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AUTHOR Kober, Nancy
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ABSTRACT

This report provides educational stakeholders with information about how to close the achievement gap in education. Researchers reviewed several analyses of test score data and various studies of the gap and its causes. Part 1 contains background information and discusses why this gap has become such a critical issue, reviews basic principles, and explains data sources. Part 2 analyzes the nature and extent of the achievement gap on various tests and summarizes trends in the gap over time. Part 3 reviews the main factors proposed by researchers to explain the achievement gap and outlines leading strategies for closing it. Part 4 contains suggestions to policymakers about how to evaluate various strategies for closing the gap and discusses why a comprehensive approach is needed. Promising strategies highlighted in this review include: increasing the participation of minority students in challenging academic programs; providing extended and intensive support for low-performing students; lowering class size in high minority schools; and strengthening parent and community support for achievement. (SM)

it takes more than *testing*

Closing the Achievement Gap

A Report of the Center on Education Policy

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CENTER ON EDUCATION POLICY CEP

1001 Connecticut Ave., NW Suite 619
Washington, D.C. 20036
phone: 202-822-8065
fax: 202-822-6008
e-mail: ctredpol@ctredpol.org

visit our Web site!
www.ctredpol.org

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Prepared by Nancy Kober
April 2001

CENTER ON EDUCATION POLICY CEP

1001 Connecticut Avenue, NW, Suite 619
Washington, D.C. 20036
Phone: 202-822-8065
Fax: 202-822-6008

E-Mail: ctredpol@ctredpol.org
Web site: www.ctredpol.org

ACTION SUMMARY FOR POLICYMAKERS

WHAT ARE THE KEY FACTS ABOUT THE ACHIEVEMENT GAP?

- A wide racial/ethnic gap exists in achievement test scores: African American and Hispanic students score significantly lower, on average, than White and Asian students.
- The achievement gap is present *before* children start school.
- It is wrong to assert that the quality of public schools is declining because of the achievement gap. Over the past 25 to 30 years, every subgroup of students, including Black and Hispanic, has improved its average achievement.
- When achievement rises for all subgroups, African American and Hispanic students must improve at a faster rate than others for the gap to close.
- The achievement gap is not due to differences in innate ability, nor is it simply the result of biased test questions.
- Racial-ethnic differences in family income contribute to the achievement gap but do not entirely explain it.
- There is no simple explanation for the achievement gap. A variety of school, community, and home factors seems to underlie or contribute to the gap.
- We shrunk the gap once, during the 1970s and 1980s, and we can do it again.

ACTION SUMMARY FOR POLICYMAKERS

WHAT ARE WE GOING TO DO ABOUT THE ACHIEVEMENT GAP?

- On the plus side, policymakers are moving swiftly and boldly to raise academic standards and hold schools accountable for improving the achievement of all subgroups. On the minus side, policymakers have been timid about providing the supports and resources needed to close the gap.
- Policymakers are being irresponsible if they lead the public into thinking that testing and accountability alone will close the gap.
- Policymakers must be cautious in attaching consequential penalties to test results, and should closely monitor and quickly address any negative effects of high-stakes testing on minority students.
- Closing the gap will require bold, comprehensive, and long-term strategies.
- Policymakers can start to narrow the gap by acting on what can be done today, based on what we already know. Promising strategies include the following:
  - increasing participation of minority students in challenging academic courses;
  - investing in teacher professional development;
  - implementing comprehensive, research-based models for school improvement;
  - lowering class size in high-minority schools;
  - expanding access to high-quality preschool programs;
  - providing extended learning time and intensive supports for students who are having difficulty; and
  - strengthening parent and community support for learning.
- Policymakers must act to correct the obvious inequities between high-minority and low-minority schools, through such actions as:
  - ensuring an adequate supply of well-qualified teachers in high-minority schools;
  - expanding access to advanced courses and rigorous instruction in high-minority schools;
  - equalizing resources among poor and affluent schools and providing additional resources to high-minority and high-poverty schools; and
  - addressing other disparities in curriculum, instruction, and facilities between high-minority and low-minority schools.
- Everyone has a stake in closing the gap — by 2010, Black and Hispanic children will make up 34% of the school-age population.

CONTENTS

Action Summary for Policymakers ii-iii

What Are the Key Facts About the Achievement Gap? ii

What Are We Going To Do About the Achievement Gap? iii

Executive Summary: It Takes More Than Testing: Closing the Achievement Gap 1

Introduction: Purpose and Organization of This Report 7

I. Background for Understanding the Achievement Gap 9

A. Why the Achievement Gap Is a Critical Issue 9

B. Cautions About Interpreting Test Data 10

C. Data Sources for Studying the Gap 11

II. Trends in Racial/Ethnic Achievement Gaps 13

A. What Are the Long-Term Trends in Overall Student Performance? 13

B. What Are the Long-Term Trends in the Performance of Racial/Ethnic Subgroups? 14

FIGURE 1: NAEP Long-Term Trends in Mathematics, Average Scale Scores for Black, Hispanic, and White 9-Year-Olds 14

C. What Has Happened to the Achievement Gap Over Time? 15

FIGURE 2: Trends in the Gap Between Average NAEP Reading Scores for White and Black 13-Year-Olds (White Score Minus Black Score) 15

FIGURE 3: Trends in the Gap Between Average NAEP Mathematics Scores for White and Hispanic 13-Year-Olds (White Score Minus Hispanic Score) 16

D. Where Does the Gap Stand Now? 16

E. Is There a Gap Before Children Start School and What Happens As They Progress Through School? 18

F. Is There Current Progress in Closing the Gap? 19

III. Contributing Factors and Strategies for Closing the Gap 21

TABLE 1: Factors That May Contribute to the Gap, Strategies That Could Help Close the Gap 21

A. Factors That May Contribute to the Gap 22

B. Possible Strategies for Closing the Gap 24

IV. Evaluating Strategies for Closing the Gap 27

A. Why Strategies To Close the Gap Should Be Comprehensive 27

B. Taking Actions To Close the Gap 29

Endnotes 31

Appendix 33

FIGURE 4-A: NAEP Mathematics, Age 9: Trends in Average Scale Scores for Black and White Students 33
FIGURE 4-B: NAEP Mathematics, Age 13: Trends in Average Scale Scores for Black and White Students 33
FIGURE 4-C: NAEP Mathematics, Age 17: Trends in Average Scale Scores for Black and White Students 34
FIGURE 4-D: NAEP Mathematics, Age 9: Trends in Average Scale Scores for Hispanic and White Students 34
FIGURE 4-E: NAEP Mathematics, Age 13: Trends in Average Scale Scores for Hispanic and White Students 35
FIGURE 4-F: NAEP Mathematics, Age 17: Trends in Average Scale Scores for Hispanic and White Students 35
FIGURE 5-A: NAEP Science, Age 9: Trends in Average Scale Scores for Black and White Students 36
FIGURE 5-B: NAEP Science Age 13: Trends in Average Scale Scores for Black and White Students 36
FIGURE 5-C: NAEP Science, Age 17: Trends in Average Scale Scores for Black and White Students 37
FIGURE 5-D: NAEP Science, Age 9: Trends in Average Scale Scores for Hispanic and White Students 37
FIGURE 5-E: NAEP Science, Age 13: Trends in Average Scale Scores for Hispanic and White Students 38
FIGURE 5-F: NAEP Science, Age 17: Trends in Average Scale Scores for Hispanic and White Students 38
FIGURE 6-A: NAEP Reading, Age 9: Trends in Average Scale Scores for Black and White Students 39
FIGURE 6-B: NAEP Reading, Age 13: Trends in Average Scale Scores for Black and White Students 39
FIGURE 6-C: NAEP Reading, Age 17: Trends in Average Scale Scores for Black and White Students 40
FIGURE 6-D: NAEP Reading, Age 9: Trends in Average Scale Scores for Hispanic and White Students 40
FIGURE 6-E: NAEP Reading, Age 13: Trends in Average Scale Scores for Hispanic and White Students 41
FIGURE 6-F: NAEP Reading, Age 17: Trends in Average Scale Scores for Hispanic and White Students 41

EXECUTIVE SUMMARY

IT TAKES MORE THAN TESTING: CLOSING THE ACHIEVEMENT GAP

Recently the Center on Education Policy reviewed a variety of studies and test data to better understand the "achievement gap" — the finding that African American and Hispanic students score lower on standardized tests, on average, than White and Asian students. **Our review uncovered several trends, findings, and policy options that have not received enough attention in the current debate and in media reports about the gap.**

In this summary, we lay out several key points about the achievement gap that warrant greater attention. We also recommend an approach that policymakers should use to weigh various options for closing the gap. These points and recommendations are expanded on and supported in the body of this report. In general, policymakers must think more boldly and broadly about strategies to close the gap than many are doing right now.

The Achievement Gap Is Significant, But It's Not Just a Problem of Schools

Despite long-term progress by African American and Hispanic students, the gaps on various standardized tests remain wide. But how wide *is* wide? People who aren't testing experts may have difficulty putting the gap in perspective. What does it really tell us about student learning when we hear about a 30-point score gap on a given test?

One way of understanding these statistics is to compare average scores for students at different ages. **On the 1999 reading trends test of the National Assessment of Educational Progress (NAEP), the average score of Black students at age 17 was roughly the same as that of White students at age 13.** In science, the average scores of Black and Hispanic students at age 13 were lower than the average score of White students at age 9.

Another approach is to relate score differences to grade-level equivalencies. On the 1999 NAEP mathematics trend test, the average score for Black 13-year-olds was more than 30 points below that of White 13-year-olds — roughly the equivalent of three grade levels behind. **In science, the average score for Hispanic 9-year-olds was the equivalent of more than three grade levels behind that of White 9-year-olds.**

Many people are familiar with the 200 through 800 scale used in the SAT college entrance exams. In 2000, the gap between Black and White average SAT scores was 123 points in math and 95 points in verbal. The Hispanic-White gap was 89 points in math and 70 points in verbal.

Because most of the discussion about the gap centers on school-age children, many people think the gap is entirely the product of what happens in school. **In fact, assessments of young children have uncovered a sizable achievement gap *before* children start school.** Studies have also theorized that Black and Hispanic students gain less in achievement during the summer months than White and Asian students. Together these findings signal that schools are not the only segments of society that can cause, or close, the achievement gap. What happens at home and in communities is also critical.

Achievement Trends Offer a Reason for Optimism

Clearly, the racial/ethnic achievement gap is a serious national issue. But in calling attention to the seriousness of the problem, analysts, advocates, and media people have neglected to mention some encouraging trends in overall student achievement and minority student achievement. An emphasis on the negative causes people to mistakenly conclude that the gap is something that we just have to live with, or that its causes are too far-reaching or elusive to be much affected by policy actions.

The existence of an achievement gap does *not* mean that student achievement is declining or that schools are getting worse. Some political leaders and analysts incorrectly point to the gap as an indicator that schools are failing. **The fact is, U.S. students as a whole are performing better on key tests than they did 30 years ago, especially in mathematics.** Overall achievement has risen, even as the test-taking population has changed to include a greater share of minority children, immigrant children, English language learners, and children with disabilities — subgroups that traditionally have performed at lower than average levels.

Every racial/ethnic subgroup has made gains in achievement during the past 25 to 30 years. African Americans, Hispanics, Whites, Asians, and other groups have improved their average achievement for most of the subjects and ages tested. There is every reason to believe that achievement can improve for minority children in the future.

Past experience offers more fuel for optimism. **We shrunk the gap once, and we can do it again.** During the 1970s and 1980s, the achievement gap narrowed as African American and Hispanic students made substantial, even dramatic, strides in achievement, while the achievement of White students changed little. These gains for minority students occurred at a time when Head Start, Title I, and other federal programs sought to improve educational opportunities and reduce poverty. So these policy interventions appear to have made a difference.

Since about 1988, the racial/ethnic achievement gap has stayed the same for some subjects and ages and widened for others. This is not due to a lack of improvement. In the past decade or so, Black and Hispanic students have made gains in some subjects. But the gap has not narrowed because their gains did not exceed those made by other subgroups.

In a nutshell, the size of the gap depends not only on trends in minority student achievement, but also on rates of improvement or decline for other subgroups. **When achievement goes up for all groups, African American and Hispanic students must improve at a faster rate than others for the gap to close.**

Standards-Based Reform Has Made the Gap a Front-Burner Issue

The movement to reform education by raising academic standards has made the achievement gap a highly visible issue. The goal of standards-based reform is to ensure that *all* students reach high levels of academic learning. Toward this end, states have adopted standards for student performance that are markedly higher than the basic skills expectations of 25 years ago, when states first instituted minimum competency testing. The bar has been raised — and this makes the achievement gap more obvious. In addition, test scores are receiving more scrutiny than ever before, because they are the primary means of judging whether students and schools are progressing toward standards.

Standards-based reform has highlighted the fact that many students are performing below expectations, and that a disproportionate share of these students are African American and Hispanic. It is becoming increasingly apparent that the nation cannot raise achievement to internationally competitive levels without addressing the achievement gap. If achievement rises across the board as reformers hope, Black and Hispanic students will have to make even greater gains to close the gap.

Standards-based reform has the potential to enhance equity. It assumes that high standards and a challenging academic curriculum are for *all* students, not just an academic elite. Because performance is closely monitored, students who need extra help are identified early and less likely to fall between the cracks. And new accountability systems leave little room for excuses about why some children are not learning. Whether this potential for equity is realized will depend on whether schools, teachers, and students receive the supports required to help all pupils learn to high standards.

