Multiple Facets of Inequity in Racial and Ethnic Achievement Gaps

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This article provides a critical look into national trends of the achievement gaps between Whites and Blacks and between Whites and Hispanics over the last 3 decades based on the National Assessment of Educational Progress mathematics assessments. It examines multiple facets of inequity underlying the racial and ethnic achievement gaps from 3 perspectives: equality, adequacy, and reciprocity. Although the Black–White and Hispanic–White mathematics achievement gaps narrowed significantly over the last 3 decades, there was some setback in the national progress during the last decade and the achievement gaps remain substantially large. The study finds that the racial and ethnic achievement gaps are highly inequitable, as it turns out that schools do not measure up to essential conditions of equity: Minority students do not (a) get fairly equal educational opportunities, (b) achieve minimally adequate level of competency, and (c) learn in a racially integrated school. The recent trend of widening racial achievement gaps is also seen as a real setback in equity as there was little systemic improvement in those 3 conditions of equity during the last decade. Implications of the findings for educational policies to enhance broader equity and justice are discussed.

Fifty years have passed since Brown v. Board of Education (1954), the landmark decision by the U.S. Supreme Court that launched court-ordered school desegregation. Although this decision and following policy

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interventions made public schools across the nation a less separate and more equal place of learning for minority students, the focus of national concerns about racial equity has shifted from school inputs to student outcomes and from redistribution of social relations and opportunities to redistribution of academic achievement. The culmination of this policy shift may be seen in the most recent federal educational policy initiative, the No Child Left Behind Act of 2001, which is aimed at accomplishing high academic standards for all students and closing the prevailing achievement gaps among students of all racial and ethnic backgrounds.

Since the Coleman report in the 1960s brought attention to racial inequity in student outcomes, the achievement gap between White and minority students has raised a multitude of concerns and resulted in a significant body of empirical research (see Coleman et al., 1966; Jencks & Phillips, 1998; Lee, 2002). Racial and ethnic achievement gaps narrowed substantially in the 1970s and 1980s when Blacks and Hispanics improved their reading and mathematics achievement much more than did their White counterparts. As some of the gaps turned out to widen in the 1990s, a recent study called attention to the phenomenon of reversed achievement gap trends and raised serious concerns about setbacks in the progress the nation had made toward racial and ethnic equity (Lee, 2002).

The conventional research on racial achievement gaps has focused on the issue of equality of educational opportunities and schooling conditions among different racial groups as key determinants of their achievement gaps. However, this approach alone has limitations in enhancing educational equity and social justice. Policymakers need to broaden their perspectives of equity and be more aware of potential biases in their efforts to address the racial achievement gap from a single perspective. Here I raise three questions for evaluating inequity in the past and current racial and ethnic achievement gaps. First, there is an equality issue: How well do minority students fare relative to their White peers in terms of educational resources and opportunities? Second, there is an adequacy issue: How well do minority students perform relative to minimally adequate levels of academic standards? Third, there is a reciprocity issue: How well do minority students learn in racially integrated schools and benefit from the achievement of White students?

This article starts with an overview of national trends of the achievement gaps between Whites and Blacks and between Whites and Hispanics over the last 3 decades based on the National Assessment of Educational Progress (NAEP) mathematics assessments. This analysis of the NAEP, the nation’s report card, includes both the long-term trend and the national
Then the article examines multiple facets of inequity underlying the achievement gaps among different racial and ethnic groups from conventional and other alternative perspectives, using multiple sets of national data. In this article, I do not seek to explain why the racial achievement gaps exist or why they changed over time but rather attempt to examine how inequitable the racial achievement gaps are and how much progress toward equity was made through changes in the achievement gaps.

### Black and Hispanic Achievement Gap Trends

Systematic relations between educationally irrelevant variables (e.g., race and social class) and academic achievement may be regarded as signs of inequity in student outcomes (see Green, 1982). Applying this perspective to the analysis of racial achievement gaps, previous studies often evaluated the degree of racial inequity in academic achievement by measuring the magnitude and significance of differences in standardized test scores between different racial groups of students. In a similar vein, the studies often kept track of changes in achievement gaps as a yardstick of progress toward equity, evaluating how much the racial achievement gap narrowed or widened over time and how significant the trends were (see Grissmer, Kirby, Berends, & Williamson, 1994; Hedges & Nowell, 1998; Lee, 2002).

