High-Achieving Students
in the Era of NCLB

PART 1
AN ANALYSIS OF NAEP DATA
by Tom Loveless

PART 2
RESULTS FROM A NATIONAL TEACHER SURVEY
by Steve Farkas and Ann Duffett

Foreword by
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Michael J. Petrilli

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EXECUTIVE SUMMARY

This publication reports the results of the first two (of five) studies of a multifaceted research investigation of the state of high-achieving students in the No Child Left Behind (NCLB) era. *Part I: An Analysis of NAEP Data*, authored by Brookings Institution scholar Tom Loveless, examines achievement trends for high-achieving students (defined, like low-achieving students, by their performance on the National Assessment of Educational Progress, or NAEP) since the early 1990s and, in more detail, since 2000.

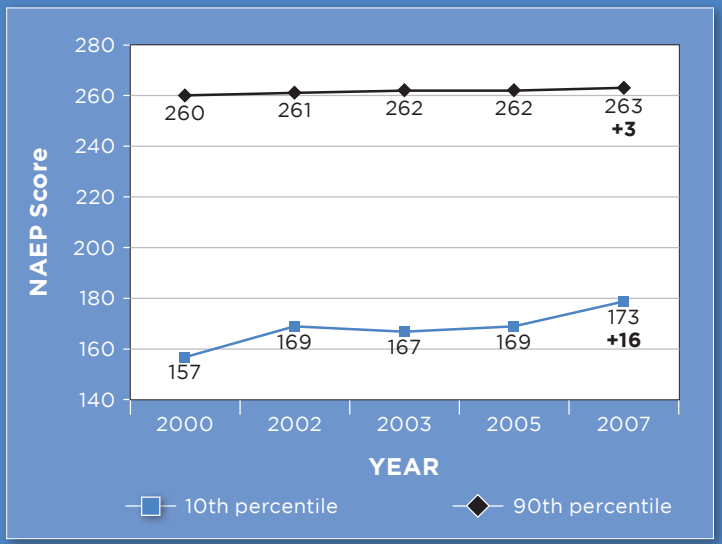
Part II: Results from a National Teacher Survey, authored by Steve Farkas and Ann Duffett of Farkas Duffett Research Group, reports on teachers' own views of how schools are serving high-achieving pupils in the NCLB era.

Here are the key findings:

- **While the nation's lowest-achieving youngsters made rapid gains from 2000 to 2007, the performance of top students was languid.** Children at the tenth percentile of achievement (the bottom 10 percent of students) have shown solid progress in fourth-grade reading and math and eighth-grade math since 2000, but those at the 90th percentile (the top 10 percent) have made minimal gains.

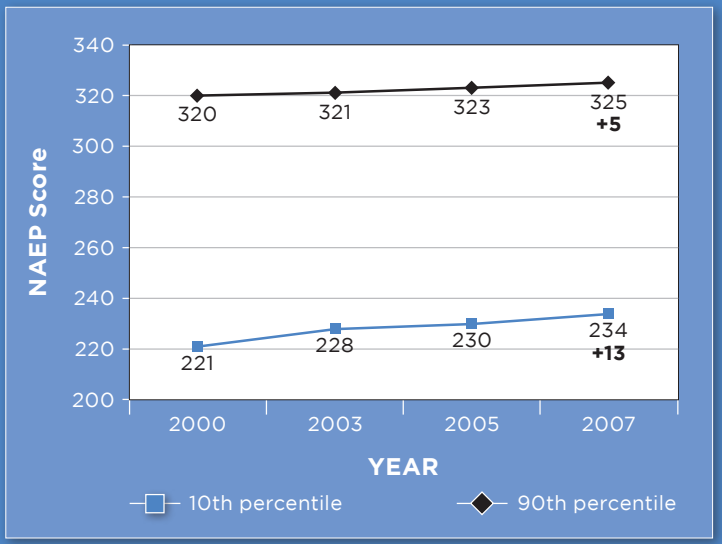
- **This pattern—big gains for low achievers and lesser ones for high achievers—is associated with the introduction of accountability systems in general, not just NCLB.** An analysis of NAEP data from the 1990s shows that states that adopted testing and accountability regimes before NCLB saw similar patterns before NCLB: stronger progress for low achievers than for high achievers.

***Figure A**—4th Grade Reading NAEP Scores, 2000-2007 (90th and 10th percentiles)*



***Note:** National means: 2000= 215, 2007=222, a change of +7*
Source: Main NAEP data explorer, National Public sample

***Figure B**—8th Grade Math NAEP Scores, 2000-2007 (90th and 10th percentiles)*



***Note:** National means: 2000 =274 and 2007= 281, a change of +7*
Source: Main NAEP data explorer, National Public sample

***Table i**—90th and 10th Percentile Gains, States with Accountability vs. States without Accountability (Pre-NCLB)*

1996-2000 4th Grade NAEP Math (state sample)

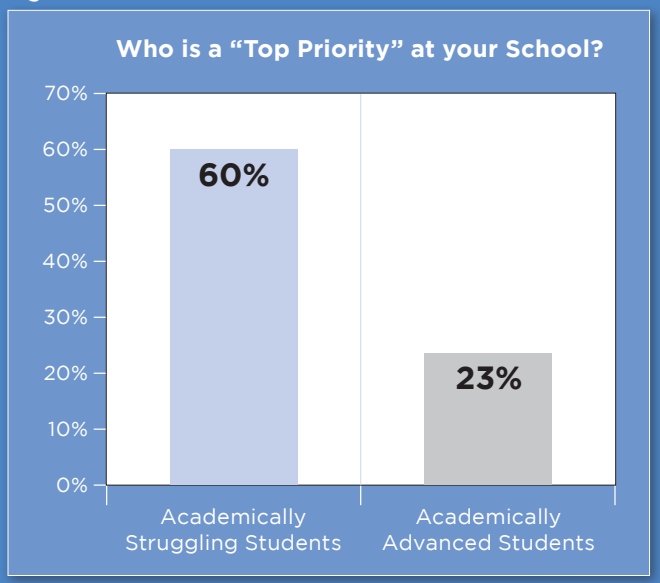
	90th	10th
Accountability | n=16	1.6	5.7
Non-accountability | n=20	2.5	1.9

***Note**—This means, for example, that states with accountability systems in the 1990s saw their lowest-achieving students (the 10th percentile) outpace their highest-achieving students (the 90th percentile), gaining 5.7 points versus 1.6 points. In non-accountability states the pattern was reversed, as high achievers slightly outpaced low achievers.*

Source: Tom Loveless's calculations from main NAEP data explorer, State NAEP sample. All data are in scale score points.

- **Teachers are much more likely to indicate that struggling students, not advanced students, are their top priority.** Asked about the needs of struggling students, 60 percent of teachers say they are a "top priority" at their school. Asked a similar question about "academically advanced" students, only 23 percent of teachers say they are a top priority. (They could give multiple answers to this question.)

Figure C:



Source: *FDR National Teacher Survey, Questions 3 and 4*

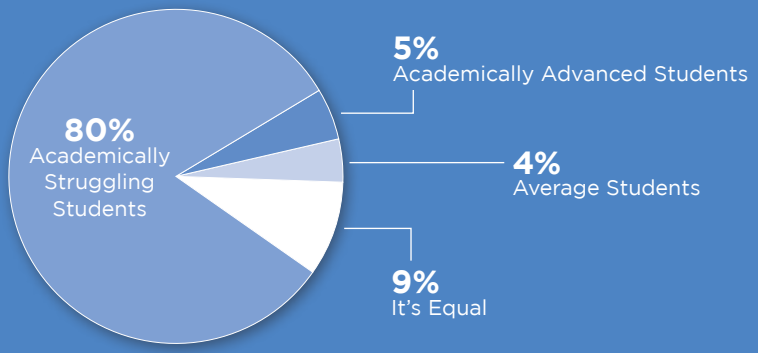
- **Low-achieving students receive dramatically more attention from teachers.** Asked "Who is most likely to get one-on-one attention from teachers?" 81 percent of teacher named "struggling students" while only 5 percent named "advanced students."

- **Still, teachers believe that all students deserve an equal share of attention.** Teachers were given the following choice: "For the public schools to help the U.S. live up to its ideals of justice and equality, do you think it's more important that they (A) focus on raising the achievement of disadvantaged students who are struggling academically OR (B) focus equally on all students, regardless of their backgrounds or achievement levels?" Only 11 percent chose the former, while 86 percent chose the latter.

- **Low-income, black, and Hispanic high achievers (on the 2005 eighth-grade math NAEP) were more likely than low achievers to be taught by experienced teachers.** These disadvantaged high achievers—termed "NCLB-HA" in the study—were also as likely as other high-achieving students to have teachers who had majored or minored in math.

Figure D:

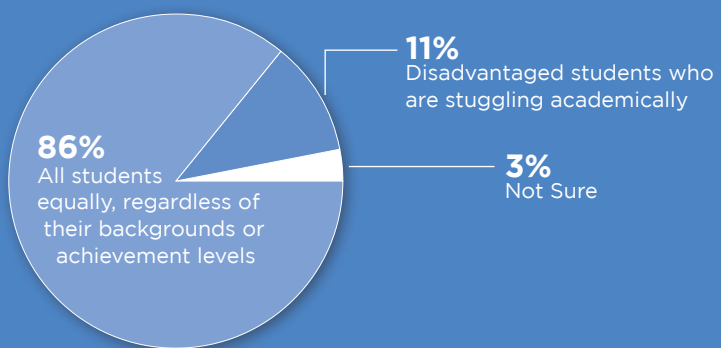
Who is Most Likely to Get One-on-One Attention from Teachers?



Source: *FDR National Teacher Survey, Question 11*

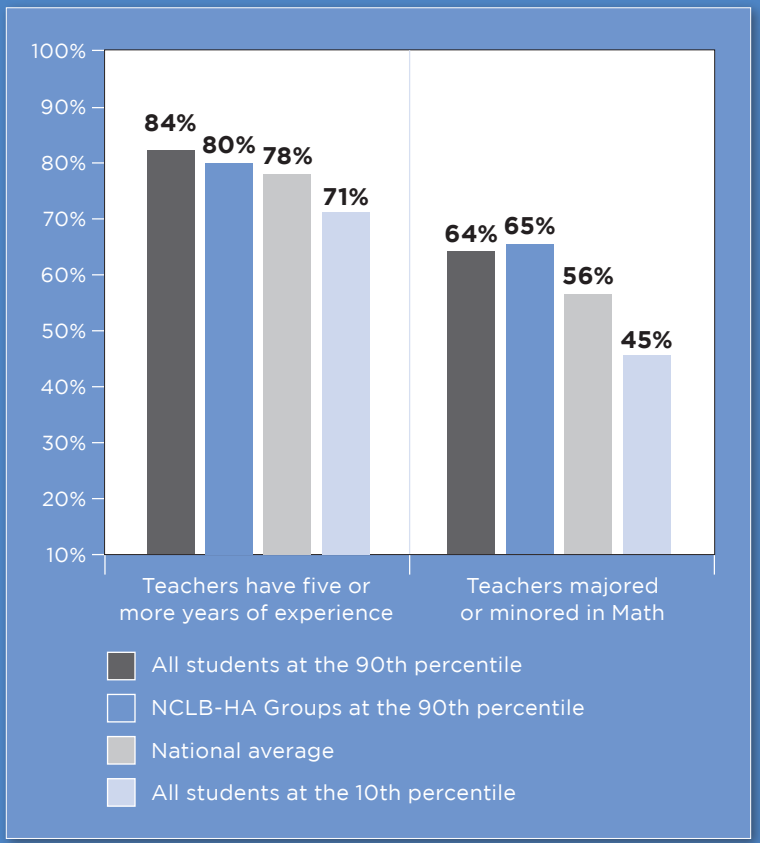
Figure E: *Teachers' Definition of "Justice and Equality"*

For the public schools to help the U.S. live up to its ideals of justice and equality, do you think it's more important that they focus on:



Source: *FDR National Teacher Survey, Question 26*

Figure F: *Teacher Characteristics: High-Achieving Disadvantaged Students and Comparison Groups (Drawn from the 2005 8th-Grade Math NAEP)*



Note: *This means, for example, that NCLB-HA students (high-achieving low-income, African-American, and/or Hispanic students) are just as likely as all high achievers to have teachers who majored or minored in math, and almost as likely to have teachers with five or more years of experience. They are much more likely than low-achieving students to have teachers with these attributes.*

Source: *Tom Loveless's calculations from restricted-use NAEP data.*

IMPLICATIONS

Neither of these studies sought a causal link between the No Child Left Behind Act and the performance of high-achieving students. We cannot say that NCLB "caused" the performance of the nation's top students to stagnate any more than it "caused" the achievement of our lowest-performing pupils to rise dramatically. All we know is that the acceleration in achievement gains by low-performing students is associated with the introduction of NCLB (and, earlier, with state accountability systems). Neither can we be sure from these data that teacher quality explains why some low-income, African-American, and Hispanic students were able to score in the top 10 percent on the 2005 eighth-grade math NAEP, though there does appear to be a relationship between the experience and education of math teachers and their students' performance.

The national survey findings show that most teachers, at this point in our nation's history, feel pressure to focus on their lowest-achieving students. Whether that's because of NCLB we do not know (though teachers are certainly willing to blame the federal law). What's perhaps most interesting about the teachers' responses, however, is how committed they are to the principle that all students (regardless of performance level) deserve their fair share of attention and challenges. Were Congress to accept teachers' views about what it means to create a "just" education system—i.e., one that challenges all students to fulfill their potential, rather than just focus on raising the performance of students who have been "left behind"—then the next version of NCLB would be dramatically different than today's.

FOREWORD

CHESTER E. FINN, JR. AND MICHAEL J. PETRILLI

The major finding of this dual study is that, in one respect at least, No Child Left Behind (NCLB) is working precisely as designed. A good thing, surely, but not entirely so. What we see in this study is one of its unintended consequences—and one that's worrisome for America's future competitiveness.

Congress was quite clear about NCLB's objectives. Right on its cover, it's termed "An Act to close the achievement gap." Congress followed through with accountability mechanisms that have one clear and explicit purpose: drive up the achievement of low-performing pupils. As for students on the other end of the spectrum, indeed all youngsters who could already be termed proficient, NCLB's core provisions treat them with benign neglect. Let them fend for themselves. Let someone else worry about them. Let them eat—well, whatever is left over at the bakery when the bread runs out.

And lo and behold, six years after the law's enactment, what do we find? Low-achieving students made solid progress on the National Assessment of Educational Progress (NAEP) from 2000 to 2007 (an accomplishment surely worth celebrating, even though these students are still far, far behind). Meanwhile, however, the progress of our top students has been modest at best. And teachers report feeling pressure to focus on the classroom's underachievers versus the overachievers—and, with guilty conscience, have by and large done exactly that.

On this score, No Child Left Behind appears to be meeting its objectives: narrowing achievement gaps from the bottom up. Some may declare this to be a wonderful accomplishment: the performance of low-achieving students is rising, while those at the top aren't losing ground. But is that outcome good enough for a great nation? If we want to compete in a global economy, don't we need all our young people—including our highest achievers—to make steady progress too? And if so, isn't our current approach to standards-based reform in need of a make-over?

Followers of Fordham's work know that we've been tracking NCLB since before its enactment. They also know that the education of high achievers is a subject about which we've long been concerned. (Myriad employers, economists, tycoons, and elected officials are similarly fretful about America's competitiveness in a flatter, brainier world.) So we decided to look into the connection between the two.

Two years ago, we approached the John Templeton Foundation about supporting a major research initiative on this subject. They had already waded into these waters with their landmark 2005 report, *A Nation Deceived: How Schools Hold Back America's Brightest Students*. After some fruitful back-and-forth, the foundation agreed to

underwrite our project. We are immensely grateful for their partnership, support, and good counsel.

We signed up Tom Loveless, director of the Brown Center on Education Policy at the Brookings Institution, as well as Steve Farkas and Ann Duffett of the Farkas Duffett Research Group. We've been privileged to work with all three on earlier Fordham projects (with Loveless on a paper on tracking and with Farkas and Duffett on innumerable survey-research ventures). Each is careful, creative, and rigorously objective.

They agreed to collaborate with us on a multiyear, five-part investigation of the state of high-achieving students in U.S. schools. Within these covers are the findings from the first two parts of that initiative. (Future studies will look at the impact of de-tracking on achievement and at the expansion of the Advanced Placement program.)