Numerous Factors Contribute to the Achievement Gap

Our review revealed that there is no simple explanation for racial/ethnic differences in achievement test scores. Some factors, such as innate differences and test bias, can be clearly ruled out. Other factors, such as negative peer pressure and differences in parenting styles, seem to be relevant, but their relationship to the gap is not fully understood. Still other factors, such as differences in teacher qualifications, are cited in multiple research studies as important contributors to the gap.

First, it should be stated what the gap is *not* about. **Many studies have made clear that innate ability and genetic factors are not the reason for the achievement gap.** The gap is not an irreversible reality.

The gap is not primarily a consequence of test bias, either. Although test developers and users must be continually vigilant for possible biases, many studies have looked at test bias in the context of the achievement gap. They have concluded that test scores gaps — which appear across several different types of test questions and other non-test measures of learning — are indicators of real differences in achievement, not just different cultural responses to test content.

Do income differences account for the gap? African American and Hispanic families tend to have higher rates of poverty and lower levels of parent education, both of which correlate with lower achievement in children. When test scores are adjusted to compensate for these two factors, the gap shrinks — by about a third, according to one estimate — but it does not disappear. **In other words, racial/ethnic differences in family income and parent education can explain some, but not all, of the achievement gap.** Studies have also shown that a racial/ethnic achievement gap exists among students from families with similarly high levels of income and parent education. Even so, there are numerous other racial/ethnic background differences — from cumulative family wealth to grandparents' education — that have not been studied, but that may influence children's learning.

At the same time, the role of poverty should not be dismissed. Interventions to reduce poverty should be one of several strategies to close the gap. As the experience of the 1970s suggests, anti-poverty programs probably do help to narrow the gap.

What, then, are the most probable explanations for the gap? **A complex combination of school, community, and home factors appears to underlie or contribute to the gap.** For example, African American and Hispanic students are less likely than White or Asian students to take challenging courses or be exposed to rigorous instruction. They have less access to experienced and well-qualified teachers. Teachers tend to expect less of Black and Hispanic children than of White and Asian children. Black and Hispanic children also attend schools with fewer resources and higher rates of disruption and student mobility. They have less access to learning activities at home and in the neighborhood.

We've Taken the Small Steps, Let's Take the Bold Steps

On the plus side, policymakers are moving swiftly and boldly to raise academic standards and hold schools accountable for improved achievement of all subgroups. In a span of five years, states have raised their stan-

dards, begun development of new tests to better measure progress toward standards, and instituted stronger accountability systems to spur school-level improvement. State and national leaders are further proposing to expand testing, adopt stronger accountability in federal and state programs, analyze test data by race and ethnicity, and hold schools accountable for the performance of all subgroups.

Testing and accountability systems are not ends in themselves, however. They are tools that can help educators accomplish the real end of education — higher student learning. Public reporting of test scores and penalties or rewards for performance can be strong motivators, but the reasons for low achievement are more complex than just a lack of motivation. **Policymakers are being irresponsible if they lead citizens to believe that testing and accountability are the primary steps we need to take to raise achievement and close the gap.** Critical strategies like professional development for teachers or rigorous courses for students are being neglected. The public could lose faith in school reform if test scores flatten out after a few years and the gap does not shrink.

Therefore, on the minus side, we find that many current proposals which purport to address the gap are not comprehensive or bold enough to do the job. The hardest part of standards-based reform is not setting standards or developing tests. It is translating those standards and tests into *real changes* in curriculum, instruction, and learning opportunities. Strategies to close the gap must be comprehensive, multi-faceted, and sustained over a long term. **We recommend that policymakers be bold in providing the full range of strategies, supports, and resources required to raise achievement among Black and Hispanic children, or any children who are not meeting standards.**

A final caution is in order. Many states are using tests for high-stakes decisions about students or teachers, such as determining whether students will be promoted or will receive a high school diploma, or targeting schools for rewards and sanctions. When tests are improperly used for high-stakes decisions, they can reinforce racial/ethnic inequalities instead of reducing them. **Policymakers must be cautious in attaching consequential penalties to test results, and should closely monitor and quickly address any negative effects of high-stakes testing on minority students.** At a minimum, the test should match the curriculum; students should have an opportunity to learn the material being tested; and schools should receive the necessary supports to address the needs of failing students. Tests should not be used for purposes for which they were not designed or validated. High-stakes decisions should be based on multiple measures. Educators and policymakers should be trained in criteria for appropriate test use.

We Can Take Substantive Policy Actions Right Now to Close the Gap

Closing the gap may seem like an insurmountable policy agenda because the roots of the problem are far-reaching and deep, and the solutions require major efforts on many different fronts. Moreover, we still do not understand some of the causes of the gap, nor have we tested all the possible solutions. How, then, can policymakers decide what to do?

Policymakers can start to narrow the gap by acting on what can be done today, based on what we already know. Research has identified several strategies that are effective in raising achievement. Several states and school districts have made progress in narrowing the gap. Policymakers can learn from these sources. Some of the most promising research-based strategies include the following:

- investing in teacher professional development;
- lowering class size in high-minority schools;
- increasing the participation of minority students in challenging academic courses and rigorous instruction;

- implementing comprehensive, research-based models for school improvement;
- expanding access to high-quality preschool programs;
- providing extended learning time and more intensive programs for students who are having difficulty; and
- strengthening parent and community support for learning.

A critical step involves addressing the obvious inequities that exist between schools with high enrollments of minority children and those with lower minority enrollments. Similar disparities are found in high-poverty and low-poverty schools. **Policymakers must place high priority on addressing disparities that are obviously unfair and can be corrected.** Strategies to accomplish this include the following:

- ensuring an adequate supply of well-qualified teachers in high-minority and high-poverty schools;
- expanding access to advanced courses and rigorous instruction in high-minority schools;
- equalizing resources among poor and affluent schools and providing additional resources to high-minority and high-poverty schools;
- rallying parents and community leaders to support high achievement and offer enhanced learning opportunities for minority children in the community; and
- addressing other disparities in curriculum, instruction, and facilities between high-minority and low-minority schools.

Closing the Gap Is a Shared Responsibility

As demographic data makes clear, the gap is everyone's concern. **By the end of the decade, Black and Hispanic children will make up 34% of the school-age population.** Our nation's economic strength and social cohesion depend on *all* children being well-educated.

Many current proposals for closing the gap stress the need for greater accountability in the educational system. Educational accountability is critical, but some of the responsibility lies outside of the schools. **Closing the gap should be a shared responsibility among the public and private sectors and the federal, state, and local levels. Educators, students, policymakers, parents, and community people all have a role to play.** The same degree of accountability that is being applied to students and teachers should be applied to the broader educational system and the larger society. We cannot ask more of schools and children than we ask of the rest of us.

INTRODUCTION

PURPOSE AND ORGANIZATION OF THIS REPORT

This report is intended to provide policymakers, educators, and other interested people with essential information about one of the most widely-discussed issues in education today — how to close the achievement gap. The term "achievement gap" refers to the finding that African American and Hispanic students score lower, on average, on most standardized tests than White and Asian students. Test score gaps also exist for other racial/ethnic groups, such as American Indians, Alaska Natives, and Pacific Islanders, but since data on these groups is limited, they are not the main focus of this report.

Because the achievement gap is a sensitive topic and because misconceptions can have damaging effects, it is critical that policies to close the gap be based on solid evidence rather than conjecture. For example, many people may not be aware of how the achievement gap has changed over time or how it relates to overall trends in student achievement. To help provide a background for policy discussions, the Center on Education Policy reviewed several analyses of test score data, as well as various studies of the gap and its causes. This report synthesizes what we have learned and makes suggestions for how policymakers should weigh various proposals for closing the gap.

The report is organized as follows:

- Part I contains background information about the achievement gap. It discusses why the achievement gap has become such a critical issue, reviews some basic principles and cautions about appropriately interpreting test data, and explains data sources for analyzing the gap.
- Part II analyzes the nature and extent of the achievement gap on various tests and summarizes trends in the gap over time.
- Part III reviews the main factors proposed by researchers to explain the achievement gap and outlines the leading strategies for closing it.
- Part IV contains suggestions to policymakers about how to evaluate various strategies to close the gap and discusses why a comprehensive approach is needed.

I

BACKGROUND FOR UNDERSTANDING THE ACHIEVEMENT GAP

A. Why the Achievement Gap Is a Critical Issue

Racial/ethnic gaps in test performance have long been observed and debated, but recent trends in education, demography, and the economy have made the achievement gap a high-priority issue. State and national leaders have begun to recognize that the nation cannot raise standards and improve student achievement without closing the achievement gap.

Standards-based reform has highlighted the persistence of achievement gaps and raised the stakes attached to test scores.

■

In recent years, states have tried to improve education by raising their standards for what all students should know and be able to do in academic subjects and by holding educators and students accountable for meeting those standards. The federal government has nudged along these efforts by basing accountability in certain federal education programs — most notably the Title I program for disadvantaged students — on students' progress toward challenging state standards.

Tests are the primary tools being used to measure progress toward standards. The amount and the consequences of educational testing have increased dramatically in recent years. All 50 states now test their students. Increasingly, states are also using test results to make important decisions about programs, schools, and individuals — sometimes referred to as "high-stakes" testing. At present, 27 states use test results, alone or with other measures, to rate school performance or identify low-performing schools. Several states also use test scores to allocate rewards, such as extra funding for schools or college scholarships for students, or to target schools for sanctions, such as withholding of accreditation or takeover by the state. In 18 states, students must now pass state tests to receive a high school diploma, and in 3 states, students must pass tests to be promoted in certain grades.[1] Within the next few years, several more states plan to institute tests for graduation or promotion.

Standards-based reforms are beginning to show benefits. Expectations for students' learning have risen, test scores are increasing in some states, and the proportion of students taking rigorous academic courses has gone up. At the same time, these reforms have highlighted the fact that many students are still performing far below expectations and that a disproportionate share of these students are African American and Hispanic. The fundamental goal of standards-based reform is to ensure that *all* students become academically proficient. We must close the racial/ethnic achievement gap while simultaneously improving achievement across the board.

The imposition of high-stakes testing also lends an urgency to the situation. Unless progress is made in closing the gap, Black and Hispanic students could be disproportionately harmed by requirements that link test scores to promotion or graduation. Although testing is necessary to tell us which students and schools are not learning to standards, this data should be used to drive decisions about resources and other supports to help those most in need. Closing the gap requires more than setting standards, giving tests, and identifying which schools did not reach benchmarks. As discussed in

Part IV, it also means providing students, teachers, and schools with the supports needed to help all students reach the standards.

African American and Hispanic students make up a growing share of the school-age population and future workforce. Our nation's economic competitiveness and social cohesion depend on closing the gap.

■

In 2000, African American and Hispanic students together constituted 30% of the school-age population, up from about 15% in 1970.[2] By 2010, Black and Hispanic children are projected to make up 34% of the school-age population.[3] In some states, minority students will constitute more than half the school-age population. In many urban school districts, the enrollment of Black and Hispanic students already exceeds 80%. As these figures illustrate, we cannot talk about improving education without paying attention to the needs of a significant percentage of our students.

Achievement gaps not only have a lifelong impact on the Black and Hispanic students affected directly, but also have implications for the broader society. Students with lower achievement are more likely to drop out of high school and less likely to attend college than higher-achieving students. When students with low achievement enter the workforce, they earn less. The strength of our economy and democracy depends on all citizens being well educated. Many employers are having difficulty filling technology-related jobs and the numerous other jobs that require good academic skills. Improving the achievement of Black and Hispanic students will help to eliminate economic disparities and ensure that all young people are well prepared to become productive workers and active citizens.

B. Cautions About Interpreting Test Data

Studies of the achievement gap involve an intense focus on test scores and subgroup averages. However, readers should keep in mind some basic principles and cautions about interpreting test data and drawing conclusions based on averages.

A test score is an estimate, not an exact measure. A student's performance may vary depending on a variety of factors.

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Test scores are not ends in themselves, but a means of measuring how well students are learning the knowledge and skills that are the real ends of education. When well-designed tests are used appropriately, they can provide valuable information about student learning. Even the best-constructed tests, however, do not produce an exact measure. Test scores are *estimates* of the test-taker's understanding at one point in time, based on a small *sample* of everything a student knows and can do in a given area. A student's performance may vary depending on which content and skills are covered, when and how the test is administered, whether the format is familiar or new, whether the material being tested was actually taught, and many other factors.

For these and other reasons, testing experts advise against using a single test as the sole gauge of a student's knowledge or attaching high stakes to tests not designed explicitly for that purpose. As discussed in Part IV, this advice has not always been followed in the push toward stricter accountability. Tests are the most useful measuring tools we have, but their strengths will be compromised if they are used inappropriately.

The achievement gap is primarily a problem of achievement, not of race or ethnicity or innate ability.

■

There are several reasons why users of test data should be careful about making inferences from subgroup averages. First, although studies of the achievement gap, by their very nature, involve a hard-nosed look at performance deficits, one must not lose sight of the fact that African American and Hispanic students have made real gains in performance during the past few decades. Notable progress has been made in high school completion rates, participation in rigorous courses, college atten-

dance and graduation, attainment of advanced degrees, and other areas.

Second, one should take care not to draw conclusions about individuals from group averages or to invoke stereotypes. Many African American and Hispanic students perform at very high levels. Indeed, the full range of achievement, from high to low, occurs in all subgroups.

Third, the current situation of lower average test scores among African American and Hispanic students is not an irreversible reality. Many studies have made clear that innate ability and genetic factors are not the reason for the achievement gap. The main purpose for spotlighting data by race and ethnicity is to understand trends in performance and identify special needs that must be addressed so that all children will learn at high levels.