The long-term NAEP data trend shows a significant narrowing of the Black–White and Hispanic–White achievement gaps in mathematics during the last 3 decades (see Figure 1). The Black–White test score gaps in NAEP mathematics fell by 0.2 to 0.4 in standard deviation units over the 1978–1990 period. The reduction of racial achievement gaps through the 1970s and 1980s revealed great progress on equity. However, setbacks in the last decade occurred when both Black–White and Hispanic–White achievement gaps stabilized or widened (Lee, 2002). The Black–White achievement gap in mathematics increased during the 1990s and reached up to one standard deviation unit, regressing back to the level of achieve-

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1 The NAEP is the only nationally representative and continuing assessment of what America’s students know and can do in various subject areas. NAEP long-term trend assessments are designed to give information on the changes in the basic achievement of America’s youth. They have measured mathematics achievement at ages 9, 13, and 17 since the early 1970s. This differs from the national NAEP, which is designed to give the most up-to-date information on student achievement. These assessments have measured mathematics achievement at Grades 4, 8, and 12 since 1990. See the NAEP home page on the Web for more information on each of the assessments (http://www.nces.ed.gov/nationsreportcard/).
ment disparity as of the early 1980s. Although the Hispanic–White gap followed a similar pattern, the Hispanic–White achievement gaps were relatively smaller than the Black–White gaps and changed to a lesser extent throughout the period. As of 1999, the overall Black–White and Hispanic–White mathematics achievement gaps remained substantially large, with the ranges of those gaps falling between 0.7 and 1.1 in standard deviation units.

The significance of positive curvilinear racial achievement gap trends in mathematics (i.e., narrowing followed by widening or leveling off) has been tested. Table 1 summarizes the results of time-series regression analyses applying both linear and quadratic growth models to the long-term NAEP math trends data for each age group. For both Black and Hispanic gap trends, there is no clear indication of cohort effect by which change in age 9 is followed by change in age 13 four years later and then change in age 17 eight years later. Rather all significant changes happened at similar periods across three age groups. While a negative linear pattern (i.e., narrowing all the time) was detected for some of the gap trends, the quadratic model was more significant than the linear model. The Black–White achievement gap trend in mathematics switched from a narrowing to a widening or leveling off pattern around 1990 across three age groups. The

![Figure 1. Standardized Black–White and Hispanic–White mathematics test score gaps on the long-term trend National Assessment of Educational Progress for ages 9, 13, and 17: 1978 to 1999. Data sources: See the Appendix.](image-url)
Hispanic–White achievement gap in mathematics shows the same type of significant curvilinear trends for only 13-year-old students.

The aforementioned trends of racial achievement gap came from the long-term trend NAEP that has more focus on basic skills: The computational focus gives information on how students are performing on traditional procedural skills, and most questions are completed in multiple-choice format without use of a calculator. A question may be raised: Is the recent trend of a widening Black–White or Hispanic–White gap also evident on the national NAEP, which reflects more recent math standards and thus can be more consistent with current teaching and learning practices? Table 2 shows national standardized Black–White and Hispanic–White test score gaps in both long-term trend and main NAEP mathematics during the period of the 1990s. Although the two assessments are not directly comparable because of their differences in student samples as well as test content–format, both the long-term trend and the national NAEP results show that the test score gaps were consistently large. Both assessment results also demonstrate that the racial achievement gaps in mathematics increased from 1990 to 2000: Estimated increases in the size of the gaps from the national NAEP appear to be slightly larger than estimates from the long-term NAEP.

