



**THE NATIONAL
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*University of Connecticut
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**Promoting Sustained Growth in
the Representation of African
Americans, Latinos, and Native
Americans Among Top Students in
the United States at All Levels of the
Education System**

L. Scott Miller
University of California, Berkeley
Berkeley, California

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Promoting Sustained Growth in the Representation of African Americans, Latinos, and Native Americans Among Top Students in the United States at All Levels of the Education System

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ABSTRACT

Compared to Whites and Asian Americans, African Americans, Latinos, and Native Americans are severely underrepresented among top students in the United States at all levels of the educational system. This longstanding pattern is documented by virtually every traditional measure of academic achievement, including GPA, class rank, and standardized test scores. Moreover, all social class segments of these groups are underrepresented among the nation's top students. For example, this is the case for students from these groups who have parents who have not completed high school and for students with parents who have graduate and professional degrees. Over the years, relatively little attention has been given to increasing the number of top Black, Hispanic, and Native American students, which helps explain why there are very few strategies at any level of the educational system with strong empirical evidence that they can increase the number of high achieving students from these groups on a widespread basis. If there is to be sustained progress in this area, it probably will be necessary to give considerable priority over the next 10-20 years (and beyond) to the design, testing, and rigorous evaluation of strategies that are explicitly concerned with increasing the number of top students from these groups. To pursue this agenda effectively, it is recommended that several new entities be created that would each specialize in one or two important aspects of the high achievement challenge. For example, an entity should be created that would be concerned with developing model preschool and parent education programs that could improve the school readiness of middle and high SES youngsters from underrepresented groups, while another entity should be created that would specialize in evaluating programs and strategies at the higher education level that serve underrepresented minority students to determine if they help increase the number of top students from these groups in higher education. It also is recommended that these entities be mainly new nonprofit organizations or university-based centers, in order to ensure that they have the freedom and independence to maintain their specialized agendas over time.

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Introduction

In the fall of 1999, the National Task Force on Minority High Achievement, a foundation-funded group of leaders from education and other sectors of society that was housed at the College Board, issued a report called *Reaching the Top*. In it, the Task Force called attention to the fact that African Americans, Latinos, and Native Americans are severely underrepresented among the nation's top students at all levels of the educational system, by traditional measures of academic achievement, including grade point average (GPA), class rank, and standardized test scores (National Task Force for Minority High Achievement, 1999).

The Task Force, for which I had the privilege of serving as director, emphasized in *Reaching the Top* that this situation is having several very negative, sequential consequences for these groups in higher education and the labor market: The shortage of top high school graduates from these groups is limiting their presence among undergraduates at selective colleges and universities. Only a small percentage of the underrepresented minority students who do attend selective institutions are excelling academically on the undergraduate level. The shortage of top bachelor's degree recipients from these groups is limiting their presence in selective graduate and professional schools. Finally, it also is limiting the number that emerges from professional and graduate degree programs well positioned to compete successfully for a wide range of entry-level professional positions that offer avenues to leadership positions in many sectors of society.

In this monograph, I will: a) summarize several key aspects of the high achievement situation; b) review data that describe the extent of the high achievement problem; c) discuss characteristics of the high achievement challenge that I believe should inform much of the work in this area (some things that I call, collectively, *conditions of fewness*); d) argue for the need to learn more about how the most academically successful groups produce their results as a means of informing strategy development; e) discuss how the movement for more evidence-based educational improvements can serve the underrepresented minority high achievement agenda; and f) make several recommendations for action.

Key Aspects of the High Achievement Situation

There are many dimensions to the high achievement situation. In this monograph, I would like to mention a dozen that I find helpful when thinking about the development of recommendations for action.

- *African Americans, Latinos (especially Mexican Americans and Puerto Ricans), and Native Americans are currently severely underrepresented among the nation's highest achieving students, by virtually all traditional academic achievement measures, including GPA, class rank, and standardized tests scores.* These measures show that these groups are acutely underrepresented among the top 1%, 5%, and 10% of students, and even heavily underrepresented among the top quarter (Borman, Stringfield, & Rachuba, 1999; College Board 2003a). They are underrepresented at all levels of the educational system, from kindergarten through graduate and professional school (Miller, 2000). Moreover, there is nothing new about this situation. It is documented, for example, in National Assessment of Educational Progress (NAEP) reading test trend data going back over 30 years (Campbell, Voelkl, & Donahue, 2000).
- *Little progress has been made over the past generation toward reducing the underrepresentation of these groups among the nation's top students, despite an active school reform movement throughout the period.* As will be demonstrated in a subsequent section of this monograph, some measures of academic achievement suggest that ground may have been lost since the late 1980s.
- *A major contributing factor to the high achievement "gap" is that much larger percentages of Blacks, Hispanics, and Native Americans continue to grow up in low socioeconomic (SES) circumstances than Whites and Asian Americans.* This is the "between-class" dimension of the high achievement challenge. It is very important, because low SES students are generally much less likely to be high academic achievers by traditional measures than middle class and high SES students (Hafner, Ingels, Schneider, & Stevenson, 1990; Persky, Daane, & Yin, 2003; White, 1982). This is true not only in the United States, but also in virtually all industrialized nations—although achievement gaps between social classes are somewhat larger in America than in some other industrialized countries (United Nation Children's Fund Innocenti Research Centre, 2002).
- *Another major contributing factor is that, in all social class strata (as measured by parent education and family income), students from underrepresented groups achieve at significantly lower levels, on average, than White and Asian American students.* This is the "within-class" dimension of the high achievement challenge. This aspect of the

challenge is very important, because some of the largest within-class gaps are among students who have parents with bachelor's, graduate, or professional degrees (Beatty, Reese, Persky, & Carr, 1996; Campbell, Donahue, Reese, Phillips, 1996; College Board, 2000). This is very damaging for underrepresented minorities, because they, like all groups, rely on their high SES segments to produce a disproportionate share of their high academic achievers.

- *Still another significant factor is that, at most levels of the educational system, underrepresented minority students who have been high performers do less well, on average, than high performing White and Asian students. This is the "within-the-top" dimension of the high achievement challenge. For example, Black students in the top quartile on reading tests at the beginning of the first grade have been found to make smaller gains in the primary grades than White students in the top quartile at the start of the first grade (Borman, Stringfield, & Rachuba, 1999). Similarly, top African American and Latino high school graduates tend to earn lower GPAs at selective colleges and universities than comparably prepared White and Asian students, i.e., those with similar high school grades and college admission test scores (Bowen & Bok, 1998; Ramist & McCamley-Jenkins, 1994). This often is referred to as the "overprediction" phenomenon by researchers, because high school grades and college admission test scores predict higher college grades for underrepresented minorities than they typically receive.*
- *There are currently very few educational strategies, from preschool through higher education, for which there is strong empirical evidence that they help increase the percentage of high achieving students from underrepresented groups. There literally may be no strategies with evidence of substantial high achievement impacts based on randomized trials with control groups. Tests of strategies using randomized controlled trials, of course, have been rare in education (Borman, 2002; Jencks, 2000).*
- *The shortage of proven strategies is an outgrowth of the fact that increasing the percentage of high achievers from underrepresented groups (using traditional measures, such as GPA) has never been a high operational priority among educators and others who have been working to improve educational outcomes for underrepresented groups. As a result, few strategies on the K-12 or higher education levels have been designed over the years with this objective in mind. Unsurprisingly, therefore, few have been evaluated for high achievement impacts. For example, it has been rare for evaluations of school reform strategies to look at whether more students in the targeted schools are achieving in the top 10% or even the top 25% of students nationally as measured by a standardized test. It is even rarer for evaluators to use multiple measures*

of high performance, such as samples of written work in various subjects benchmarked to that of top students in advantaged private schools, along with GPA and standardized test scores.

- *The dearth of proven strategies is also related to the fact that closing the large achievement gaps in the middle and high SES student segments has been a low priority over the years.* Consequently, few strategies have been designed to close them or evaluated from that perspective. Instead, most efforts to improve academic outcomes for underrepresented minority students have focused on those who are from low SES backgrounds, because so many are at risk of school failure. Preschool programs such as Head Start, elementary school reform strategies such as Success for All, and the growing number of summer school programs for low achievers in urban school districts are examples of these efforts.
- *In practical terms, the fact that the high achievement and within-class issues are not high operational priorities means that few organizations are currently working on these issues in a substantial, systematic way.* This is true on both the "doer" and "funder" side. The lack of work in the preschool years and primary grades is devastating, because achievement patterns are established early for all groups (Denton, Reaney, & West, 2001; Phillips, Crouse, & Ralph, 1998).
- *The paucity of government and foundation investment in efforts to address the high achievement and within-class gaps may be the greatest current obstacle to progress on these issues.* Without a major infusion of money, it is hard to see how a lot more work can be undertaken.
- *Even if an energetic effort began tomorrow to create the necessary organizational capacity, sustained, broad-based progress on these issues might not emerge until 2025 or beyond.* This is because, even if a great deal of sophisticated strategy-development/testing/evaluation work began in the next few years on these issues, it would undoubtedly take at least two decades to develop a set of proven, widely usable approaches for addressing them from preschool through higher education.
- *To maximize progress, it probably also will be necessary for a great deal of specialization to emerge among those who work on various aspects of the high achievement agenda.* After all, designing early childhood education strategies to help Black and Latino children from professional class families start school as well prepared as their White and Asian counterparts is different from working to develop strategies to eliminate the overprediction phenomenon at selective colleges and universities. Unfortunately, in my judgment, we are far from having the cadre of specialists that is needed.

Some Data on the Extent of the High Achievement Challenge

The description of the high achievement situation that follows draws on data from kindergarten through college. Because we are ultimately concerned with producing robust representation of African Americans, Latinos, and Native Americans among top students in higher education, i.e., high achievers at the end of the educational "pipeline," I begin with a discussion of the situation on the undergraduate level.

The High Achievement Situation on the Undergraduate Level

The 1999-2000 National Postsecondary Student Aid Study (NPSAS) provides GPA data on a nationally representative sample of all students enrolled in higher education. Thus, the sample includes students attending institutions at all levels of selectivity. It found that about 17% of the Whites and 14% of the Asian Americans earned mostly A's, but only 7% of the African Americans, 10% of the Hispanics, and 8% of the Native Americans did so (Horn, Peter, & Rooney, 2002).

Over the past several years, I have had the opportunity to see unpublished GPA data for many selective colleges and universities. Those data suggest that high achievement gaps at selective institutions are often considerably larger than those found for higher education as a whole in the 1999-2000 NPSAS. In my experience, the percentages of White and Asian undergraduates with a GPA of, say, 3.5+ (on a 4.0 scale) at selective institutions are often three-to-five times as large as those of African Americans, Latinos, and Native Americans. At the 3.75+, the multiple can be even larger.