Racial/ethnic achievement gaps do not seem to be merely the result of biased test questions or content. Test developers still have a responsibility, however, to monitor and address possible test bias.

■

While no test is completely free of bias, the achievement gap is, by all indications, a real phenomenon and is not simply a product of test bias. The fact that similar racial/ethnic gaps appear on a variety of tests, on both multiple-choice and more innovative kinds of test items, and on other non-test indicators is evidence of real differences in achievement. Even so, test developers have a continuing responsibility to evaluate test items for racial and cultural bias and to accurately label tests to avoid any suggestion that a test measures innate abilities when most tests really measure developed capacities.[4] Test users also have a responsibility to ensure that test scores are not applied in ways that unfairly exclude people from educational or employment opportunities.

C. Data Sources for Studying the Gap

To understand the achievement gap, one must look at performance data both for the nation as a whole and for racial/ethnic subgroups of students. This is necessary because national averages can mask modest but meaningful shifts in the performance of subgroups.

*The size of the achievement gap depends on the **relative** changes in the performance of subgroups. It also varies according to which test is used, which subjects, ages, and time periods are examined, and whether the focus is basic or advanced skills.*

■

Achievement does not always move in the same direction or at the same pace for every subgroup. The size of the achievement gap depends on the rates of improvement or decline among various subgroups. For example, if African American students make great strides while White students improve slowly or stay the same, then the gap will narrow. If all subgroups progress at roughly the same pace, then the gap will not change much. If the goal of education reform is to narrow the gap while raising achievement overall, then Black and Hispanic students must improve at a faster rate than other subgroups.

Other factors also affect the size of the achievement gap. It is larger on some tests than others, and it varies by age group and subject. Whether the gap is shrinking or growing depends on the time span analyzed. It is also crucial to distinguish between *historical* trends (Are Black 9-year-olds performing better today than Black 9-year-olds did in 1970?) and *cohort* trends (What happened to the achievement of students born in 1978 as that entire cohort progressed through school?).

Finally, the magnitude of the gap depends on how high the bar is set — in other words, is the goal for students to reach an adequate level of basic skills or to master advanced subject-matter knowledge and skills? This is a critical issue at present, because states have developed various definitions for "adequate" progress and have set different "cut scores" for passing state tests. In general, the standards being adopted by states today go well beyond the levels of basic skills that students were expected to reach during the minimum competen-

cy testing era of the 1970s. If expectations had stayed at this basic level, the gap would be smaller.

The most consistent national data about achievement gaps comes from the federally funded National Assessment of Educational Progress. Data from college entrance exams and other tests also shed light on aspects of the gap.

■

Many standardized tests disaggregate achievement data by race and ethnicity, but only a few assessments produce data suitable for analyzing long-term national trends in the gap.

NAEP DATA. The best source is the National Assessment of Educational Progress (NAEP), a federally funded testing program established to measure the performance of American students in mathematics, science, reading, and other key subjects. NAEP does not produce individual scores for students, but instead gives a picture of achievement for the entire nation and for states that participate in a voluntary program to produce state-by-state data. NAEP administers two types of assessments — "trend" assessments and "main" assessments, which have the following features:

- The NAEP *trend* assessments, which began in 1969, are the only ongoing national monitor of long-term trends in student performance. These assessments are specially designed to yield scores that are comparable across many years. They are administered periodically to a nationally representative sample of students at ages 9, 13, and 17, and they assess performance in mathematics, science, and reading. Subgroup data is available only for Black, Hispanic, and White students.

- The *main* NAEP assessments began in 1990. They use different test instruments than the trend assessments and incorporate more innovative assessment methods. Students are assessed periodically in grades 4, 8, and 12 (rather than at specific ages), and data is disaggregated for five racial/ethnic subgroups (White, Black, Hispanic, Asian/Pacific Islanders, and American Indian/Alaska Natives). In addition to math, science, and reading, the main NAEP assessments are given in writing, history, geography, civics, and the arts. Results are expressed not only in terms of students' raw scores, but also in terms of how many students across the nation demonstrate the knowledge and skills typical of three performance levels: Basic, Proficient, and Advanced. Both the test instruments and the performance levels are modified periodically, so that results from newer assessments are not comparable with those from older assessments. But the main NAEP results do shed light on achievement gaps during the 1990s.

COLLEGE ENTRANCE EXAMS. The SAT and the ACT exams are another common source of data about the achievement gap. These tests are designed specifically to predict how well students will perform in their first year of college. The tests are voluntary, taken mostly by students who plan to go college; in 1995, about 42% of high school graduates took the SAT at some point during high school.[5] For these reasons, SAT and ACT scores are not good indicators of the achievement of the general student population, but they still provide useful information about the achievement gap among college-bound students.

STUDIES ACROSS TESTS. Some researchers have analyzed data from several different surveys and assessments, searching for broad patterns in achievement gaps across tests. Data sources for these analyses have included NAEP; various national longitudinal surveys of youth done by the U.S. Department of Education; a 1980 national study called High School and Beyond; the 1991 Prospects study (a Congressionally mandated study of educational growth); and various surveys of the U.S. Department of Health and Human Services. Recently, scholars have also begun to do cross-state analyses of state test results.

II

TRENDS IN RACIAL/ETHNIC ACHIEVEMENT GAPS

A. What Are the Long-Term Trends in Overall Student Performance?

The most recent data on trends in general U.S. achievement comes from the 1999 NAEP trend assessment. In August 2000, the U.S. Department of Education published the results of this assessment, comparing them with baseline data from the early 1970s.[6]

U.S. students have made encouraging gains in achievement over the past 30 years, most notably in math. The NAEP trend assessments show a broad pattern of declines in the earlier part of this time span, followed by increases or stable performance in the latter part.

■

NAEP TREND DATA. The most consistent improvements on the NAEP trend assessments have occurred in ***mathematics.*** Students at all three ages tested — 9, 13, and 17 — scored better overall in 1999 than they did on the baseline math assessment of 1973. In ***science,*** NAEP trends vary for different age groups. Nine-year-olds scored higher in 1999 than they did on the baseline science assessment of 1970, while 13-year-olds stayed about the same. The science scores of 17-year-olds are still somewhat lower than they were 30 years ago, despite a recent, gradual rise that reversed an earlier period of decline. In ***reading,*** the overall 1999 NAEP trend scores for ages 9 and 13 showed improvements over the baseline assessment of 1970, although gains were smaller than in math. For 17-year-olds, reading scores remained relatively unchanged.

These general improvements in NAEP scores are particularly interesting because they have occurred during a period of demographic change. African American and Hispanic children — the subgroups with the lowest average scores — constitute a greater percentage of the school-age population, and therefore of the NAEP test-taking population, than they did 30 years ago. When a greater share of test-takers comes from lower-scoring subgroups, the national average is depressed. In other words, the overall gains are less than they would have been if the demographic composition of test-takers had stayed the same. In some subjects, the overall average gain, paradoxically, may be lower than the gains for any one subgroup.[7]

Scores on the SAT and ACT college entrance exams have been moving upward in recent years, even as the college-bound population taking these tests has grown larger and more diverse.

■

COLLEGE ENTRANCE EXAMS. Continuing a decade-long upswing, the average SAT math score in 2000 reached a 30-year high of 514 (on a scale of 200 to 800). The average SAT verbal score remained stable for the fifth consecutive year, at 505. This long-term trend of rising or stable scores has reversed a highly publicized decline in SAT scores that bottomed out in the early 1980s in the math test and in the early 1990s in the verbal test. Most importantly, these SAT gains have occurred even as the test-taking population has expanded and become more ethnically, racially, and linguistically diverse. Thirty-four percent of the students who took the SAT in 2000 were non-White, compared with 15% in 1976 — a dramatic change. A

greater share of test-takers than ever before was foreign-born or came from families in which English was not the first language.[8]

Scores on the ACT, the other major college entrance exam, increased during the 1990s, after two previous decades of fluctuations and declines. In 2000, the average ACT composite score (combined math and verbal) for all test-takers remained at 21.0 for the fourth consecutive year. (The ACT has a scale of 1 to 36.) Stable scores are encouraging, because they mean that the gains of the early 1990s are being maintained even as the test-taking population is expanding and becoming more diverse.[9]

B. What Are the Long-Term Trends in the Performance of Racial/Ethnic Subgroups?

NAEP and college entrance tests show gains over time among various subgroups.

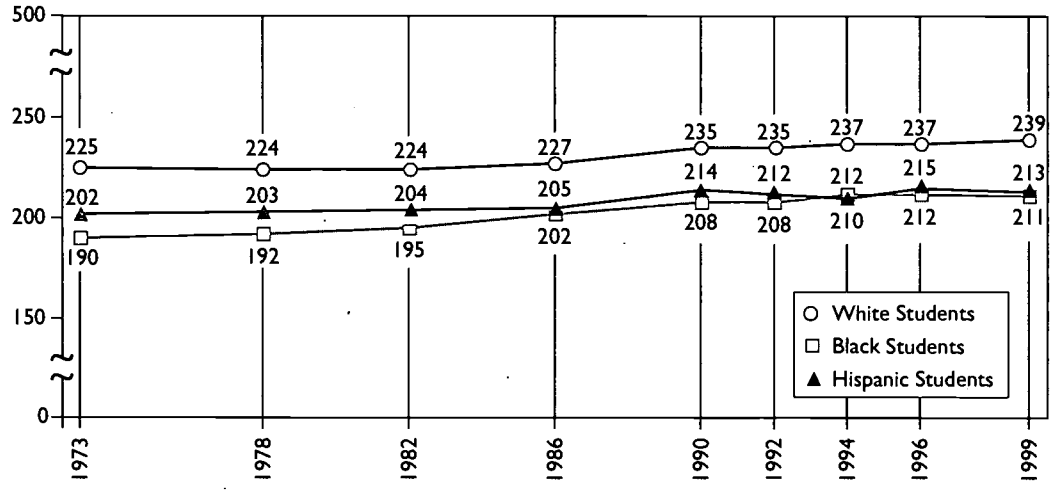
All three subgroups — Black, Hispanic, and White students — have shown improvements on NAEP compared with 25 to 30 years ago, although not in every subject or at every age.

NAEP TREND DATA. Gains among subgroups on the NAEP trend assessments have occurred during different time spans and at different paces, with most of the improvement taking place before 1990.[10] In ***mathematics,*** all three racial/ethnic subgroups have made gains at all three ages tested, compared with student performance from 25 or 30 years ago. FIGURE 1 shows the long-term gains in math among 9-year-olds for three subgroups.

In ***science,*** Hispanic students showed gains over three decades at all ages. Black and White students gained primarily at ages 9 and 13. In ***reading,*** Black and Hispanic students improved at all ages, compared with 30 years ago. The clearest improvements for White students were among 9- and 13-year-olds. The figures in the appendix show the long-term trends for all three racial/ethnic subgroups in mathematics, science, and reading.

COLLEGE ENTRANCE EXAMS. Since 1989, SAT scores have increased for Black and White students (as well as for Asian students). Looking farther back in time, one sees that Black students have made especially notable gains, as their average scores have climbed from 686 in 1976 to 860 in

FIGURE 1 • NAEP LONG-TERM TRENDS IN MATHEMATICS
AVERAGE SCALE SCORES FOR BLACK, HISPANIC, AND WHITE 9-YEAR-OLDS



Scale: 0 - 500
Source: National Assessment of Educational Progress, *1999 Trends in Academic Progress.*

2000. The SAT disaggregates data for three Hispanic subgroups; since 1989, the average scores for Puerto Ricans have gone up, while those for Mexican Americans and Hispanic/Latinos have gone down.[11]

On the ACT, composite scores have been relatively stable across all subgroups in recent years. Compared with 25 years ago, however, the average ACT composite score for Black students has increased, from 15.1 in 1976 to 17.0 in 2000. Long-term comparisons cannot be made for Hispanic students because the definitions for this subgroup have changed.[12]

C. What Has Happened to the Achievement Gap Over Time?

Across multiple measures, African American and Hispanic students have made encouraging long-term gains in achievement, and this has narrowed the gap. But NAEP data also indicates that this narrowing stalled during the 1990s.

During the past three decades, the gap in NAEP performance between minority and White students has narrowed — in some cases dramatically — because of gains in minority student achievement. Gaps in SAT scores have also shrunk. Most of this narrowing took place before 1988. Since then, gaps have stayed the same for some subjects and ages and widened for others.

■

NAEP TREND DATA. The most revealing information about achievement gaps comes from the NAEP trend assessments. The best news is in ***mathematics,*** where the Black-White gap shrunk for all three ages tested between 1973 and 1999, and the Hispanic-White gap narrowed at ages 13 and 17. In ***science,*** the Black-White gap narrowed at ages 9 and 13; the Hispanic-White gap has fluctuated slightly, but was not significantly different in 1999 than in 1977 (the first year Hispanic subgroup data was available in science). In ***reading,*** the Black-White gap narrowed for all three age groups between 1971 and 1999. The Hispanic-White gap decreased only at age 17, between 1975 (the first year Hispanic reading data was available) and 1999.[13]

Most of the reductions in the gap occurred during the 1970s and 1980s. During this period, Black students made notable — sometimes dramatic — gains in all three subjects, while White students made small gains or stayed mostly the same. Between 1971 and 1988, for example, the Black-White gap in reading for 13-year-olds narrowed by 21 points on the NAEP scale — roughly equivalent to a gain of two grade levels for the average Black student, relative to the average White student.[14] FIGURE 2 illustrates how the Black-White gap has changed over time in reading at age 13. In math, the Black-White gap shrunk by 22 points between 1973 and 1986, a change roughly equivalent to more than two grade levels. (The additional figures in the appendix illustrate changes in the gap for other ages and subjects.)