<table>
<thead>
<tr>
<th>Age</th>
<th>Linear Trend</th>
<th>Quadratic Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White–Black Achievement Gap</td>
<td>White–Hispanic Achievement Gap</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
<td>Adjusted R²</td>
</tr>
<tr>
<td>9</td>
<td>-.32*</td>
<td>.60</td>
</tr>
<tr>
<td>13</td>
<td>-.61*</td>
<td>.48</td>
</tr>
</tbody>
</table>

Note. The linear trend coefficient shows the amount of change in test score gap per year: the more negative, the sharper the downward trend. The quadratic trend coefficient shows the extent of curvature in test score gap trend: the more positive, the sharper the transition from downward to upward trend. Transition year is the year when the slope of curve changes and is estimated only for statistically significant quadratic trends.

*p < .05.
Multiple Facets of Inequity in the Achievement Gaps

Does the evidence of a racial–ethnic achievement gap directly tell us about the degree of inequity in student outcomes? Does the evidence of the widening racial gap trend directly indicate setback in progress toward equity? Answers to these kinds of questions are hard to directly obtain with the NAEP test score results alone and require other evidence on the racial gap in key factors related to the test score gap. Indeed, it is wrong to say that the racial gap in achievement outcome in itself implies substantial breach of the principles of educational equity and social justice.

How does an ability factor play a role in the racial achievement gap? While there are controversies about whether differences in academic achievement between racial groups as measured by standardized tests are due in part to differences in ability, no one has found genetic evidence indicating that one racial group has less innate intellectual ability than others (see Flynn, 1999; Herrnstein & Murray, 1994; Neisser, 1998). Rather, there is a powerful piece of evidence in favor of genetic equality among racial groups (Flynn, 1999; Jencks & Phillips, 1998; Neisser, 1997). Although some have reported that Blacks have gained more in IQ than have Whites recently and the Black–White IQ score gap narrowed (Flynn, 1999; Vincent, 1991), the evidence is not strong. Indeed, the narrowing of the Black–White gap was much more evident on achievement tests than on intelligence tests. IQ score trends do not match the NAEP test score trends, and this dis-

### Table 2

<table>
<thead>
<tr>
<th>Year</th>
<th>White–Black Gap</th>
<th>White–Hispanic Gap</th>
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<tr>
<td></td>
<td>National NAEP</td>
<td>Long-Term NAEP</td>
</tr>
<tr>
<td>1990</td>
<td>0.89</td>
<td>0.87</td>
</tr>
<tr>
<td>1992</td>
<td>1.09</td>
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<td>1996</td>
<td>1.07</td>
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<tr>
<td>1999–2000a</td>
<td>1.07</td>
<td>0.98</td>
</tr>
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</table>

**Note.** NAEP = National Assessment of Educational Progress. Standardized gaps for both NAEP assessments were computed by dividing the average test score differences by the pooled standard deviations of all students’ test scores. While most of the 13-year-olds are eighth graders, the age-based student sample for the long-term trend NAEP is not equivalent to the grade-based student sample for the national NAEP.

*aThe results from the 2000 national NAEP and the 1999 long-term trend NAEP are shown in the same row.
crepancy may imply that there are unique factors influencing achievement trends beyond IQ.

When we focus on environmental factors to determine the causes of the achievement gap among different racial and ethnic groups of students, we find that academic achievement is influenced by many interrelated factors simultaneously, and it is almost impossible to disentangle the effect of one factor from another (e.g., school facilities vs. teacher quality). Nevertheless, I suggest establishing some major criteria for evaluating the degree of inequity in the racial achievement gap and planning interventions according to the evaluation results. The achievement gap may be viewed as a more serious breach of the principle of equity and justice to the extent that the following conditions are not satisfactorily met:

1. Minority students are given equal educational opportunity to learn (*equality*).
2. Minority students achieve a minimally adequate level of competency (*adequacy*).
3. Minority students learn in a racially integrated school and benefit from the achievement of White students (*reciprocity*).

The same size of racial achievement gap could be disguising quite different levels of inequity and injustice. When the issue is viewed in this way, questions are raised: When does the racial achievement gap pose a serious threat to society and thus need immediate remedy? Or, when should the achievement of minority students be treated as intolerable and, therefore, as requiring a policy intervention?