Templeton insisted, and we happily agreed, to appoint an independent review committee to help steer these studies. Committee members provided immeasurably useful input on the study design and on early drafts of these reports. Our thanks to Cynthia Brown, Director of Education Policy, Center for American Progress; Paul Gross, Professor Emeritus, College of Arts and Sciences, University of Virginia; Frederick M. Hess, Director of Education Policy Studies, American Enterprise Institute; Richard Light, William H. Gale Professor of Education, Harvard Graduate School of Education; Stephanie Pace Marshall, Founding President and President Emerita, Illinois Mathematics and Science Academy; Delia Pompa, Vice President of Education, National Council of La Raza; and Joyce Van Tassel-Baska, Executive Director, Center for Gifted and Talented and Smith Professor of Education, College of William and Mary. Let's be clear, though, that not every suggestion of every committee member could be incorporated into the final product, so any complaints and critiques should be addressed to Fordham and the authors, not to the reviewers.

We also appreciate the myriad efforts of Fordham's team who helped this massive effort across the finish line. They include program associate Christina Hentges, new research director Amber Winkler, copy editor Anne Himmelfarb, and designer Bill Buttaggi. It surely takes at least a small village to produce a research report of this sophistication, and we are grateful for everyone's help. Finally, we thank our own sister organization, the Thomas B. Fordham Foundation, for additional financial resources that made this study possible.

CAN WE BE EQUAL AND EXCELLENT, TOO?

That's the question the late John W. Gardner asked about Americans in his seminal 1961 book, *Excellence*. It remains a profoundly important query in 2008. Hence our original questions for these first two studies were straightforward: How are high-achieving students performing in the NCLB era? Has the introduction of NCLB been associated with any change in their long-term trends? How do trends in their performance

compare to those for low-achieving students? What can we learn from teachers about how high achievers are treated in their schools? What do teachers think about NCLB's focus on low-achieving pupils?

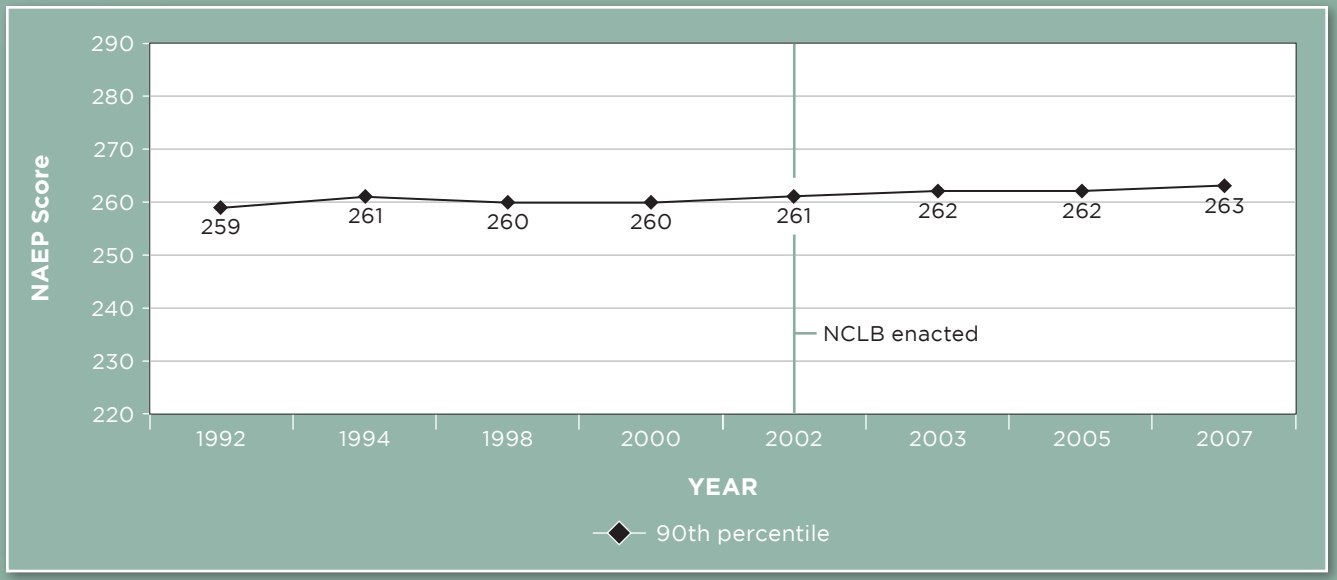
Many of the answers aren't surprising, though they are illuminating. Low-achieving students (defined by Loveless as the 10 percent with the lowest scores on the National Assessment of Educational Progress) made big strides from 2000 to 2007, gaining sixteen points (on NAEP's 500-point scale) in fourth-grade reading, eighteen in fourth-grade math, and thirteen in eighth-grade math. (Eighth-grade reading was a bit of an anomaly throughout this time, as Loveless explains in detail.) Meanwhile, however, the performance of high-achieving students is, in Loveless's word, "languid." Their test scores haven't fallen, mind you. This isn't a "Robin Hood" effect, where the bottom went up and the top went down. But the bottom went up rather more than the top did. Looking at long-term NAEP trends for the top 10 percent, one spots a steady line inching ever-so-slowly upward from the early 1990s to today. Enter NCLB, and nothing changes. It's "benign neglect" in pictures. (See figures i and ii.)

It's no great surprise, then, to learn that classroom practitioners feel much pressure to focus on the needs of the worst-performing youngsters. In their national survey of third- to twelfth-grade public school teachers, Steve Farkas and Ann Duffett found 60 percent saying that low achievers are a "top priority" in their schools, versus 23 percent who say that high achievers are.
And what about existing special programs intended to serve high-achieving students? Can they be counted on to challenge these students and boost their achievement even more? Teachers don't see them as terribly valuable. In fact, a full 40 percent of teachers say that the content and curriculum of honors and accelerated classes is "too often watered down and lacking rigor."

You may have expected this. But other findings of this study are notably less predictable. Loveless performs a unique analysis of NAEP data that shows big gains for low performers and stagnation for top performers associated not just with NCLB but with standards-based reform in general. States that adopted their own testing-and-accountability reforms in the 1990s witnessed similar trends. And for good reason: most state accountability systems, like NCLB's, put pressure on schools to get students over a fairly low bar. That meant helping low achievers. And voila.

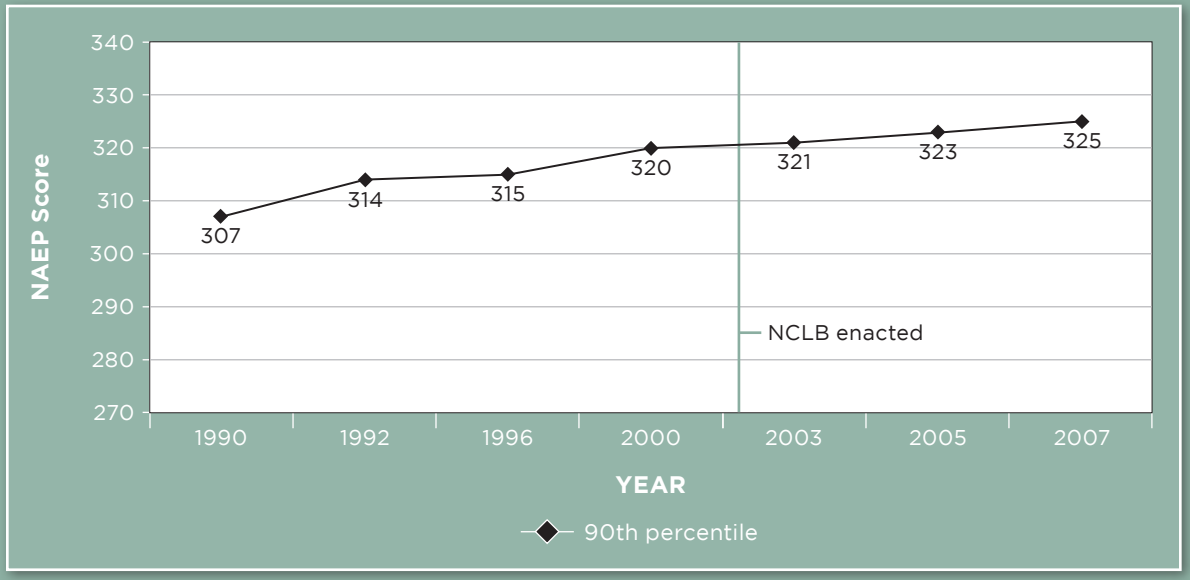
Loveless also introduces us to a very interesting subset of high achievers who had been largely invisible before: poor, African-American, and Hispanic students who scored in the top 10 percent on the 2005 eighth-grade math NAEP. How do they manage to do so well? Partly, it's luck; 41 percent of them were born to mothers who graduated from college—compared to only 19 percent of low-achieving students (and 37 percent of all students).

***Figure i**—4th Grade Reading NAEP Scores, 1992-2007 (90th percentile)*



***Note:** National means: 2000= 215, 2007=222, a change of +7*
Source: Main NAEP data explorer, National Public sample

***Figure ii**—8th Grade Math NAEP Scores, 1990-2007 (90th percentile)*



***Note:** National means: 2000 =274 and 2007= 281, a change of +7*
Source: Main NAEP data explorer, National Public sample

But teacher quality probably plays a role, too. By and large, these disadvantaged high achievers are taught by instructors who majored or minored in math and have greater classroom experience under their belts. On paper at least, the teachers of these kids resemble the teachers of all high achievers—and are much more qualified than the teachers of low performers.

Farkas and Duffett also encountered some telling surprises. Most notably, they explore the psyches of U.S. teachers to understand their views on "equality and justice" vis-à-vis low- and high-achieving youngsters. Teachers were given the following forced-choice question: "For the public schools to help the U.S. live up to its ideals of justice and equality, do you think it's more important that they (A) focus on raising the achievement of disadvantaged students who are struggling academically OR (B) focus equally on all students, regardless of their backgrounds or achievement levels?" Only 11 percent chose the former, while 86 percent chose the latter.

Think about that. It's an overwhelming repudiation of one of NCLB's core tenets. And perhaps it explains why the achievement of our top students hasn't fallen in recent years—teachers' personal views have "mediated" the federal law's intentions and incentives. In other words, teachers haven't totally yielded to NCLB's pressures because doing so would force them to abandon their own values.

We can hear NCLB boosters cringing. "That's a false choice" they may say. "We never said to ignore the other students. We just want disadvantaged kids to have their fair share."

This evokes Gardner's question. "Can we be excellent and equal too?" Of course we want that answer to be yes. We'd like to believe that lawmakers will find a technocratic solution to NCLB's flaws. (Loveless suggests a creative one.) Perhaps through the right "growth model," the perfectly chosen "multiple indicators" or "multiple measures," we can provide incentives to schools to focus on low performers, and high performers, too, and also everybody in between.

Perhaps. But listen again to the teachers, who have limited time and finite resources and must make painful choices about how to spend them. And so we learn that *81 percent* of teachers say that "academically struggling" students are likely to get their one-on-one attention, versus *5 percent* who say "advanced students" are.

So let's bring some honesty to this debate. How should we define "justice" in America's public education system? Does it mean doing everything to bring up the performance of low-achieving students, or does it mean helping all students—rich and poor, black and white, low and high achieving—equally? Count us with the teachers on this one. If the United States is to compete with the rest of the globe, and, more crassly, if No Child Left Behind is to survive politically, then no students, even those at the top, can have their needs "left behind."

Our low-performing students are starting to make respectable gains. By all means, let's keep that trend going. But if gains by low achievers are our only measure of success, America faces big challenges in the years ahead.

PART 1

Analysis of NAEP Data

TOM LOVELESS

HIGH-ACHIEVING STUDENTS IN THE ERA OF NCLB

In 1972, Commissioner of Education Sidney P. Marland Jr. presented a report to Congress on the education of gifted and high-achieving children in the United States. The Marland Report argued that America had too few challenging programs to meet the needs of its high-achieving students. Just fifteen years earlier, the Russian launch of Sputnik had led to a flurry of programs promoting mathematics and science. Within a few years, however, these programs were eclipsed by a focus on societal inequities—especially those related to race and poverty—and efforts were launched to eradicate similar inequalities in U.S. schools. Gifted programs came under fire for being elitist. Some dwindled away from lack of funding.

In addition to urging that gifted programs address a broad array of talents and abilities, the Marland Report warned Congress that bright minority students are particularly vulnerable:

Intellectual and creative talent cannot survive educational neglect and apathy. This loss is particularly evident in the minority groups who have in both social and educational environments every configuration calculated to stifle potential talent.[1]

Attitudes toward bright children have waxed and waned over the decades. The No Child Left Behind (NCLB) Act of 2001 sought to fuse equity and excellence into a single initiative, promoting academic achievement in the pursuit of equity.[2] Historically, the federal government provided additional revenue to schools serving disadvantaged children, ostensibly so that schools could offer services that would help poor children learn. The architects of NCLB sought to transform the federal education dollar from a school entitlement into an incentive to prod schools towards better performance.[3] Universal proficiency became the nation's foremost education goal.

Incentives shape behavior. Some analysts today express the concern that, by focusing attention on the education of students at the bottom of the achievement distribution, NCLB is surely encouraging schools to neglect high achievers. After all, schools face consequences for failing to move low-achieving students to proficiency. Students in schools that fail to make adequate progress for two consecutive years must be offered the option of transferring to another public school. A school that continues to fall short faces possible replacement of its teaching staff, conversion to a charter school, or state takeover. Nothing, however, happens when schools fail to boost the learning of already-proficient students to higher levels. As Susan Goodkin argued in the *Washington Post*, "By forcing schools to focus their time and funding almost entirely on bringing low achieving students up to proficiency, NCLB sacrifices the education of the gifted students who will become our future biomedical researchers, computer engineers, and other scientific leaders."[4]

Are these concerns well founded? Do the incentives of NCLB create a Robin Hood effect, yielding gains for low-achieving students but at the expense of high achievers? That's what we set out to investigate.

LITERATURE REVIEW

Faced with a powerful incentive to boost the test scores of students on the borderline of proficiency—"bubble kids," as they are sometimes termed—schools might be expected to focus resources on that point in the achievement distribution and neglect the extreme upper and/or lower ends. If such educational "triage" is actually practiced, high-achieving students would lose out by making less academic progress than that of which they are capable. Very little research has been conducted on this topic, but three studies stand out for their sound research methods.

Derek Neal and Diane Schanzenbach examined test scores in the city of Chicago in 2001 and 2002[5], a period when, due to NCLB's impending implementation, the city's assessment regimen shifted from low- to high- stakes testing. They found that students in the middle of the achievement distribution—in particular, those clustered around the threshold of proficiency—made the greatest gains in reading and math. The evidence was mixed as to whether high achievers made the gains that would have been expected based on previous test scores, but the bottom two achievement deciles definitely lagged behind. The same pattern was found in a second batch of test scores from 1996, right after the Chicago school system instituted its own local accountability system. Evidence of educational triage is indicated, but not necessarily at the expense of high achievers. The students losing out seem to be those who are so far below the cutoff for proficiency that they stand little chance of getting over the proficiency bar.

Matthew Springer conducted a similar analysis using data from an entire state.[6] He analyzed test scores from the Northwest Evaluation Association, a national organization that offers assessment services, and focused on the accountability system of a single western state (left unnamed). Springer found no evidence of triage there. Examining test score changes over a three-year period, Springer detected gains across the distribution of achievement. Unlike Neal and Schanzenbach, Springer detected the largest gains among the lowest achievers. But high achievers gained, too. Interestingly, they made gains in schools facing NCLB sanctions—and did not show gains in schools immune from sanctions because the schools had previously made adequate yearly progress (AYP)—the opposite of what one would expect if schools were redirecting resources away from high achievers in response to NCLB's incentives.

Randall Reback examined Texas data from the 1990s in search of signs of triage.[7] He compared the gains made by students in schools facing sanctions under the Texas accountability system with gains made by typical students at similar points in the distribution of achievement. The Texas accountability system at the time based school sanctions on pass rates, much like NCLB. Reback found significant gains by students whose improvement most influenced state ratings, but the scores of very low-achieving students also improved. High achievers did not fare well, and Reback concluded that "relatively high achieving students perform worse than usual if their own performance is irrelevant to the short-run accountability incentives."[8] A cautionary note: the undemanding content of the Texas Assessment of Academic Skills (TAAS), which produced the data analyzed in the study, has been well documented. Some experts describe the TAAS as covering skills and knowledge several years below grade level, which raises questions as to whether it is an adequate instrument for measuring the gains of high achievers.[9]

These three studies yield no clear conclusion as to whether NCLB-style accountability encourages educational triage. In particular, it is unclear how high achievers fare under such systems. They gained (Springer), lost (Reback), and experienced mixed results (Neal and Schanzenbach). In addition to these mixed and inconclusive findings, one of the difficulties in generalizing from studies that focus on a single locale (city or state) is that outcomes may be influenced by other atypical factors. In Chicago, for example, the city's accountability system overlapped with that of Illinois and included a heavy dose of student accountability in the form of mandatory summer school for failing students. Few local accountability systems include strong student accountability, and NCLB is silent on the matter. Because NCLB is a national policy with national implications, an examination of trends in national achievement is informative for understanding how the law may affect high-achieving students.