One of the most important recently published sources of GPA data at selective institutions is *The Shape of the River*, by William Bowen and Derek Bok (1998). In it, Bowen and Bok report on their analysis of a database assembled from 28 selective colleges and universities. They found that, among students who enrolled at those institutions in 1989, the average White student graduated with a GPA of 3.15 and had a class rank at the 53rd percentile, while the average Black student graduated with an average GPA of 2.61 and had a class rank at the 23rd percentile. They also found very large differences in class rank between African American and White students with high SAT scores. Notably, the average Black student in their study with an SAT score of 1300 graduated at the 36th percentile, while their White counterparts graduated, on average, at the 60th percentile. Although less information was provided on Hispanics, they reported that the average Latino student in the study graduated at the 36th percentile.

Disturbingly, Bowen and Bok (1998) reported that the half-GPA-point difference in average GPAs between Whites and African Americans in their study was about twice as large as predicted by differences in the academic preparation for college between these two groups of students—two-to-three-tenths of a GPA point. They also reported finding that the GPA gap between Whites and Hispanics was somewhat larger than would have been predicted. Thus, Bowen and Bok found consequential overprediction patterns of the type mentioned in the previous section of this monograph.

Many other studies going back 20-30 years at the undergraduate, graduate, and professional school levels have produced similar findings (Klitgaard, 1985; Ramist & McCamley-Jenkins, 1994). Such differences have continued to be found. Notably, Stephen Cole and Elinor Barber (2003) reported in *Increasing Faculty Diversity* that, in their study of students at a number of institutions, 36% of the Latinos with SAT scores of 1300+ said they had an A or A- GPA, while 31% of those students said they had a GPA of B or lower. In contrast, they found among Whites with 1300+ SAT scores, that 52% had an A or A- GPA and only 17% had a GPA of B or lower. The percentages for Asians were 50% and 19%, respectively. This general pattern also was found among students with SAT scores of 1200-1299 and with scores below 1200.

These GPA differences are magnified by the fact that African Americans and Latinos are heavily underrepresented among undergraduates at selective colleges and universities. The extent of this underrepresentation is illustrated by enrollment data from seven institutions selected at random from the first 25 on the list of the top 50 national universities in the 2003 edition of *America's Best Colleges*: During the 2001-2002 academic year, Blacks constituted only 4% of the undergraduates at the University of Chicago, 6% at Georgetown University, 6% at MIT, 8% at Princeton University, 7% at Rice University, 9% at Stanford University, and 6% at Vanderbilt University; and, the Hispanic percentages were 7% at Chicago, 5% at Georgetown, 11% at MIT, 6% at Princeton, 11% at Rice, 11% at Stanford, and 4% at Vanderbilt (*U.S. News and World Report*, 2003). The simple (unweighted) average of undergraduate enrollments for these institutions was less than 7% Black and less than 8% Hispanic, even though these groups now constitute about one-third of the student-age population in the United States and about one-quarter of high school graduates in recent years (National Center for Education Statistics, 2003).

The High Achievement Situation on the Elementary and Secondary Levels

The underrepresentation of African Americans, Latinos, and Native Americans among undergraduates at selective colleges and universities is related to the continuing severe underrepresentation of top high school graduates from these groups. To get a sense of the extent of the shortage, it is useful to look at some recent SAT and AP data, because they are two sources of information widely used in the admission decision process at selective colleges and universities. The AP data are also particularly valuable, because they provide information on student performance on very challenging subject area tests—tests that are benchmarked to entry-level college courses.

Table 1 presents data on the number and percentage of high school seniors from each racial/ethnic group that scored 700 or higher on the SAT math section in 1988 and 2000. Table 2 presents similar data for those years for the verbal section of the test. The 700+ threshold has been chosen, because many students admitted to highly selective colleges and universities score at that level on either or both sections of the SAT. (The math and verbal sections of the SAT are each scored on a scale of 200 to 800.)

Table 1

High School Seniors in 1988 and 2000 Who Scored 700 or More on the SAT Math Section, by Race/Ethnicity

	1998			2000		
	No. with 700+	% with 700+	No. of Test Takers	No. with 700+	% with 700+	No. of Test Takers
White	25,530	3.1	813,116	41,449	5.8	712,105
Asian/Pacific Islander	5,394	8.4	64,102	15,456	16.0	96,717
Black	249	0.3	97,483	746	0.6	119,591
Mexican American	149	0.7	22,722	555	1.2	44,921
Puerto Rican	53	0.5	11,497	165	1.2	14,147
Other Latino	273	1.4	20,213	793	2.0	38,804
Native American	105	0.9	12,330	195	2.5	7,658
Other	473	3.4	14,094	2,528	6.5	38,634
No Response	2,145	2.7	78,807	12,156	6.5	187,701
Total	34,371	3.0	1,134,364	74,043	5.9	1,260,278

Note. From *2000 College-bound Seniors: Ethnic and Gender Profile of SAT and Achievement Test Data*, by College Board Summary Reporting Service, 2000, New York: College Board, pp. 7, 9. Copyright 2000 by the College Board. Adapted with permission. All rights reserved. www.collegeboard.com.
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Table 2

High School Seniors in 1988 and 2000 Who Scored 700 or More on the SAT Verbal Section, by Race/Ethnicity

	1998			2000		
	No. with 700+	% with 700+	No. of Test Takers	No. with 700+	% with 700+	No. of Test Takers
White	34,732	4.3	813,116	37,761	5.3	712,105
Asian/Pacific Islander	3,393	5.3	64,102	6,156	6.4	96,717
Black	672	0.7	97,483	914	0.8	119,591
Mexican American	263	1.2	22,722	514	1.1	44,921
Puerto Rican	94	0.8	11,497	168	1.2	14,147
Other Latino	424	2.1	20,213	776	2.0	38,804
Native American	138	1.1	12,330	184	2.4	7,658
Other	711	5.0	14,094	2,318	6.0	38,634
No Response	2,984	3.8	78,807	9,644	5.1	187,701
Total	43,431	3.8	1,134,364	58,435	4.6	1,260,278

Note. From *2000 College-bound Seniors: Ethnic and Gender Profile of SAT and Achievement Test Data*, by College Board Summary Reporting Service, 2000, New York: College Board, pp. 7, 9. Copyright 2000 by the College Board. Adapted with permission. All rights reserved. www.collegeboard.com.
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Table 1 shows that, in 2000, there were 41,449 White and 15,456 Asian American high school seniors who scored 700 or higher on the math section of the SAT, compared to only 746 Blacks, 555 Mexican Americans, 165 Puerto Ricans, 793 other Latinos, and 195 Native Americans. Thus, there were 23 times as many White and Asian seniors who scored 700+ on the math section than there were underrepresented minority seniors who did so (56,905 versus 2,454), even though there are now only about twice as many Whites and Asians in the student-age population as Blacks, Hispanics, and Native Americans. Note also that an extraordinary 16.0% of the Asian seniors along with 5.8% of the White seniors scored 700+ on the math section in 2000, while only 0.6% of the African Americans, 1.2% of the Mexican Americans, 1.1% of the Puerto Ricans, 2.0% of the other Latinos and 2.5% of the Native Americans did so.

It also is informative to compare the SAT math data in 2000 to the math data in 1988, since NAEP math test score trend data suggest very little progress was made in closing achievement gaps in that period. The SAT data in Table 1 tell a similar story. While all the groups had growth in the number and percentage of their test takers who scored 700+ on the SAT math section, the underrepresented groups had difficulty gaining ground on Asians and Whites. Indeed, in terms of the absolute percentages that scored 700+, they lost ground. Moreover, the growth in the Asian percentage scoring 700+ on the math section from 8.4% to 16.0% was truly remarkable; while, at the same time, the growth from 0.3% to 0.6% for African Americans was very disappointing, given the extensive school reform efforts during the period.

There is another point that must be made about the data in Table 1. Between 1988 and 2000, the percentage of seniors who took the SAT, but did not respond to the background question on race/ethnicity, grew from 7% to 15% (from 78,807 to 187,701). Based on the scoring patterns of the nonrespondents in 2000, it seems likely that most were White and Asian. If so, the growth of White and Asian high math scorers on the SAT was much larger than the data here indicate, because the number of nonrespondents scoring 700+ on the math section grew from 2,145 to 12,156 in the period.

The data in Table 2 tell a generally similar story of underrepresentation of African Americans, Latinos, and Native Americans among 700+ scorers on the verbal section. In 2000, about 17 times as many Whites and Asians scored 700+ on the verbal section as did students from the underrepresented groups. One important difference in the verbal scoring pattern relative to the math pattern is that the percentage of Asian students who scored 700+ was only modestly higher than that of Whites. Another major difference is that the growth in the percentage of each group that scored 700+ on the verbal section between 1988 and 2000 was generally small, especially relative to the gains registered on the math section. This also is consistent with changes that took place in NAEP reading and math test scores in the period.

The College Board has not yet released detailed data on the number of high school seniors from each group that scored at high levels on the SAT in 2003. However, it has published the percentages of each group that did so (College Board, 2003a). Those data suggest that there has been little change for most groups in the percentages scoring 700+ on the math and verbal sections. The largest change was for Asian's scoring 700+ on the math section. It had grown to 19% by 2003. Possibly the most consequential change was that the percentage of high school seniors in 2003 that did not respond to the question on race/ethnicity had reached 25% (College Board, 2003b). Thus, it is increasingly important to find out what the racial/ethnic mix is of that segment of test takers.

Let me now turn to data on recent scoring patterns on Advanced Placement (AP) Program exams. There are now about 35 AP courses. The exams for each course are scored on a five-point scale, with 1 the lowest score and 5 the highest. Traditionally, a score of 3 has been viewed by many colleges and universities as evidence of performing well enough to earn college credit for the course, or to be exempted from the introductory

course at the institution. However, highly selective colleges may require a score of 5 for credit or advanced placement—if they allow either.

Table 3 presents aggregate AP score data in 1997 and 2002 for Whites, Asians/Pacific Islanders, Blacks, and Mexican Americans. As Table 3 shows, the number of exam takers, exams taken, and scores of 1 through 5 grew a great deal during the period. For example, Whites and Asians, together, grew from 435,134 test takers in 1997 to 710,469 in 2002—an increase of 63%. Blacks and Mexican Americans grew even more rapidly, expanding from 47,875 exam takers in 1997 to 97,699 in 2002—an increase of 104%. Nonetheless, there were still over 7 times as many White and Asian exam takers in 2002 as Black and Mexican American exam takers, even though there were only about two-and-half times as many Whites and Asians in the student-age population as African Americans and Mexican Americans.

In 2002, there were very large differences in average scores on AP exams as well. Whites and Asians averaged 3.07 and 3.08, respectively, while Blacks and Mexican Americans averaged 2.14 and 2.61. Furthermore, the overall average score for Mexican Americans benefited from the large number of Mexican Americans who took and scored well on the AP Spanish language exam. For this reason, Table 3 also presents score data for Mexican Americans that exclude the Spanish language results. Note that, when that is done, the average AP exam score for Mexican Americans in 2002 drops to 2.13, which is virtually identical to the average score for African Americans.