**Equality of Educational Opportunity**

Conventional research on the racial achievement gap has focused on the equality of educational opportunity. The most influential research done in this area was the Coleman report (Coleman et al., 1966). This report was a product of the Civil Rights Act of 1964, which provided that a survey be conducted to ascertain the lack of equal educational opportunities for individuals by reason of race and other educationally irrelevant factors. Whereas the act presupposed the study’s findings on racial inequalities but left undefined what counts as equal educational opportunities, the study examined various measures of educational opportunities in relation to student achievement. Findings from the Coleman report have been often misinterpreted as evidencing that money does not matter in education.
or that schools have no effect on student achievement (Haller & Klein, 2001).

Although researchers disagree on the best measure of school quality and the significance of school effects, a great deal of evidence suggests that instructional resources and teacher quality affect student achievement (Darling-Hammond, 2000; Ferguson, 1991; Hedges, Laine, & Greenwald, 1994). Studies have found racial inequality of student access to qualified teachers. The more impoverished and racially isolated the school, the greater the likelihood that students in the school are taught by inexperienced teachers, uncertified teachers, and out-of-field teachers (see Darling-Hammond & Post, 2000; Hanushek, Kain, & Rivkin, 2001; Ingersoll, 1996; Lankford, Loeb, & Wyckoff, 2002; Prince, 2002). Research related to the recent emphasis on challenging content and performance standards has also found instructional resources in predominantly minority, high-poverty schools to be less than adequate (Berne, 1994; Haycock et al., 2001).

To examine the racial gap in students’ access to qualified teachers, I compared high school mathematics teachers’ qualifications by their schools’ racial composition of students in the 1987–88 and 1999–2000 Schools and Staffing Survey (SASS) public school data. Figure 2 shows that math teachers in predominantly Black or Hispanic high schools are less likely to teach in their field of study and certification than their counterparts in predominantly White schools. The opportunity of being taught by qualified teachers did not improve for predominantly minority schools, and both Black and Hispanic gaps in in-field teaching remained unchanged between 1988 and 2000.

To examine the racial gap in school spending, I also compared per pupil current education expenditures by school districts’ racial composition of children in the 1990 and 1998 Common Core of Data (CCD) and F-33 data. Figure 2 also shows that predominantly Black or Hispanic school districts generally tend to spend less on education than their predominantly White counterparts. The racial disparity in the level of district spending on education is statistically significant with the exception that predominantly Hispanic school districts were on a par with their predominantly White counterparts.

\[2\] In 1987–88, the in-field teaching rate was 86% for predominantly White schools, 72% for predominantly Black schools, and 70% for predominantly Hispanic schools. However, the Black–White and Hispanic–White gaps did not turn out to be statistically significant because of very small sample sizes for teachers in those predominantly minority schools (less than 200) and the resulting large standard errors of the percentage estimates. Jackknife replicate weights were used to estimate the error variance given the complex multistage sampling method used by the SASS.

According to the NAEP student survey results, classroom opportunity to learn, as indicated by students’ access to advanced courses, appears to have significantly improved for Black and Hispanic 17-year-olds during the last 2 decades. The Black–White and Hispanic–White gap in the ratio of taking advanced mathematics courses narrowed mostly between 1978 and 1990, implying that minority students’ access to advanced courses became more equitable. However, no further progress in narrowing the gap was made between 1990 and 1999.

Examination of educational opportunity for different racial and ethnic groups requires looking at inequalities at home as well as in schools. Trends of the gap between Blacks and Whites across a variety of family educational conditions show substantial progress toward the greater equalization of educational opportunity at home throughout the last 3 decades (see Figure 3). The Black–White gaps in educational attainment,
poverty, and single-parent households narrowed continuously throughout the last 3 decades. Despite this continuous progress, Black students still remain more likely to live in poverty, with parents who have a lower level of education, and in a single-parent family. Figure 3 also shows corresponding trends of the Hispanic–White gap in family educational conditions. Although the Hispanic–White gap was originally smaller than the Black–White gap, it hardly narrowed over the past 2 decades, and thus Hispanics’ gap relative to Whites is no longer smaller than that of Blacks.