FIGURE 2 • TRENDS IN THE GAP BETWEEN AVERAGE NAEP READING SCORES FOR WHITE AND BLACK 13-YEAR-OLDS (WHITE SCORE MINUS BLACK SCORE)

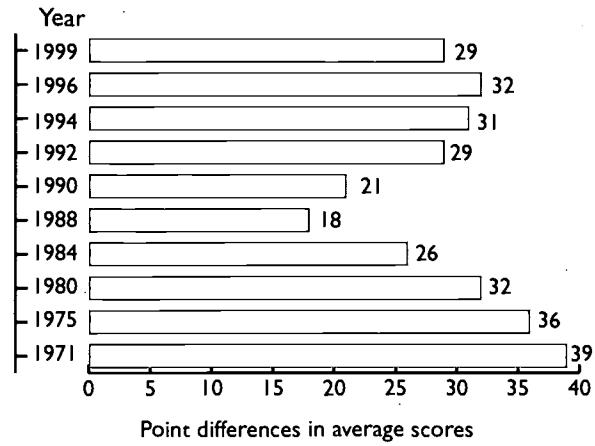
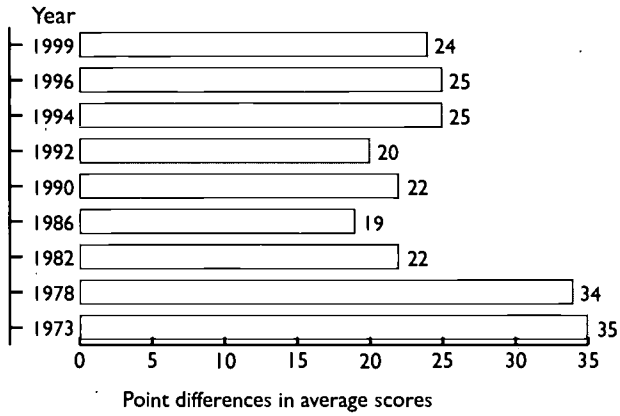


Figure reads: In 1999, the average NAEP score in reading for White students was 29 points higher than the average score for Black students.

Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 3 shows changes in the Hispanic-White gap in math for 13-year-olds. Between 1973 and 1986, the gap shrunk by 16 points, or roughly one and one-half grade levels.

FIGURE 3 • TRENDS IN THE GAP BETWEEN AVERAGE NAEP MATHEMATICS SCORES FOR WHITE AND HISPANIC 13-YEAR-OLDS (WHITE SCORE MINUS HISPANIC SCORE)



Source: *NAEP 1999 Trends in Academic Progress*

Figure reads: In 1999, the average NAEP score in math for White students was 24 points higher than the average score for Hispanic students.

Source: *NAEP 1999 Trends in Academic Progress.*

In the late 1980s, the gap stopped shrinking, according to NAEP trend data. Even though Black and Hispanic students continued to improve in some subjects, their gains did not exceed those of other students. During the past decade, there have been only minor fluctuations in the gap, with some widening for certain subjects and ages. In reading, there has been a somewhat discouraging decline among Black 17-year-olds.[15]

COLLEGE ENTRANCE EXAMS. Racial/ethnic gaps in SAT scores have widened since 1989. Although average scores of Black and Puerto Rican students have increased, they have not kept pace with the gains made by White and Asian students. Scores of Mexican-American students have fallen. On the ACT, minority-White gaps have shown very little change during the past decade.[16]

The Black-White gap narrowed during an era when the nation was making an effort to improve educational opportunities.

■

As various analysts have noted, the shrinking of the achievement gap during the 1970s and 1980s occurred at a time when national education policies were focused on improving equality of opportunity.[17] The War on Poverty was well underway, schools were desegregating, Head Start was expanding, and Title I and other programs were channeling additional funds to the education of low-income children. By the mid-1980s, however, funding cuts had occurred in some anti-poverty programs, and the policy emphasis shifted toward improving educational quality and raising achievement above minimum competency levels.

Studies across multiple tests have found convincing evidence that the achievement gains among minority students in the 1970s and 1980s cannot be explained solely by improvements in their family economic conditions. RAND researcher David Grissmer and his colleagues found, for example, that between 1975 and 1990, Black student scores went up by more than twice what improvements in socioeconomic factors indicated they would.[18] This finding suggests that educational policies have had an impact on the achievement gap.

D. Where Does the Gap Stand Now?

Racial-ethnic achievement gaps remain a serious issue, as indicated by various sources.

Racial-ethnic achievement gaps remain very large. White and Asian students outperform Black and Hispanic students by significant margins on most national tests. The differences are wide even at the top levels of performance.

■

NAEP TREND AND MAIN ASSESSMENT DATA. Information about current gaps is available from both the NAEP trend assessments and main assessments (although scores from the two are not comparable because they use different tests). Both show

that serious racial/ethnic gaps persist in math, science, reading, and other subjects. As the figures in the appendix illustrate, the achievement gaps on the 1999 NAEP trend assessments are quite significant. In science at age 9, the Black-White score gap is 41 points, or a rough difference of almost four grade levels. The Hispanic-White gap is 34 points, or roughly equivalent to more than three grade levels.[19]

To frame the gap another way, the average 1999 reading score of Black students at age 17 was about the same as that of White students at age 13. In science, the average scores of Black and Hispanic students at age 13 were lower than the average score of White students at age 9.

Also troubling is the fact that African American and Hispanic students are underrepresented at the topmost levels of achievement. The percentage of students who reach the Proficient and Advanced levels (the two highest levels) on the main NAEP assessments is smaller for African Americans and Hispanics than it is for Whites or Asians.

In the 1996 main NAEP science assessment, for instance, 4% of African American 12th graders and 6% of Hispanic 12th graders scored at the Proficient level, compared with 24% of Whites and 19% of Asians. Twelfth graders who are proficient in science demonstrate an understanding of earth, physical, and life sciences, can analyze data, and can apply scientific principles to everyday situations. For example, they can recognize the evidence of continental drift, or explain the effect of mass on the period of a pendulum.[20] On the 1998 NAEP writing assessment, 8% of Black 4th graders and 10% of Hispanic 4th graders scored at the Proficient level, compared with 27% of White students and 32% of Asian students. Fourth graders who are proficient in writing can produce an organized response that shows understanding of the task and audience, know how to develop their main idea, and use accurate grammar, spelling and capitalization.[21]

STUDIES ACROSS TESTS. Multi-test analyses offer further evidence of racial/ethnic achievement gaps, including disparities at the top levels of performance. According to one such study, White high school seniors were at least ten times as likely as Black seniors to score in the top 5% of the score distribution, across multiple assessments.[22] These disparities at the top affect minority students from higher-income families as well as lower-income ones, and could hinder the participation of minority students in graduate-level education and executive and leadership jobs.

COLLEGE ENTRANCE EXAMS. Racial/ethnic score gaps persist on college admissions tests. On the 2000 SAT, the Black-White gap was 123 points on the math test and 95 points on the verbal test. (The SAT has a scale of 200 to 800.) The Hispanic-White gap was 89 points in math and 70 points in verbal. On the ACT, average composite scores on the 2000 exams were 17.0 for African Americans, 18.9 for Hispanic students, 21.7 for Asians, and 21.8 for Whites.[23]

Racial/ethnic differences in family income and parent education are important contributors to the achievement gap, but do not explain all of it.

■

African American and Hispanic families tend to have lower incomes, higher rates of poverty, higher rates of single-parent families, and lower levels of parental education than White families — differences that research has linked with student achievement. In 1990, African American children were nearly three times as likely as White and Asian children to be raised in low-income families, and Hispanic children were twice as likely.[24] African American and Hispanic parents also have completed somewhat fewer years of education, on average, than White parents.

A key issue is how much of the achievement gap is attributable to these kinds of differences in socioeconomic background. When test scores are adjusted to factor out differences in family income and parent education, a gap still remains. According to a special tabulation of the NAEP 1999 trend data, the Black-White gap is just as wide, or even slightly wider, for students with college-educated parents as it is for students with less-educated parents. This trend is even more striking for Hispanic students with college-educated parents.[25] Similarly, on the 1998 SAT, the racial/ethnic gaps were

greater among students whose parents had college degrees than among those whose parents had never graduated from high school.[26] Another study of performance on the SAT and the National Educational Longitudinal Study concluded that while test performance was related to family income, African American and Hispanic students from families with comparable incomes scored lower than White and Asian students.[27]

According to one study, family income and parent education can explain about one-third of the racial/ethnic achievement gap. In other words, the gap shrinks, but does not disappear, when adjustments are made for these two factors.[28] Researchers have pointed out, however, that achievement is probably influenced by additional socioeconomic differences between racial/ethnic groups that are not typically measured by educational surveys. For example, children's achievement could be shaped by grandparents' level of education, accumulated family wealth and assets, household size, quality of the schools attended by parents, mother's perception of her own efficacy, and children's birthweight, among other factors. If we had better measures for these factors, perhaps they could explain more of the gap.[29]

E. Is There a Gap Before Children Enter School and What Happens As They Progress Through School?

A key question is whether achievement gaps are present before students start school. If so, home, community, and societal factors would seem to play a role in creating these gaps.

Racial/ethnic gaps in average performance appear before children enter first grade.

■

Various surveys of preschool and kindergarten children have found that White and Asian children outperform African American and Hispanic children in such areas as vocabulary, number skills, and general knowledge. One key data source is a 1998 longitudinal early childhood study by the U.S. Department of Education.[30] This study found that Black and Hispanic students who had just started kindergarten trailed White and Asian children on early reading skills, such as understanding letter-sound relationships and recognizing words by sight. For example, 57% of Black children entering kindergarten could recognize letters, compared with 71% of White children. Black and Hispanic children also started out behind on early math skills, such as recognizing numbers and shapes, understanding the relative order of objects, and solving simple addition and subtraction problems. For instance, 43% of the entering Hispanic kindergartners could understand the relative size of objects, compared with 64% of the White kindergartners. Although children from all racial/ethnic and income backgrounds made gains between the fall and spring of the kindergarten year, a gap still remained at the end of the year.

This same study found that racial/ethnic achievement gaps actually narrowed during kindergarten for basic skills, such as recognizing letters or numbers, but widened for more complex skills, such as recognizing words by sight or solving simple addition problems.

The Black-White achievement gap seems to widen as a cohort of students moves through school. This may well happen because Black students lose more ground during the summer than White students.

■

Meredith Phillips and her colleagues analyzed math, reading, and vocabulary achievement across eight national surveys to determine what happens to the Black-White achievement gap as the same cohort of students progresses through 12 years of schooling.[31] They found that Black children who start school with the same test scores as White children are likely to have somewhat lower scores by the end of 12th grade — not because the average achievement of Black students fell, but because it did not grow at the same rate as that of White students. The gap for specific cohorts widened in math and vocabulary but stayed relatively constant in reading.

About half the gap in Black-White scores at the 12th grade could be attributed to differences already present in 1st grade, Phillips and her colleagues estimated, while the other half could be attributed to events both inside and outside of school that occurred between 1st and 12th grade. Phillips hypothesized, in a related study, that summer learning opportunities play a key role in the gap, since evidence suggests that African American children gain less in achievement during the summer than White children.[32]

F. Is There Current Progress in Closing the Gap?

Some states and school districts are making considerable progress in narrowing the gap, which offers a reason to be optimistic that change is feasible.

Some states have smaller racial/ethnic achievement gaps, even after accounting for differences in student backgrounds. Analyses of states and districts where minority students are making significant progress suggest that certain education policies may help to narrow the gap.

■

Using comparative data from NAEP and from state tests, studies have identified some states where minority students (and students in general) seem to be gaining ground at a faster than average rate. The list of states varies, depending on which data is examined, and views differ about the reasons for improvement.

According to a study by David Grissmer and his colleagues at RAND, states that have made NAEP gains that are about twice as great as the national average include North Carolina, Texas, Michigan, Indiana, and Maryland. Several more states have made above-average gains in NAEP scores.[33] This study asserted that other things being equal, the greatest gains have occurred in states with higher per pupil expenditures, lower pupil-teacher ratios in the lower grades, higher participation in public preschool programs, and higher levels of teachers who report they have adequate resources. This research further notes that additional education funding made the most difference in states with higher numbers of minority and disadvantaged students, and that extra resources can have a significant impact on achievement when properly targeted.

Other researchers have looked at states where minority students, in particular, are improving at a faster rate than minority students nationwide. Research by the Education Trust has noted improvements in Connecticut, Texas, Delaware, Rhode Island, and North Carolina.[34] In general, these states have made concerted efforts to improve teacher quality, hold schools accountable for progress by subgroups, and focus rigorous initiatives on disadvantaged students.

Positive news can also be found at the local level. For example, some urban schools and districts with high minority enrollments and high poverty have succeeded in substantially raising achievement. These top-performing schools tend to design instruction and assessments around state standards, devote increased time to reading and math instruction, invest in teacher professional development, and involve parents in their efforts to meet standards, among other strategies.[35]

III

CONTRIBUTING FACTORS AND STRATEGIES FOR CLOSING THE GAP

No simple or clear explanation exists for why there are racial/ethnic achievement gaps. Analysts have identified numerous in-school and out-of-school factors that may explain or contribute to these gaps. Not all of these factors have been studied extensively, so we know less than we should about their impacts. Furthermore, it is difficult to study the effects of just one variable because these factors are often intertwined.