Look now at the number of Whites, Asians, Blacks, and Mexican Americans that scored a 5 on AP exams. Note first that, while 10,076 Mexican Americans scored a 5 in 2002, just 1,973 were on exams other than AP Spanish Language. Thus, excluding the Spanish language results, 40 times as many exams taken by Whites and Asians (182,719) were scored a 5 in 2003 than was the case for exams taken by Blacks and Mexican Americans (4,594). This was actually a slightly higher multiple than in 1997. That year, there were about 39 times as many as earned by Whites and Asians (97,793) than by Blacks and Mexican Americans (2,516).

It also is important to note that Blacks and Mexican Americans were much more likely to score a 1 on AP exams than Whites and Asians. In 2002, excluding AP Spanish language, 36.3% of the exams taken by Mexican Americans were scored a 1, along with 35.9% of those taken by Blacks. In contrast, only 10.7% of the exams taken by Whites and 13.5% of those taken by Asians were scored a 1.

Table 3

AP Data for Whites, Asians/Pacific Islanders, African Americans, and Mexican Americans in 2002 and 1997

2002												
	Total Per Group						% Per Group					
							Mexican American			Mexican American		
	White	Asian	Black	All	Excluding Span. Lang		White	Asian	Black	All	Excluding Span. Lang	
Exams Scored a 5	146,829	35,890	2,621	10,076	1,973		14.4	17.4	3.8	12.6	3.3	
Exams Scored a 4	232,772	44,506	6,494	12,783	5,814		22.8	21.6	9.5	15.9	9.6	
Exams Scored a 3	299,400	53,546	13,535	15,684	12,268		29.3	26.0	19.8	19.5	20.3	
Exams Scored a 2	234,136	44,210	21,140	19,351	18,373		22.9	21.5	30.9	24.1	30.4	
Exams Scored a 1	109,344	27,822	24,533	22,389	21,940		10.7	13.5	35.9	27.9	36.3	
Total Exams	1,022,481	205,974	68,323	80,283	60,368							
Total Exam Takers	607,816	102,653	45,271	52,428	NA							
Ave. No. Exams Taken	1.68	2.01	1.51	1.53	NA							
Ave. Score of All Exams	3.07	3.08	2.14	2.61	2.13							

Table 3 (continued)

		1997									
		Total Per Group					% Per Group				
		Mexican American					Mexican American				
		White	Asian	Black	All	Excluding Span. Lang	White	Asian	Black	All	Excluding Span. Lang
Exams Scored a 5		77,885	19,888	1,409	6,913	1,107	13.3	16.9	4.1	21.4	5.0
Exams Scored a 4		126,401	25,486	3,484	5,352	2,732	21.6	21.7	10.1	16.6	12.3
Exams Scored a 3		178,519	33,398	7,499	6,606	5,470	30.5	28.4	21.7	20.5	24.6
Exams Scored a 2		139,669	24,853	10,842	7,255	6,912	23.9	21.1	34.4	22.5	31.1
Exams Scored a 1		62,059	14,025	11,280	6,143	5,973	10.6	11.9	32.7	19.0	26.9
Total Exams		584,533	117,650	34,514	32,269	22,194					
Total Exam Takers		371,606	63,528	24,469	23,406	NA					
Ave. No. Exams Taken		1.57	1.85	1.41	1.38	NA					
Ave. Score of All Exams		3.03	3.11	2.21	2.99	2.37					

Note. From *National Totals: All Students, School AP Grade Distributions by Total and Ethnic Group, Administrative Date: May, 2002*, College Board, 2002, New York: Author, p. 3. Copyright 2002 by the College Board. Adapted with permission. www.collegeboard.com.
1997 Advanced Placement Program National Summary Reports, by College Board, 1997, New York: Author, p. 3. Copyright 1997 by the College Board. Adapted with permission. www.collegeboard.com.

A couple more comments about the Mexican American data are in order. Between 1997 and 2002, the number of non-Spanish-language AP exams taken by Mexican Americans nearly tripled, growing from 22,194 to 60,368. In the process, the percentage of exams taken by Mexican Americans that was scored a 1 increased from 26.9% to 35.9%, while the percentage scored a 5 dropped from 5.0% to 3.3% (and the percentages scored a 4 and a 3 dropped as well). This suggests that the quality of the AP courses offered to Mexican Americans has not been able to keep pace with the expansion of Mexican Americans taking AP courses and/or the pool of Mexican Americans that are well prepared for those courses was not large enough to support the expansion.

I do not have access to data on the quality of AP courses. However, the SAT data presented in Table 1 and 2 suggest that a shortage of Mexican American students who are academically prepared to do well in AP courses and on AP exams is a significant problem. In 2000, there were still only 514 Mexican Americans who scored 700+ on the verbal section and 555 that did so, on the math section. Yet, scores such as those are common among students who score 3 or more on the exams for the majority of AP courses. For instance, in their report, *Advanced Placement Students in College: An Investigation of Course Grades at 21 Colleges*, Morgan and Ramist (1998) noted that, among high school seniors in 1997 with qualifying AP grades, their combined SAT score was over 1300 on 19 of the 31 AP course exams offered that year; and, their average high school GPA was 3.67. Furthermore, while I was director of the National Task Force on Minority High Achievement in the late 1990s, I had AP and SAT data analyzed for high school seniors in 1995. Those data showed that, among Mexican Americans, Puerto Ricans, other Latinos, Blacks, and Native Americans who scored between 900 and 1600 on the SAT and had not taken an AP exam, only 3% had a SAT score of 1300+, while 77% had a score in the 900-1100 range (Miller, 1999).

The data for 1995 seniors also showed SAT and AP score patterns consistent with the findings of Morgan and Ramist (Miller, 2000). For example, among all seniors in 1995 who had a combined verbal and math score on the SAT of 1500+, 82% had taken at least one AP exam, and they had taken an average of 4.97 exams with an average score of 4.30. Among seniors in the 1300-1500 range, 68% had taken at least one exam, and they had taken an average of 3.39 exams with an average score of 3.60. Among those in the 1100-1300 range, 39% had taken at least one exam, and they had taken an average of 2.30 exams with an average score of 2.81. And, among the seniors with SAT scores in the 900-1100 range, 14% had taken at least one exam, and they had taken an average of 1.67 exams with an average score of 2.17. Note that the average score of 2.17 is very close to the average AP scores in 2002 for Blacks and for Mexican Americans as well (when AP Spanish language test results are excluded) that are presented in Table 3.

That analysis also found that this overall pattern generally did not vary a great deal by race/ethnicity. For instance, 63% of the Mexican American and 67% of the White high school seniors in 1995 who scored in the 1300-1500 zone took at least one AP exam. The Mexican Americans averaged 3.6 exams and the Whites averaged 3.3. The Mexican Americans had an average exam score of 3.5, while the Whites averaged 3.6. In the 900-1100 SAT zone, 17% of the African Americans and 12% of the Whites

took at least one AP exam. The Black students averaged 1.7 exams taken, compared to 1.6 for the Whites. The African Americans had an average exam score of 1.8 compared to 2.1 for the Whites.

Unfortunately, relatively small numbers of African American, Latino, and Native American seniors in 1995 were high scorers on the SAT. For example, while there were 64,162 Whites and 10,306 Asians in the 1300-1500 zone, there were only 1,358 Blacks, 792 Mexican Americans, 256 Puerto Ricans, 1,153 other Latinos, and 279 Native Americans in it. (The total of 74,468 Whites and Asians in that SAT zone was 19 times larger than the 3,838 underrepresented minority students in it.)

So far, the AP discussion has discussed general patterns. Table 4 presents data on the average exam scores for racial/ethnic groups on AP exams in 2002 in five important courses—biology, calculus AB, chemistry, English literature and composition, and U.S. history.

Table 4

Average Performance on Selected AP Exams in 2002, by Race/Ethnicity

	Biology	Calculus AB	Chemistry	English Literature & Comp.	U.S. History
White	3.20	3.19	2.83	3.14	2.92
Asian/Pacific Islander	3.29	3.20	3.05	3.02	2.93
Black	2.14	2.17	1.86	2.13	2.08
Mexican American	2.04	2.22	1.75	2.18	1.96
Puerto Rican	2.63	2.68	2.27	2.57	2.38
Other Latino	2.51	2.64	2.28	2.54	2.32
Native American	2.65	2.68	2.18	2.57	2.36
Other	3.06	3.07	2.84	3.06	2.87
No Response	3.10	3.14	2.86	3.10	2.83
All	3.10	3.10	2.79	3.00	2.81

Note. From *National Totals: All Students, School AP Grade Distributions by Total and Ethnic Group, Administrative Date: May, 2002*, by College Board, 2002, New York: Author, p. 3. Copyright 2002 by the College Board. Adapted with permission. All rights reserved. www.collegeboard.com.

Note that, on four of the five exams, Asians averaged at least a 3, while Whites did so on three exams. And, on the remaining exams, the Asian and White students' average scores were generally close to a 3. In contrast, none of the underrepresented groups came close to averaging a 3 on any of the five exams. Blacks and Mexican Americans—the two largest underrepresented minority segments—averaged only about a 2 on all five exams.

These scoring patterns, of course, mean that the overwhelming majority of the high scores on these exams in 2002 were received by White and Asian students, while underrepresented minorities accounted for a disproportionately large share of those who received a 1. For instance, underrepresented students were 12% of the AP biology exam takers in 2002, but less 4% of those who scored a 5, about 6% of those with a 4, about 9% of those with a 3, about 14% of those with a 2, and fully 33% of those with a 1. In contrast, Whites and Asians accounted for 82% of those who took the exam, 90% of those with a 5 and 60% of those with a 1. A disheartening 43% of the Mexican Americans who took the AP biology exam in 2002 had a 1. (Note: These data were derived from tables on the 2002 AP retrieved from www.apcentral.collegeboard.com.)

What did this mean in absolute terms on the high scoring front on AP biology? It meant that 8,684 Whites and 2,853 Asians received a 5 in 2002, but only 159 Blacks Americans, 106 Mexican Americans, 44 Puerto Ricans, 201 other Latinos, and 24 Native Americans did so. Thus, there were nearly 22 times more Whites and Asians with a score of 5 on the AP biology exam than underrepresented minorities—11,537 compared to 534. Moreover, nearly two-fifths of the underrepresented students with a 5 were other Latinos.

The AP scoring patterns discussed here are not simply consistent with SAT scoring patterns; they also are consistent with the scoring patterns on NAEP subject tests for twelfth graders in virtually all the areas in which NAEP administers exams. Table 5 presents the percentages of White, Asian, Black, Hispanic, and Native American twelfth graders that scored at or above the Proficient level and at the Advanced level in seven different areas: reading, writing, math, science, U.S. history, geography, and civics. Note that African Americans, Latinos, and Native Americans are heavily underrepresented at both the Proficient and Advanced levels in all seven areas.

NAEP, of course, tests eighth graders and fourth graders as well as twelfth graders. One of the striking features of NAEP exam results is that they are generally similar at all three grades. To put it slightly differently, the scoring pattern for groups in the fourth grade tend to carry forward through the eighth and twelfth grades. Table 6 presents the percentages of White, Asian, Black, Hispanic, and Native American fourth graders that scored at or above the Proficient level and at the Advanced level in reading, writing, math, science, U.S. history, geography, and civics in the same years as the data presented in Table 5 for twelfth graders.