By and large, the aforementioned comparisons indicate that Black and Hispanic students are doubly bound by lack of educational opportunities that they face both at home and at school. The problems with less adequate instructional resources and less qualified teachers in predominantly minority schools are no less significant than the challenges posed by minority students’ relatively disadvantaged family learning environment. Although there has been significant national progress toward narrowing
many of the racial gaps in the past 2 or 3 decades, the progress was not sufficient to eradicate all inequalities.

Adequacy

Adequacy concerns primarily how well students perform against a certain level of achievement deemed adequate. This perspective might help address problems with an approach focusing on equality of educational opportunity. No matter how much the relative achievement gap among different racial and social groups has been narrowed, some disadvantaged minority students’ performance level still may not be acceptable. This adds a new dimension of gap relative to adequate performance, thereby removing the possibility of lowering the achievement of the higher performing group in order to close the relative gap.

If all students can be brought to at least a minimally adequate achievement level, then their achievement outcome may be declared to be equitable somehow. However, setting minimally adequate learning standards and assessing students with minimum competency tests may risk lowering academic expectation and discouraging teachers from pursuing academic excellence beyond the required minimum level. The standards-based education reform movement since *A Nation at Risk* (National Commission on Excellence in Education, 1983) addressed this problem by adopting high standards for all students and using high proficiency tests aligned with the standards. This perspective also had implications for school finance reform where the focus has shifted from equality to adequacy (Clune, 1994; Ladd, Chalk, & Hansen, 1999).

Murnane and Levy (1996) pointed out that 17-year-olds should score 300 or more on the NAEP reading and mathematics tests in order to meet the New Basic Skills, the minimum skills people now need to get a middle-class job. If we accept level 300 as the minimally adequate level of achievement for high school graduates, Black and Hispanic students did make significant progress toward that goal over the last 2 decades (see Figure 4). Nevertheless, the progress almost stalled during the 1990s, and the gap of Blacks and Hispanics in basic knowledge and skills still remains very large. As of 1999, 27% of Black and 38% of Hispanic 17-year-olds performed at or above Level 300 in mathematics. The corresponding figure for their White peers was 70%.

The inadequacy of Black and Hispanic students’ achievement is also evident on the national NAEP. *Basic* denotes partial mastery of prerequisite knowledge and skills for proficient work at each grade and thus may be regarded as a minimally adequate level of achievement on the national NAEP.
The percentage of Black and Hispanic 12th graders at or above the Basic achievement level hardly increased from 1990 through 2000. As of 2000, a majority of Black and Hispanic 12th graders still remained below the minimally adequate achievement level in mathematics (see Figure 4). The percentage of 12th-grade Black students performing below the Basic proficiency level in mathematics is about 3 times larger than that of their White peers (20% for Whites vs. 61% for Blacks at Grade 4; 23% for Whites vs. 68% for Blacks at Grade 8; 26% for Whites vs. 69% for Blacks at Grade 12). The long-term NAEP and the national NAEP concur that a majority of students in both Black and Hispanic groups have not reached an adequate achievement level yet and there was little or no progress made during the 1990s.

The NAEP results on Black and Hispanic high school students’ achievement level would appear to be more inadequate if one takes into account students who dropped out of schools and did not take the test. The trend of Black and Hispanic high school dropout rates shows that the Hispanic dropout rate has been twice as high as Black’s (see Figure 5): The Black
dropout rate was around 15% to 20%, whereas the Hispanic dropout rate was in the range of 30% to 35%. Both Black and Hispanic dropout rates fell somewhat until the mid 1980s, but no further progress has been made since then. Therefore, the achievement of Black and Hispanic high school students did not improve during the 1990s when their dropout rates stayed the same.