THE PROBLEM ADDRESSED IN THIS STUDY

The incentives of NCLB are geared towards improving the education of low-achieving students to close achievement gaps. Have low achievers gained the most in the NCLB era? What about high achievers? Data from the National Assessment of Educational Progress (NAEP) are analyzed to compare national achievement trends of low and high achievers. This analysis cannot test causal theories relating to NCLB (or anything else) since NAEP data are cross-sectional, offering a snapshot of how students are performing at a single point in time. However, because NAEP is the only test given to a nationally representative sample each time it is administered, its data give the best estimate of trends in national achievement.

NAEP regularly assesses students in reading and mathematics at fourth and eighth grades. The 10th and 90th percentiles on the NAEP scale are used in this analysis to identify "low achievers" and "high achievers." National averages on NAEP have been going up since 2000. In an environment of rising average scores, what is happening at both ends of the distribution? If the distribution of achievement is shifting upward across all performance levels—all ships rising—everyone would be getting better at about the same rate with no one group having an apparent advantage over another. A compressed distribution or narrowing of the gap between the 10th and 90th percentiles would occur if low achievers gained more than high achievers, or if high achievers' scores declined while low achievers' scores rose. In either case, the bottom would be catching up with the top. A widening distribution, on the other hand, would result if scores of high achievers rose more than those of low achievers, or if low achievers' scores declined while high achievers' scores went up. Regardless, the gap between the two groups would grow larger. High achievers would be outdistancing their peers by even more.

Based on the thrust of NCLB, a plausible hypothesis to begin with is that the distribution of NAEP scores is compressing, with low achievers making gains, high achievers staying flat or even declining, and the achievement gap between the two groups narrowing. After all, NCLB gives schools and policymakers no incentive to boost the scores of high-achieving students. The studies reviewed above offer three reasonable hypotheses about the test scores of high-achieving students: that they went up (Springer), went down (Reback), or were mixed or neutral (Neal and Schanzenbach). One benefit of NAEP is that scale scores run from 0-500, and even the top 10% of scores are immune from a ceiling effect.

RESEARCH QUESTIONS

The study addresses four questions:

1. What has happened to the national NAEP scores of high and low achievers since the advent of NCLB? Reading and math scores at the 10th and 90th percentiles are analyzed for fourth and eighth grades.

2. Was a trend in place before NCLB? National NAEP data prior to NCLB are examined.

3. Is it NCLB accountability or accountability in general that is associated with changes in the achievement gap? State NAEP data from the 1990s are analyzed to compare the gains of low and high achievers in states with and without accountability mechanisms in place before NCLB was enacted.

4. Who are America's high achievers? Student level data from the 2005 NAEP restricted-use files are summarized to paint a portrait of America's high-achieving students. A subgroup of students is singled out for special attention: high achievers who are black, Hispanic, or poor—special subgroups under NCLB.

DATA TREATMENT

Three different NAEP sets of data are used in the analysis—national, state, and student-level restricted-use files. The data addressing research questions #1 and #2 are national means at the 10th and 90th percentiles for students attending public schools. The data in question 3 are 10th and 90th percentile means of state NAEP scores. Question 4 uses student-level data from the restricted-use 2005 NAEP files.

Why use the 10th and 90th percentiles of NAEP to define low and high achievers? An argument could be made to use NAEP's own achievement levels. After all, NCLB sanctions are tied to "proficiency," not to percentiles. Yet the validity of NAEP achievement levels has been questioned since their inception.[10] Moreover, too few students score at NAEP's advanced level—less than 5% in fourth-grade math in 2000, for instance—to make that analysis meaningful, and the categories are unbalanced: in contrast to that 5% of students at the advanced level, about 77% of fourth-graders scored below "proficient" in math in 2000.[11] The benefit of using 10th and 90th percentiles instead is that if NAEP scores are rising equally across all achievement levels, we would expect scores at these two points to behave about the same. Not so with the NAEP achievement-level categories.

The data consist of NAEP reading and math scores for fourth and eighth grades, producing four grade-subject combinations. The NCLB time periods are defined by the last administration of NAEP prior to the law's passage and signing. That is 2000 for fourth-grade math and reading and eighth-grade math. For these three subject-grade combinations, then, the 2000 NAEP serves as the dividing line between pre- and post-NCLB periods in the analysis—that is, as the starting point in the 2000–2007 NCLB-era data, and as the endpoint in the 1990–2000 pre-NCLB data. Eighth-grade reading was not given in 2000, but was given in 1998 and 2002. For that subject-grade combination, 1990–2002 constitutes the pre-NCLB period and 2002–2007 the NCLB-era data.

P-values and standard errors for all of the data reported in the paper appear in tables in appendices A and B, respectively. Please note that the NAEP sample is so large (more than 160,000 students) that even changes of one or two points in a NAEP score—or mean differences of three or four percentage points in a descriptive statistic—can be statistically significant, although perhaps not significant in the real world. In the description below, any value that is described as "large" or "significant" meets significance tests of $p<.05$.

QUESTION 1:
What has happened to the national NAEP scores of high and low achievers since the advent of NCLB?

The four graphs in figure 1 show the NAEP scores of high- and low-achieving students from 2000 to 2007. The graphs on the left, figures 1a and 1b, display scores for fourth grade; those on the right, figures 1c and 1d, display scores for eighth grade. In fourth grade, both high and low achievers made large gains in math (figure 1a). Scores at the 90th percentile rose from 264 to 274, a gain of ten points. Scores at the 10th percentile rose a whopping eighteen points, from 183 to 201. Both gains are statistically significant at $p<.001$. For a more meaningful measure of the magnitude of such gains, a ballpark estimate is that one year of learning is equal to about eleven NAEP points. A gain of eighteen points at the 10th percentile is equal to more than one and a half years of learning, an increase that any teacher or parent of a low-achieving student would surely notice and applaud.

The 2000 tests were the last NAEPs administered before NCLB was proposed, debated in Congress, and signed into law, and 2003 brought the first NAEP test given in math after NCLB went into effect. As figure 1a reveals, the biggest leap in math scores took place from 2000 to 2003. For both low and high achievers, the bulk of the gains of the NCLB era were attained in the very first interval of NAEP testing—from 2000 to 2003. The achievement gap between high and low achievers narrowed immediately after NCLB was passed, but then stabilized.

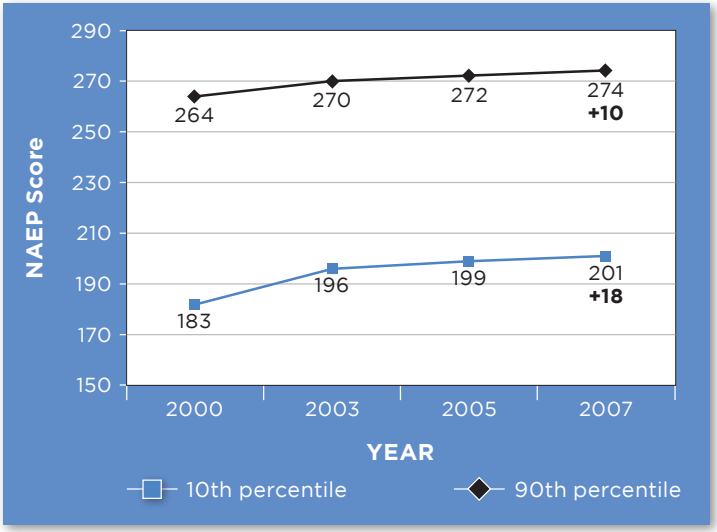
In fourth-grade reading, the sixteen-point gain by low achievers stands out as impressive (see figure 1b). High achievers' scores have remained flat, however. As with math, most of the action in reading scores took place in the initial years. A pop upward of twelve points occurred in low achievers' scores from 2000 to 2002, compared to a one-point gain by high achievers. Over the entire era of NCLB, the gap between the two groups contracted by thirteen scale score points, more than a year's worth of learning.

The eighth-grade scores do not tell a straightforward story. They differ by subject. Math scores follow the same pattern as fourth-grade scores—a pop in low achievers' scores during NCLB's infancy (though not as large as that for fourth-graders), leading to narrowing of the achievement gap, and then similar growth by both low and high achievers in subsequent years (see figure 1c). But eighth-grade reading diverges from this pattern (see figure 1d). From 2002 to 2003, scores at the 90th percentile increased by a point, while the scores at the 10th percentile declined four points, from 219 to 215. The achievement gap widened. From 2003 to 2007, scores for both groups barely budged, with low achievers gaining a point and high achievers losing a point. Over all, unlike the other three grade-subject combinations, eighth-grade reading evidences no progress at the 10th percentile during the NCLB era.

Why is eighth-grade reading an outlier? Note that it has a different baseline year (2002) than the other grade-subject combinations in the analysis because no eighth-grade reading test was given in 2000. Any gains between 2000 and 2002, which are quite large for the other three grade-subject combinations, therefore go undetected. The prior NAEP test in eighth-grade reading was in 1998. From 1998 to 2002, eighth-grade reading did experience a jump in scores, and, interestingly, the 10th percentile gained more than the 90th percentile. The unique nature of eighth-grade NAEP scores in reading should be kept in mind for the remainder of the discussion.

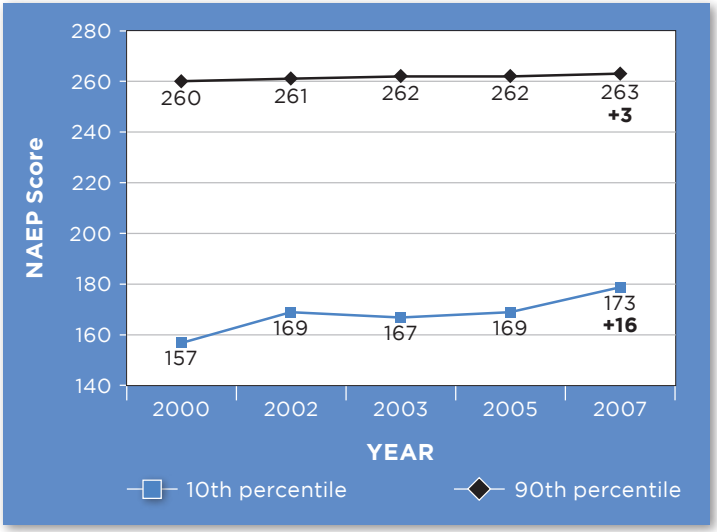
Another important consideration concerning time intervals should also now be apparent from examining the NAEP data. Three grade-subject combinations exhibit a consistent

Figure 1a—Math 4th Grade NAEP Scores, 2000-2007 (90th and 10th percentiles)



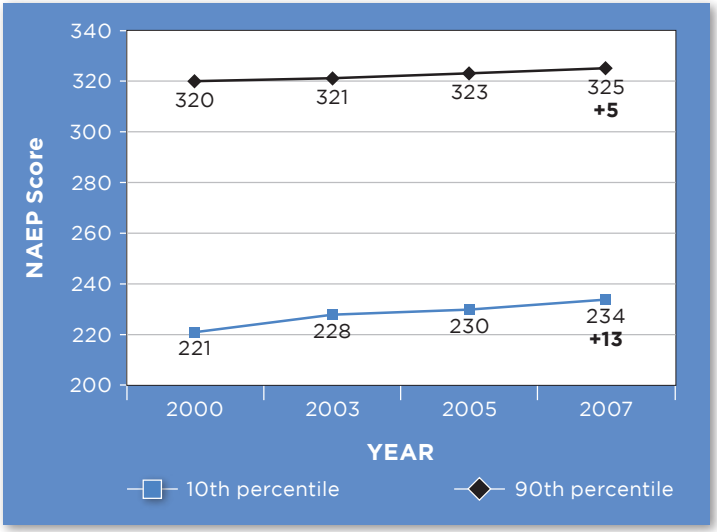
Note: *National means: 2000=225, 2007=241, a change of +16*
Source: Main NAEP data explorer, National Public sample

Figure 1b—Reading 4th Grade NAEP Scores, 2000-2007 (90th and 10th percentiles)



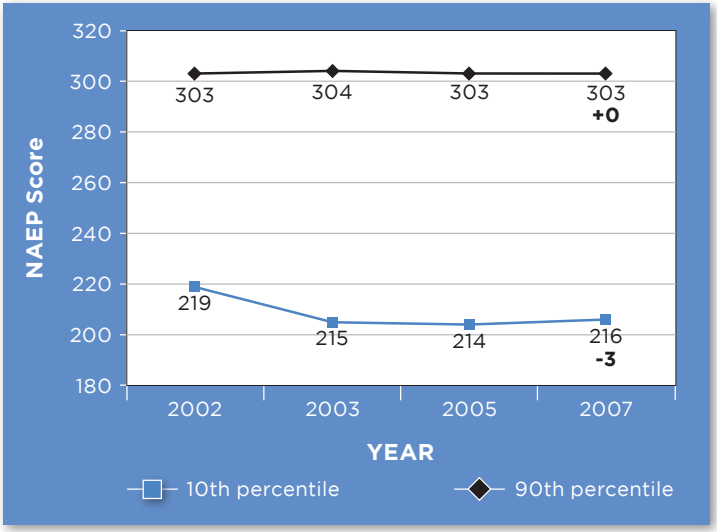
Note: *National means: 2000= 215, 2007=222, a change of +7*
Source: Main NAEP data explorer, National Public sample

Figure 1c—Math 8th Grade NAEP Scores, 2000-2007 (90th and 10th percentiles)



Note: *National means: 2000=225, 2007=241, a change of +16*
Source: Main NAEP data explorer, National Public sample

Figure 1d—Reading 8th Grade NAEP Scores, 2002-2007 (90th and 10th percentiles)



Note: *National means: 2002= 265 and 2007= 264, a change of -1*
Source: Main NAEP data explorer, National Public sample

pattern, a straightforward story of narrowing gaps during the NCLB era—mostly the result of sharp gains by low-achieving students from 2000 to 2002 or from 2000 to 2003. But whether these years belong in the NCLB era is debatable. The starting point matters. Using the NAEP test immediately before NCLB's passage as a baseline, as this study does, includes growth that may have nothing to do with NCLB. Selecting a later date—2003, for example—and arguing that the act's accountability provisions could not have been implemented before then would lead to the conclusion that growth was much less during the NCLB era (although still statistically significant, as shown in appendix A), and that the gaps between low and high achievers were essentially unchanged. But it would also omit influence that NCLB may have had on NAEP scores during the debate and early implementation of the legislation.

Neal and Schanzenbach provide an example. In the fall of 2001, "with the passage of NCLB looming on the horizon," the state of Illinois placed hundreds of schools on a watch list and declared that future state testing would be high stakes.[12] If such actions influenced educators' behavior and students' test scores, an "NCLB effect" may have been registered in 2002. The bottom line is that there is no clear boundary between pre- and post-NCLB periods and no perfect way to delineate the NCLB era using the NAEP test years. Critics and defenders of NCLB alike can (and do) exploit this ambiguity to their advantage. The fairest approach is to point out the large gains in NAEP scores in the period around 1998–2003 and acknowledge that NCLB's association with these gains is unknown.

Let's turn now to examining NAEP scores from the 1990s to see if the trends for 2000–2007 were evident in the previous decade.

QUESTION 2:
What were the trends in NAEP scores of high and low achievers before NCLB?

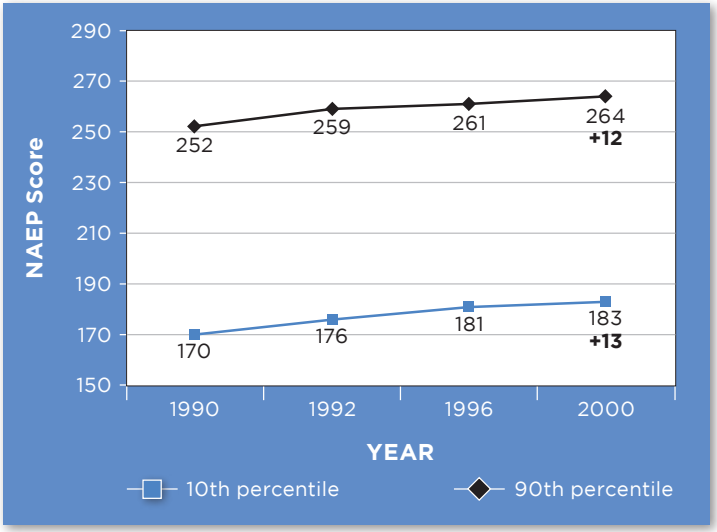
The four graphs of figure 2 display NAEP scores for the 1990s. NAEP testing in the two subjects began in different years: math testing in 1990 and reading in 1992. As figure 2a shows, both high and low achievers in fourth grade made strong gains during the decade. High achievers' scores increased from 252 to 264, a gain of twelve points. Low achievers gained thirteen points, going from 170 to 183. Both gains represent more than a year's worth of learning. The gap between the 10th and 90th percentiles remained essentially unchanged in fourth-grade math.