Table 5

Percentages of Twelfth-Grade Students, by Race/Ethnicity, Who Scored Within the Proficient and Advanced Ranges on the NAEP 2002 Reading, 2000 Math, 2000 Science, 2001 U.S. History, 2001 Geography, and 1998 Civics Tests

	% at or Above Proficient						% at Advanced					
	White	Black	Hispanic	Asian	Native American		White	Black	Hispanic	Asian	Native American	
Reading	42	16	22	34	NA		6	1	1	4	NA	
Writing	28	9	13	25	NA		2	0	1	3	NA	
Math	20	3	4	34	10		3	0	0	7	0	
Science	23	3	7	26	9		3	0	0	4	1	
US History	13	3	5	21	1		1	0	0	5	0	
Geog.	31	4	10	26	32		2	0	0	1	1	
Civics	33	9	11	28	9		5	1	1	5	1	

Note. From *The Nation's Report Card: Reading 2002* (p. 54), by W. S. Grigg, M. C. Daane, Y. Jin, and J. R. Campbell, 2003, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Writing 2002* (p. 56), by H. R. Persky, M. C. Daane, and Y. Jin, 2003, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Mathematics 2000* (pp. 64-65), by J. S. Braswell, A. D. Lutkus, W. S. Grigg, S. L. Santapau, B. S.-H. Tay-Lim, and M. S. Johnson, 2001, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Science 2000* (p. 75), by C. Y. O'Sullivan, M. A. Lauko, W. S. Grigg, J. Qian, and J. Zhang, 2003, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: U.S. History 2001* (p. 31), by M. S. Lapp, W. S. Grigg, and B. S.-H. Tay-Lim, 2002, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Geography 2001* (p. 32), by A. R. Weiss, A. D. Lutkus, B. S. Hildebrandt, and M. S. Johnson, 2002, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The NAEP 1998 Civics Report Card for the Nation* (p. 51), by A. D. Lutkus, A. R. Weiss, J. R. Campbell, J. Mazzeo, and S. Lazer, 1999, Washington, DC: National Center for Education Statistics, U.S. Department of Education. [Adapted]

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Table 6

Percentages of Fourth-Grade Students, by Race/Ethnicity, Who Scored Within the Proficient and Advanced Ranges on the NAEP 2002 Reading, 2002 Writing, 2000 Math, 2000 Science, 2001 U.S. History, 2001 Geography, and 1998 Civics Tests

	% at or Above Proficient						% at Advanced					
	White	Black	Hispanic	Asian	Native American		White	Black	Hispanic	Asian	Native American	
Reading	41	12	15	37	22		10	2	2	10	5	
Writing	34	14	17	41	15		3	1	1	4	1	
Math	34	5	10	NA	14		3	0	1	NA	1	
Science	38	7	11	NA	19		5	0	1	NA	1	
US History	24	6	7	19	12		3	0	1	3	4	
Geog.	29	5	6	25	13		3	0	0	1	0	
Civics	29	8	8	27	14		2	1	0	3	0	

Note. From *The Nation's Report Card: Reading 2002* (p. 54), by W. S. Grigg, M. C. Daane, Y. Jin, and J. R. Campbell, 2003, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Writing 2002* (p. 49), by H. R. Persky, M. C. Daane, and Y. Jin, 2003, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Mathematics 2000* (pp. 60-61), by J. S. Braswell, A. D. Lutkus, W. S. Grigg, S. L. Santapau, B. S.-H. Tay-Lim, and M. S. Johnson, 2001, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Science 2000* (p. 73), by C. Y. O'Sullivan, M. A. Lauko, W. S. Grigg, J. Qian, and J. Zhang, 2003, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: U.S. History 2001* (p. 29), by M. S. Lapp, W. S. Grigg, and B. S.-H. Tay-Lim, 2002, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The Nation's Report Card: Geography 2001* (p. 30), by A. R. Weiss, A. D. Lutkus, B. S. Hildebrandt, and M. S. Johnson, 2002, Washington, DC: National Center for Education Statistics, U.S. Department of Education; *The NAEP 1998 Civics Report Card for the Nation* (p. 51), by A. D. Lutkus, A. R. Weiss, J. R. Campbell, J. Mazzeo, and S. Lazer, 1999, Washington, DC: National Center for Education Statistics, U.S. Department of Education. [Adapted]

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Without belaboring the point, the percentages of each group that scored at the Proficient and Advanced levels in the fourth grade are, in the main, consistent with the percentages at the twelfth grade. Clearly, data from all seven of the NAEP subject area tests indicate that the severe underrepresentation of African Americans, Latinos, and Native Americans among high achieving students that we have discussed above at the high school and undergraduate levels is also present in the middle of the elementary school years.

Furthermore, these patterns begin even earlier. For example, in an analysis of the federal government's Prospect Study database (which includes achievement data from the first grade through middle school for nationally representative samples of students in the early 1990s), Blacks and Latinos were found to be heavily underrepresented among high scorers at the beginning of the first grade on standardized reading and math tests (Borman, Stringfield, & Rachuba, 1999). Moreover, data from the federal government's Early Childhood Longitudinal Study, which is following a nationally representative sample of children who started kindergarten in the fall of 1998 through the fifth grade, show that these groups' underrepresentation among high achievers is evident to some extent at the start of kindergarten, and continues to emerge over the course of the kindergarten year on through the first grade. These findings are based on measures of basic literacy skills and mathematics concepts. Table 7 presents data at the start of kindergarten, at the end of the kindergarten year, and the end of the first grade.

The data in Table 7 show that, in the fall of their kindergarten year, most children could recognize letters; and, by the end of the first grade, virtually all could do so. Regarding recognizing words on sight or identifying words in context, only a few percent of any of the groups could do so at the start of kindergarten; but, in both cases, larger shares of Whites and Asians could do so than Blacks and Hispanics. Also, while a large majority of all groups could recognize words on sight by the end of the first grade, Blacks and Latinos lagged their White and Asian counterparts considerably. The gaps were even larger for recognizing words in context. Table 7 tells a similar story about the children's knowledge of numbers and shapes, adding and subtracting, and multiplying and dividing.

Although it is difficult to precisely determine how much of the overall achievement gaps among racial/ethnic groups exist at the start of schooling, an extensive analysis conducted by Meredith Phillips and two colleagues led them to estimate that about half of the Black-White gap exists at the start of the first grade (Phillips, Crouse, & Ralph, 1998). In a separate analysis, Phillips found that very substantial differences in the distributions of scores on a commonly used vocabulary test for preschoolers are present between African American and White children at age 3, with Black children extremely underrepresented among the highest scorers (Phillips, 2000). In her discussion of these data, she conjectured that, if data were available on the cognitive skills of infants and toddlers, "we might be able to trace the gap back even further" (p. 125).

Table 7

Percentages of Children, by Race/Ethnicity, Demonstrating Selected Basic Literacy Skills and Mathematics Concepts in the Fall and Spring of their Kindergarten Year and in the Spring of Their First Grade Year, by Race/Ethnicity

	Letter Recognition		Sight Words		Words in Context		Numbers and Shapes		Add/Subtract		Multiply/Divide							
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring						
	K	1	K	1	K	1	K	1	K	1	K	1						
White	74	97	3	16	88	1	5	52	96	100	100	23	82	0	3	34		
Black	59	92	99	1	9	71	0	2	34	91	99	100	1	8	59	0	10	
Hispanic	51	91	100	1	10	78	0	2	41	91	99	100	2	12	72	0	1	19
Asian	79	99	100	7	28	90	4	12	62	97	100	100	9	28	79	1	6	34
Other	52	91	99	2	10	73	1	4	36	89	99	100	2	12	66	0	1	19

Note. From *Children's Reading and Mathematics Achievement in Kindergarten and First Grade* (pp. 39-40), K. Denton and J. West, 2002, Washington, DC: National Center for Education Statistics, U.S. Department of Education. [Adapted]

Within-Class Achievement Differences on the Elementary and Secondary Levels

Let me now shift to data on a very important topic: The large differences that exist among racial/ethnic groups in academic achievement within social class categories. There are no regularly published data on trends in within-class achievement patterns at any level of the educational system. This is truly ironic, given the call by many school reformers these days for "disaggregation" of achievement data—coupled with fact that disaggregation is mandated by the No Child Left Behind Act. Unfortunately, what most people mean by disaggregation is that standardized test scores be reported separately by social class and by race/ethnicity—not that scores be reported for each racial/ethnic group at each social class level, even though secondary analysis of Coleman Report data as far back as 1969 showed very large differences in average test scores at the elementary and secondary levels among racial/ethnic groups at all social class levels (Okada, Cohen, & Mayeske, 1969). I have been one of those who have called for within-class disaggregation for many years (Miller, 1995), so far to no avail.

Despite the limited availability of such data, Table 8 presents some from the 1988 and 2000 SAT. Specifically, it shows average combined verbal and math SAT scores for high school seniors in those years who reported that they had at least one parent who had earned a high school diploma and for those who reported having at least one parent with a graduate degree.

The data in Table 8 show that some of the within-class differences are quite large. In fact, for African Americans, the gaps relative to Whites and Asians are such that White and Asian students with no parent who had gone beyond high school had higher average combined verbal and math SAT scores in both 1988 and 2000 than Black students who had at least one parent with a graduate degree.

Also, the within-class gaps tend to be larger among the students with at least one parent with a graduate degree than among those with no parent who has gone beyond high school. For example, there was an 89-point difference in 2000 in the average combined scores of Asians and Mexican Americans with no parent who had gone beyond high school—995 versus 906—and a 146-point difference between Asians and Mexican Americans with at least one parent with a graduate degree—1176 versus 1030. (The 146-point gap was roughly two-thirds of a standard deviation.) NAEP data show generally similar patterns (Beatty, Reese, Persky, & Carr, 1996; Campbell, Donahue, Reese, & Phillips, 1996).

Finally, while Table 8 shows that most groups made gains in average combined SAT scores at both parent education levels during the period, the two largest underrepresented minority segments, African Americans and Mexican Americans, lost some ground relative to Whites and Asians among students with at least one parent with a graduate degree. This is potentially consequential from a high achievement standpoint, because students from families with parents with graduate degrees provide a disproportionate share of high scorers on the SAT.