TABLE 1 summarizes the main factors that may contribute to the gap, as well as the primary strategies for closing it. All of these are discussed briefly in the remainder of this part.

TABLE 1

Factors That May Contribute to the Gap	Strategies That Could Help Close the Gap
School factors	*School strategies*
▫ Limited participation of minority students in rigorous courses	▫ Challenging curriculum and instruction
▫ Watered-down instruction	▫ Improvements in teacher preparation and professional development
▫ Less-qualified or experienced teachers	▫ High standards and accountability for subgroup performance
▫ Teachers with lower expectations	▫ Equitable distribution of resources
▫ Resource disparities between high-minority schools and other schools	▫ Sustained class size reductions in high-minority schools
▫ Concentrations of low-income and minority students in certain schools	▫ Comprehensive school reform
▫ School climate less conducive to learning	▫ Extended after-school and summer learning opportunities
▫ Student performance anxiety	▫ Targeted research on promising strategies and unanswered questions
▫ Negative peer pressure	▫ Expanded access to high-quality preschool
▫ Disparities in access to high-quality preschool	
Societal, community, and home factors	*Societal, community, and home strategies*
▫ Effects of poverty on learning	▫ Supportive and motivating culture
▫ Legacy of discrimination	▫ Extended community learning activities
▫ Limited learning supports in homes and communities	▫ Parent education and involvement
▫ Access to parenting education	▫ Improved social conditions

A. Factors That May Contribute to the Gap

1. School Factors

Studies have identified factors in the school environment of many minority children that could affect the achievement gap. The most significant ones seem to be the following:

CURRICULUM AND COURSETAKING PATTERNS. The academic rigor of the courses taken in middle school and high school not only affects students' current achievement, but also is the single most important predictor of college success. Students who take algebra, geometry, trigonometry, chemistry, physics, higher-level English, and other challenging courses tend to have higher test scores than their peers. The percentage of African American and Hispanic secondary school students taking an academically rigorous curriculum has risen significantly during the past decade, but it still lags behind the rates of White and Asian students.[36]

Minority students are also more likely to attend schools that do not offer higher math and science courses or AP courses. Even where such courses are offered, access of Black and Hispanic students may be hampered because they were tracked into a less academically challenging curriculum or did not take gateway courses like algebra. Research has further found that some schools with high-poverty or high-minority enrollments provide a watered-down curriculum, meaning that teachers cover less material, give less homework, and award higher grades for lower performance than in other schools.

TEACHER QUALIFICATIONS. Minority students are less likely than White students to be taught by experienced and highly qualified teachers — a discrepancy that seems to be one of the most critical variables underlying the achievement gap. Minority students are substantially more likely than White students to be taught by teachers without college majors in the subjects they are teaching. Schools with high-poverty and high-minority enrollments have teachers with fewer years of experience, on average, than other schools, and also have higher rates of turnover. Teachers in districts with high percentages of Black or Hispanic students also tend to have lower scores on teacher certification tests than teachers in other districts. This is significant because a correlation has been found between higher teacher certification scores and higher student achievement scores.[37]

TEACHER EXPECTATIONS. A key question is whether African American and Hispanic students are being challenged in school in the same ways as other students. Some studies suggest that teachers, in general, tend to expect less academically of African American and Hispanic children than they do of White or Asian children. This seems to happen because teachers often base their perceptions on children's current performance, which leads them to underestimate the potential of children from racial/ethnic subgroups that on average have lower achievement. Teachers who expect less can unwittingly perpetuate the achievement gap by failing to encourage Black and Hispanic students to aim higher or take more demanding courses.[38]

RESOURCE DISPARITIES. Major funding disparities exist between schools with high-minority enrollments and those with low-minority enrollments. Similar disparities exist between schools in high-poverty and low-poverty areas, and between urban or poor rural schools and suburban schools. Disparities in per-pupil spending *between* states also affect the amount of resources available for minority children as much as, and sometimes more than, disparities in spending *within* state. The achievement gap between high-poverty and low-poverty schools widened during 1990s, according to NAEP data.

CONCENTRATIONS OF LOW-INCOME AND MINORITY STUDENTS IN CERTAIN SCHOOLS. High levels of poverty within a school tend to depress achievement for all the children in that school, whether or not they are poor themselves. Black and Hispanic children are more likely than White and Asian children to attend schools with concentrations of poverty. In addition, many public schools have become "resegregated" as all-minority schools over the past three decades. Students in high-minority schools sometimes have less access to factors associated with high achievement, such as challenging courses, excellent teachers,

motivated peers, and actively involved parents.

SCHOOL CLIMATE. Minority students are less likely than White students to attend schools with a favorable disciplinary climate and facilities in good repair. Minority parents are more likely to report concerns about safety in the schools their children attend. Schools with high enrollments of minority or low-income children also tend to have higher rates of student mobility than other schools. High transiency rates not only affect the achievement of the children who move, but also can slow the pace of instruction for all the children in the school.

STUDENT PERFORMANCE ANXIETY. Some researchers have suggested that Black college students do not perform as well as they might in testing situations that may evoke fears of being racially stereotyped. For example, they may do less well when a teacher asks them to identify their race on the test form or when the teacher describes an upcoming test as a measure of "ability," which sounds innate rather than acquired. Scholars have theorized this is because students become anxious about fulfilling negative stereotypes and end up performing less efficiently.[39] (These testing conditions are not characteristic of NAEP, however, which does not provide scores for individual students and which has no "stakes" for individuals.)

PEER PRESSURE. Some analysts have described a phenomenon of low-achieving Black students in high-minority schools criticizing their academically successful peers for "acting white," or of African American students embracing a youth culture that undervalues academic accomplishment. Other researchers contend that Black students are not particularly alienated from schools and are no more likely than Whites to lose peer status for doing well in school. Still others feel that the evidence is inconclusive, but that negative peer pressure can make the achievement gap harder to close even if it is not a dominant factor.[40]

ACCESS TO HIGH-QUALITY PRESCHOOL. Access to preschool education is particularly important for minority children, who are more likely than White children to come from single-parent homes and who enter school with learning gaps. But access to preschool education is unevenly distributed. For example, about three-quarters of 4-year-olds from households with incomes over $50,000 were enrolled in preschool, compared with about half of the 4-year-olds from households with incomes between $20,000 and $35,000. The quality of preschool education also varies considerably.[41]

2. Societal, Community, and Home Factors

EFFECTS OF POVERTY. Although differences in family income do not fully explain the achievement gap, the link between poverty and low achievement should not be ignored. Children from low-income families are more likely to experience problems of health, nutrition, low birth-weight, housing, violence, substance abuse, and other factors that depress achievement.

LEGACY OF DISCRIMINATION. It takes more than a generation or two to eliminate the effects of segregated school systems and other forms of discrimination. For example, studies suggest that *grandparents'* education correlates with grandchildren's educational outcomes, which could be particularly influential for African American students whose extended family members attended segregated schools or lacked opportunities to complete their education. African American families are also less likely than White families to have accumulated wealth, another legacy of multiple generations. Minority families may continue to be affected by discrimination in housing, employment, and untold other areas.

HOME AND COMMUNITY LEARNING OPPORTUNITIES. Parents' education is a critical variable in children's achievement, and minority children are more likely than White children to have parents with lower levels of education. African American and Hispanic children may have limited access to learning experiences in the home due to lower family income, parents' education, parents' work schedules, and other reasons. Key home factors include how much children are read to, how closely parents are involved with schools, whether children have books, computers, and other educational materials in the home, and which language the family speaks at home.

Community factors also affect children's opportunities to learn. For example, communities with concentrations of minority families may have fewer learning resources and institutions, such as libraries, museums, stable businesses, youth organizations, and other organizations. Some communities also have environmental factors that impede learning — for example, if the neighborhood is unsafe or offers few opportunities for residents to build trust and communication.

PARENTING PRACTICES AND EDUCATION. Parents take different approaches to parenting and learning at home, and some practices are more effective than others. Although studies have analyzed cultural variations in parenting practices, they have not reached clear conclusions about how these differences affect children's learning and achievement. More research is needed to assess which techniques are effective and how parents can be encouraged to adopt effective practices.

B. Possible Strategies for Closing the Gap

The achievement gap can be closed, but probably not with quick fixes. Closing the gap is a complex task that will require multiple, simultaneous, and long-term efforts that target school, home, community, and societal factors. Responsibility must be shared by the public and private sectors, and by educators, policymakers, community leaders, parents, and students. Researchers who have studied the gap have proposed numerous ways to close it. Drawing from these studies, the Center on Education Policy has developed the following list of the most promising strategies:

1. School Strategies

CHALLENGING CURRICULUM AND INSTRUCTION. Ensure that advanced courses taught by well-qualified teachers are available in all secondary schools. Ensure that curriculum and instruction are challenging and coherent in elementary schools. Strengthen school policies, counseling, and academic support to encourage Black and Hispanic students to take rigorous academic courses, beginning in elementary and middle schools. Eliminate "watered-down" instruction for some students and train teachers in ways to help students succeed in rigorous courses.

WELL-QUALIFIED TEACHERS. Create stronger incentives to attract and retain experienced, well-qualified teachers in high-minority and high-poverty schools. Set high standards for teacher certification. Strengthen preparation, induction, and professional development programs. Change teacher expectations through proven professional development.

HIGH STANDARDS AND ACCOUNTABILITY FOR SUBGROUPS. Set high standards for all students. Establish accountability systems that hold schools accountable for the performance of subgroups. Provide the supports needed to translate standards into classroom change and ensure that all students have an opportunity to learn to high standards. Closely monitor the impact of standards-based reforms and testing on minority students. Mount efforts to develop better assessments and educate people about their appropriate use.

EQUITABLE RESOURCE DISTRIBUTION AND DIVERSE SCHOOL ENROLLMENTS. Equalize distribution of resources among schools and districts and between states. Target additional funding to schools with greatest needs. Use public school choice plans and other means to reduce minority group isolation and concentrations of low-income children in schools.

KNOWLEDGE AND CAPACITY FOR SCHOOL IMPROVEMENT. Adopt research-based models for comprehensive school improvement in high-minority and low-income schools. Create reform networks to share information about effective practices and foster support among schools with high-minority enrollments.

REDUCED CLASS SIZE. Make sustained reductions in class size in high-minority and low-income schools. Ensure that students have access to smaller classes for a period of years.

EXTENDED LEARNING OPPORTUNITIES. Expand effective academic programs and supplementary education opportunities during the summer, after school, and on weekends.

EXPANDED PRESCHOOL. Provide universal access to high-quality preschool programs. Ensure that preschool programs for minority students include effective school readiness instruction.

RESEARCH. Support additional research and case studies to learn more about possible causes and effective strategies for closing the gap. Conduct research on important unanswered questions about the gap, such as whether minority students lose more ground academically during the summer months than other students.

2. Societal, Community, and Home Strategies

SUPPORTIVE, MOTIVATING CULTURE. Build peer and adult cultures that encourage high achievement through mentors, role models, counseling, and incentives for high achievement. Organize groups of parents and other citizens to monitor and increase the progress of Black and Hispanic children in their own schools. Engage community leaders in supporting academic achievement.

COMMUNITY ACADEMIC ACTIVITIES. Expand academic learning opportunities and support programs in community institutions and neighborhoods. Rally parents and the community to provide an academic focus to leisure activities.

PARENT EDUCATION AND INVOLVEMENT. Provide information to parents in a non-threatening environment about specific ways to help children learn at home. Brief parents on the purposes of testing programs, methods for reporting and interpreting test scores, and activities that can help improve test scores. Strengthen home-school relations. Create incentives for parents to come into the schools.

SOCIAL CONDITIONS. Improve the quality of life for disadvantaged minority families through housing, nutrition, health care, crime reduction, and other social policies.

IV

EVALUATING STRATEGIES FOR CLOSING THE GAP

A. Why Strategies To Close the Gap Should Be Comprehensive

State and national leaders have proposed a variety of strategies to raise overall achievement and close racial/ethnic achievement gaps. Many current proposals call for more standardized testing, stricter accountability systems that monitor subgroup performance, and policies to reward schools that do well and penalize those that perform poorly. But the reasons for the achievement gap are complex and varied. Testing and accountability are important steps, but they must be accompanied by a range of comprehensive, substantive strategies if we expect to close the gap. We recommend that policymakers adopt an approach that is:

- ***cautious*** about overpromising what testing and high-stakes accountability can accomplish alone; but
- ***bold*** in its commitment to substantive and multi-faceted strategies for closing the gap.

We recommend a balanced and deliberate approach to testing for several reasons:

1. Tests are important tools for measuring progress, but policymakers should be aware of their limits, their criteria for appropriate use, and the need to develop state and local capacity to use tests to improve learning.

■

Testing is an important element of reform. Tests can tell us which students are not doing well and how far they are from proficiency. When tests are well-aligned with standards and instruction, they can motivate people to aim higher and provide information about the effectiveness of instruction. But the kinds of tests commonly used for accountability don't tell us how students reached an answer, why they are having difficulty, or how to help them — and these are also vital elements of raising achievement and closing the gap.

A basic criterion of fair test use is that penalties for students should not be attached to test results unless students have an opportunity to learn material being tested. States have moved quickly to set standards and implement tests for accountability, but it is becoming clear that standards and tests are just the first phase of reform. The next phase, which has received far less attention, is to transform these standards and tests into actual change in the classroom. Many states have adopted hundreds of standards in the various subjects for each grade. But these myriad standards have not always been translated into a coherent curriculum that covers a reasonable amount of content in sufficient depth. Nor have all teachers been well trained about how to develop specific lesson plans in a standards-based curriculum or which strategies are most effective for teaching students who have fallen behind. Some states require schools to give additional help to students who fail, but the states may not provide schools with the funding or guidance necessary to actually deliver this help.