Reciprocity

Reciprocity concerns the extent to which different racial and ethnic groups share common learning experiences and benefit each other with shared knowledge and skills. In reporting and comparing the academic achievement of different racial groups in the past, race–ethnicity was seen as a static, categorical variable rather than as a dynamic, relational variable. The focus of policy concern was primarily how well Blacks as one of several racial categories perform relative to Whites as its reference category. This focus left unanswered the question of how much the academic achievement of students from one racial group affects the achievement of
students from the other groups and how this peer group effect has any bearing on equity. From this perspective, achievement is seen as a public good rather than a private good, and the racial achievement gap may be considered more tolerable to the extent that the higher achieving racial group’s achievement helps improve the achievement of the lower achieving racial group.³

Given the fact that the national Black–White and Hispanic–White achievement gaps are very large, one may argue that this approach can benefit only those minority groups and thus it is not reciprocal. However, making a generalization based on the average racial achievement gaps can be misleading, as within-group variability in achievement is much greater than between-groups variability. According to the 1999 long-term trend NAEP math results, the average national Black–White gap is about 31 points, whereas the gap between high-performing (2 standard deviations above the mean) and low-performing (2 standard deviations below the mean) students of the same race (both Blacks and Whites) amount to 112 points. About 15% of Black students perform better than an average White student.

Reciprocity among racial groups may be enhanced through racial integration between and within schools, as students can benefit more from each other (i.e., peer group effect) in a racially integrated school that realizes the goal of reciprocity with cooperative learning. Although studies on the effect of racial desegregation on student achievement have shown mixed results, most relevant studies have found that Black students’ test scores increased and Whites’ scores did not decline (see Armor, 1995; Crain & Mahard, 1982; Orfield, 1978; St. John, 1975). Also there is a great deal of research showing that there are many long-term benefits of racial integration for all racial groups and the larger society with respect to going to integrated colleges, living in integrated neighborhoods as adults, and building social capital (see Briggs, 2003; Kahlenberg, 2001).

Although school segregation for Blacks has significantly dropped in the past, the more recent trend is toward increased segregation (see Fig-

³Transfer of educational benefits as public goods may happen spontaneously when the externality of education is assumed. The conventional view of externality as proposed by economists focuses on future social benefits of education realized in the labor market or community (e.g., increasing productivity of coworkers in a firm, living in an educated, literate society; see McMahon, 1998; Psacharopoulos, 1996). In contrast, the concept of reciprocity as discussed in this article assumes more proactive efforts to promote educational integration among different racial groups of students and facilitate their sharing of knowledge and skills in school settings.
The percentage of Black students in predominantly minority schools (50%–100% minority) dropped from 77% in 1969 to 63% in 1987 but increased to 70% by 1999 (Orfield, 2001). Conversely, Hispanic segregation grew steadily throughout the last 3 decades, surpassing the level of Black segregation in predominantly non-White schools (Orfield & Yun, 1999). Increasing racial segregation implies that the chance for both Black and Hispanic students to benefit from learning with White peers may have decreased. Table 3 shows the trends of Blacks’ and Hispanics’ access to the higher achievement of White students, which has been restricted by their limited exposure to Whites in segregated schools.

![Figure 6. Black and Hispanic school segregation trends by the percentage of minority students (50%-100% and 90%-100%) in school: 1968 to 1998. Adapted from “Schools More Separate: Consequences of a Decade of Resegregation” by G. Orfield, 2001, Table 9. Retrieved August 11, 2003, from http://www.civilrightsproject.harvard.edu/research/deseg/Schools_More_Separate.pdf. Adapted with permission of the author.](image-url)
<table>
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<tr>
<th>Year</th>
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<th>Black–White Math Gap (B)</th>
<th>Exposure to Gap Index (A×B/100)</th>
<th>Exposure Index (C)</th>
<th>Hispanic–White Math Gap (D)</th>
<th>Exposure to Gap Index (C×D/100)</th>
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<td>12.8</td>
<td>43.8</td>
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<td>13.1</td>
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<td>29.1</td>
<td>24</td>
<td>7.0</td>
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</table>

*Note.* The exposure index is the percentage of White students in school attended by typical Black or Hispanic students as obtained from Table 10 in Orfield (2001). The math gap is the national average National Assessment of Educational Progress math test score gap combined across three age groups (ages 9, 13, and 17). The gap exposure index is computed by multiplying the exposure index by math gap and dividing by 100. It is a proxy measure of minority students’ exposure to the portion of White students’ achievement exceeding minority students’ achievement.