Table 8

Average Combined SAT Math and Verbal Scores for High School Seniors In 1988 and 2000, by Race/Ethnicity and Parent Education

	At Least One Parent With a High School Degree			At Least One Parent With a Graduate Degree		
	1988	2000	Change	1988	2000	Change
White	983	986	+3	1106	1137	+31
Asian/Pacific Islander	958	995	+37	1130	1176	+46
Black	819	823	+4	938	958	+20
Mexican American	913	906	-7	1018	1030	+12
Puerto Rican	854	880	+26	939	999	+60
Other Latino	904	897	-7	1010	1026	+16
Native American	906	920	+14	1005	1040	+35
Other	911	944	+33	1081	1120	+39
All	955	949	-6	1094	1124	+30

Note. From *2000 College-bound Seniors: Ethnic and Gender Profile of SAT and Achievement Test Data*, by College Board Summary Reporting Service, 2000, New York: College Board, pp. 7, 9. Copyright 2000 by the College Board. Adapted with permission. All rights reserved. www.collegeboard.com.
1988 College-bound Seniors (Recentered): Ethnic and Gender Profile of SAT and Achievement Test Data, by College Board Summary Reporting Service, 1988, New York: College Board, pp. 7, 9. Copyright 1988 by the College Board. Adapted with permission. All rights reserved. www.collegeboard.com.

The scope of the high achievement problem in that SES segment for underrepresented students is demonstrated by SAT data for 1995 high school seniors that I had cut while I was director of the National Task Force on Minority High Achievement. For instance, among seniors who reported that both of their parents had a graduate degree, 54% of the Asians and 50% of the Whites scored in the top quartile on the SAT verbal section, while only 27% of the Mexican Americans and 20% of the Blacks did so. In contrast, among students with no parent with a high school degree, 9% of the Whites and 7% of the Asians scored in the top quartile on the verbal section, compared to 3% of the Mexican Americans and 1% of the African Americans (Miller, 2000).

Although it is relatively rare to see national data on the within-class achievement gaps in the early years of school, the reality is that they are quite large in those years. Table 9 demonstrates this by presenting data on within-class achievement gaps in the first grade. These data show the percentages of White, African American, and Latino first

graders in the federal government's Prospects Study that scored in the top quartile on standardized reading and math tests. These data not only demonstrate that substantial within-class gaps are present at the start of elementary school, they also show that the underrepresentation of Blacks and Hispanics among high achieving students exists at that point as well.

Table 9

Percentages of First Graders in the Prospects Study That Scored At or Above the 75th Percentile in Reading and Mathematics, by Race/Ethnicity and Parent Education Level

	% in Top Quartile in Reading		% in Top Quartile in Math	
	No Parent With High School Degree	At Least One Parent With College Degree	No Parent With High School Degree	At Least One Parent With College Degree
White	13	33	29	49
Black	6	13	12	17
Hispanic	8	11	20	28

Note. From *Working More Productively to Produce Similar Patterns of Education Performance Among Racial/Ethnic Groups in the United States*, by L. S. Miller, 2003, New York: ERIC Clearinghouse on Urban Education.

Note that much smaller percentages of Black and Hispanic first graders than Whites scored in the top quartile on the reading and math tests at both high and low parent education levels. Similar to the SAT data presented in Table 7, the data here show that the within-class differences in achievement were sufficiently large that White first graders with no parent with a high school degree had percentages scoring in the top quartile in both math and reading that were as high or higher than for African Americans and Latinos who had at least one parent with a college degree.

Unsurprisingly, evidence of the within-class gaps can be found prior to the first grade. A recent analysis of kindergarten data from the federal government's Early Childhood Longitudinal Study by Richard Coley found not only that Asians and Whites performed much higher overall than African Americans and Latinos on a number of reading and math skills and concepts as they started kindergarten, but that they also did better in several social class segments (Coley, 2002). Some of the largest within-class racial/ethnic differences were among children in the highest SES quintile. Table 10 presents some of these data.

As the data in Table 10 show, in general, higher percentages of Asian and White children from families in the highest SES quintile than their African American and Latino counterparts demonstrated various literacy skills and understanding of various

mathematics concepts at the start of their kindergarten year in the fall of 1998. Although some of the differences were very small, others were fairly large, especially in mathematics. For example, while 48% of the Asians and 41% of the Whites understood ordinal sequence, only 21% of the Blacks and 25% of the Hispanics did so. And, while 16% of Asians and 10% of Whites could perform addition and subtraction, only 3% of the African Americans and 4% of the Latinos could do so.

Coley's analysis looks only at group differences at the start of kindergarten. A recent analysis by Sean Reardon of Early Childhood Longitudinal Study data for kindergarten and the first grade shows that overall group differences and within-class differences in reading and math achievement persist, and in some cases grow, through the first grade (Reardon, 2003).

Table 10

Percentages of Children in the Highest SES Quintile, by Race/Ethnicity, in the Early Childhood Longitudinal Study Who Demonstrated Various Literacy Skills and Understanding of Various Mathematics Concepts in Kindergarten in the Fall of 1998

	White	Black	Hispanic	Asian
Understand Beginning Sounds of Words	52	42	41	64
Understand Ending Sounds of Words	33	26	25	46
Recognize Common Words	6	3	5	17
Understand Common Words in Context	2	1	3	9
Recognize Numbers and Shapes	99	95	97	99
Understand Relative Size	79	65	60	82
Understand Ordinal Sequence	41	21	25	48
Perform Addition & Subtraction	10	3	4	16
Perform Multiplication & Division	2.7	1.0	0.6	0.6

Note. From *An Uneven Start: Indicators of Inequality in School Performance*, by J. R. Coley, 2002, Princeton, NJ: Policy Information Center, Educational Testing Service. Adapted with permission of Educational Testing Service, the copyright owner. For limited use by the University of Connecticut.

Pursuing the High Achievement Agenda Under Conditions of Fewness

Let me turn now to what I have come to believe is a one of the most difficult realities for those of us concerned with developing effective strategies for increasing the representation of African Americans, Latinos, and Native Americans among the nation's top students. Work on the high achievement issue probably will have to proceed for a long time to come under *conditions of fewness*, i.e., under circumstances in which only small percentages of students from these groups will be high achievers as measured by grades and test scores from kindergarten and the first grade onward. As the use of the word *conditions* suggests, *fewness* has a number of dimensions.

Stereotype Threat

One of the most important dimensions may be a psychological one identified by Claude Steele and his colleagues. Through a series of thoughtful experiments with undergraduates at some selective universities, they have found evidence that many outstanding African American students may perform less well than they could as a result of *stereotype threat* (Steele, 1997). According to Steele, stereotype threat is "the threat of being viewed through the lens of a negative stereotype, or the fear of doing something that would confirm the stereotype" (Steele, 2003). In this case, the stereotype is the old view that Blacks are not as intelligent as Whites (Howard & Hammond, 1985).

Of potentially great importance for the high achievement agenda, Steele and his colleagues have found that the students who tend to be vulnerable to stereotype threat are those who have historically been high achieving students and who strongly identify with being good students (Steele, 2003). (Low achievers are not expecting to do well and may have long ago disidentified with academics.) Furthermore, they also have found in their experiments that the contexts in which stereotype threat seems to lower performance are those that present genuinely difficult academic challenges (Steele, 1997). This is significant, of course, because it is the difficult aspects of course curricula that separate A students from those who are B or C students.

Steele and his colleagues believe that the main reason why academically strong Black students seem to do less well under conditions of stereotype threat is a lack of *trust* that they will be judged or treated fairly in the situation (Steele, 2003). For example, they may believe that a test is not fair or that they will not be graded fairly on the test. This raises anxiety levels, which can undermine their performance, particularly when they are encountering difficult academic tasks.

Unfortunately, owing to the shortage of top Black students in college, the threat may often be felt in a context in which students from all groups are aware that few African Americans have high undergraduate GPAs. Moreover, it seems unlikely that stereotype threat is confined to higher education. Indeed, some recent research suggests that it has the potential to emerge in the early years of school, because many students may become aware of the negative intellectual stereotype of African Americans during the primary grades (McKown & Weinstein, 2003). And, as we have seen, Black students

are already severely underrepresented among high achieving students in those years. Thus, one could envision circumstances, for example, in which African American third graders in affluent suburban schools are frequently aware that the stereotype exists and that most of the high achieving students in their classes are White and Asian American.

Apart from observing differences in achievement in their own classrooms and schools, they and their counterparts in urban districts will have the "opportunity" to hear about their underrepresentation among high achieving students all along their educational careers from many sources. They may hear about it from educators in their schools and districts who announce new efforts to close the "achievement gap," as well as from federal and state policymakers who announce new federal or state initiatives (such as the No Child Left Behind Act) to do the same. They may hear about it from newspaper and television journalists who report on the latest SAT, NAEP, or other data that describe differences in achievement among groups and the progress that is and is not being made to reduce these differences (Belluck, 1999; Hoover, 2003). They may encounter papers (such as this one), reports, and books that discuss achievement gaps from a variety of perspectives, including what the authors' believe can and cannot be done to eliminate them (Gottfredson, 2000; Herrnstein & Murray, 1994; Massey, Charles, Lundy, & Fischer, 2003; Perry, Steele, & Hilliard, III, 2003; Thernstrom & Thernstrom, 2003). They may even hear about it periodically from the courts, as when the Supreme Court ruled recently on two affirmative action cases regarding undergraduate and law school admissions policies at the University of Michigan (Winter, 2003).

Of course, students from all groups will have opportunities to observe and hear about these gaps throughout their educational careers. Thus, what Jeff Howard and Ray Hammond (1985) referred to nearly two decades ago as "rumors of inferiority" have the potential to be fed constantly by the continuation of large achievement differences and the inevitable public and private discussion of them.

Fewness on the Elementary and Secondary Level

There also are a series of curricular, instructional, and other problems related to fewness, which have little or nothing to do directly with prejudice or discrimination. For example, in many elementary schools serving mainly extremely disadvantaged underrepresented minority children, a large percentage of the students achieve at low levels, while a small percentage perform at high levels. As a result, there can be a tendency for the curriculum and teaching strategies used in many of these schools to become heavily weighted toward helping "at-risk" students reach credible levels of performance (Archer, 1999). (Some comprehensive school reform approaches, such as Success for All and Accelerated Schools, have been conceived and developed with at-risk students in mind.) Similarly, much of the after school assistance and summer programs available to students in these schools may be targeted mainly to at-risk students, owing to a concern that, without extra help, they will not be able to master the curriculum on even the minimum level required to be promoted to the next grade and eventually to earn a high school diploma (Denton, 2002; Roderick, Engel, & Nagaoka, 2003). Indeed, remedial-oriented supplementary education is now common in many industrialized

nations (Baker, Akiba, LeTendre, & Wiseman, 2001). Owing to financial constraints, this can make it difficult for many such schools and their districts to offer the supplementary assistance needed by their high achieving students to help them stay on a high performance trajectory (using national standards of high achievement).

Another potentially important dimension of fewness is that, as many underrepresented minority students in schools serving mainly disadvantaged youngsters move through the K-12 years, there often may not be enough high achievers for the top students to get the same academic benefits of group study that are available to White and Asian high achievers in affluent suburban schools (Puma et al., 1997). At the high school level, there also may not be a sufficient number of well-prepared students to offer the robust mix of advanced courses that is common in affluent suburban high schools (which is one implication of the AP and SAT data reviewed earlier in this monograph).

