., 1999). This research has used a variety of data and definitions of the achievement gap.

For this report, the achievement gap is defined as the magnitude of the difference in percent passing or percent scoring proficient on state assessments between the target group (such as African-American or Hispanic students) and the comparison group (such as white students). Although this definition seems straightforward, calculating the achievement gap is a complex undertaking.

Test scores for students of color, students with learning, emotional, or physical disabilities, students for whom English is a second language, and students living in poverty have traditionally been averaged with scores for white, middle-class, English-speaking students receiving regular education. This method of measurement can mask stark differences in achievement, but the limitations of state assessment data systems made it impossible to measure disparities among these subgroups in the past. The following questions highlight some of the measurement issues relevant both to previous studies and the research reported here.

**What gap is being measured?** While most of the literature refers to test score gaps, some studies point to gaps in graduation rates, grades, involvement in school activities, college attendance, and even funding (Jencks and Phillips, 1998; College Board, 1999; The Education Trust, 1999b). Even with a focus on test score gaps, many studies look only at reading and mathematics, although NCLB requires a focus on the “core academic areas” of English, reading or language arts, mathematics, science, history, civics and government, geography, economics, the arts, and foreign language.

**What type of assessment is used?** Does the assessment report student proficiency levels or pass/fail scores? Very different profiles of school performance may emerge depending upon the nature of the assessment data.

**What is the target group?** Many studies focus on African-American students, and a smaller number on Hispanic students, but NCLB requires subgroup reporting not only for racial/ethnic categories but also for disability and poverty status.
What is the comparison group? While most studies use white students as the comparison group, some also include Asian students. And depending on the test and the goal of the study, the comparison test scores could be at the national, state, or school level.

These complexities mean that there are various ways of defining the gap, with each definition describing different sets of schools that are successfully “closing” the gap. However the achievement gap is defined, caution is vital in interpreting its meaning. For example, even where gaps in student achievement exist in the aggregate, individual students in the lower-achieving groups may have higher scores than individuals in the higher-achieving groups. Thus, while the average score for African-American students has generally been lower than the average score for white students on national assessments, many individual African-American students outperform their white peers.

National Data on the Achievement Gap

The National Assessment of Educational Progress (NAEP), created in 1970 by the U.S. Department of Education, is generally regarded as the most reliable source of data on recent and long-term trends in the achievement of elementary and secondary school students, especially in reading, mathematics, and science. Studies of achievement gaps also make frequent use of data from other sources, such as the National Education Longitudinal Study of 1988 (NELS), Advanced Placement (AP) exams, state-level achievement tests, and the SAT and ACT, but it is the NAEP that supplies most of the raw data for this line of research.

According to the NAEP, between 1971 and 1999, the overall achievement of American students showed neither sharp declines nor impressive gains (NCES, 2000a; Stedman, 1998). Slight gains were recorded in mathematics and science, mostly in the 1980s, and even smaller gains were made in reading. During the same period, NAEP data demonstrated large and persistent gaps between the scores of African-American and Hispanic students, on one hand, and white and Asian students, on the other. These gaps appear by the time children arrive at school, and they occur in every subject area tested (Lee and Burkham, 2002; Ferguson, 1998).

For example, the results of the 1998 NAEP revealed that almost half of white and 40 percent of Asian 12th-graders scored at or above the “proficient” level in reading, compared with 26 percent of Hispanic and 18 percent of African-American 12th-graders (see figure 1). In 1998, 20 percent of white and 34 percent of Asian 12th-graders reached or exceeded proficiency in mathematics, while just 4 percent of Hispanic and 3 percent of African-American 12th-graders did so (see figure 2).

The NAEP data also show that the achievement gap can be narrowed. For example, at the high school level, the gaps between African-American and white students and between Hispanic and white students have decreased since the 1970s. Between 1971 and 1999, the gap in NAEP reading scores between...
African-American and white 17-year-olds was cut nearly in half, as was the gap between Hispanic and white 17-year-olds. In mathematics, the African-American/white gap declined by roughly a quarter, and the Hispanic/white gap fell by one-third (NCES 2000).

However, most or all of this progress occurred in the 1980s. Indeed, although the gaps are smaller now than they were 30 years ago, they still remain quite large, and in some subject areas and age ranges, the gaps appear to be widening (NCES, 2002; Stedman, 1998; Grissmer et al., 1998). For example, in 1971, the average reading score for African-American 17-year-olds was lower than the average score for white 13-year-olds. This gap diminished between 1971 and 1988, but the reading scores of white students have held more or less steady since then, while the scores of African-American students have declined significantly (NCES, 2002; see figure 3).