Fourth-graders as a whole lost ground in reading (see figure 2b). Scores at the 10th percentile fell sharply from 168 to 157, with a large loss from 1992 to 1994. High achievers' reading scores remained flat, ticking up a single point over the entire decade. The gap between high and low achievers expanded in the 1990s due to the declining scores of students at the bottom of the achievement distribution.

The achievement gap also widened in eighth-grade math but for a different reason (see figure 2c). Scores of high achievers moved from 307 to 320, a gain of thirteen points. Low achievers made gains, but not as large—seven points. All boats were rising in eighth-grade math, but the boats at the 90th percentile rose more than those at the 10th percentile. The gap did narrow in eighth-grade reading (see figure 2d). Scores at the 10th percentile rose eight points, in contrast to a one-point gain at the 90th percentile. Thus, math and reading present opposite patterns in eighth grade but, as noted above, the unique time interval for eighth-grade reading scores makes those data difficult to interpret.

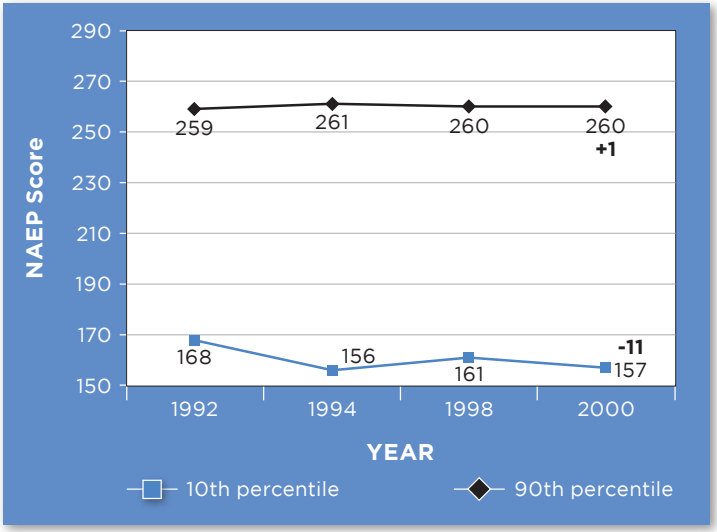
In sum, the 1990s present a mixed picture. The NAEP score gap between high and low achievers widened in fourth-grade

Figure 2a—Math 4th Grade NAEP Scores, 1990-2000 (90th and 10th percentiles)



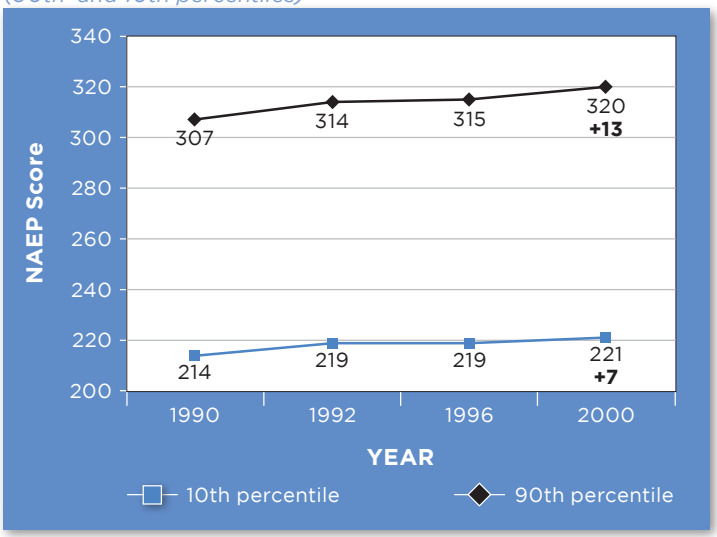
Note: *National means: 1990= 213, 2000 = 225, a change of +12*
Source: Main NAEP data explorer, National Public sample

Figure 2b—Reading 4th Grade NAEP Scores, 1992-2000 (90th and 10th percentiles)



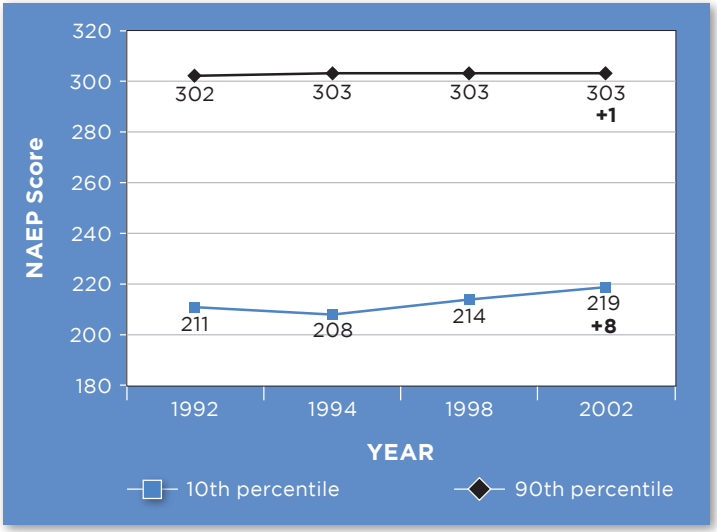
Note: *National means: 1992 = 217, 2000= 215, a change of -2*
Source: Main NAEP data explorer, National Public sample

Figure 2c—Math 8th Grade NAEP Scores, 1990-2000 (90th and 10th percentiles)



Note: *National means: 1990= 263 and 2000= 274, a change of +11*
Source: Main NAEP data explorer, National Public sample

Figure 2d—Reading 8th Grade NAEP Scores, 1992-2002 (90th and 10th percentiles)



Note: *1992=260 and 2002= 265, a change of +5*
Source: Main NAEP data explorer, National Public sample

Table 1—Annual Gains by 10th percentile pre- and post-NCLB

Grade/Subject	Pre-NCLB	Post-NCLB
Grade 4–Math	1.3	2.6
Grade 4–Reading	-1.4	2.3
Grade 8–Math	0.7	1.9
Grade 4–Reading	0.8	-0.6
Average of grade/subject combinations	0.35	1.55

Average annual gains found by dividing gain over entire interval by number of years in interval. All gains are measured in NAEP scale score points.

Table 2—Annual Gains by 90th percentile pre- and post-NCLB

Grade/Subject	Pre-NCLB	Post-NCLB
Grade 4–Math	1.2	1.4
Grade 4–Reading	0.1	0.4
Grade 8–Math	1.3	0.7
Grade 4–Reading	0.1	0.0
Average of grade/subject combinations	0.675	0.625

Average annual gains found by dividing gain over entire interval by number of years in interval. All gains are measured in NAEP scale score points.

reading and eighth-grade math, but for different reasons. The gap contracted in fourth-grade math and eighth-grade reading, again for different reasons. High achievers generally fared better than low achievers during the 1990s; however, the weak performance of 10th percentile fourth-graders in reading unduly influences this conclusion. Without that steep decline, the conclusion would be that the two groups performed about the same, with both making solid gains.

How do the pre- and post-NCLB periods compare? Tables 1 and 2 report the average annual change in test scores. The changes are expressed in annual increments because the test intervals of the grade-subject combinations span different numbers of years. Table 1 shows changes in test scores for 10th percentile students in the pre- and post-NCLB periods. Table 2 offers the same comparison for 90th percentile students.

The major contrast before and after NCLB occurred in scores at the 10th percentile (see table 1). Low achievers made significant strides on NAEP after 2000. The gains of low achievers in fourth-grade math doubled from the pre-NCLB period (when there was an average annual gain of 1.3 points) to the post-NCLB period (2.6 points). In fourth-grade reading, low achievers lost ground before NCLB (average annual loss of 1.4 points) but accomplished healthy gains after NCLB (2.3 points). The gain in eighth-grade math rose from .7 points per year to 1.9 points per year. And eighth-grade reading exhibits a pattern different from the other grade-subject combinations, showing gains in the pre-NCLB period (average increase of 0.8 points per year) offset by losses during the post-NCLB period (average decline of 0.6 points per year).

For the 90th percentile students, the differences between the two eras' NAEP scores are less pronounced (see table 2). Big gains in fourth-grade math before NCLB (1.2 points per year) continued into the post-NCLB period (1.4 points per year). Trivial gains in fourth-grade reading in the pre-NCLB years were matched by small gains after NCLB. A robust gain of 1.3 points per year in eighth-grade math before NCLB slowed to an average annual gain of 0.7 points during the NCLB era. Scores in eighth-grade reading were flat both before and after NCLB. Overall, growth at the 90th percentile changed very little in the pre- and post-NCLB eras, averaging 0.675 points per year across the four grade-subject combinations in the 1990s and 0.625 after 2000. Growth at the 10th percentile, on the other hand, has averaged 1.55 points per year during the NCLB era, a marked acceleration from the 0.35 points per year in the 1990s. The accelerating growth at the bottom of the achievement distribution is driving the narrowing of the achievement gap.

Let's sum up the data on questions 1 and 2. The national NAEP data support three findings: first, the achievement gap between high and low achievers narrowed during the NCLB era (2000–2007); second, the narrowing of the gap was not taking place immediately prior to NCLB (1990–2000); and third, the narrowing of the gap during the NCLB era is largely due to a significant improvement in the performance of low achievers and smaller gains by high achievers. It is important to stress again that these patterns in NAEP data only indicate correlation and cannot be tied causally to NCLB. But they do confirm the Springer study's finding that NCLB-style accountability is associated with increases in achievement at the bottom of the distribution without declines in achievement at the top.

Holding schools accountable for changes in test scores was not an invention of NCLB. Similar accountability systems were in place in many states in the 1990s. They, too, emphasized boosting the achievement of students at the bottom of the distribution. Maybe, then, accountability in general rather than NCLB accountability in particular is associated with rising scores among low-achieving students. The states present a natural experiment on the question. Some states had accountability systems in the 1990s and some states did not. Examining state NAEP data will allow us to compare them.

QUESTION 3:
Is it NCLB accountability or accountability in general that is associated with contraction of the achievement gap?

NAEP draws on different samples of students to produce national and state scores. This practice provides a way to confirm or reject the trends reported above for national NAEP data. We weighted the gains by population so that a large state counts for more than a small state. Table 3 shows the mean scale score gains at the 10th and 90th percentiles for states that participated in NAEP from 2000 to 2007 (participation was voluntary until 2003). At the beginning of the decade, state math and reading tests were given in different years—2000 for math and 2002 for reading. The statistic for the group of students making the most progress—either the 10th or 90th percentile—is shaded in each row.

In a trend consistent with national NAEP data, low-achieving students made greater academic strides than 90th percentile students on state NAEP tests and narrowed the gap separating the two groups. In fourth-grade math, low achievers notched a 15.5-point gain compared to a 12.8-point gain among high achievers. In fourth-grade reading, low achievers gained 3.6 points versus 1.8 for high achievers. In eighth-grade math, the 10.5-point gain by low achievers outpaced the gain of 8.4 points by high achievers. The general pattern is one of all boats rising; but the boats at the 10th percentile rose more than those at the 90th percentile. Again, eighth-grade reading diverges from the general pattern, with the 90th percentile showing a tiny gain (0.1 point) and low achievers a 2.0-point loss.

For the analysis of pre-NCLB data, we categorized states as having accountability or nonaccountability policies in the 1990s using the coding scheme of Martin Carnoy and Susanna Loeb.[13] They classified as "accountability states" those states with systems that rewarded or sanctioned schools based on test scores. The sanctions of NCLB apply to schools with grades 3–8, which are also the grades of interest in the current study, so if a state's accountability system did not apply to grades 3–8, we re-classified the state as a "nonaccountability" state. In table 4, data are presented for the NAEP testing interval immediately prior to NCLB—1996 to 2000 in math and 1998 to 2002 in reading. Going back earlier in the 1990s would severely diminish the number of states in the analysis since not all states participated in NAEP.[14]

Two questions of interest: Did low achievers gain more than high achievers? And did they gain more in accountability states than in nonaccountability states? The statistic for the group of students making the most progress—either the 10th or 90th percentile—is shaded in each row of table 4. First look at the figures for "overall." The picture is mixed. Low achievers did gain more than high achievers in both subjects at fourth grade—4.5 versus 1.8 points in math and 8.2 versus 2.3 points in reading. But high achievers did better than low achievers in both subjects at eighth grade—a gain of 2.3 points versus a 0.2 loss in math, and a gain of 1.6 points versus a 0.3 gain in reading. So in the NAEP testing period immediately preceding NCLB, the achievement gaps contracted in fourth grade but widened in eighth grade.

The comparison of accountability systems is more decisive. Examine the change in gap statistics for both regimes. Negative values indicate a narrowing gap and positive values a widening gap. For three of the grade-subject combinations, the achievement gap in states with accountability systems improved compared to nonaccountability states. In fourth-grade math, the gap narrowed by 4.1 points in accountability states compared to a widening of 0.6 points in nonaccountability states. In fourth-grade reading, the gap narrowed by 6.6 points in accountability states versus 4.3 points in nonaccountability states. In eighth-grade math,

Table 3—Comparing 90th and 10th Percentile Gains using state NAEP Data. POST-NCLB

Grade/Subject	90th	10th
Grade 4–Math (2000-2007) n=41	12.8	15.5
Grade 4–Reading (2000-2007) n=44	1.8	3.6
Grade 8–Math (2000-2007) n=40	8.4	10.5
Grade 8–Reading (2000-2007) n=42	0.1	-2.0

Note—All data are in scale score points. Source: Author's calculations from main NAEP data explorer, State NAEP sample.

the achievement gap expanded in accountability states by 2.2 points but expanded even more (3.4 points) in nonaccountability states. The outlier is eighth-grade reading. The gap expanded by 1.7 points in accountability states and remained unchanged in nonaccountability states.

State NAEP data from the 1990s bolster the theory that accountability systems in general are related to narrower achievement gaps. States that practiced test-based accountability in the 1990s evidence trends in test score gaps that foreshadow what would take place in the NCLB era. But a few wrinkles in the state data from the 1990s must be noted. In the eighth grade, the gap expanded in math, albeit less in accountability states than in nonaccountability states. This is different from the pattern uncovered for the NCLB era, in which the gap in eighth-grade math shrank. And in eighth-grade reading, the constant outlier in these NAEP data, the gap expanded in accountability states and stayed the same in nonaccountability states.

Let's take stock. America's high-achieving students do not appear to have been harmed during the reign of accountability systems—either in the NCLB era or in the era of exclusively state-initiated systems that predate NCLB—though they haven't been helped much, either. The concern about a Robin Hood effect, in which students at the bottom of the achievement distribution make gains at the expense of high achievers, is not substantiated by NAEP data. High achievers' test scores have been rising at a steady, slow pace since 1990. Low achievers' test scores have also been rising, but the pace of those gains increased dramatically sometime between 1998 and 2002—and sooner in states with accountability systems. If the larger gains at the bottom of the achievement distribution are associated with the incentives of accountability systems, this trend suggests a missed opportunity to promote achievement among high achievers.

Table 4—Comparing 90th and 10th Percentile Gains using state NAEP Data. PRE-NCLB

1996-2000 GRADE 4 – MATH			
	90th	10th	Change in Gap
Accountability | n=16	1.6	5.7	-4.1
Non-accountability | n=20	2.5	1.9	0.6
Overall | n=36	1.8	4.5	-2.7
1998-2002 GRADE 4 – READING			
	90th	10th	Change in Gap
Accountability | n=16	2.2	8.8	-6.6
Non-accountability | n=21	2.6	6.9	-4.3
Overall | n=37	2.3	8.2	-5.9
1996-2000 GRADE 8 – MATH			
	90th	10th	Change in Gap
Accountability | n=15	2.5	0.3	2.2
Non-accountability | n=19	2.1	-1.3	3.4
Overall | n=34	2.3	-0.2	2.5
1998-2002 GRADE 8 – READING			
	90th	10th	Change in Gap
Accountability | n=16	1.5	-0.2	1.7
Non-accountability | n=18	1.9	1.9	0.0
Overall | n=34	1.6	0.3	1.9

***Note**—All data are in scale score points.*
Source: Author's calculations from main NAEP data explorer, State NAEP sample.