Even in suburban schools that serve many high SES and high achieving White students, fewness may still be a challenge for underrepresented minority students. In those circumstances, there may often be relatively few high achieving Black or Latino students. Thus, to have a substantial number of high achieving peers to study with in most courses, the underrepresented students will have to be participants in integrated networks of such students. The research of Ronald Ferguson and John Ogbu in affluent, racially/ethnically diverse suburban districts, as well as other research that examines academic dimensions of peer relationships at the secondary level, suggests that such integration can be difficult to achieve (Ferguson, 2001; Ferguson, 2002; Ogbu, 2003, Steinberg, 1996).

Fewness on the Undergraduate Level

At the undergraduate level, fewness also is likely to have a number of dimensions, especially at selective colleges and universities, some of which are similar to those at the K-12 level. Since my work as executive director of the Consortium for High Academic Performance (CHAP) is focused heavily on identifying and developing effective strategies for increasing the percentage of top undergraduates from underrepresented groups, I will offer a somewhat more extensive discussion of fewness at that level.

As noted earlier, the shortage of top Black, Latino, and Native American high school graduates is limiting their presence at selective colleges and universities; and, available evidence suggests even smaller percentages are excelling as undergraduates at those institutions. For example, consider a set of selective institutions at which African Americans, Latinos, and Native Americans collectively constitute about 15% of the undergraduates. My experience suggests that they will often make up only 3-5% of the students who have a GPA over 3.5. In some heavily quantitative fields, such as physics or engineering, the percentage over 3.5 might drop to 2-3%—and possibly drop further still among the highest performers in these fields, say, those with a GPA over 3.75.

Even at fairly large universities, this would mean that, in a given year, there probably would not be a single African American, Latino, or Native American junior or

senior who has a cumulative GPA of 3.5+ in a number of majors. There often may not even be one with a high B average, such as a 3.3. At small selective colleges, these patterns often may be more pronounced.

Viewed from the perspective of high achieving students from underrepresented groups, one likely implication is that most of the high achievers from these groups will take *several* courses in their major during their junior and senior years in which there will be no other high performing (high GPA) student from their group. Among other things, this almost certainly means that they frequently will not have similarly high achieving students from their own group to study with in upper division courses. And, underrepresented students with a solid B average often may be in a similar position.

Because many undergraduates from underrepresented groups at selective institutions are likely to be from low SES circumstances, the high achievement dimension of fewness may often have two other variations. First, many students from these groups may have to work too many hours to pay for their educational expenses to devote sufficient time to their studies to excel. Thus, relatively few may be able to dedicate themselves fully to maximizing their academic performance. Second, many of these same students may not come to college with a full awareness of the importance of high achievement for pursuing graduate school or securing a good job after college, because they are the first in their families to attend college. For example, both of these dimensions may be fairly common among Mexican American students, because many are from low-income families in which the parents have little formal education (College Board, 2003; Vernez & Kroll, 1999).

Fewness also has a dimension related to White and Asian American students (the groups that are producing most of the high achievers at selective colleges and universities) as well as a dimension related to faculty. Regarding White and Asian students, Douglas Massey and his colleagues present data in *The Source of the River* on the composition of high schools that the students in their study attended (Massey, Charles, Lundy, & Fischer, 2003). Unsurprisingly, there was a great deal of segregation for all groups. The average White student attended a high school that was 70% White, 9% Asian, 12% Black, and 7% Latino. The average Asian attended a high school that was 55% White, 21% Asian, 11% Black, and 11% Latino. The average Latino attended a school that was 54% White, 10% Asian, 12% Black, and 21% Latino. And, the average Black attended a school that was 44% White, 8% Asian, 37% Black, and 9% Latino.

These data support the widely held belief that most Whites and Asians who enroll at selective colleges and universities have had relatively limited academic contact with African Americans and Latinos in high school, especially if small percentages of the underrepresented students in their schools are enrolled in honors and AP courses (Ferguson, 2001; Glionna, 2002; Oakes, 1985). Furthermore, once they enter college, White and Asian American students at selective institutions typically will not encounter large numbers of high achieving Black and Latino students in their classes, while they will find many top performing Whites and/or Asians. Thus, it is reasonable to believe that relatively few Whites and Asians at most selective institutions have had a lot of

experience studying with high achieving African Americans and Latinos in high school, and that this continues to be the case during their undergraduate years.

Of course, the high school composition data gathered by Massey and his colleagues also suggest that many top Black and Latino high school students have had limited experience with each other in high school. Subsequently, the same may often be true in college. This means that lumping these groups together for purposes of assessing critical mass at selective institutions often may be problematic in the high achievement arena.

Turning to faculty members, because there are limited numbers of African American, Latino (especially Mexican American and Puerto Rican), and Native American students at selective colleges and universities who are excelling academically at any given time, this inevitably means that most faculty members will not be seeing many such students in their classes. In small upper division courses, they may only occasionally have top performing students from these groups. Thus, few professors are likely to have had extensive experience working with top undergraduates from these groups. This would imply that few would have done a lot of mentoring of such students or had extensive experience providing feedback on assignments or other information to such students designed to help them perform at the highest levels in their courses. Moreover, under these circumstances, relatively few professors may be actively looking for ways to help more students from these groups to excel in their classes. These circumstances may pose even more complexities for African American undergraduates at selective institutions than for students from other underrepresented groups, owing to stereotype threat.

We might hypothesize that, compared to White faculty members, those from underrepresented groups have more close contact with top African American or Latino students at selective institutions, because the students might tend to seek them out, and vice versa, even when it means crossing disciplinary boundaries. However, the low percentage of underrepresented minority professors at most selective colleges and universities is yet another form of fewness that presumably is an obstacle in its own right to making these connections. For example, a recent study of African Americans, Latinos, and Native Americans on the chemistry faculties of top research universities in the United States found that, among the 1,637 tenured and tenure track faculty members in 50 leading chemistry departments, only 43 were from the three groups—and 23 of those departments had no faculty members from these groups (Long, 2001).

The extent to which this description of the dimensions of fewness on the undergraduate level is correct is not completely clear. Therefore, several of my CHAP colleagues and I have been developing a questionnaire for use with undergraduates at selective institutions, which is designed to shed light on many of these matters. For example, the questionnaire has sets of questions on who students study with, how they interact with their professors, what they know about the importance of excelling academically on the undergraduate level, and so forth. Thus, the questionnaire should

allow us to look for correlations between these areas and students' undergraduate academic achievement.

Some Example Fewness-driven Questions

As the brief comments on the questionnaire being developed by CHAP indicate, fewness enables one to raise a number of salient questions for strategy development, such as: a) Do underrepresented minority students have much less opportunity to study with high achieving peers than Whites at various levels of the educational system? b) If so, what can be done to mitigate this problem at each level? c) What curricular and instructional approaches are most effective at meeting the needs of high, middle, and low achieving students in elementary schools in which a high percentage of the students are low achievers? 4) What are the most effective and cost efficient approaches for providing after-school programs for high achieving students in schools serving mostly disadvantaged students?

Learning From the Most Academically Successful Groups

As the data reviewed earlier in this monograph make abundantly clear, some racial/ethnic groups are doing much better than others academically, including having much higher percentages of top students, by traditional measures, *from the start of schooling* onward. A somewhat different way of making this point is that all groups basically establish their pool of top students in the early years, and none of the groups (including the most successful ones) have demonstrated a capacity to expand greatly their pool of top students after the middle elementary school years (at the latest). Consequently, I believe that one of the most promising ways to inform the development of effective strategies for increasing the percentage of top students is to study what the most successful groups are doing to support high achievement, with emphasis on their efforts from infancy through the primary grades. (Of course, it also would be valuable to learn more about what the most successful groups do to help keep substantial percentages of their students on a high achievement trajectory over the course of their academic careers.)

This work would involve looking much more systematically than is now the case at what the most academically successful racial/ethnic groups are doing inside school and outside school (in the home and community). The point here, of course, is not that there is no work being done of this kind; rather, it is that there is not a sufficient amount being conducted, especially for the purpose of informing the development of strategies for promoting high academic achievement among underrepresented minority students.

Despite the limited amount of work of this kind over the years, researchers have been able to identify some of the things that may be contributing to the success of the highest achieving groups. For instance, the National Task Force on Minority High Achievement noted that some of the sources of the overall success of students in the United States of East Asian origin (e.g., Chinese American and Korean American

students) may be the extensive use of supplementary education programs in their communities, the propensity of the students from these groups to study more in groups in structured ways, and their tendency to spend more time on homework (National Task Force on Minority High Achievement, 1999).

The information on supplementary education available for students from the most academically successful groups is sketchy. However, there is reason to believe that many students from some of these groups have extensive opportunities of this kind (Bhattacharyya, 1999; Johnston, 2000; National Task Force on Minority High Achievement, 1999). There also is reason to believe that many underrepresented minority parents value and seek more supplementary education for their children, but that the opportunities available to them may be fewer, including for those from middle and high SES circumstances (Gross, 2002; Varner, 1999).

Considerably more is known about group study. For instance, over a quarter century ago, Uri Treisman and his colleagues not only identified the importance of group study for the success of Chinese American students in the introductory calculus course at the University of California at Berkeley, they also used that finding to help design a strategy that was able to raise underrepresented students' achievement in that course (Fullilove & Treisman, 1990; Treisman, 1992). The strategy included a companion workshop to the regular calculus course, in which students had the opportunity to master very challenging calculus problems, often by working together. That approach has subsequently been adapted for use in many other courses (with varying degrees of success), especially in science, mathematics, engineering, and technology at many institutions (Asera, 2001). While not a panacea, the workshop model, with emphasis on group work on challenging academic tasks, is clearly a valuable tool. Moreover, there is some solid research now at both the college and high school level that shows that many high achieving students study frequently with other successful students (Light, 2001; Steinberg, 1996; Steinberg, Dornbusch, & Brown, 1992). Some of the most extensive research on the high school level indicates that top Asian students are the most likely to study with other top students, while top Black students are the least likely (Steinberg, 1996; Steinberg, Dornbusch, & Brown, 1992). There is a compelling need for much more research on group study patterns at all levels of the education system, including at the elementary school level, to learn more about how they develop and evolve over time, how opportunities to learn with and from high achieving peers vary (and why), what circumstances seem to support integrated groups, etc.

Regarding the early years—infancy through preschool and kindergarten, it is very important to learn much more about how substantial percentages of students from the most academically successful racial/ethnic groups (and the most successful segments of underrepresented groups) acquire extensive vocabulary and other literacy skills, along with understanding of mathematics concepts, that puts them in a strong position to excel in elementary school. Moreover, it is important that this work not simply proceed only from the perspective of what might be learned to support the development of low SES underrepresented minority students (and low SES Whites and Asians). Rather, a high priority should be to given to learning how their experiences might differ, on average,

from middle and high SES underrepresented minority youngsters, in order to inform strategy development work for them as well as for the disadvantaged.