Further, to the extent that gaps have narrowed, this appears to be due mostly to increased numbers of African-American and Hispanic students achieving basic levels of proficiency and not to any increase in higher-level skills. Although recent trends suggest that increasing numbers of nonwhite students are taking advanced courses in mathematics (Tate, 1997), the achievement gap has increased over the last decade in higher-level subject areas (Borman et al., 2000; Hedges and Nowell, 1998).
State Data on the Achievement Gap

Although studies of the achievement gap using NAEP data provide reliable long-term trend information on the magnitude of the problem, such findings are necessarily limited in their applicability. With the increased emphasis in recent years on nonwhite student achievement and closing the white/nonwhite gap, research organizations, commissions, and states have published state-specific studies related to measuring the achievement gap. Some of this research focuses on recognizing high-performing schools, while other studies seek to measure the achievement gap directly.

The Education Trust, for example, sought to identify schools that are improving the academic performance of historically lower-scoring groups of students. Through its Dispelling the Myth series of publications (1999a, 2001, 2002), The Education Trust identified high-poverty, high-minority schools that have scored at the top of state academic assessments. These 4,500 “high-flying” elementary, middle, and high schools ranked in the top third in the state for student performance in reading and/or mathematics and had over 50 percent of students enrolled who were either low income or nonwhite (African-American or Hispanic). This analysis used a comprehensive database of school-level state assessment information, but these test scores are overall school averages, not separate estimates by race/ethnicity. It is possible, therefore, to identify high-minority high schools that scored better than expected on their state assessments given their student demographics. But as the report notes, poor or nonwhite students at these schools did not necessarily score as high as their school’s average. Although such high-minority schools have performed better than other schools in their state, they cannot be said to be closing the achievement gap because there is no separate estimate of nonwhite student performance within the school.

Among the studies seeking to measure the achievement gap directly, a limited number have focused on state-level results. Data from Washington state show medium-to-large achievement gaps between the scores of white and Asian students, on the one hand, and African-American and Hispanic students, on the other, on state mathematics and reading assessments (Huggins and Celio, 2002). This study analyzed 4th-, 7th-, and 10th-grade student scores on the Washington Assessment of Student Learning between 1998 and 2001 and found that a disproportionate number of nonwhite students fell at the lower ranges of the scale. And although nonwhite student scores have increased at a somewhat faster rate than white student scores since testing began, the current rate of increase is not sufficient to close the gap in the foreseeable future. Several other studies have measured the achievement gap at the state level, but they have not done so in high schools (South Carolina, 2003; Education Testing Service, 2003; Grissmer and Flanagan, 2001).

The Organization of This Report

This report is focused exclusively on the achievement gap in high schools. Closing the gap at the high school level is a particularly daunting task because students bring with them their accumulated “education histories” that often make it very difficult to overcome performance deficits. State assessment results are used to measure the extent to which individual schools in ten states and the District of Columbia are closing the achievement gap. This study differs from other research in at least two ways. First, the analysis is based on historical data from four years.
of assessments, rather then just two years; and second, it uses racial/ethnic subgroup averages within schools as the basis for measuring change. The schools in this report, therefore, represent those that, over the course of several years, have increased the academic performance of their African-American and Hispanic students relative to that of white students, thus making real progress toward closing the achievement gap.

The next section describes the methodology used in the study to define the achievement gap and to identify gap-closing schools. The final section reports key findings and includes lists of gap-closing schools for each of the ten states and the District of Columbia individually.

Detailed profiles of the gap-closing schools and an interactive database can be found at www.mprinc.com/achievementgap.
Methodology

This section describes how state assessment data were selected and used to identify high schools closing the achievement gap. In particular, it discusses the procedures involved in choosing the states and the analysis samples, describes the scope of the analysis, and defines the term gap-closing school used here.

Selecting the States

Publicly available school-level state assessment data were collected from states meeting all of the following criteria:

■ The state has a standards-based or norm-referenced high school level assessment in mathematics or English/language arts/reading.

■ The data span at least four years.

■ The assessment has not changed appreciably in those years, or scores were adjusted to allow comparisons.

■ The data are disaggregated by race/ethnicity at the school level for each year.

At the time of data collection (winter 2004), ten states (Arkansas, California, Delaware, Indiana, Kentucky, Missouri, Oregon, South Carolina, Texas, and Wisconsin) and the District of Columbia met these criteria.

Scope of the Analysis

To focus the analysis and ensure its relevance to policy, several a priori decisions were made to define the scope of the work as follows:

■ Grade Level: State assessments administered in 10th grade.

■ Schools: Comprehensive high schools, including magnet schools and career academies.

■ Academic Subjects: Mathematics and reading. If states had multiple language arts assessments, the one that most directly assessed reading was used.

■ Target Groups: African-American and Hispanic students.

■ Comparison Group: White, non-Hispanic students.