QUESTION 4:
Who are America's high achieving students?

The emphasis on closing achievement gaps between high and low achievers places a spotlight on struggling students. Popular media, academic researchers, and public policy devotes considerable resources to students having trouble at school. Often left out of discussions of achievement gaps are high achievers. They are America's best students. What do we know about them?

This section presents a profile of high-achieving students in the United States. The sample of eighth-graders scoring at the 90th percentile or above on NAEP represents about 380,000 pupils. What do we know about them in terms of their demographic characteristics, their schools, and their teachers? We sifted through the restricted-use files of the 2005 NAEP, specifically those pertaining to the eighth-grade math test. Data from the NAEP reading test or another grade might produce different results.[15] Appendix C provides the sources for the independent variables in this question.

THE TYPICAL HIGH ACHIEVER

The typical student scoring at the 90th percentile on the eighth-grade math NAEP comes from a more privileged socioeconomic background than the typical American student (see table 5). Only 10.2% qualify for free or reduced price meals, compared to 36.1% of eighth-graders nationwide and 66.5% of students scoring at the 10th percentile. This means that high achievers are only one-sixth as likely to be eligible for the free or reduced price meals program—a proxy for family income—as low achievers. High achievers also differ from other students in their racial and ethnic backgrounds. More than four out of five (81.5%) of them are white, 2.6% are black, and 4.4% are Hispanic.[16] Among eighth-graders nationwide, 61.1% are white, 16.1% black, and 16.2% Hispanic. The three racial/ethnic groups are fairly evenly represented among low achievers—28.4% white, 36.9% black, and 29.8% Hispanic. As a rule of thumb, blacks and Hispanics are about twice the proportion of low achieving students that one would expect based on the composition of 8th grade students as a whole—and one-fifth to one-fourth of the expected proportion of high achievers.

For several decades, research has identified mothers' education as one of the strongest correlates of family background to student achievement.[17] Nearly two-thirds (64.4%) of high-achieving students have mothers who graduated from college. This is significantly higher than the national average (36.9%) and more than three times the rate for low-achieving students (19.6%). In sum, compared to the typical American eighth-grader, high achievers are more likely to come from higher-income homes, more likely to be white, and less likely to be black or Hispanic, and their mothers are more likely to have earned a college degree.

What math do high achievers study in eighth grade? Table 6 shows enrollment in eighth-grade courses. Most high achievers are enrolled in algebra (57.3%), with a significant number taking geometry (11.1%) or algebra II (4.6%). Thus, nearly three-quarters of high achievers, 73.0%, are taking an advanced math course—algebra or beyond. Among eighth-graders nationwide, almost exactly half as many, 36.6%, are enrolled in such courses. For students at the 10th percentile, the figure is a surprisingly high 28.6%.[18] The recent push to enroll eighth-graders in tougher math courses is apparently paying off, extending even to students for whom mathematics is a struggle. High achievers take advanced math classes, to be sure, but a significant number of low achievers are sitting in the same classrooms.

About 18.0% of high achievers are enrolled in lower-level math classes—pre-algebra, general math, or other (e.g., business math, remedial math)—compared to 61.1% of low-

Table 5—Student Characteristics: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
>50% Eligible Free and Reduced Price Meals	10.2	36.1	66.5
White	81.5	61.1	28.4
Black	2.6	16.1	36.9
Hispanic	4.4	16.2	29.8
Mother is College Grad.	64.4	36.9	19.6

Table 6—Course taking in 8th grade math: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
Geometry	11.1	3.8	5.0
Algebra 2	4.6	3.3	6.2
Algebra 1	57.3	29.5	17.4
2 year Algebra	5.5	4.6	4.6
Pre-Algebra	9.4	26.4	19.2
General Math	6.8	24.4	27.1
Other	1.8	4.8	14.8
Integrated Math	2.9	1.3	1.1

achieving students and 55.6% of eighth-graders overall. Note, though, that these are course titles only and may not reflect the actual quality or rigor of the mathematics taught in the courses. A fruitful line of inquiry for future research would be to investigate eighth-grade math courses and describe how math content varies among courses with the same title.[19]

SCHOOLS ATTENDED BY HIGH ACHIEVERS

The characteristics of schools attended by high achievers are shown in tables 7 and 8. High achievers are more likely to attend suburban schools than other eighth-graders. Low-achieving eighth-graders are more likely to attend urban schools and schools with larger enrollments; these larger schools serve about 885 students compared to a national average of 820 for schools that house an eighth grade (see table 8). The schools of high achievers are average in size, serving 815 students. The negative relationship of school size with achievement—driven here by the presence of low achievers in large schools—has led some school reformers to call for reducing the size of schools.[20]

Let's look at the rest of the characteristics of schools displayed in table 8. Like high-achieving students themselves, the schools of high achievers appear socioeconomically advantaged. About one in seven high achievers (14.7%) attends private schools, much larger than the statistic for eighth-graders nationally (8.8%) and for low achievers (3.3%). Only 10.6% of high-achieving students attend high-poverty schools—those in which at least half of the student body qualifies for free or reduced price meals. That compares to 31.6% of all students nationally and 59.1% of students at the 10th percentile. Only 3.8% of high achievers attend schools with half or more of students receiving targeted Title I services. This is about one-eighth of the figure for low-achieving students (29.7%). Overall, high and low-achievers attend schools with dramatically different demographic profiles.

NAEP asks school principals to report how many students are enrolled in an algebra course in their schools and how many students participate in gifted and talented programs. Both questions are important for determining whether schools are offering high-achieving youngsters educational opportunities that meet their unique educational needs. In 2001, Michigan State researchers examined data from the 1995 Trends in International Mathematics and Science Study (TIMSS) and estimated that one-third of schools did not offer eighth-graders an algebra class.[21] This dismal situation has improved. Evidence supplied by principals in response to the NAEP questionnaire shows that 13.1% of eighth-graders nationwide attended schools without an algebra class in 2005, including 9.2% of high achievers, the students who are presumably best prepared for and most in need of such a course.[22] That still represents about 34,000 students, so despite the improvement, the figure suggests a significant neglect of talent. About 16.5% of low achievers attend schools without algebra, but as indicated above, one-third of low achievers say they are enrolled in advanced math courses. Access to such courses does not appear to be too daunting. Ironically, low-achieving students are more likely to attend schools with gifted programs than high achievers. This may be because access to a variety of programs is intertwined with school size, and attending schools with gifted programs is one benefit that low achievers enjoy in attending larger schools. A less benign possibility is that these gifted programs are used as a substitute for algebra courses and other curricular offerings with truly advanced content.

High-achieving students are more likely to attend schools that assign students to math classes on the basis of ability (i.e., tracking). Among students at the 90th percentile, 78.3% attend a school that tracks eighth-grade math, versus 70.9% for the average student and 65.7% among 10th percentile students. This finding is consistent with research on tracking reform conducted in the 1990s. At that time, an anti-tracking

movement swept the country; its proponents argued that such sorting of pupils discriminated against poor and minority children by locking them out of advanced classes.[23] Many low-performing schools, especially in urban areas, responded by abandoning tracking and creating classes of students who were presumably heterogeneous in ability. At the middle-school level, de-tracking was especially popular in English and history departments. Math departments vehemently opposed this reform in the 1990s, but as shown here, even they have been subject to it in many schools. About 22% of high-achieving eighth-graders attend schools that do not group students by ability in mathematics.

TEACHERS OF HIGH ACHIEVERS

What can NAEP tell us about the math teachers of high-achieving students? Three findings stand out (see table 9). They tend to be more experienced than teachers of the typical eighth-grader, with an average of 15.2 classroom years under their belts, compared with 13.5 years for the math teacher of the average eighth-grader and 11.8 for teachers of low-achieving students. A similar pattern is found in the odds of being taught by a novice instructor. Low-achieving students are about twice as likely (29.1%) to have a math teacher in the first four years of his or her career as students at the 90th percentile (16.1%).

Teachers of high achievers are slightly more likely to hold a regular teaching certificate (86.6% versus 82.5% for the average student) and to have majored or minored in math in college. Almost two-thirds of the teachers of high-achieving students majored or minored in math (64.2%) compared to less than half of the teachers of low achievers (44.9%).[24] These data are almost certainly driven by the demographic characteristics of schools. A solid body of research documents dramatic differences in the characteristics of teachers in high- and low-poverty schools, ranging from preparation to experience to turnover.[25] As noted above, high achievers tend to be clustered in low-poverty schools.

The third finding about teachers of high achievers is that they are not walled off from the rest of the students in the schools in which they teach. About one in six of the teachers of 90th percentile students (17.1%) also teach a remedial math class, and four in ten teach general math classes (39.5%). This should allay the concern that teachers of high achievers are cloistered from the general school population and unaware of the needs of average students.

This concern relates to tracking. Critics of tracking argue that grouping kids into classes by ability means that the best students get the best teachers, while kids at risk of failing get the worst teachers. The matching of good teachers and students probably happens innocently. It makes sense that schools assign teachers who know the most math to teach advanced math classes, just as it makes sense that good math students take the toughest math courses. Such commonsense practices create a pairing of staff and students that looks inequitable—high achievers taught by teachers with the strongest math backgrounds and low achievers taught by everybody else, including, of course, those who are weak in math. One way to address the imbalance is to ask more strong math teachers to teach at least one general or remedial math class each day. Another is to increase the supply of teachers with rigorous mathematics training—a longer-term and more satisfying solution but also one that is more ambitious.

Table 7—School Locale: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
Urban	27.5	31.3	43.7
Suburban	51.5	43.1	35.7
Rural	21.0	25.6	20.6

Table 8—School Characteristics: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
School Enrollment	815	820	885
Private School Enrollment	14.7	8.8	3.3
>50% Eligible Free and Reduced Price Meals	10.6	31.6	59.1
>50% Title 1	3.8	14.1	29.7
No Kids in Algebra 1	9.2	13.1	16.5
No Kids in Gifted	26.2	22.8	19.5
8th Grade Math Tracked	78.3	70.9	65.7

Table 9—Teacher Characteristics: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
Teacher Experience (yrs.)	15.2	13.5	11.8
0-4 Years Experience	16.1	22.5	29.1
Regular Teaching Cert.	86.6	82.5	75.8
Major/Minor in Math	64.2	55.8	44.9
Teaches Remedial Math	17.1	24.5	38.3
Teaches General Math	39.5	51.0	57.7

A CLOSER LOOK: HIGH-ACHIEVING STUDENTS FROM THREE NCLB SUBGROUPS

Within the population of high achievers are students targeted by NCLB for special attention. Recall that, in the effort to leave no child behind, NCLB requires schools to break out the test scores of subgroups of children who historically perform below average on tests of academic achievement. What about kids within these subgroups who nonetheless score well above average? From the pool of students scoring at the 90th percentile and above on NAEP, we selected three of these subgroups for special scrutiny—students who are black, Hispanic, and eligible for free or reduced price meals. About 14.0% of high achievers are members of one of these three subgroups, representing approximately 53,000 eighth-graders. They are not being left behind; rather, they are outdistancing their peers in learning. What do the NAEP data tell us about them?

Table 10 displays the socioeconomic characteristics of this group of NCLB high achievers (hereafter called NCLB-HA). Most students in this group come from a lower-income family. Seven out of ten (70.5%) qualify for free or reduced price meals, almost twice the national average. In terms of racial and ethnic backgrounds, the NCLB-HA students are white (39.6%), black (17.8%), and Hispanic (30.5%). The mothers of NCLB-HA students are much more likely to have graduated from college (41.1%) than the mothers of low achievers (19.6%). Indeed, the mothers of NCLB-HA students are more likely to be college grads than are the mothers of average students (36.9%).

The math coursework of NCLB-HA students is somewhat less challenging than that of other 90th percentile students (see table 11). About 64.2% are taking algebra or beyond in eighth grade, nine percentage points less than for the 90th percentile group as a whole. Enrollment by NCLB-HA students in general math and pre-algebra (23.9%) exceeds that of all high achievers (16.2%). These less rigorous courses seem to be drawing students who are capable of handling more advanced mathematics in eighth grade. Do not forget that NCLB-HA students score at the 90th percentile on NAEP—they differ from other high achievers only in race, ethnicity, or family income.[26]

School characteristics for NCLB-HA students are displayed in tables 12 and 13. Table 12 confirms that these students are more likely to attend schools in urban areas (39.0%) compared to other 90th percentile students (27.5%). Indeed, the schools serving NCLB-HA students look more like schools serving 10th percentile students than schools for those at the upper end of the achievement distribution. NCLB-HA students attend larger schools (863 students versus 815 students) and are much less likely to attend private schools than the typical high achiever (see table 13). Features of the large, urban public school carry over into the remaining data in table 13. The schools of NCLB-HA students enroll more youngsters eligible for free or reduced price meals and targeted Title I services than the average school of high achievers.

About one in seven NCLB-HA students (13.3%) attends a school without an algebra class. Interestingly, the percentage of NCLB-HA students attending schools with tracking (71.3%) resembles the national average (70.9%), not the figure for other high achievers (78.3%). These statistics underscore the impact of tracking reform on urban schools. High achievers who are

poor, black, or Hispanic are more likely to attend schools that shun tracking than are high-achieving students who are white, come from higher-income homes, or attend suburban schools. To the extent that heterogeneously grouped math classes hold back students who excel at mathematics—and there is some evidence that they do—this limitation falls disproportionately on NCLB-HA students.[27]

Are NCLB-HA students shortchanged on teacher quality? They do not appear to be according to the measures available in NAEP (see table 14). In years of experience, percentage of new teachers, and rates of standard certification, the differences between teachers of NCLB-HA students and high achievers as a whole are not statistically significant (at $p<.05$). Teachers of NCLB-HA students have more experience and higher rates of standard certification than the teacher of the typical American eighth-grader. Moreover, NCLB-HA students are just as likely as other high achievers to have math teachers who majored or minored in the subject in college (64.5% versus 64.2%) and significantly more likely to have such teachers than the average student nationwide (55.8%).

Table 10—Student Characteristics: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
>50% Eligible Free and Reduced Price Meals	70.5	10.2	36.1	66.5
White	39.6	81.5	61.1	28.4
Black	17.8	2.6	16.1	36.9
Hispanic	30.5	4.4	16.2	29.8
Mother is College Grad.	41.1	64.4	36.9	19.6

Table 11—Course taking in 8th grade math: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
Geometry	8.6	11.1	3.8	5.0
Algebra 2	3.9	4.6	3.3	6.2
Algebra 1	51.7	57.3	29.5	17.4
2 year Algebra	5.6	5.5	4.6	4.6
Pre-Algebra	13.1	9.4	26.4	19.2
General Math	10.8	6.8	24.4	27.1
Other	2.5	1.8	4.8	14.8
Integrated Math	2.9	2.9	1.3	1.1

Table 12—School Locale: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
Urban	39.0	27.5	31.3	43.7
Suburban	40.2	51.5	43.1	35.7
Rural	20.9	21.0	25.6	20.6

Table 13—School Characteristics: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
School Enrollment	863	815	819.7	885
Private School Enrollment	8.6	14.7	8.8	3.3
>50% Eligible Free and Reduced Price Meals	33.3	10.6	31.6	59.1
>50% Title 1	13.8	3.8	14.1	29.7
No Kids in Algebra 1	13.3	9.2	13.1	16.5
No Kids in Gifted	20.1	26.2	22.8	19.5
8th Grade Math Tracked	71.3	78.3	70.9	65.7

Table 14—Teacher Characteristics: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
Teacher Experience (yrs.)	14.3	15.2	13.5	11.8
0-4 Years Experience	20.3	16.1	22.5	29.1
Regular Teaching Cert.	84.2	86.6	82.5	75.8
Major/Minor in Math	64.5	64.2	55.8	44.9
Teaches Remedial Math	20.4	17.1	24.5	38.3
Teaches General Math	46	39.5	51	57.7

SUMMARY AND CONCLUSION

Concerns have been raised about how high-achieving students may be affected by accountability systems, including NCLB. Has the emphasis on getting struggling students over a low academic bar diminished the quality of education for students who excel academically? The NAEP data lead to several conclusions. During the NCLB era, achievement gaps between high- and low-achieving students have narrowed. Both high and low achievers have made test score gains since the federal government debated and implemented NCLB—though not necessarily because of NCLB—but low achievers have gained more. The trend is evident on both national and state NAEP scores.