Summary and Conclusion

Table 4 summarizes the findings of this article with regard to the trends and status of inequity in racial–ethnic achievement gaps from each one of the aforementioned three perspectives, and it lists policy strategies used in the past to address these issues. How inequitable are current racial and ethnic achievement gaps? This question can be answered by looking at how well the aforementioned three conditions are being met. The current racial achievement gap is highly unacceptable from the standpoint of equity and justice, as any one of the three conditions are not being met. How much setback in equity does the recent trend of the widening racial achievement gap show? In a similar vein, this question may be answered by evaluating changes in the aforementioned three conditions. For example, the widening Black–White achievement gap might have been seen differently if Black students had made significant progress toward an adequate achievement level; however, their achievement level remained flat.

One may think it is very unrealistic for schools to measure up to all of the three conditions of educational equity and justice that I have proposed in this article. Indeed, there are some obstacles to accomplishing these conditions. First of all, there are home-related factors such as parents’ education and income that are beyond schools’ control. Making educational opportunities equal in schools may not be sufficient for minority students who have socioeconomically disadvantaged family backgrounds that negatively affect their achievement. One may even argue that to ensure fair educational opportunity for disadvantaged minority students, schools must allocate resources to them until there is no achievement gap left. However, there are some difficulties with this perspective of equity, as not only is it implausible to find a sufficient pool of school resources to remove any racial achievement gaps but also there is no guarantee that the reallocation of school resources alone would close the achievement gap.

A major concern with efforts to equalize educational opportunity and, ultimately, student achievement is that it might harm Whites by negatively affecting their opportunity to learn and lowering their achievement. Adequacy perspective may lesson this problem by paying more attention to improving the absolute level rather than reducing the relative gap. However, it is very difficult to achieve social consensus on an adequate level of student achievement and required resources. Moreover, when the minimally adequate achievement level rises along with rapid social changes and increasing expectations, it becomes difficult for schools to catch up with the standards as a moving target. It may be no less unrealistic to at-
<table>
<thead>
<tr>
<th>Condition</th>
<th>Past Trend and Current Status</th>
<th>Educational Policy</th>
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| Equality    | Home: Black and Hispanic gaps in family educational conditions (parental education, poverty, single household) narrowed significantly over the past 3 decades, but the size of gaps remains substantial. School: Black and Hispanic gaps in key schooling conditions (teacher qualifications, school resources, advanced courses) also narrowed. The inequalities were relatively smaller at school than at home. The gaps remain unchanged in the 1990s and still exist. | State aid to equalize disparities in local school funding  
Incentives to attract more qualified teachers to predominantly minority schools  
Raising of standards for teacher certification and student course work  
Provision of compensatory education services (e.g., Head Start, Title I) to disadvantaged minority students  
High school exit exams (minimum competency test or end-of-course exams)  
Setting of performance standards that ensure minimally adequate level of achievement for minority students  
Guaranteeing minimally adequate level of school resources in low-income, predominantly minority schools  
Provision of remediation to students who fail to meet desired performance standards  
Racial integration (busing, magnet schools)  
Detracking, cooperative learning, peer tutoring |
| Adequacy    | Blacks and Hispanics have made substantial progress toward minimally adequate achievement (e.g., Level 300 on the long-term NAEP for 17-year-olds or Basic on the national NAEP) over the last 2 decades. However, the progress slowed down in the 1990s, and a majority of Blacks and Hispanics still do not meet the minimum competency level. Black and Hispanic high school dropout rates dropped until the mid-1980s but stayed the same since then. |                                                                                                                                                      |
| Reciprocity | School segregation for Blacks decreased significantly until the mid-1980s but increased since then. School segregation for Hispanics increased continuously, surpassing the level of segregation for Blacks. Blacks and Hispanics remain highly segregated from Whites and the probability of shared learning and achievement among different racial groups in mutually beneficial ways is very low. |                                                                                                                                                      |

*Note. NAEP = National Assessment of Educational Progress.*
tempt to have all students perform at or above the same academic standards than to eradicate any achievement gap among racial and ethnic groups.