Data Constraints

The ideal data for analyses of the achievement gap would be individual student scores on state-administered tests; however, because of privacy concerns, only school-level aggregates for students by race/ethnicity were available. Data from the target states vary in the types of measures reported. Some states report average scale scores by school and, separately within schools, by racial/ethnic group (if there are enough students in each group to provide reliable estimates).1 Other states do not report average test scores but report the percentage

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1Each state has a suppression rule for small cells, to protect the identities of the students from whom the mean score is calculated. The rule varies across the states, generally from a low of five to a high of 20 students.
of all students—and students of different racial/ethnic backgrounds—who meet a fixed standard (e.g., in Texas, the percentage passing the 10th-grade TAAS mathematics test, or in Wisconsin, the percentage who reach Basic, Proficient, or Advanced levels on a state assessment). Some states provide both kinds of measures or variations on these measures. All states, however, have some type of fixed standard measure such as percentage proficient or percentage passing. For consistency, this standard measure was used in each state to calculate the achievement gap. However, it is important to remember that the measures themselves—the state assessments—are in no way comparable from state to state.

**Defining the Achievement Gap**

As noted in the introduction, there are several possible types of gap-closing schools. For this study, two measures of the achievement gap were defined, each using a different comparison group.

- The “internal” gap is the difference between the achievement of African-American or Hispanic students in the school and their white peers within the same school (in schools with sufficient enrollments for each group).

- The “external” gap is the difference in achievement between African-American or Hispanic students in the school and the mean achievement of white students in the state as a whole.

<table>
<thead>
<tr>
<th>Internal Gap</th>
<th>External Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>(nonwhite group school mean minus white group school mean)</td>
<td>(nonwhite group school mean minus white group state mean)</td>
</tr>
</tbody>
</table>

**Sample**
- Schools with 4 years of data in either reading or math for white and African-American or Hispanic students

**African-American Gap**
- reading and math

**Hispanic Gap**
- reading and math

**African-American Gap**
- reading and math

**Hispanic Gap**
- reading and math

As shown in the figure above, it is possible to calculate each of these two measures (internal and external) for both target groups (African-American and Hispanic) and for both target subject areas (reading and mathematics). Thus, for each year of data for each school, there are eight discrete measures of the gap:
These measures are not mutually exclusive, so any individual school could be closing one or more of these eight gaps.

Calculating the external gap ensures that schools with high proportions of nonwhite students are not excluded from consideration just because they do not have enough white students to report average white scores. In addition, this measure identifies schools that may not have made substantial progress in closing their internal gap (possibly because they are raising the achievement of all students to the same degree) but that have made significant progress in advancing the achievement of nonwhite students compared with that of white students statewide. Calculating the internal gap identifies positive outcomes in schools with both white and nonwhite populations. How schools accelerate the learning of African-American and Hispanic students relative to their white peers may be related to curricular reform, professional development, or other instructional interventions. Although those strategies are not the focus of this report, a closer look at these schools may be warranted at some point to determine what contributes to their success. Schools closing the internal gap show promising gains perhaps as a result of specific efforts to address the needs of low-achieving students.

### Selecting the Analysis Sample

Because this study focuses on disparities between the achievement of nonwhite and white students, the analysis sample necessarily included only schools with sufficient African-American or Hispanic enrollment to permit subgroup estimates of means or percentages. Many schools in each state had insufficient African-American or Hispanic student enrollment in 10th grade to permit separate estimates, so these schools are not included in the analysis sample.

To be included in the analysis, schools needed data available for African-American or Hispanic students (or both, if both groups were represented in sufficient numbers) for at least four years. Although some states and schools have data for more than four years, choosing a four-year period of historical data as the common time frame for analysis ensured a consistent application of the criteria for identifying a school as “gap closing.” To define the four years of data used for a state, the analysis started with the most recent data available and worked backward from there. In Texas, for example, the most recent year for which TAAS scores were avail-
able was 2001–2002, so the analysis used assessment data from 1999, 2000, 2001, and 2002. This approach accommodates recent shifts in educational practice as states respond to the accountability provisions of NCLB and pay greater attention to closing the achievement gap. These data most accurately reflect current educational practices and trends and the results of those reforms on student achievement.