National NAEP data from the 1990s offer a mixed picture. State NAEP data from the late 1990s also offer a mixed picture, with one important exception: test score changes in states that had accountability systems in place before NCLB look more like the post-NCLB pattern—with all boats rising and low achievers' boats rising more—than those in states that did not have accountability systems. So it appears that accountability systems in general are associated with a similar pattern. The NAEP data trends reported here mirror the state data analyzed by Springer, whose research we looked at briefly above.

A few caveats. To reiterate a point already made, the choice of what year to use as the beginning of the NCLB era affects conclusions about the behavior of test scores during that era. Since the largest gains were accomplished before 2003, starting the era in 2003 will significantly reduce gains made within the era. The second caveat pertains to eighth-grade reading scores. Among the four grade-subject combinations analyzed in the study, it is a constant outlier. The divergence may be due to the different years that the test was administered, but that is only a conjecture, and any conclusions about eighth-grade reading must be made cautiously. Third, the study does not allow for firm conclusions about the effects of NCLB. It is true that the trends reported here are inconsistent with the hypothesis that NCLB's emphasis on low-achieving students somehow cheats high achievers. But the data cannot support or reject claims of causality. Perhaps high achievers would have performed even better if NCLB never existed, or perhaps the trends reported here were caused by other policy interventions or changes in the family or society. NAEP data cannot confirm or rebut such possibilities.

It would be a mistake to allow the narrowing of test score gaps, although an important accomplishment, to overshadow the languid performance trends of high-achieving students. Their test scores are not being harmed during the NCLB era, but they are not flourishing either. Gaps are narrowing because the gains of low-achieving students are outstripping those of high achievers by a factor of two or three to one. The nation has a strong interest in developing the talents of its best students to their fullest to foster the kind of growth at the top end of the achievement distribution that has been occurring at the bottom end. International comparisons of top students around the world invariably show American high-achievers falling short. The data reviewed here offer no indication of that problem being solved anytime soon.[28]

There are several implications to consider from the data on characteristics of high achievers. High achievers possess socioeconomic advantages and more advantaged schools and teachers. Compared to the average pupil—and especially to the typical low-achieving student—they come from higher-income families and their mothers are more educated. They are more likely to attend schools in suburban areas, and their schools are less likely to serve low-income children. They take higher-level math courses and have more experienced teachers, and their math teachers are more likely to have majored or minored in math in college.

Although scoring at equally lofty levels on NAEP, high achievers who come from NCLB-designated groups—black, Hispanic, or low income—evidence a different set of characteristics than their high-achieving peers. These students come from less privileged socioeconomic backgrounds and attend schools with more constraints—larger numbers of poor, urban children and fewer advanced math courses offered. In fact, an eighth-grader who scores at the national average in math is slightly more likely to attend a school with an algebra course than an NCLB-HA student scoring at the 90th percentile. Despite rising scores for high achievers in the NCLB era, these are the students at risk of suffering any lost opportunities stemming from NCLB's incentives.[29]

The math courses offered to NCLB-HA students deserve close scrutiny. As noted above, great progress has been made in providing algebra in most schools. Yet there is room for improvement. About one-quarter of NCLB-HA students (26.4%) are in math classes that precede algebra (pre-algebra, general math, or other) compared to 18.0% of all high-achieving eighth graders. Thousands of excellent math students are not being adequately challenged in the subject—at a time when these students are about to enter high school. The NCLB-HA students have math teachers who appear as qualified to teach advanced courses as the teachers of high achievers as a whole. Granted, the data offer only crude proxies for teacher quality, but they are commonly cited as national and state indicators. Years of teaching experience are similar, and similar percentages hold standard teaching certificates. Similar percentages majored or minored in mathematics. On this last measure—important in preparation to teach algebra, geometry, and advanced algebra—the teachers of NCLB-HA students are more highly qualified than teachers of the average eighth-grader nationwide.

Thus, the lack of advanced math classes appears to be school-based, in the sense that it is a product of school policy or circumstances at schools, not of student or teacher preparation. Some schools may have too few students with the prerequisite skills to handle algebra and therefore cannot fill a single algebra class. The fact that the schools of NCLB-HA students are less likely to group students by ability in math classes could also lead to fewer advanced curricular offerings.

These findings have two sets of policy implications: one directed at schools and districts, the other at policymakers who create accountability systems. If course offerings in math are limited for NCLB-HA students—or anyone else—because of school-based factors, opportunities for taking advanced math need to be opened up that are independent of schools. No eighth-grader who is ready for algebra should be denied access to that subject simply because of the school that he or she attends. The same imperative holds for other advanced math classes. If districts or schools find it impossible to provide these math courses, for whatever reason, then web-based courses should be offered to students who can demonstrate that they are prepared to take them.

The current study joins a growing body of research that suggests that incentives incorporated into accountability systems work about as intended. The key is to get the incentives right. To promote the continued progress of high-achieving students, policymakers should consider creating incentives for schools to boost more students into the upper echelons of achievement.

Here is a modest proposal. Congress should fund an experiment, perhaps as part of the reauthorization of NCLB, that would both add to our understanding of how accountability systems work and create new educational opportunities for gifted disadvantaged youngsters. Schools with large numbers of NCLB-HA students would be invited to participate and randomly assigned to treatment or control

groups. Control schools would be subject to standard NCLB provisions. Treatment schools would be eligible for rewards. Rewards would be offered for improving the test scores of high-achieving students, with the reward increasing, perhaps doubling, for gains by students in the NCLB-HA groups. Evaluation could be built into the program so that, after a reasonable period of time, the effects would be assessed and findings released to the public. If the impact turned out to be beneficial, the program could be expanded. Such an experiment might motivate schools to better serve high achievers, improve the image of NCLB by adding carrots to a program with an incentive structure that currently is all sticks, and produce valuable data for policy researchers.

Accountability systems try to improve the education of students who struggle in school, and the preponderance of evidence suggests that they have succeeded in boosting the performance of low achievers. NCLB continues in that tradition. The next generation of accountability in education must build on that accomplishment to maximize the attainments of all students, including America's highest achievers.

NOTES

[1] Sydney Marland Jr., *Education of the Gifted and Talented—Volume 1: Report to the Congress of the United States by the U. S. Commissioner of Education* (Washington, DC: Office of Education, 1971), 6.

[2] Equity and excellence are two major themes of school reform. See Tom Loveless, "Uneasy Allies: The Evolving Relationship of School and State," *Educational Evaluation and Policy Analysis* 20, no.1 (1998): 1–8.

[3] Tom Loveless, "The Peculiar Politics of No Child Left Behind," in *Standards-Based Reform and the Poverty Gap: Lessons for No Child Left Behind*, ed. A. Gamoran (Washington, DC: The Brookings Institution, 2007), 253–85.

[4] Susan Goodkin, "Leave No Gifted Child Behind, *Washington Post*, December 27, 2005, A25.

[5] Derek Neal and Diane Schanzenbach, "Left Behind by Design: Proficiency Counts and Test-Based Accountability," NBER Working Paper No. W13293, 2007.

[6] Matthew Springer, "Accountability Incentives," *Education Next* 8, no. 1 (2008): 74-79.

[7] Randall Reback, "Teaching to the Rating" Journal of Public Economics (2007), doi:10.1016/j.jpubeco.2007.05.003

[8] Ibid, page 3.

[9] P. Clopton, W. Bishop, and D. Klein, "Statewide Mathematics Assessment in Texas," http://www.mathematicallycorrect.com/lonestar.htm (accessed March 14, 2008).

[10] See Lori Shepard et al., *Setting Performance Standards for Student Achievement* (Washington, DC: National Academy of Education, 1993).

[11] Author's calculations from the main NAEP data explorer, http://nces.ed.gov/nationsreportcard/nde/.

[12] Neal and Schanzenbach, "Left Behind," p. 13.

[13] Martin Carnoy and Susanna Loeb, "Does External Accountability Affect Student Outcomes? A Cross-State Analysis," *Educational Evaluation and Policy Analysis* 24, no. 4 (2002): 305–31.

[14] Carnoy and Loeb also took this approach in order to maximize the number of states available for analysis, as did Eric A. Hanushek and Margaret E. Raymond, "High-Stakes Research," *Education Next*, no. 3 (2003): 48-55.

[15] Test scores for Hispanic students, because of potential language barriers affecting reading performance, may especially differ between the math and reading tests.

[16] Black, white, and Hispanic students constitute about 90% of the sample. The 10% of pupils unaccounted for in the discussion are Asian or other racial/ethnic classifications.

[17] This correlation was noted over forty years ago by James S. Coleman et al., *Equality of Educational Opportunity* (Washington, DC: U.S. Government Printing Office, 1966) and has been confirmed by subsequent research.

[18] This does not include 4.6% of students who are enrolled in two-year algebra courses, which are offered to increase the number of students taking algebra by slowing down the pace and stretching the curriculum over two years.

[19] Reba Page, *Lower-Track Classrooms: A Curricular and Cultural Perspective* (New York: Teachers College Press, 1991).

[20] Tom Loveless and Frederick Hess, "Introduction: What Do We Know about School Size and Class Size?" in *Brookings Papers on Education Policy: 2006–2007*, ed. T. Loveless & F. Hess, (Washington, DC: The Brookings Institution Press, 2007), 1-14.

[21] L. S. Cogan, W. H. Schmidt, and D. E. Wiley, "Who Takes What Math and in Which Track? Using TIMSS to Characterize U.S. Students' Eighth-Grade Mathematics Learning Opportunities," *Educational Evaluation and Policy Analysis 23*, no. 4 (Winter 2001): 323–41.

[22] A technical issue: principals were asked not if their schools offered an algebra class, but how many students were taking an algebra class (and geometry and other math classes). The ensuing discussion assumes that schools do not offer an algebra class if the principal reported zero students taking algebra.

[23] Jeannie Oakes [*Keeping Track:How Schools Structure Inequality* (New Haven: Yale University Press, 1985)] was influential in spurring the anti-tracking movement, which continues today. For research on schools responding to tracking reform, see Tom Loveless, *The Tracking Wars: State Reform Meets School Policy* (Washington, DC: The Brookings Institution, 1999).

[24] Tom Loveless, *The 2004 Brown Center Report on American Education: How Well Are Students Learning?* (Washington, DC: The Brookings Institution, 2004).

[25] L. Darling-Hammond, "Teachers and Teaching: Testing Policy Hypotheses from a National Commission Report," *Educational Researcher* 27, no. 1 (1998): 5–15.

[26] Test scores aren't everything in determining whether students are ready for particular classes. Study skills, attendance, and other characteristics may come into play. Moreover, the eighth-grade NAEP may not be the appropriate test for differentiating students who are equipped to take algebra from those who are not.

[27] See Daniel I. Rees, Laura M. Argys, and Dominic J. Brewer, "Tracking in the United States: Descriptive Statistics from NELS," *Economics of Education Review* 15, no. 1 (1996): 83–89. See also Chen-Lin C. Kulik, and James A. Kulik, "Effects of Ability Grouping on Secondary School Students: A Meta-Analysis of Evaluation Findings," *American Educational Research Journal* 19 (1982): 415–28.

[28] Patrick Gonzales, "America's Top-Performing Students in Mathematics and Science: How Do They Compare to Their International Peers?" Paper presented at the American Association for the Advancement of Science (AAAS) 2007 annual conference, San Francisco, CA, February 17, 2007.

[29] We examined the performance of NCLB-HA students on NAEP in 2000 and 2005 and found that they gained about 4.6 scale score points in math, statistically indistinguishable from the gains of the 90th percentile as a whole. The percentage of high achievers falling into one of the NCLB-HA subgroups groups rose from 9.4% to 14.5% during this period, but the share of the subgroups also rose nationally, so this is not unexpected.

APPENDIX A1—*P-Values for Gains at the 90th and 10th Percentiles in the Era of NCLB*

4th Grade Math	2000-2007	2003-2007
90th Percentile	p<.001	p<.001
10th Percentile	p<.001	p<.001

4th Grade Reading	2000-2007	2003-2007
90th Percentile	p<.05	NS
10th Percentile	p<.001	p<.001

8th Grade Math	2000-2007	2003-2007
90th Percentile	p<.001	p<.001
10th Percentile	p<.001	p<.001

8th Grade Reading	2002-2007	2003-2007
90th Percentile	NS	NS
10th Percentile	p<.01	NS

NS=Not statistically significant

APPENDIX A2—*P-Values for Gains at the 90th and 10th Percentiles Pre-NCLB*

4th Grade Math	1990-2000
90th Percentile	p<.001
10th Percentile	p<.001

4th Grade Reading	1992-2000
90th Percentile	NS
10th Percentile	p<.01

8th Grade Math	1990-2000
90th Percentile	p<.001
10th Percentile	p<.01

8th Grade Reading	1992-2000
90th Percentile	NS
10th Percentile	p<.001

NS=Not statistically significant

APPENDIX B—*Descriptive Statistics and Standard Errors*

Table 5—Student Characteristics: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
>50% Eligible Free and Reduced Price Meals	10.2 (.48)	36.1 (.29)	66.5 (.71)
White	81.5 (.60)	61.1 (.31)	28.4 (.56)
Black	2.6 (.25)	16.1 (.23)	36.9 (.71)
Hispanic	4.4 (.29)	16.2 (.22)	29.8 (.76)
Mother is College Grad.	64.4 (.63)	36.9 (.21)	19.6 (.41)

Table 6—Math Course Taken in 8th Grade: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
Geometry	11.1 (.48)	3.8 (.09)	5.0 (.28)
Algebra 2	4.6 (.37)	3.3 (.08)	6.2 (.31)
Algebra 1	57.3 (.74)	29.5 (.20)	17.4 (.52)
2 year Algebra	5.5 (.35)	4.6 (.10)	4.6 (.23)
Pre-Algebra	9.4 (.39)	26.4 (.27)	19.2 (.53)
General Math	6.8 (.33)	24.4 (.26)	27.1 (.56)
Other	1.8 (.19)	4.8 (.07)	14.8 (.35)
Integrated Math	2.9 (.31)	1.3 (.08)	1.1 (.11)

Table 7—School Locale: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
Urban	27.5 (.83)	31.3 (.34)	43.7 (.72)
Suburban	51.5 (.96)	43.1 (.38)	35.7 (.76)
Rural	21.0 (.62)	25.6 (.28)	20.6 (.58)

APPENDIX B—*Descriptive Statistics and Standard Errors (continued)*

Table 8—School Characteristics: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
School Enrollment	814.7 (11.06)	819.7 (7.57)	885 (12.12)
Private School Enrollment	14.7 (.68)	8.8 (.16)	3.3 (.31)
>50% Eligible Free and Reduced Price Meals	10.6 (.56)	31.6 (.50)	59.1 (.92)
>50% Title 1	3.8 (.37)	14.1 (.47)	29.7 (1.10)
No. Kids in Algebra 1	9.2 (.62)	13.1 (.44)	16.5 (.84)
No. Kids in Gifted	26.2 (.84)	22.8 (.55)	19.5 (.79)
8th Grade Math Tracked	78.3 (.94)	70.9 (.61)	65.7 (.96)

Table 9—Teacher Characteristics: 90th Percentile and Comparison Groups

	90th Percentile	National Average	10th Percentile
Teacher Experience (yrs.)	15.2 (.19)	13.5 (.12)	11.8 (.20)
0-4 Years Experience	16.1 (.71)	22.5 (.51)	29.1 (.92)
Regular Teaching Cert.	86.6 (.65)	82.5 (.42)	75.8 (.74)
Major/Minor in Math	64.2 (1.10)	55.8 (.52)	44.9 (.92)
Teaches Remedial Math	17.1 (.79)	24.5 (.53)	38.3 (.92)
Teaches General Math	39.5 (.90)	51.0 (.61)	57.7 (1.01)

APPENDIX B—*Descriptive Statistics and Standard Errors (continued)*

Table 10—Student Characteristics: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
>50% Eligible Free and Reduced Price Meals	70.5 (1.52)	10.2 (.48)	36.1 (.29)	66.5 (.71)
White	39.6 (1.76)	81.5 (.60)	61.1 (.31)	28.4 (.56)
Black	17.8 (1.36)	2.6 (.25)	16.1 (.23)	36.9 (.71)
Hispanic	30.5 (1.51)	4.4 (.29)	16.2 (.22)	29.8 (.76)
Mother is College Grad.	41.1 (2.04)	64.4 (.63)	36.9 (.21)	19.6 (.41)