Problems with both equality and adequacy perspectives might be the implicit treatment of academic achievement as a private good as opposed to a public good that can be shared among groups. Here the reciprocity perspective helps focus attention on the hidden side of the achievement gap, that is, how much White students’ achievement contributes to minority students’ achievement or vice versa, rather than how well minority students perform relative to White students or against certain performance standards. It also acknowledges the reality of the achievement gap and attempts to use existing gaps to the advantage of the disadvantaged. However, reciprocity is relatively more difficult to measure and thus may be ignored by policymakers: School desegregation does not guarantee reciprocal education.

Despite the obstacles and challenges, there have been policy attempts in the past to realize the ideals of educational equity and social justice from each one of the three perspectives. Although these three lines of policies may all contribute to narrowing the racial and ethnic achievement gaps, the past policies tended to be fragmented and pursued at the expense of each other. What educational policymakers must be concerned about is not simply the fact that relative achievement gaps are large and the gaps have widened recently but also the fact that a majority of minority students do not meet minimally adequate achievement levels and they hardly made progress toward the standards. They also have to be concerned about the possibility that increasing school segregation may worsen racial inequalities in schooling conditions and outcomes. Now it is time for the entire nation to tackle multiple facets of inequity underlying the achievement gap, asking why there was little progress and there were even some setbacks toward racial and ethnic equity during the last decade.

References


Appendix
Descriptions of Racial and Ethnic Gap Variables

Diverse kinds of racial and ethnic gap variables were used in this article. The definition and data sources of gap measures (as shown in Figures 1–3) are described here in order of presentation.


**High school education gap.** Ratio of White high school education rate to corresponding Black and Hispanic rates. High school education rate is the percentage of people 25 years old and older who have completed high school. The data came from the U.S. Bureau of the Census, 1970–1998 Current Population Survey.
**College education gap.** Ratio of White college education rate to corresponding Black and Hispanic rates. Education rate is the percentage of people 25 years old and older over who have completed college. The data came from the U.S. Bureau of the Census, 1970–1998 Current Population Survey.


**Advanced course gap.** Ratio of White advanced mathematics course-taking rate to corresponding Black and Hispanic rates. The advanced mathematics course-taking rate is the percentage of 17-year-olds who report having taken any one of the following courses: Algebra I, Geometry, Algebra II, Precalculus, or Calculus. The data came from the National Center for Education Statistics (NCES), 1978–1999 Long-term Trend NAEP Mathematics Student Survey.

**Teacher quality gap.** Ratio of predominantly White high schools’ in-field mathematics teacher rate to corresponding rates for predominantly Black and Hispanic schools. In-field math teaching rate is the percentage of public school mathematics teachers who taught high school grades (9–12) with an undergraduate major and a certificate in their main assignment field. The math teachers were classified as having a college major in the field if they reported having a college degree in any one of these fields: mathematics, math education, physics, engineering, and statistics. This rate was calculated for each group of schools with 50%–100% of their students classified as White, Black, or Hispanic (i.e., predominantly White schools, predominantly Black schools, predominantly Hispanic schools). The data came from 1987–88 and 1999–2000 Schools and Staffing Survey.
School expenditure gap. Ratio of predominantly White school districts’ per pupil educational spending to corresponding measures for predominantly Black and Hispanic districts. Per pupil educational spending is current expenditure on education per pupil with the following adjustments: (a) adjusting each district’s per-pupil current expenditure for regional cost differences using “geographic cost-of-education index” retrieved from the NCES Web site (http://www.nces.ed.gov/edfin/prodsurv/data.asp); (b) estimating the number of poor students by multiplying the child-poverty rate by its fall enrollment; (c) adjusting its fall enrollment by multiplying the estimated number of poor students by 1.2 and the number of special education students by 2.3; and (d) calculating the district’s adjusted per pupil expenditure by dividing its adjusted current spending by its adjusted enrollment. The average amount of spending was calculated for each group of school districts with 50%–100% of children classified as White, Black, or Hispanic (i.e., predominantly White districts, predominantly Black districts, predominantly Hispanic districts). The data came from 1989–90 and 1997–98 Common Core of Data and F-33. The districts’ racial composition of children in both 1989–90 and 1997–98 years was based on the 1990 Census and thus did not reflect any changes between 1990 and 1998.