While there is some research on aspects of this question, such as in the area of parenting strategies—some of which suggests similarities and some of which suggests differences among high SES segments (Hrabowski, III, Maton, & Greif, 1998; Lareau, 2003; Moore, 1987, 1988; Ogbu, 2003; Steinberg, 1996;) it is far from definitive. The data for high SES Asian and White students from the Early Childhood Longitudinal Study that were presented earlier in this monograph underline the importance of doing much more research in this area.

The Need and Opportunity for a More Rigorous Strategy Development Process

Over the years, there have been frequent efforts to synthesize research in various areas for the purpose of informing work to raise student achievement, particularly for disadvantaged students (many of whom are from underrepresented groups). For example, there have been many efforts to synthesize what has been learned from research on early childhood development and education for the disadvantaged (Barnett, 1995; Karoly et al., 1998). Another example in recent years has been the extensive effort to synthesize the reading research base, which has given considerable emphasis to identifying practices that can ensure that disadvantaged and other children who often have difficulty learning to read in the primary grades are able to do so (National Reading Panel, 2000; Snow, Burns, & Griffin, 1998).

Along side synthesis work of this kind has been the growing movement to assess the effectiveness of specific educational strategies intended to raise academic achievement levels of students. On the elementary and secondary level, much of this evaluation work has been focused on the many comprehensive school reform (CSR) models that have emerged during the current period of educational reform, which began a generation ago (Slavin & Madden, 2001; Stringfield, Millsap, & Herman, 1997). In addition, a considerable amount of evaluation work has been directed at many other types of programs and strategies, ranging from the impact of school choice programs to efforts to reduce class size, to determine if they have helped raise student achievement (Mosteller, Light, & Sachs, 1996; Peterson, Myers, & Howell, 1998). Some also has been directed at school districts as a whole and to "quasi-districts," such as the schools operated by the Department of Defense, which have been attempting to produce instructional coherence via standards, curricula, and professional development (General Accounting Office, 2001a; Newman, Smith, Allensworth, & Bryk, 2001; Slavin, 2003; Smrekar, Guthrie, Owins, & Sims, 2001). This expansion also has included more evaluation work on the higher education level, and on the preschool level as well (Building Engineering and Science Talent, 2003; General Accounting Office, 2001b).

Evaluations of CSR and other school reform strategies on the K-12 level have become so numerous that it has been possible over the past 5 years to conduct reviews

and analyses of their results. One of the major findings is that the capacity of these strategies to raise academic achievement levels—usually as measured by standardized tests—of the targeted students is real, but modest. For instance, Geoffrey Borman and several colleagues recently completed one of the most extensive and sophisticated reviews to date of the capacity of CSR strategies to raise test scores—a meta-analysis of 213 studies of 29 of the best-known CSR approaches (Borman, Hewes, Overman, & Brown, 2002). They found an overall effect size of 0.12, which is about one-eighth of a standard deviation. As Borman and his colleagues pointed out, this means that the average student in the CSR schools had achievement test scores that were higher than about 55% of similar students in non-CSR schools.

Another example is a review that Ronald Brady recently conducted of data on major efforts to turn around low performing schools in the state of New York, in Memphis, Tennessee, and in Prince Georges County, Maryland (Brady, 2003). Brady found that getting even half of the schools to produce higher overall levels of academic achievement was an accomplishment. Moreover, he noted that the gains were often small and could be difficult to maintain.

In a recent review of studies and evaluations of intervention programs for underrepresented minorities on the K-12 level that target underrepresented minority students, Patricia Gándara and Deborah Bial (2001) looked at a number of academic outcome measures, including whether the programs helped more students complete college prep courses, raise their academic achievement in terms of grades or standardized test scores, or go on to attend college. While they found that some programs had some evidence that they helped more students to complete college prep courses and/or to go on to college, they found no solid evidence that any of the programs helped raise student achievement either in terms of higher grades or test scores. As they pointed out, this was unsurprising, as few of the programs had been evaluated from the perspective of whether they had any academic achievement impacts.

Yet another example is a National Science Foundation funded initiative known as Building Engineering and Science Talent (BEST). It recently issued a report on its effort to identify programs at colleges and universities across the country for which there was evidence that they promoted greater academic success of students from underrepresented groups in higher education (BEST, 2004). Over 100 programs were reviewed over the course of the study. Only one of the undergraduate programs cited by BEST as being exemplary had extensive evidence that it helped raise GPAs of underrepresented minority students—the Meyerhoff Scholars Program at the University of Maryland Baltimore County, which has been one of the most visible and respected programs of its kind nationally for many years (Hrabowski, III & Maton, 1995).

I should also note that the work that my CHAP colleagues and I have been doing over the past year directed at identifying and developing undergraduate level programs that can promote high achievement also has involved a review of over 100 programs. While we have encountered several that probably contribute to higher GPAs, only one

has reasonably strong evaluation evidence—the same one that was identified by BEST, the Meyerhoff Scholars Program.

Three points need to be made about the findings of research syntheses and of reviews of evaluations of school improvement and other educational intervention programs from the perspective of the underrepresented minority high achievement challenge. First, few such efforts have looked explicitly for what has been learned about helping more underrepresented minority students achieve at very high levels by traditional measures, i.e., to perform in the top 1%, 5%, 10%, or even 25% of students nationally at any level of the educational system. The National Task Force on Minority High Achievement commissioned two of the few studies that have done so. One looked for high achievement impacts in exemplary examples of a few elementary school CSR strategies (Borman, Stringfield, & Rachuba, 1999). That study found no strong evidence of high achievement impacts, as measured by standardized test scores. The other looked for high achievement impacts among a number of programs on the undergraduate level (Gandara & Jolly-Maxwell, 1999). They found a few promising programs, but the one with strongest evaluation-based evidence that it helped more underrepresented minority students (in this case, African Americans) achieve a high GPA was the same one identified by BEST—the Meyerhoff Scholars Program.

Second, even if many research syntheses and reviews of evaluations of education strategies were to look for solid evidence of high achievement impacts, it is unlikely that much would be found. This is because very few educational reformers and program designers have been attempting to develop strategies that produce high achievement impacts by traditional academic measures. As a result, few evaluations of these strategies have even looked for whether more students that they serve are top performers by traditional achievement measures than would have been the case otherwise.

Third, on the K-12 level, very little research and school reform work has focused on improving outcomes for middle and high SES minority students, including closing the within-class gaps with Whites and Asians in those SES segments. Because middle and high SES underrepresented minority students perform at considerably higher levels than their low SES counterparts, they are better positioned to ratchet up their performance into high achievement zones. For this reason, the lack of work over the years directed at devising effective strategies for raising their achievement levels (beginning in the preschool and primary grades) is an enormously costly omission. On a more positive note, the Minority Student Achievement Network, which involves over a dozen school districts in affluent suburbs and university towns, has begun to work on middle class achievement issues in recent years (Spencer, 1999), with the assistance of some university-based researchers, such as Ronald Ferguson and the late John Ogbu (Ferguson, 2001, 2002; Ogbu, 2003).

In their studies, Borman and his colleagues and Gándara and Bial made one other major observation that is essential to mention here. They pointed out that very few evaluations of programs compared randomly assigned students to the program with true control groups or even compared participants to similar students. Consequently, they

called for a much greater commitment to testing of strategies on that basis. In that regard, it is noteworthy that even the Meyerhoff Scholars Program has not been tested using random assignment of students to the program and to a control group; instead, its evaluation has compared Meyerhoff students to other students who are similar in various important ways (Maton, Hrabowski, III, & Schmitt, 2000).

Others have made similar observations and recommendations in the past few years. For example, the Coalition of Evidence-Based Policy made strong recommendations of this kind in its recent report, *Bringing Evidence-Driven Progress to Education: A Recommended Strategy for the U.S. Department of Education* (Coalition of Evidence-Based Policy, 2002). Owing to the limited number of high quality evaluations of education strategies—and, therefore, the limited number of strategies that can demonstrate that they raise student academic achievement levels, the Coalition proposed that the Department of Education "should launch a major, Department-wide effort to:

- (i) *Build the knowledge base* of educational interventions proven effective through randomized controlled trials—not just in small demonstration projects but in large-scale replication; and
- (ii) *Provide strong incentives for widespread use* of such proven interventions by recipients of federal education funds." (p. i)

In fact, the Department has been moving for several years to invest much of the educational research money at its disposal in that manner. Its current 5-year strategic plan (2002-2007) calls for a much-expanded use of randomized trials to test education strategies (U.S. Department of Education, 2002). One of the priorities is to find ways to raise student academic achievement, with particular interest in raising achievement in reading, mathematics, and science. However, it is noteworthy that the detailed description of the Department's student academic achievement goals in its 2004 strategic plan does not specify true high achievement goals for underrepresented minorities, i.e., ones that call for better representation among the nation's top students at the elementary, secondary, and/or higher education levels (U.S. Department of Education, 2003).

When one reads *Bringing Evidence-Driven Progress to Education* and similar books, reports, and articles, such as *Evidence Matters: Randomized Trials in Education Research* (Mosteller & Boruch, 2002), *Scientific Research in Education* (Shavelson & Towne, 2002), and "Experiments for Educational Evaluation and Improvement" (Borman, 2002) there also are no specific references to the need to develop proven strategies for increasing the representation of African American, Latinos, and Native Americans among the nation's highest achieving students by traditional measures. There also are no references to the need to develop proven strategies for closing achievement gaps between middle and high SES Black, Hispanic, and Native American students and their White and Asian American counterparts.

Given the overall absence of attention to these issues among educational researchers and educational reformers as a whole, it should be expected that the call for the development of evidence-based strategies in education would be consistent with this

pattern. (One of the few exceptions is the strong interest of The National Research Center on the Gifted and Talented in increasing the number and percentage of high achieving Black, Hispanic, and Native American students.) Nonetheless, this call for more evidence-based education strategies is undoubtedly applicable to the high achievement and middle/high SES within-class issues for underrepresented groups. For those who are working on these issues, there is both an opportunity and a responsibility to push for their inclusion in efforts to conduct randomized trials of education strategies concerned with raising academic achievement.

Recommendations for Action

The underrepresentation of African Americans, Latinos, and Native Americans among the nation's top students is both severe and the product of a complex set of factors. Having worked on this issue for over 20 years in a number of different ways, one of the few things about which I am absolutely certain is that this is truly a long-term challenge. It seems very likely that, even under favorable circumstances, it will take several more generations for these groups to reach general parity with Whites among top students, by traditional achievement measures, at all levels of the education system. (It may take even longer to reach parity with Asian Americans.) And, this assumes that a critical mass of educational practitioners, educational policymakers, educational researchers, and other interested parties, including the foundation community, will finally make addressing this issue a genuinely high operational priority, and decide to work to address it from preschool through higher education in an unrelentingly empirical way, e.g., with generous use of randomized controlled trials to develop strategies that can be effective on a widespread, predictable basis.