Table 11—Math Course Taken in 8th Grade: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
Geometry	8.6 (.83)	11.1 (.48)	3.8 (.09)	5.0 (.28)
Algebra 2	3.9 (.70)	4.6 (.37)	3.3 (.08)	6.2 (.31)
Algebra 1	51.7 (1.67)	57.3 (.74)	29.5 (.20)	17.4 (.52)
2-year Algebra	5.6 (.90)	5.5 (.35)	4.6 (.10)	4.6 (.23)
Pre-Algebra	13.1 (1.41)	9.4 (.39)	26.4 (.27)	19.2 (.53)
General Math	10.8 (1.19)	6.8 (.33)	24.4 (.26)	27.1 (.56)
Other	2.5 (.57)	1.8 (.19)	4.8 (.07)	14.8 (.35)
Integrated Math	2.9 (.58)	2.9 (.31)	1.3 (.08)	1.1 (.11)

Table 12—School Locale: NCLB-HA and Comparison Groups

	NCLB-HA	90th Percentile	National Average	10th Percentile
Urban	39.0 (1.91)	27.5 (.83)	31.3 (.34)	43.7 (.72)
Suburban	40.2 (1.85)	51.5 (.96)	43.1 (.38)	35.7 (.76)
Rural	20.9 (1.30)	21.0 (.62)	25.6 (.28)	20.6 (.58)

APPENDIX B—*Descriptive Statistics and Standard Errors (continued)*

Table 13—*School Characteristics: NCLB-HA and Comparison Groups*

	NCLB-HA	90th Percentile	National Average	10th Percentile
School Enrollment	862.9 (18.58)	814.7 (11.06)	819.7 (7.57)	885 (12.12)
Private School Enrollment	8.6 (1.45)	14.7 (.68)	8.8 (.16)	3.3 (.31)
>50% Eligible Free and Reduced Price Meals	33.3 (2.16)	10.6 (.56)	31.6 (.50)	59.1 (.92)
>50% Title 1	13.8 (1.39)	3.8 (.37)	14.1 (.47)	29.7 (1.10)
No Kids in Algebra 1	13.3 (1.72)	9.2 (.62)	13.1 (.44)	16.5 (.84)
No Kids in Gifted	20.1 (2.06)	26.2 (.84)	22.8 (.55)	19.5 (.79)
8th Grade Math Tracked	71.3 (1.65)	78.3 (.94)	70.9 (.61)	65.7 (.96)

Table 14—*Teacher Characteristics: NCLB-HA and Comparison Groups*

	NCLB-HA	90th Percentile	National Average	10th Percentile
Teacher Experience (yrs.)	14.3 (.45)	15.2 (.19)	13.5 (.12)	11.8 (.20)
0-4 Years Experience	20.3 (1.80)	16.1 (.71)	22.5 (.51)	29.1 (.92)
Regular Teaching Cert.	84.2 (1.84)	86.6 (.65)	82.5 (.42)	75.8 (.74)
Major/Minor in Math	64.5 (1.86)	64.2 (1.10)	55.8 (.52)	44.9 (.92)
Teaches Remedial Math	20.4 (1.35)	17.1 (.79)	24.5 (.53)	38.3 (.92)
Teaches General Math	46 (2.24)	39.5 (.90)	51 (.61)	57.7 (1.01)

APPENDIX C—*Sources for Independent Variables in Question 4*

The descriptive variables were taken directly from restricted-use NAEP data files. In some cases NAEP data included collapsed versions of variables that we chose to use. These cases are noted where applicable. We have listed the variable ID along with the variable's source in the student, teacher, or school background questionnaires. Student, school, and teacher background questionnaires from the 2005 NAEP can be retrieved at http://nces.ed.gov/nationsreportcard/bgquest.asp.

STUDENT DEMOGRAPHIC CHARACTERISTICS

1. Eligible Free Lunch (SLUNCH01)—collapsed version of SLNCH05

2.5.3 Eligibility for the Free and Reduced Price Meals Program (SLNCH05)
"Based on available school records for the free/reduced-price lunch component of the Department of Agriculture's National School Lunch Program (http://www.fns.usda.gov/cnd/), students were classified as either: currently eligible, not currently eligible, eligible for reduced-price lunch, not participating, or information not available. The classification refers only to the school year when the assessments were administered (i.e., the 2004–2005 school year) and is not based on eligibility in previous years. If school records were not available, the student was classified as 'Information not available.' If the school did not participate in the program, all students in that school were classified as 'Information not available.'" A. M. Rogers and J. J. Stoeckel, *NAEP 2006 Mathematics, Reading, and Science Restricted-Use Data Files Data Companion*, Mathematics (NCES 2007-485, NCES 2007-486) (Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007), 34.

2. White, Black, Hispanic (SDRACEM)

2.5.2 Race/Ethnicity (SDRACEM)
"In all NAEP assessments, data about student race/ethnicity is collected from two sources: school records and student self-reports. Before 2002, NAEP used students' self-reports of their race and ethnicity on a background questionnaire as the source of race/ethnicity data. In 2002, it was decided to change the student race/ethnicity variable highlighted in NAEP reports. Starting in 2002, NAEP reports of students' race and ethnicity are based on the school records, with students' self-reports used only if school data are missing. The resulting variable SDRACEM contains a value for every student." A. M. Rogers and J. J. Stoeckel, *NAEP 2006 Mathematics, Reading, and Science Restricted-Use Data Files Data Companion,* Mathematics (NCES 2007-485, NCES 2007-486) (Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007), 34.

3. Mother's Education B003501
(Section 3, Question 11, Student Background Questionnaire)

How far in school did your mother go?

— She did not finish high school
— She finished high school
— She had some education after high school
— She graduated from college
— I don't know

4. Courses Taken by the 90th Percentile at 8th Grade
M815701 (Section 4, Question 1, Student Background Questionnaire)

What math class are you taking this year?

— Geometry
— Algebra II
— Algebra I (one-year course)
— First year of a two-year Algebra I course
— Second year of a two-year Algebra I course
— Introduction to algebra or pre-algebra
— Basic or general eighth-grade math
— Integrated or sequential math
— Other math class

5. School Locale TOL3
The National Center for Education Statistics (NCES) merged several locale variables from the Common Core of Data with the school-level NAEP variables. We used the three-level variable, TOL3, that collapses locale into urban, suburban, and rural.

SCHOOL CHARACTERISTICS

6. School Enrollment C038101
(Part 1, Question 5, School Background Questionnaire)

What is the current enrollment of your school?

7. Private School Enrollment SCHTYP2
(collapsed version of Question 7 in Part 1, School Background Questionnaire)

What type of school is this? Fill in ovals for all that apply.

— Regular middle or secondary school
— A regular school with a magnet program
— A magnet school or a school with a special program emphasis, e.g., science/math school, performing arts school, talented/gifted school, foreign language immersion school, etc.
— Special education: a school that primarily serves students with disabilities
— Alternative: a school that offers a curriculum designed to provide alternative or nontraditional education, not clearly categorized as regular, special education, or vocational
— Private (independent)
— Private (religiously affiliated)
— Charter school
— Privately run public school
— Other

8. >50% Eligible Free and Reduced Price Meals C051601
(Part 1, Question 11, School Background Questionnaire)

During this school year, about what percentage of students in your school was eligible to receive a free or reduced-price lunch through the National School Lunch Program?

0%	11–25%	51–75%
1–5%	26–34%	76-99%
6–10%	35–50%	100%

9. >50% Eligible Title 1 C051801
(Part 1, Question 13, School Background Questionnaire)

Approximately what percentage of students in your school receives the following services? Fill in one oval on each line. Students who receive more than one service should be counted for each service they receive. Please report the percentage of students who receive each of the following services as of the day you respond to this questionnaire.

a) Targeted Title I Services

None	11–25%	76–90%
1–5%	26–50%	Over 90%
6–10%	51–75%	

10. No Kids in Algebra 1 C052803
(Part 2, Question 3, School Background Questionnaire)

What percentage of eighth-grade students in your school is enrolled in the following mathematics classes? Fill in one oval on each line.

c. Algebra I (one-year course)

None	51–75%
1–10%	76–90%
11–25%	91–100%
26–50%	

11. No Kids in Gifted C044004
(Part 1, Question 13, School Background Questionnaire)

b) Gifted and talented program

None	26–50%
1–5%	51–75%
6–10%	76–90%
11–25%	Over 90%

12. 8th-Gr. Math Tracked C052901
(Part 2, Question 4, School Background Questionnaire)

Are eighth-grade students typically assigned to mathematics classes by ability and/or achievement levels (so that some classes are higher in average ability and/or achievement levels than others)?

—Yes
—No

TEACHER CHARACTERISTICS

13. Teaching Experience (Years) T077101
(Part 1, Question 3, Teacher Background Questionnaire)

Counting this year, how many years have you worked as an elementary or secondary teacher? If less than 4 months total experience, enter "00."

14. 0–4 Years' Experience YRSEXP
NCES collapsed the continuous teaching experience variable into the following categories: 0–4 years, 5–9 years, 10–19 years, 20 years.

15. Regular Teaching Cert. T077201
(Part 1, Question 5, Teacher Background Questionnaire)

What type of teaching certificate do you hold in the state where you currently teach?

— Regular or standard state certificate or advanced professional certificate
— Probationary certificate (the initial certificate issued after satisfying all requirements except the completion of a probationary period)
— Provisional or other type of certificate given to persons who are still participating in what the state calls an "alternative certification program"
— Temporary certificate (requires some additional college coursework and/or student teaching before regular certification can be obtained)
— Emergency certificate or waiver (issued to persons with insufficient teacher preparation who must complete a regular certification program in order to continue teaching)
—No certificate

16. Major/Minor in Math T077310
(Part 1, Question 8, Teacher Background Questionnaire)

Did you have a major, minor, or special emphasis in any of the following subjects as part of your undergraduate coursework? Fill in one oval on each line.

b) Mathematics

— Yes, a Major
— Yes, a Minor or special emphasis
— No

17. Teaches Remedial Math T090801
(Part 1, Question 14, Teacher Background Questionnaire)

Are you teaching the following mathematics courses to eighth-grade students this year? Include honors sections. Fill in one oval on each line.

a) Remedial mathematics

— Yes
— No

18. Teaches General Math T090802
(Part 1, Question 14, Teacher Background Questionnaire)

Are you teaching the following mathematics courses to eighth-grade students this year? Include honors sections. Fill in one oval on each line.

b) General mathematics

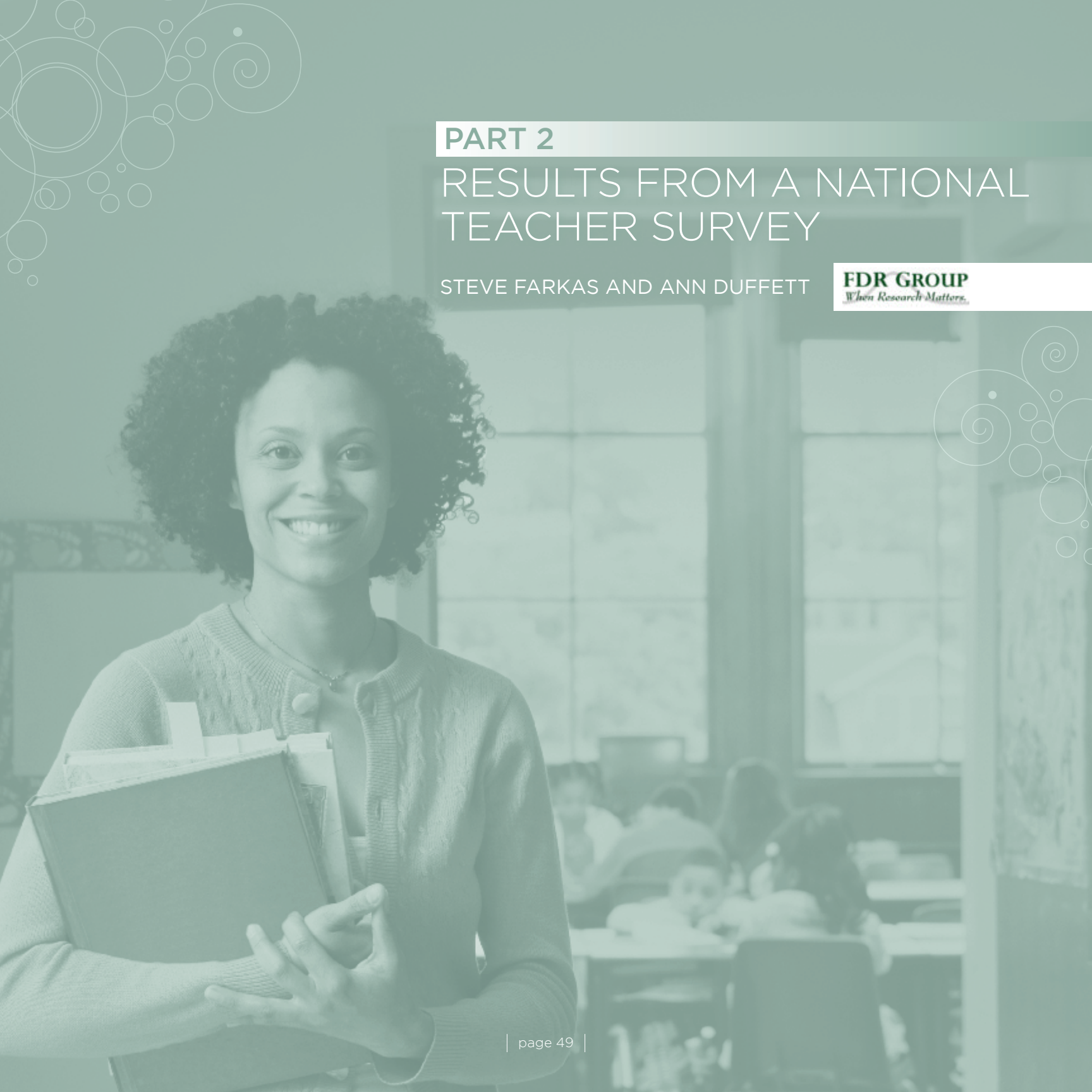
— Yes
— No

PART 2

RESULTS FROM A NATIONAL TEACHER SURVEY

STEVE FARKAS AND ANN DUFFETT

FDR GROUP
When Research Matters.



INTRODUCTION

The great historian Arthur M. Schlesinger, Jr., once wrote that "a basic theme of American history has been the movement, uneven but steady, from exclusion to inclusion"—a movement "fueled by egalitarian political principles . . . that constantly goad Americans to live up to their own proclaimed ideals."[1] He might well have been talking about America's public education system. The nation keeps discovering segments of its pupil population that have been overlooked or neglected—and then tries to do something about it.

Standards-based education reform in general and the No Child Left Behind Act in particular make it no longer possible—either in America's inner cities or in its affluent suburbs—for public schools to overlook entire groups of students whose education is not succeeding. Similarly, because of the Individuals with Disabilities Education Act, schools are required to address the needs of youngsters with physical disabilities or special learning needs; it is no longer possible to neglect these children, either. Nowadays, public school systems must also grapple with how best to educate immigrant children who do not speak English—avoidance is a hard strategy to justify. The resulting educational approaches and policies that schools have adopted may be tangled and confused; they may not be working as they should. But the public schools are constantly challenged by circumstances to live up to their own proclaimed ideals. And they challenge themselves, too.

In the findings from a national teacher survey on how well schools serve high-achieving students, public school teachers do some challenging of their own; they challenge both themselves and America's current education policy priorities. They point to a segment of the pupil population they believe is being overlooked: students with unusual intellectual talent and higher levels of academic achievement. Teachers believe that these youngsters deserve more classroom attention and conscious effort than they now get, and they have their own explanations for why academically advanced students are being neglected. Teachers also have recommendations to make, some of which fly in the face of conventional education wisdom and contradict prevailing practices.

Teachers want these advanced (some say "gifted" or "gifted and talented") students to move up the list of education priorities because educating them properly is the right thing to do and because it's good for the nation, but mostly because they see in their own classrooms youngsters whose considerable talents are not adequately challenged or fully utilized.

TERMINOLOGY

Throughout this report, we interchangeably use such terms as "academically advanced," "talented," and "high-achieving"; they do not refer to specific programs, nor are they based on achievement data. We have deliberately avoided the use of the terms "gifted" and "gifted and talented," which refer to actual programs, except where we are referring to those programs. The survey questionnaire relied on the term "academically advanced" because prior focus groups indicated this was consistently most comfortable for teachers to use.

LISTENING TO TEACHERS

This study is an in-depth exploration of the attitudes of third- through twelfth-grade public school teachers toward the issue of how academically talented youngsters fare in today's schools. It does not and cannot say whether teachers' diagnoses are true or whether their recommendations are sound. It is not a program evaluation or review of schools' efforts to serve advanced students. Since this is the first time these questions and this survey have been fielded, we cannot track teacher attitudes over time and look for trends.