**Defining a Gap-Closing School**

As defined here, a *gap-closing school* is one in which the gap consistently diminished during each of four consecutive years, as in the following example:

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap</td>
<td>-30</td>
<td>-25</td>
<td>-20</td>
<td>-15</td>
</tr>
</tbody>
</table>

As formulated, this measure is clear and easy to explain to a variety of audiences, including policy makers, school officials, administrators, teachers, and parents. It is also quite restrictive. But student performance and demographics are often quite fluid in the real world of schools, so the definition of a gap-closing school was extended to include additional conditions. These additions accommodate the school-level fluctuations frequently found in such data without diluting the basic gap measure. The additional conditions were the following:

- **Condition #1**: Schools in which the gap decreased in each of three years, but remained the same in one (and only one) adjacent set of years. For example:

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap</td>
<td>-7</td>
<td>-4.9</td>
<td>-4.9</td>
<td>-3.5</td>
</tr>
</tbody>
</table>

- **Condition #2**: Schools in which the gap decreased in each of the first three years, was positive by the third year (i.e., the nonwhite target group scored higher than the white reference group), and remained positive in the fourth year but closer to zero than in the third year. For example:

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap</td>
<td>-23.2</td>
<td>-14.3</td>
<td>9.3</td>
<td>2.6</td>
</tr>
</tbody>
</table>

  This pattern reflects schools that are not only closing the gap, but also those in which nonwhite students were scoring higher, on average, than the comparison group.

- **Condition #3**: Schools in which the gap increased for only one year. The maximum increase allowed is no more than 10 percent of the previous year’s gap. For example:

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap</td>
<td>-26.8</td>
<td>-28.7</td>
<td>-20.0</td>
<td>-10.1</td>
</tr>
</tbody>
</table>

  This pattern reflects the reality of year-to-year shifts in student population and school outcomes.

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2As defined, the gap is a difference measure between nonwhite and white group scores, so a negative number is used to signify that the target nonwhite group mean score is below the white group comparison score.
**Limits on Interpreting the Data**

*Comparing Results Across States*

Most of the ten states and the District of Columbia included in this report have different assessment systems with various tests and benchmarks. Even when a common assessment was used (such as the SAT9), it may have been administered at different times or using different versions of the instrument. For these reasons, comparisons of results across states are not appropriate.

*What Closing the Gap Really Means*

The schools identified in this report are demonstrating consistent progress in reducing achievement differences between white and nonwhite students on state assessments. This analysis used cut scores in state assessments, such as the percentage passing or proficient. Schools closing the gap in the percentage of students meeting such a criterion are not necessarily closing the gap in terms of the absolute size of the original scale score on the assessment. They are successful in that they are increasing the performance of their African-American or Hispanic students over time, relative to white students. Without further study, however, it cannot be assumed that these schools are necessarily among those with the highest overall performance in their state.

*Factors Affecting School Identification*

It was important to identify and eliminate schools that might, at first glance, appear to be closing the gap according to the definition used here but, in reality, are not. For example, if the white average score at the school level is decreasing over time, it might appear to be closing the internal gap, when in fact nonwhite scores are stagnant or even decreasing. But looking at schools in which the gap appears to be closing as a result of diminished achievement by whites and stable or slowly decreasing achievement by nonwhites does not help us learn about the characteristics of schools in which the gap is truly being closed by raising nonwhite achievement. Such schools, therefore, have been excluded from this report.

*The Relationship of Gap-Closing Schools to Adequate Yearly Progress*

NCLB requires states to determine Adequate Yearly Progress (AYP) for their schools based upon expectations for continuous and substantial growth in student achievement in reading and mathematics. Each state’s definition of AYP is based on its own assessment system and must include graduation rates for high schools. To demonstrate AYP, schools must show progress for each statistically reliable subgroup, as well as for the school overall.

A school can meet the definition of “gap closing” used here but still not have made AYP according to the state definition. For example, this study focuses on only two of the student subgroups defined by NCLB, African-American and Hispanic students. A school could fail to make AYP due to the lack of progress for other subgroups, such as special education students, but still be closing the achievement gap for African-American or Hispanic students. In addition, this study does not consider the high school graduation rate in the definition of a gap-closing school, as required for AYP.

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3See state profiles for details about the assessment programs used in each state.

4Schools in which the white mean decreased by more than 10% between year 1 and year 4 were excluded from the internal gap measure.
Similarly, a school can make AYP according to the state definition and still not be considered “gap closing” for the purposes of this research. The state definition of AYP is based on its baseline test-score results and its expectations for yearly improvement, rather than on a continuous decrease in the gap between subgroup scores and overall achievement. Some gap-closing schools are also making AYP, but these definitional differences mean that no assumptions should be made about the relationship between making AYP and being identified as a gap-closing school.

**Interpretation of Results**

Finally, although this report seeks to identify successful high schools, it does not attempt to explain how they are successful or why they are closing the achievement gap between white and nonwhite students. Basic profiles of some of the successful schools are shown in a related online database, but only more in-depth and on-site school-level research can begin to delineate the challenges each school is facing and the means it is using to improve student achievement.

**Data Access**

The data used in this report are publicly available at [www.schooldata.org](http://www.schooldata.org). More detailed profiles of schools closing the gap and an interactive database can be found at [www.mprinc.com/achievementgap](http://www.mprinc.com/achievementgap).