Truthfully, I do not believe that a critical mass of educators, policymakers, and funders will actually make this issue a high priority in the near future. Instead, we still seem to be in the "vanguard-building" stage. Fortunately, the prospects for establishing the vanguard over the next several years appear to be reasonably good, as there seems to be a much greater awareness of the high achievement gap—and the within-class achievement differences—than was the case 5-10 years ago. At the elementary and secondary level, these are issues of great interest to The National Research Center on the Gifted and Talented and the Great Cities Universities', as well as to the previously mentioned Minority Student Achievement Network, which is made up of a number of school districts in affluent suburbs and university towns. Within the selective sector of higher education, the high achievement issue is being addressed by CHAP as well as the Consortium on High Academic Achievement and Success (a large consortium of selective liberal arts colleges). The high achievement issue is even beginning to be the subject of conferences and meetings in higher education. For example, a conference was held in the fall of 2003 at Princeton University that focused exclusively on closing the high achievement gap between African Americans and Whites at the secondary and higher education levels. In the late summer of 2003, it also was a major topic at a meeting of representatives of over 20 selective private liberal arts colleges and universities on improving overall academic outcomes for underrepresented minorities.

Nonetheless, to be successful, the vanguard will need to make the case for addressing the issue in a sustained way; and, it will need to identify and pursue a number of promising avenues for action in a *visibly productive manner*. If that is done in the years ahead, there is a good chance that the high achievement issue (including the within-class challenges) will emerge as a true priority by 2020 to 2030.

The fact that current trends indicate that the underrepresentation of Blacks, Hispanics, and Native Americans among the nation's top students will continue to remain severe for a long time to come also could be a valuable, growing source of pressure for action, since these groups' collective share of the student-age population is likely to continue to grow. In a related vein, the growing number of middle and professional class African American and Latino parents could produce more pressure for educators, researchers, and policymakers to find ways to raise their children's academic achievement.

Thus, by 2020 or so, necessity and leadership by a vanguard may finally converge to put the high achievement issue on the educational agenda. It is important to remember, however, that if it does take until 2020, this would mean that a robust set of proven strategies for addressing the high achievement issue, including its within-class dimensions, from preschool through higher education, might not be available until 2030 or later.

It is from the perspective of the need to establish a strong vanguard that I offer 11 recommendations for action. These are mainly recommendations for entities that need to be established to pursue major missions and tasks in the high achievement arena. I strongly believe that most of these entities should specialize in only one or two aspects of the high achievement challenge, so that their efforts are not diluted. Most of them also should be new nonprofit organizations or university-based centers, in order to ensure that they have the freedom and independence to maintain their specialized agendas over time. No effort is made here to provide a detailed description of what each recommendation would entail. Separate papers for each recommendation would be required for that.

1. *A high achievement trend-monitoring unit should be established.* It would have several responsibilities. For example, it would undertake secondary analyses of standardized achievement test data sets, such as NAEP test data, SAT data, AP data, and data from major federal studies, such as the Early Childhood Longitudinal Study, that would allow monitoring of high achievement trends for racial/ethnic group across the K-12 years. The unit would monitor these patterns overall and on a within-class basis, so that it would be possible to determine whether within-class dimensions of the high achievement problem are growing, shrinking, or staying about the same. The unit would recommend ways in which these several databases could be improved, in order to enhance the accuracy of the monitoring. (Expanding NAEP sample sizes may be necessary, for example, to monitor changes in the percentages of high achievers for the various groups and in the sizes of the within-class gaps in an accurate fashion.)

The unit also might develop a prototype system for school districts for monitoring their high achievement and within-class situations. The monitoring unit would provide regular reports to educators, researchers, policymakers, and others on the high achievement and within-class situations.

2. *A high achievement education strategy evaluation unit should be created for the K-12 level.* One of its missions would be to review existing evaluations of CSR and other strategies in search of high achievement (and within-class) impacts. Because so few randomized controlled tests have been conducted, another of this unit's responsibilities would be to recommend such tests for promising approaches for increasing the percentage of high achievers from underrepresented groups, and offer specific recommendations for how the tests should be conducted. (If funds could be secured, the evaluation unit might get into the business of running high quality evaluations of some promising strategies.) The unit would look for evidence of high achievement impacts both in schools serving mainly disadvantaged students and in schools serving mostly middle and high SES students. Similarly, its suggestions for randomized trials would include promising strategies serving middle and high SES students, as well as the disadvantaged. Initial priority would be given to evaluations of elementary school strategies, because the high achievement gaps are established in those years. Work would need to be done at the classroom, school, and district levels. Some of the most challenging and important evaluation work over time may be at the district level, owing to the importance and difficulty of maintaining high quality education (including instructional coherence) across schools in large districts that serve heavily minority student populations.
3. *An academic development research synthesis unit for the K-12 level should be established.* One of its initial responsibilities would be to look at the reading and mathematics research bases in the early grades, for the purpose of identifying leads for promoting high achievement in those pivotal years. Particular attention should be given to identifying leads for raising the performance of students who are already above average to well above average performers, since they are relatively close to the high levels of achievement that is our goal. (Moving a student from the 60th percentile to the 75th percentile or from the 80th to the 90th is more plausible than moving a student from the 20th percentile to the 75th percentile or from the 35th to the 90th.) The unit would also have responsibility for identifying gaps in the research bases related to the high achievement issue. It probably also would find it necessary to reach back to the preschool period (possibly reaching back all the way to infancy).
4. *An early childhood and parent-education working group should be established to develop model preschool and parent education programs*

that should be tested with middle class and high SES underrepresented minority students. The goal would be to develop strategies that could close the within-class academic readiness gaps that exist for middle and high SES Black, Hispanic, and Native American students relative to middle and high SES Whites and Asian Americans at the start of kindergarten. (If early childhood and parent education strategies could be developed that actually produce these results, they could then be tested with lower SES populations.)

5. *A research unit should be established that is focused on documenting more clearly the differences in knowledge and skills that exist among low, medium, and high achieving students.* Priority would again be given initially to the early years—preschool and the primary grades. This work would be focused on understanding what high achievers are actually able to do academically, with the intention of using that knowledge to develop more effective strategies. Documenting differences in operational vocabulary in school settings in the early years might be an example of the work of this unit.
6. *A research unit on academically successful groups should be established.* It might initially have a three element work agenda. The first element would synthesize what is known about how parents and communities in the most academically successful racial/ethnic groups (and most successful segments of underrepresented groups) support the intellectual and educational development of their children, beginning in infancy, and compare that to what is known about how other groups do so. The second element would be to make recommendations regarding how early childhood education, parent education, school reform, and supplementary education strategies might be informed (for each SES level of underrepresented groups) by what is currently known about what the most successful groups are doing. The third element would be to recommend a research program for expanding what is known about the strategies that the most successful groups are using.
7. *A working group should be established to benchmark curricular opportunities for high achievers in affluent suburban and private elementary and secondary schools.* This benchmarking would be used to help guide efforts to meet the academic development needs of above average to high achieving students in schools serving mostly disadvantaged underrepresented minority students. One of the things that the working group would do is develop suggestions for the latter schools and their districts about how to fill gaps between the benchmarks and what the schools are doing, and whether to try to fill them during the regular school day and/or via supplementary programs after school, on weekends, or during the summer.

8. *An AP working group should be established to promote higher levels of underrepresented minority student achievement in AP courses and on AP exams.* Although it has proven difficult to develop strategies at the secondary level that increase the percentage of high achievers from any group, there continues to be a great need to do so for underrepresented minorities. One early approach might be to use the College Board's AP/SAT databases to search for high schools that are getting higher than expected scores on AP exams for underrepresented minority students. Those that are identified could be studied to see if they have replicable strategies for producing the positive outcomes. This work also might be able to contribute more generally to efforts to raise underrepresented minority student achievement in honors courses in high school.
9. *A unit should be created that provides high-achievement-oriented dissertation topics to doctoral candidates in education and education-related elements of the social sciences.* Currently, few scholars are focusing on the high achievement issue, including its within-class elements. One way to expand work in this area over time is to capture the interest of future faculty members at research universities. Thus, this unit would develop a "bank" of dissertation topics in a number of categories, such as those concerned with developing reliable, replicable strategies that have a high achievement impact; documenting more precisely the actual differences in intellectual development between high, medium, and low achieving students; and learning more about why within-class achievement gaps exist. This unit probably would need to develop a network of professors who would be willing to encourage some doctoral candidates to entertain some of the dissertation topics that are generated.
10. *A high achievement education strategy evaluation unit should be created for higher education.* One of its missions would be to review existing evaluations of undergraduate and graduate level strategies and programs in search of high achievement (and within-class) impacts. Because, similar to the K-12 level, there are so few randomized controlled tests of strategies in higher education, another of this unit's responsibilities would be to recommend such tests for promising undergraduate and graduate school approaches, and to offer specific recommendations for how the tests should be conducted. (If funds could be secured, this evaluation unit also might get into the business of running high quality evaluations of some promising strategies.) It will be essential for this unit to give high priority to identifying/suggesting strategies for addressing the overprediction phenomenon; for, at the very least, underrepresented high school graduates who attend college—especially selective ones—should do as well academically as comparably prepared White and Asian students. Eventually, a second higher education entity focused on promoting research at the higher education level that could inform strategy development probably also will be needed. Because so little attention has

been given to this issue over the years in higher education, however, and so much depends on increasing the pool of high achievers at the K-12 level, the formation of this unit can probably wait until the evaluation unit gets firmly established. In the absence of a research unit, the evaluation unit might find that it will need to assume some responsibility for recommending certain lines of applied research in the early going, such as whether and how some of the conditions of fewness may need to be addressed by strategies.

11. *A communications entity should be established with responsibility for disseminating information regarding what is being learned about the extent and nature of the high achievement and within class issues, and the development of effective strategies for addressing them.* This unit would communicate with several audiences, including practitioners, policymakers, researchers, grantmakers (including wealthy individuals as well as foundations), minority leaders, minority parents, the business community, and others. The highest initial priorities here might be to find ways to communicate effectively with grantmakers and minority parents. Finding a lot of money to pay for this work agenda is crucial to its success. And, minority parents may turn out to be the strongest advocates for action.

All twelve of the new entities described here would be "doer" organizations: They would be concerned with working directly on aspects of the high achievement challenge. However, there also probably should be one or two new foundations created that would make grants exclusively to fund high achievement work. This would ensure that steady, reliable, informed sources of funding are available over time.

A few final comments are in order. This monograph has consistently taken the position that the effort to increase the representation of African American, Latino, and Native American students among the nation's top students should define high academic achievement mainly in traditional terms. Moreover, a great deal of attention has been given in this monograph to GPA, not just to standardized test scores. That is because I firmly believe that, ultimately, we need to produce many more students from underrepresented groups who excel in challenging curricula. Certainly, it is true at the end of the educational pipeline, i.e., at the undergraduate and graduate levels, especially at selective colleges and universities. When we begin to see underrepresented groups accounting for much larger percentages of students who graduate, *summa cum laude*, *magna cum laude*, *cum laude*, Phi Beta Kappa, and so forth from selective colleges and universities, we will know that we are finally solving the high achievement problem. Yet, as I have also emphasized, doing much better at the beginning of the pipeline—the preschool years and primary grades—is key to solving the end of the pipeline problem.

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