In summary, states have so far given short shrift to the support side of school reform. Tests and accountability systems cannot, by themselves, fill shortages of well-qualified teachers in schools with high-minority enrollments, or train teachers in

effective ways to help low-achieving students, or equalize resources between poor and affluent schools, or provide extended learning time for failing students, or fill other "gaps" in the capacity of schools and communities. These and other strategies are necessary to close the achievement gap. Policymakers at the state and national levels should be wary of proposals that embrace the rhetoric of closing the gap but do not help build the capacity to accomplish that goal.

2. High-stakes testing must be implemented carefully to prevent unintended inequities for minority students. Testing programs should be accompanied by efforts to ensure students learn the content and skills being assessed.

■

Tests that serve important collective educational goals can sometimes produce negative consequences for individuals. Policymakers should weigh the potential collective benefits of any testing program against the unintended negative consequences for individuals. As noted in a study of high-stakes testing by the National Research Council, improper use of test scores for high-stakes decisions can reinforce racial/ethnic inequalities.[42] This same study also noted that retention alone is an ineffective intervention and often does more harm than good. What will happen to our youth and to our society if disproportionate numbers of Black or Hispanic students are held back in grade? Will these students be able to take the academic courses in high school that are so critical to future achievement? If more Black and Hispanic students are retained in grade or denied a high school diploma, their dropout rates could go up and their college attendance could go down, which would undermine opportunity instead of advancing it.

When tests have high stakes for individuals, policymakers have an equally high level of responsibility to ensure that tests are used fairly, that their content is not culturally biased, and that their effects are not discriminatory. Most importantly, they have a responsibility to provide students with an adequate opportunity to learn the material. Because standards-based assessments are still relatively new, we do not yet know how test-based accountability will affect various groups of students. The implementation of new testing requirements should proceed at a deliberate pace, accompanied by close monitoring of its consequences and by substantial support to help all students pass the tests.

3. Policymakers are already putting more demands on current tests than they were designed to bear, and more testing for accountability is likely to aggravate this problem.

■

Testing experts emphasize the importance of using the right test in the right way. Professional measurement groups have developed criteria for appropriate test use, but in the rush to implement standards-based reform, these safeguards are not always heeded.[43] States have attached stakes to tests without acknowledging the technical limits of current assessments.[44] To cite a few examples:

- Testing experts caution that tests should be used only for the purposes for which they have been designed and validated, and that newly developed tests should not be used for accountability. Yet policymakers are expecting the same tests (and often new tests) to not only measure progress but also drive changes in teaching and learning. Some states have moved quickly to use new tests for accountability, while others are attaching high stakes to "off-the-shelf" standardized tests designed for low-stakes applications. These applications can compromise the reliability and validity of the test as a measure of achievement.

- Expert groups advise that decisions with important future consequences for students should be based on multiple measures rather than a single test score. Yet 11 states base their school performance ratings entirely on test scores.[45]

- Tests are useful measures of reform only if they are closely matched to state standards and curriculum. Although states have made progress toward alignment, they still have a

way to go. Current state tests tend to measure some standards but not others, and often emphasize the less demanding knowledge and skills embodied in standards.[46] Most state accountability tests consist primarily of multiple-choice and short-answer test items, which may not effectively measure more complex competencies and understanding.

- High-stakes testing could be encouraging certain ineffective instructional practices. In some districts, teachers spend considerable time preparing students in test-taking skills, which may raise scores on high-stakes tests during the first few years of the testing program without producing real gains in student knowledge. Topics that are not tested may not be taught, regardless of importance, and student skills that are difficult to assess, such as being able to carry out an experiment or lead a class discussion, may be pushed aside. Classroom-level diagnostic testing, which helps teachers guide their instruction, sometimes takes a back seat to external tests.[47]

All of these issues suggest that additional testing should be accompanied by strong efforts to develop better assessments and educate people about their interpretation and use.

B. Taking Actions To Close the Gap

How can policymakers and others make decisions about closing the gap when our knowledge of causes and effective solutions is limited?

The Center on Education Policy suggests that policymakers set priorities based on what can be done now and what is known now. They should begin with actions to address policies that are clearly unfair and can be corrected. For example, it is obviously inequitable that many Black and Hispanic students, who have the greatest academic needs on average, attend schools with less qualified and experienced teachers, less advanced curricula, or fewer resources. Actions to address these inequities include strengthening the teaching force, improving access to academic courses, and equalizing funding among schools.

Policymakers should also place high priority on strategies that research has already shown to increase learning. We know that students benefit from attending preschool, taking a rigorous curriculum, and being held to high expectations. We know that professional development is essential for changing practice and that parent involvement is critical to children's learning. We know that school reforms tend to be more successful if they are comprehensive instead of piecemeal. And we are beginning to accumulate more knowledge about effective reform strategies from states, districts, and schools in which Black and Hispanic students are progressing at a faster than average rate. These are all steps that can be implemented now.

There are other factors that may affect the gap that we do not know enough about. In these cases, policymakers should focus on building knowledge. Examples include the influence of peer groups, the impact of students' own performance anxieties, and the effectiveness of different parenting practices. For these types of issues, the next step may be to invest in research that will add to our knowledge. Investments should also be made in developing assessments that better capture the kinds of knowledge and skills we want students to learn and that more effectively diagnose student needs.

The promise of standards-based reform will not be fulfilled unless we close the achievement gap. Equal opportunity and educational excellence are sometimes cast as competing priorities, but to close the gap we must approach them as complementary parts of a unified approach to reform. The reward will be long-term economic and social benefits for the entire nation.

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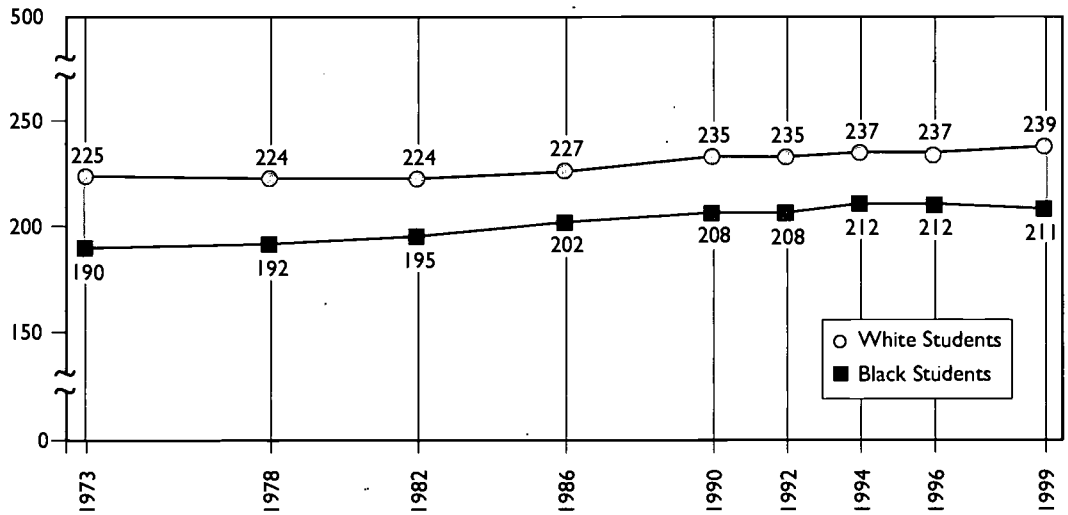
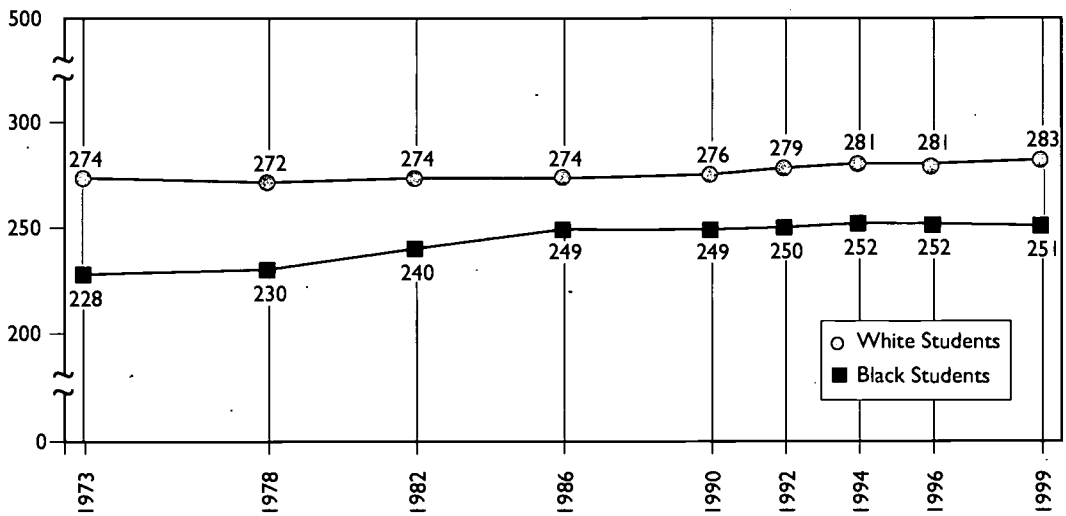
APPENDIX

FIGURE 4-A • NAEP MATHEMATICS, AGE 9
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



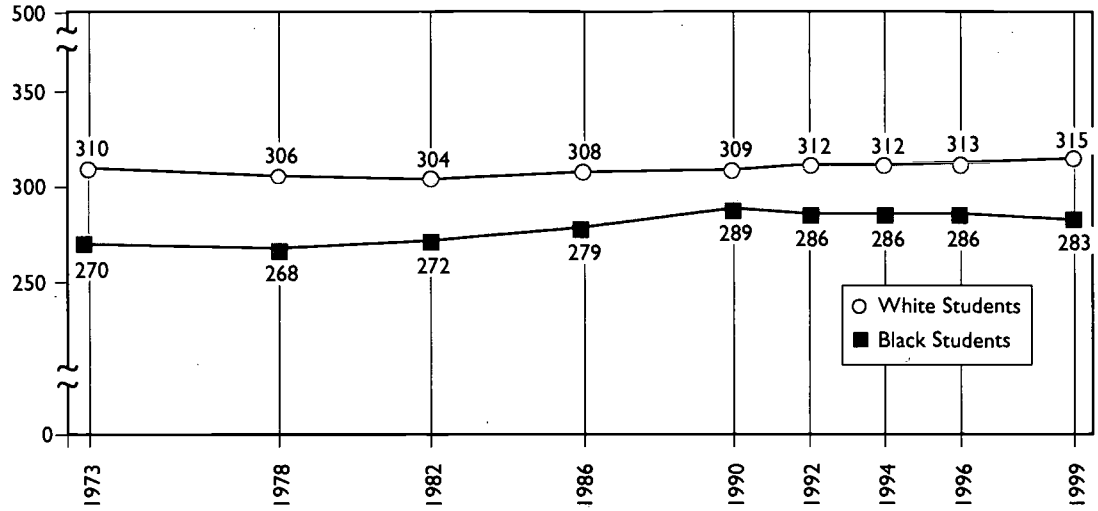
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 4-B • NAEP MATHEMATICS, AGE 13
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



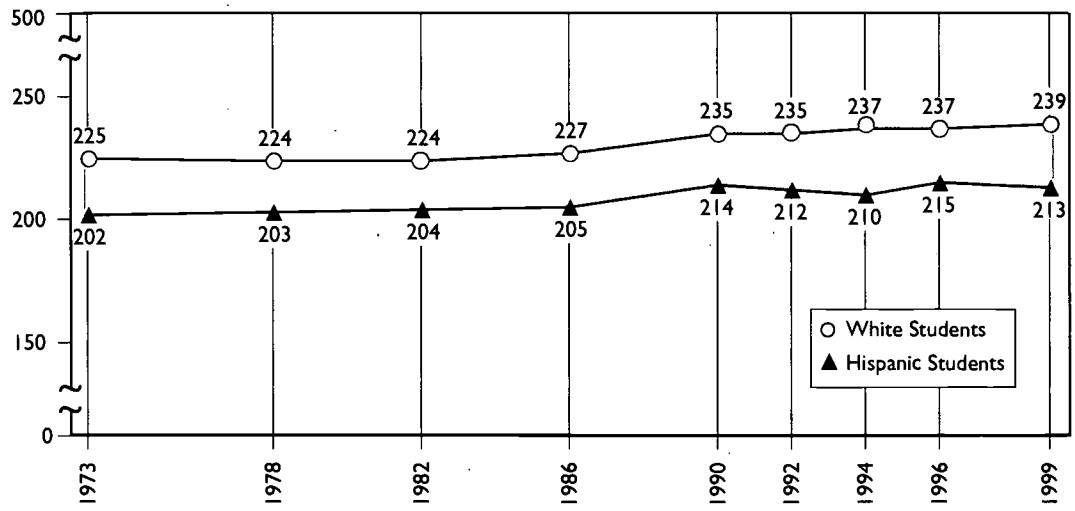
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 4-C ◦ NAEP MATHEMATICS, AGE 17
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 4-D ◦ NAEP MATHEMATICS, AGE 9
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



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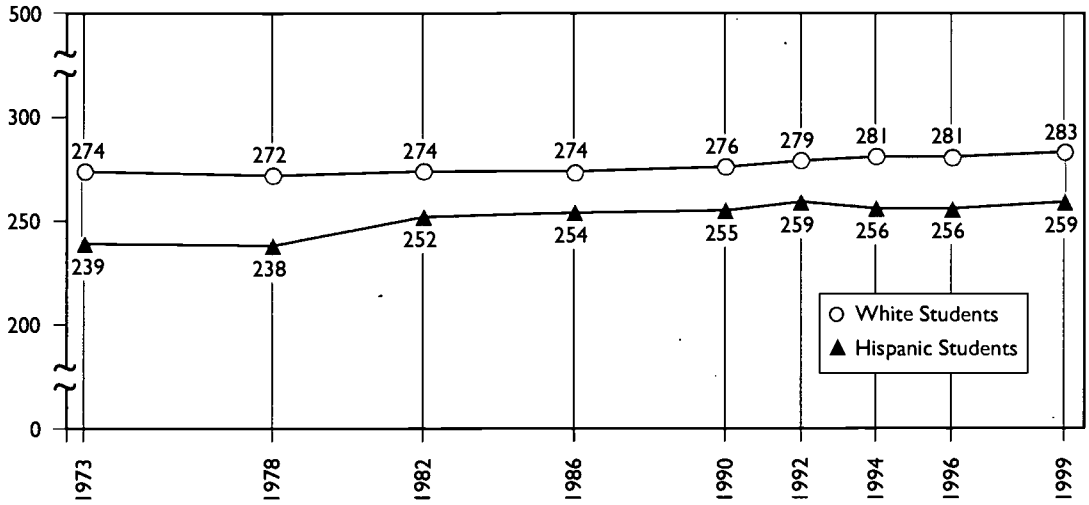
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



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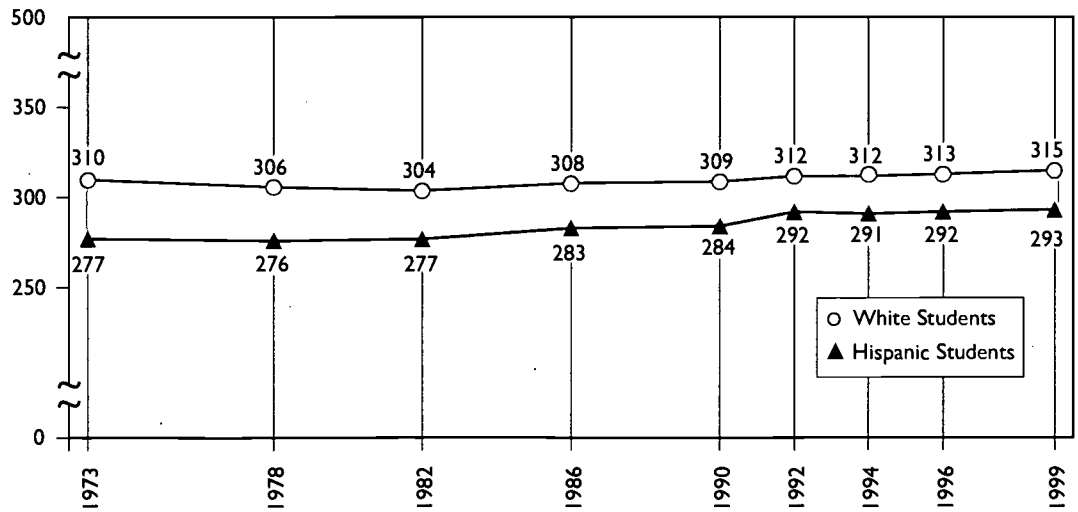
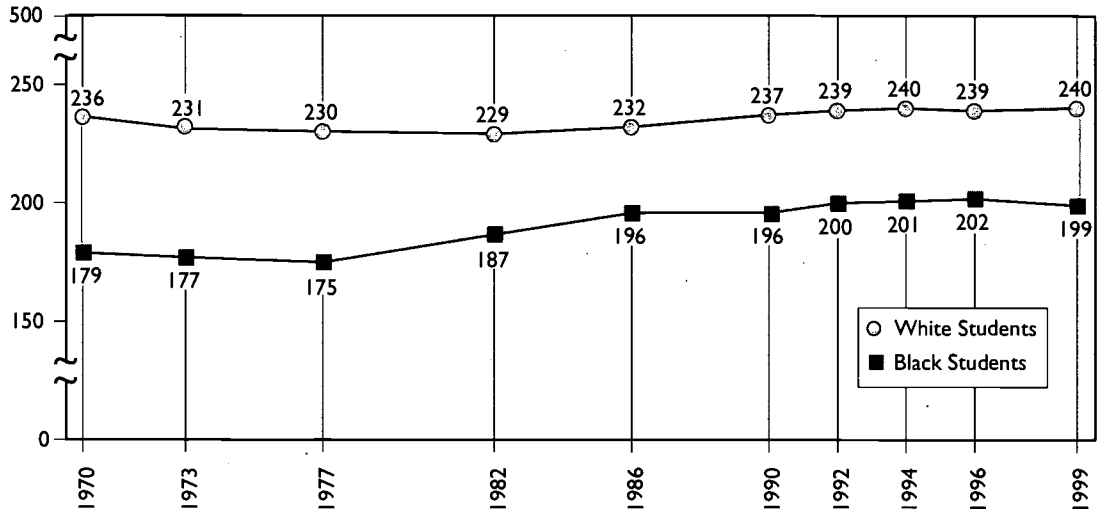
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 4-F ◦ NAEP MATHEMATICS, AGE 17
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 5-A • NAEP SCIENCE, AGE 9
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



Shaded area shows the achievement gap
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Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 5-B • NAEP SCIENCE, AGE 13
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS

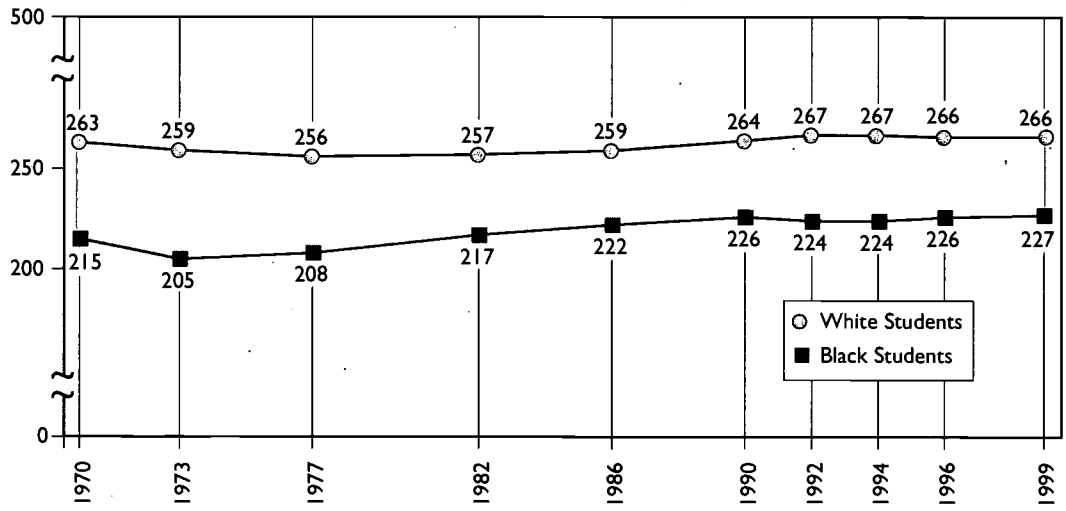

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FIGURE 5-C ◦ NAEP SCIENCE, AGE 17
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS

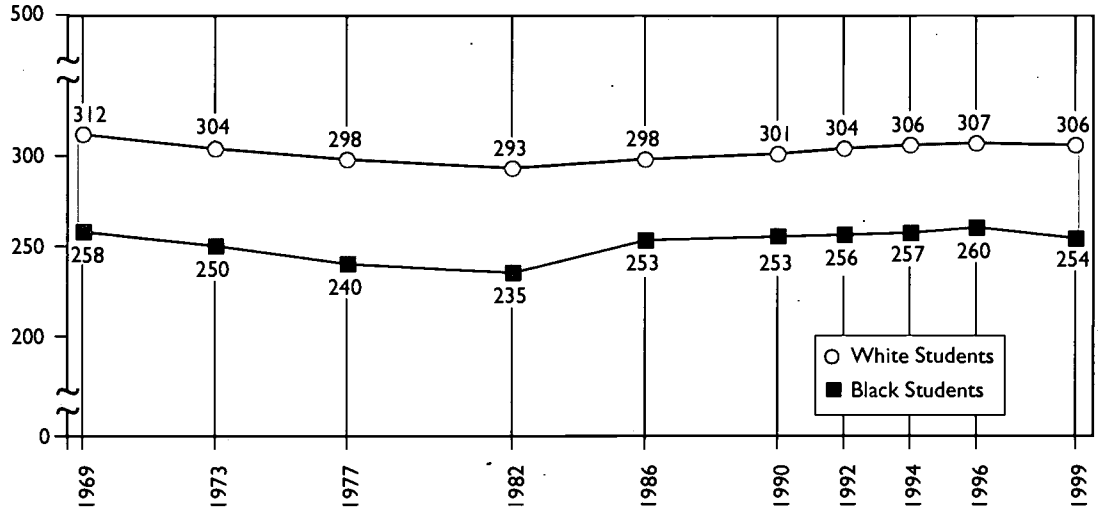

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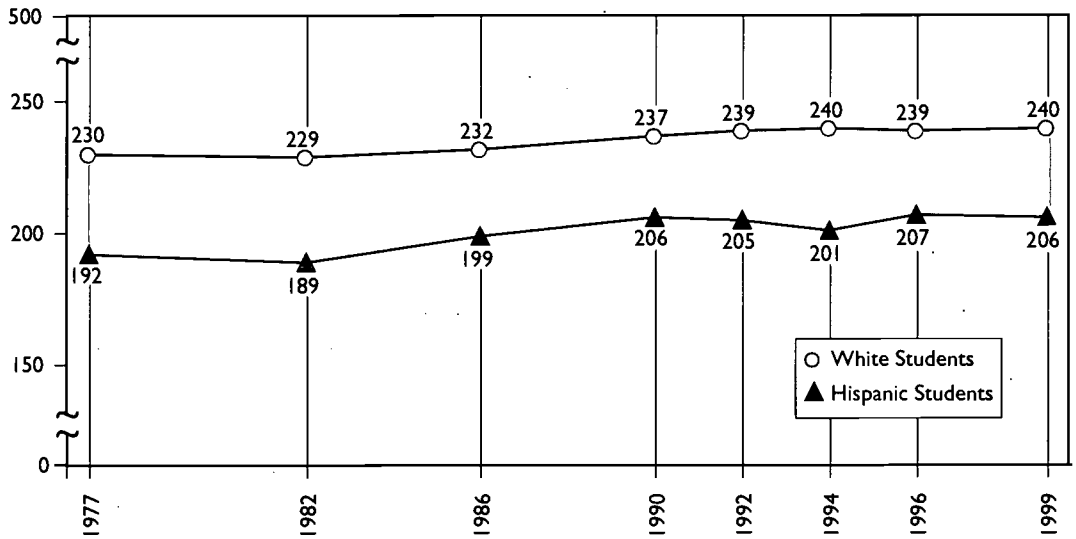
FIGURE 5-D ◦ NAEP SCIENCE, AGE 9
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



Shaded area shows the achievement gap
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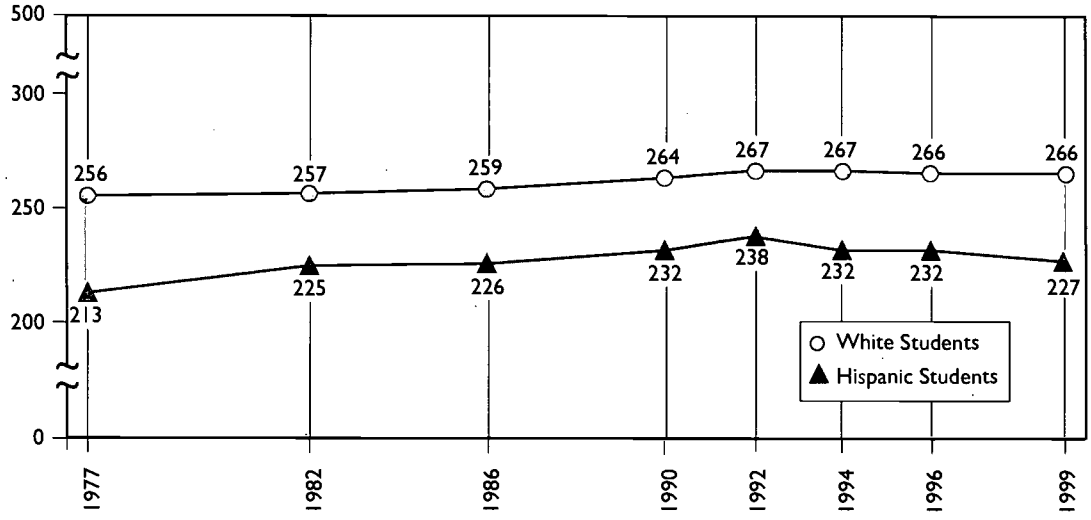
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 5-E • NAEP SCIENCE, AGE 13
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



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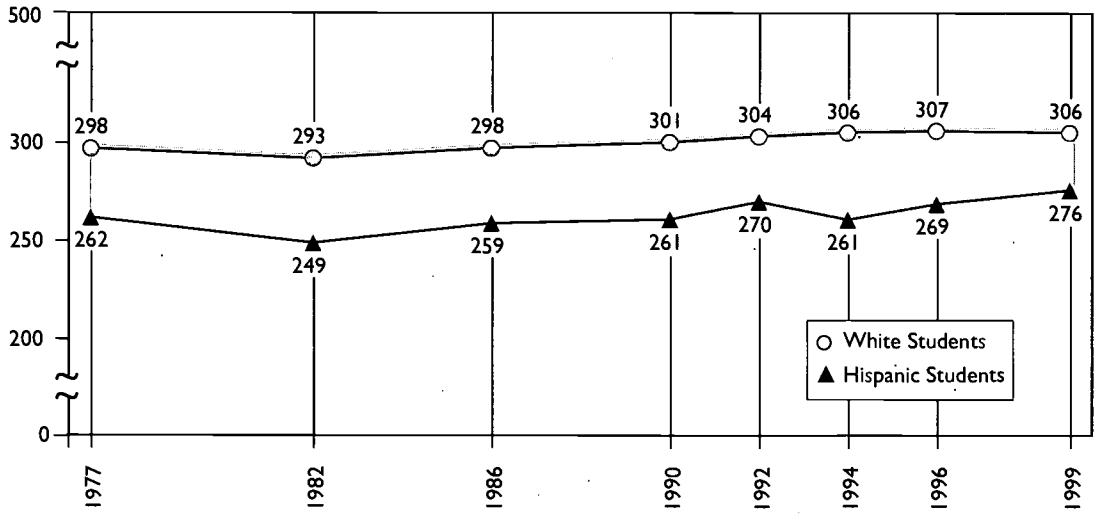
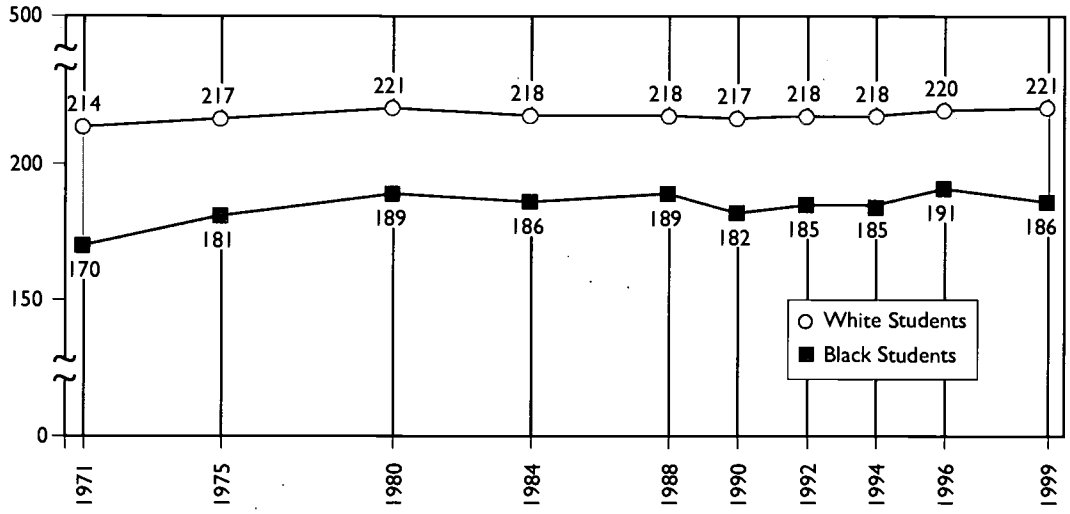
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 5-F • NAEP SCIENCE, AGE 17
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



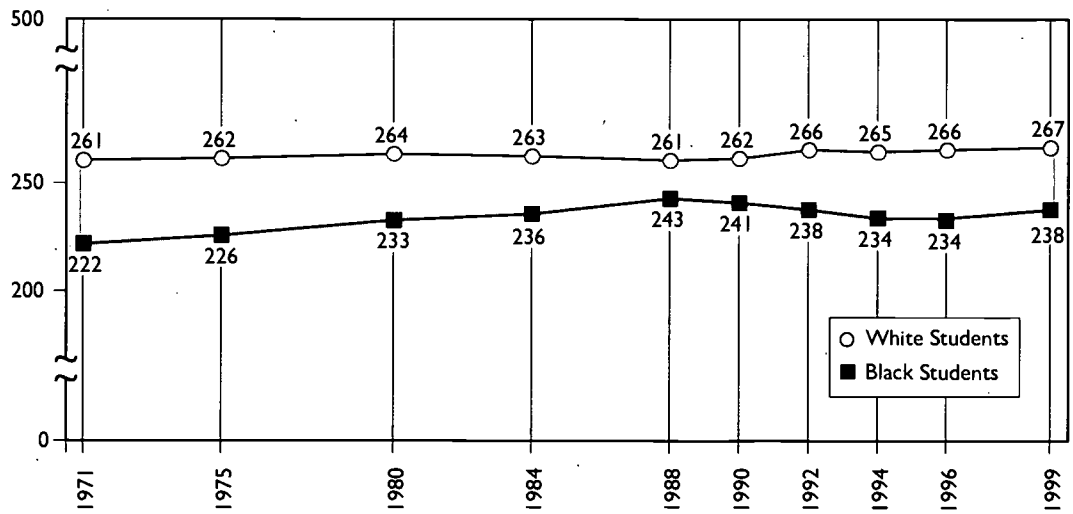
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 6-A ◦ NAEP READING, AGE 9
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



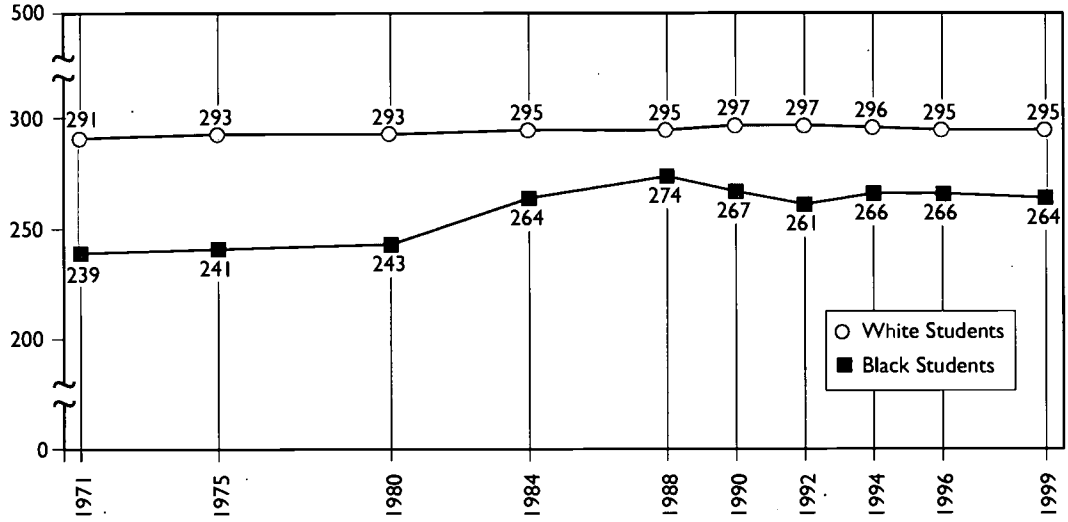
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 6-B ◦ NAEP READING, AGE 13
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



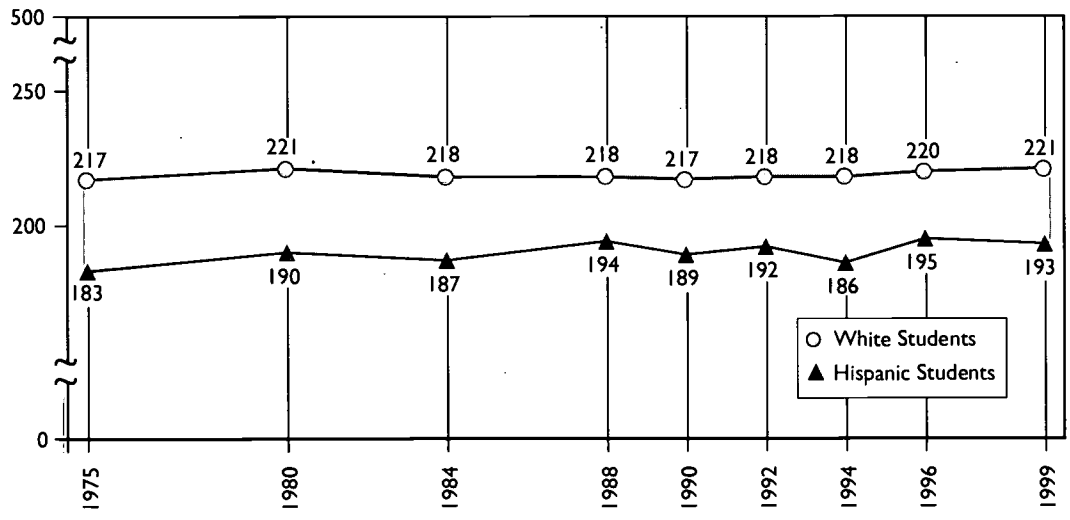
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 6-C ◦ NAEP READING, AGE 17
TRENDS IN AVERAGE SCALE SCORES FOR BLACK AND WHITE STUDENTS



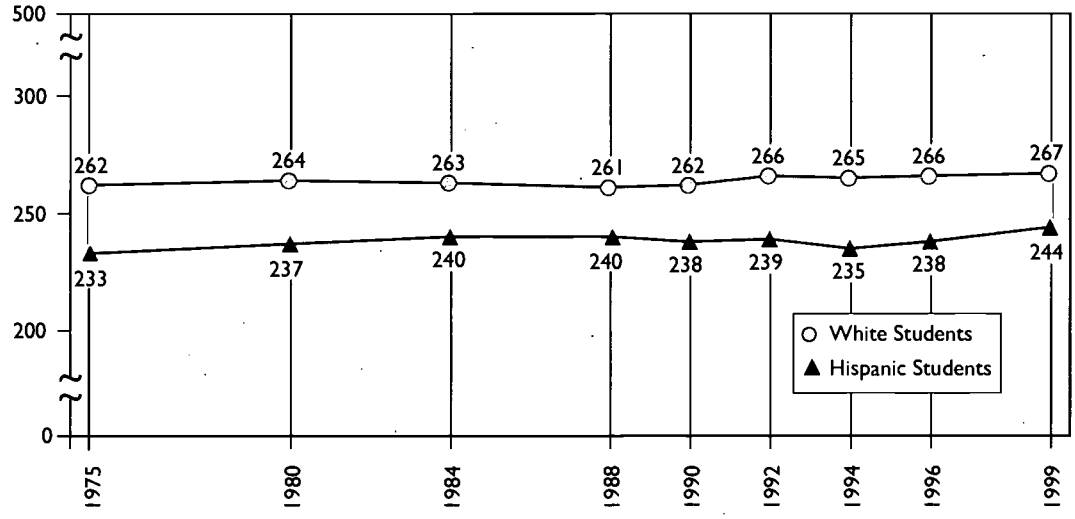
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 6-D ◦ NAEP READING, AGE 9
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



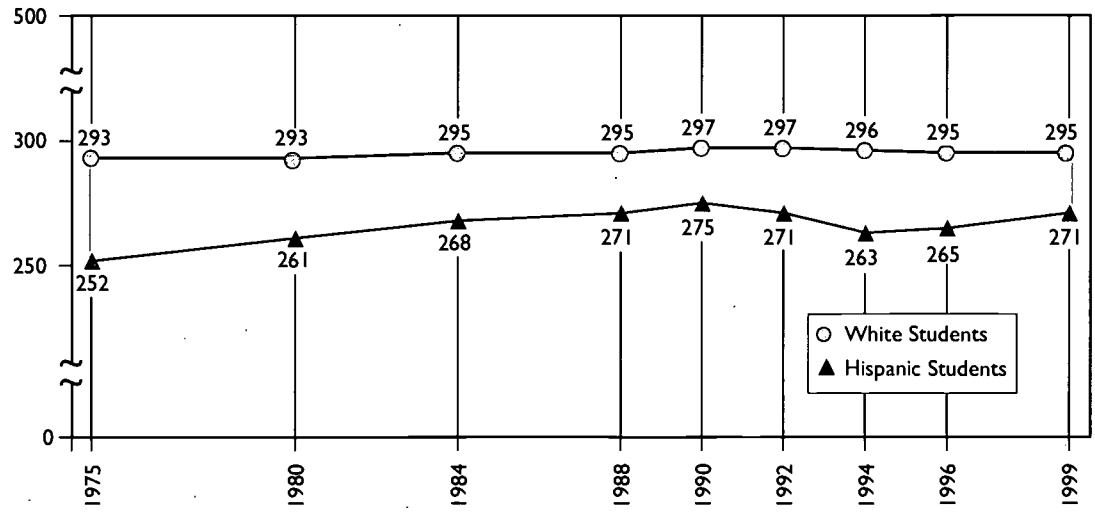
Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 6-E • NAEP READING, AGE 13
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

FIGURE 6-F • NAEP READING, AGE 17
TRENDS IN AVERAGE SCALE SCORES FOR HISPANIC AND WHITE STUDENTS



Shaded area shows the achievement gap
Scale: 0 - 500
Source: *NAEP 1999 Trends in Academic Progress*

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Center on Education Policy
1001 Connecticut Avenue NW Suite 619
Washington, D.C. 20036

Phone: 202-822-8065
Fax: 202-822-6008
E-mail: ctredpol@ctredpol.org
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1001 Connecticut Ave., NW Suite 619
Washington, D.C. 20036
phone: 202-822-8065
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