Still, the questioning by America's public school teachers of the orientation and policies that currently prevail on this issue deserves respectful hearing. Teachers are the ones who often face tough tradeoffs in their classrooms. Smart architects, auto engineers, urban planners—even politicians—eventually circle back to the folks who actually use their products and services to ask, "How am I doing?" and "What could I be doing better?" Policymakers, too, need to ask such questions—and to listen to teachers' responses.

ABOUT THE STUDY METHODS

The study is based upon survey findings from a randomly selected, nationally representative sample of 900 public school teachers teaching in grades 3 to 12, plus qualitative data from five focus groups, conducted in winter-spring 2008. The margin of error for the overall sample is plus or minus three percentage points; it is higher when comparing percentages across subgroups. In general, the qualitative data from the focus groups serve to contextualize the survey findings and provide illustrative quotations and examples of teachers' experiences. These data are presented under the "Observations" subheadings throughout the report. A description of the methodology as well as the entire questionnaire and complete survey results are included in appendices.

SECTION 1
HOW MUCH OF A PRIORITY ARE ACADEMICALLY ADVANCED STUDENTS?

ARE ADVANCED STUDENTS A PRIORITY?

Most teachers believe that academically advanced students are not a high priority at their schools. They think that these students are bored, underserved, and unlikely to get the curriculum enrichment and resources that high achievers need.

Fewer than one in four teachers (23%) say that the needs of advanced students are a top priority at their schools; the remainder says their needs are either a middle (44%) or low (32%) priority. By an 18 to 31% margin, teachers working in the lowest-income schools (schools with more than three in four pupils eligible for free or reduced-price lunch) are less likely to say the needs of advanced students are a top priority than those teaching in the most affluent schools (no more than one in four students eligible for free or reduced-price lunch).

Figure 1—Relative Priority Given to Needs of Advanced Students

Would you say that the needs of the academically advanced students at your school are a:

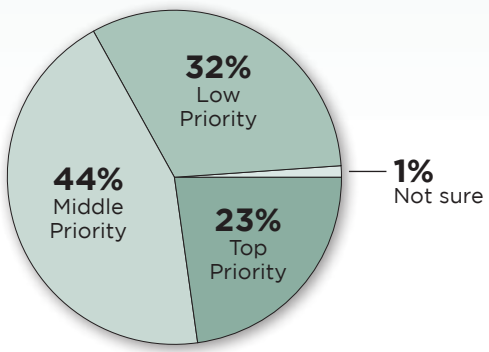
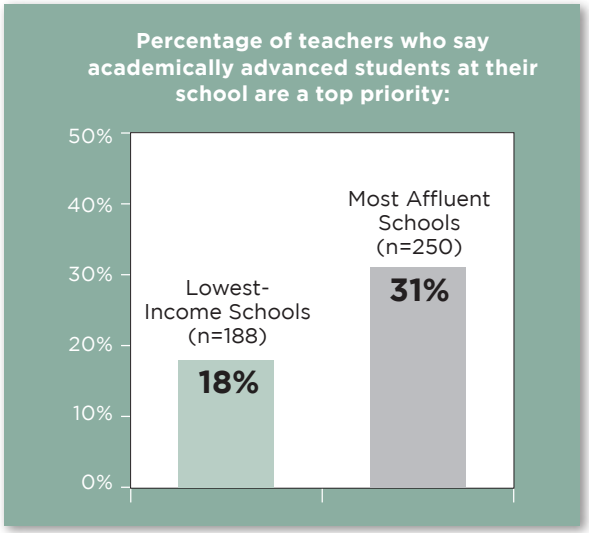
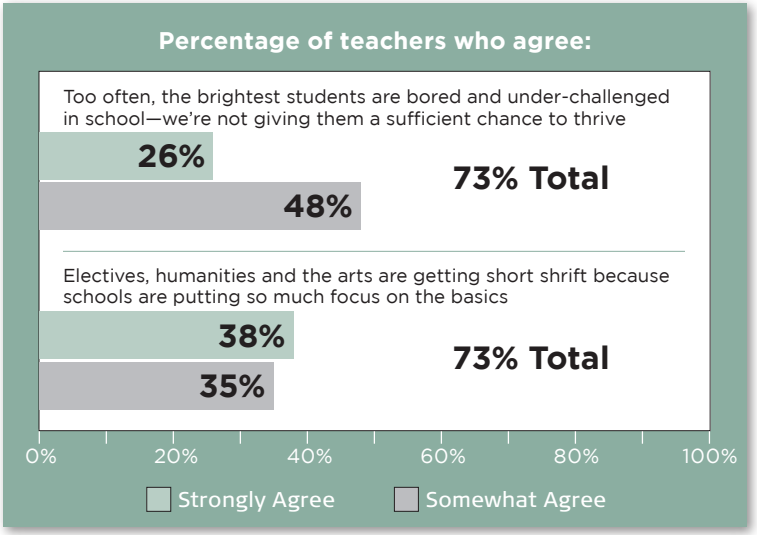


Figure 2—Top Priority for Advanced Students, by School Poverty Status



Note: Lowest-income schools > 75% students eligible for free/reduced-price lunch; most affluent schools ≤25% students eligible for free/reduced-price lunch.

Figure 3—Shortchanging of Students and Subjects



More than seven in ten teachers (73%) agree that "too often, the brightest students are bored and under-challenged in school—we're not giving them a sufficient chance to thrive."

The same majority of teachers (73%) agrees that electives, humanities, and the arts "are getting short shrift because schools are putting so much focus on the basics."

OBSERVATIONS

In the focus groups, it was not unusual to detect a sense of guilt among teachers about the fate of students with extra talent. To hear teachers tell it, their schools are sometimes at a loss about what to do with advanced students; they lack a strategic plan or creative ideas. And teachers feel bad when they see talent going to waste.

> **"I feel like sometimes we're cheating them. Cheating them out of their own personal glory . . . They could be so much more magnificent in their own right and happier, because I think they feel a level of frustration when they have to sit by while we're babysitting."**

> **"I don't think enough is done for them. They do get lost in the classroom, especially if you have very low-performing students or if you have behavior issues. You're over here. Meanwhile, they're done, and they're patiently waiting."**

> **"It does seem that the resources, when we do get them for the higher achieving, are always geared toward things like day trips to places.... The problem is that when we do get funds for the gifted students, it's always, 'Take them to the science museum.'"**

WHERE ARE RESOURCES LIKELY TO GO?

Teachers say that while the public schools muster serious effort to improve the academic achievement of struggling students, their resources rarely converge on the needs of high achievers. Most teachers responding would prefer that all students get equal levels of attention from the schools, but they do not believe that is currently happening.

About a quarter of teachers (23%) say the needs of the academically advanced students at their school are a top priority—compared with 60% who say the needs of struggling students are a top priority.

Scant proportions of teachers believe advanced students are most likely (compared to average and struggling students) to get one-on-one attention from teachers (5%); or be given a specially designed curriculum and instruction (10%); or have attention paid to tracking and raising their achievement data (5%).

One in two teachers (50%) believes that all students should get equal levels of attention, whether they are academically advanced, average, or struggling. But only 16% say that, at their school, attention is now divided equally among students of different abilities, versus 63% who say struggling students get the most attention. Just 7% think advanced students are getting the most attention, and 13% believe that average students are.

A plurality of teachers (45%) says that, over the past few years, the amount of attention and resources devoted to academically advanced students at their school has stayed about the same. Teachers are about equally likely to say it has increased (23%) as they are to say it has decreased (26%).

Figure 4—Attention and Resources Given to Advanced Students Relative to Others

Question	Struggling Students	Average Students	Advanced Students	It's Equal
Who gets the most overall attention at your school?	63%	13%	7%	16%
Who should get the most attention at your school?	24%	16%	5%	50%
Who is your school most likely to focus on when it comes to tracking achievement data and trying to raise standardized test scores?	68%	15%	5%	11%
Who is most likely to get one-on-one attention from teachers?	81%	4%	5%	9%
And who is most likely to be taught with a curriculum and instruction specially designed for their abilities?	51%	19%	10%	18%

Figure 5—Changes in Attention and Resources Provided to Advanced Students

Over the past few years, would you say the attention and resources given to academically advanced students at your school has:

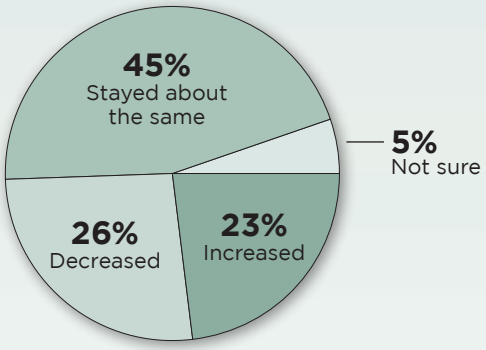
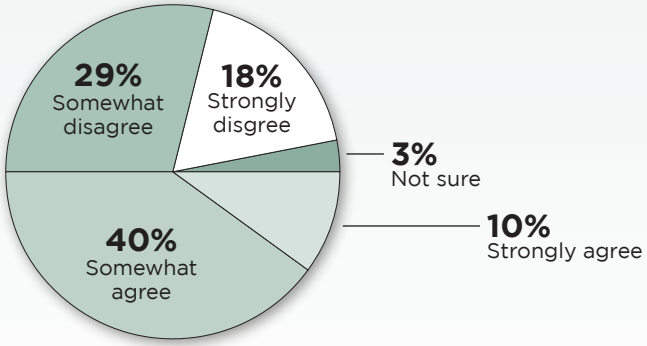


Figure 6—Role of Parents in Identifying Advanced Students

Too often, students are labeled as advanced only because their parents are overzealous and know how to work the system



OBSERVATIONS

Teachers in the focus groups said that departmental meetings often concentrate on low-achieving students but rarely on the high-achieving. They felt they were leaving some kids behind—or to the side—and acknowledged that this made them feel uncomfortable.

> **"One thing I've seen is . . . that most of the resources go to the lower-end students. In my classroom, the administration feels that I don't need anything more. My students are doing just fine."**

WHAT ABOUT "GIFTED AND TALENTED" PROGRAMS AND HONORS CLASSES?

Elementary and middle schools typically have some version of a "gifted and talented" program; high schools may have honors, Advanced Placement (AP), and/or International Baccalaureate (IB) courses. But teachers report that some efforts to accommodate high achievers can fall short or get subverted. Many teachers suspect that these programs misidentify students, either by wrongly overlooking those who belong in them or wrongly categorizing as "gifted" those who do not.[2]

Half of teachers agree (50%) with the statement that, "Too often, students are labeled as advanced only because their parents are overzealous and know how to work the system" (47% disagree). High school teachers (61%) are more likely to agree than are elementary school teachers (40%).

Fewer than one in ten elementary and middle school teachers (9%) think the tests used by their district to identify gifted and talented students are "very accurate and reliable"; a plurality (46%) says they're "somewhat accurate and reliable."

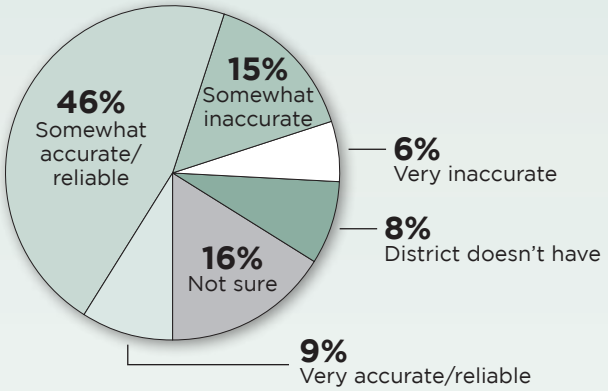
Some teachers doubt that the system can be relied upon to effectively identify true academic talent. If a lot more attention were paid to the needs of academically advanced students, almost half (47%) of teachers say they would be very (8%) or somewhat (39%) concerned that "the tests and the experts will misidentify which students are advanced and which are not." On the other hand, half say they would not be worried about this (37% are not too concerned and 13% are not concerned at all).

While 50% of high school teachers say that honors and accelerated classes in their schools are "truly rigorous and challenging," 40% say they're too often "watered down and lacking rigor."

One-third of high school teachers (33%) estimate that, in their school, more than one in four students (that is, at least 26% of students) in honors and accelerated classes are there for reasons that have nothing to do with academic ability, such as parental pressure or demographic diversity.

Figure 7—Reliability of "Gifted and Talented" Tests

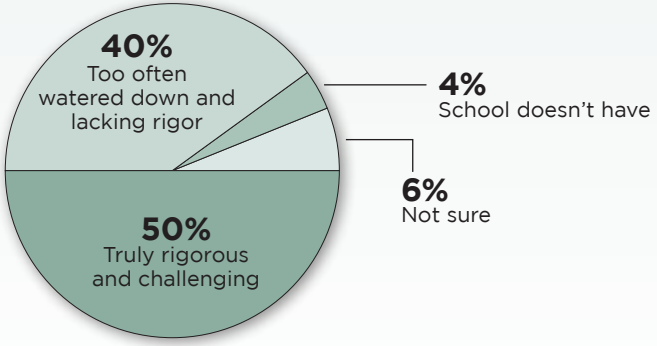
As far as you can tell, how accurate and reliable are the procedures and tests your district uses for identifying students eligible for the "gifted and talented" program?



Base: *Elementary and middle school teachers (n=621)*

Figure 8—Rigor in Honors and Accelerated Classes

Is it your sense that the content and curriculum for honors and accelerated learning classes are:



Base: *High school teachers (n=253)*

OBSERVATIONS

In the focus groups, high school teachers said parents sometimes push unprepared kids into advanced classes to beef up their college applications or to make sure they go to class with better-behaved students. Several talked about administrators anxious to enhance the school's reputation in the community by creating advanced classes—even if they would have to populate those classes with academically average students. Teachers in the lower grades complained that many students funneled into the gifted and talented program didn't belong there. Meanwhile, some teachers talked about overlooked students who deserve to be in advanced classes but lack advocates.

> **"They call them honors classes or they call them AP classes, but it's sad. They're not."**

> **"You have plenty of talented children, and you've got language issues—because they don't fill in that circle correctly or they miss a word and they can't get it translated. It doesn't translate correctly into what their true abilities are."**

> **"We have what we call the true GATE [Gifted and Talented Education] and then we have the GATE 'wannabes.' The ones that may have gotten in just by test scores, but had none of the skills or the classroom abilities to do the studying, and just keep up with it, didn't have the motivation. We were forcing these kids to do things that they didn't really want to do."**

The portrait painted by teachers is not pretty: schools without a real plan or thought-through strategy on how optimally to serve advanced students; teachers who suspect—and often feel guilty—that some of their students are getting shortchanged; parents who sometimes get their way when they shouldn't; and advanced programs and classes that have lost their focus. "There is no real gifted curriculum," said one teacher. "It's up to the teacher to come up with it."

If teachers depict a situation where academically talented students are languishing in a system that has somehow settled on a strategy of inattention, what's their explanation for how the system has gotten to this point?

SECTION 2
TEACHERS TALK ABOUT VALUES AND TRADEOFFS

One hypothesis going into this study was that public school teachers might be carrying into their classrooms attitudes that constrained the amount of attention they gave to advanced students, such as the view that these youngsters already have ample educational advantages. But in fact, teachers believe that balance and equal investment in all students is the right approach for schools. Few fear that pushing the best and brightest students harder would hurt their emotional development. Nor do they worry that giving them more attention would damage the self-esteem of other students.

WHERE SHOULD THE SCHOOLS DIRECT THEIR ATTENTION?

A commitment to fairness and equity is one reason teachers think academically advanced students ought to get as much attention as other students. Another is the belief that the nation will need the talents of these students with strong academic skills. Few accept the notion that these youngsters need less attention because they are already academically ahead.

The answers to one survey question were particularly telling: "For the public schools to help the U.S. live up to its ideals of justice and equality," the question asked, is it more important that the schools "focus on raising the achievement

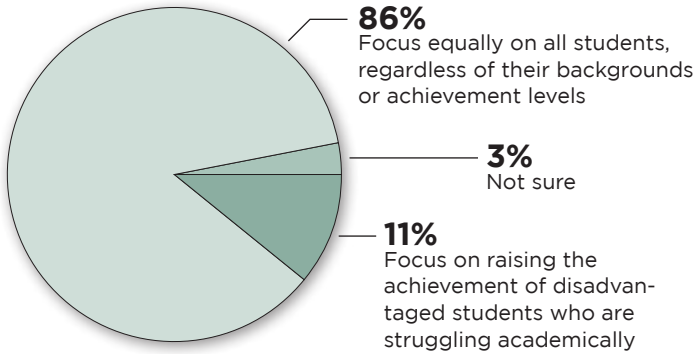
of disadvantaged students who are struggling academically" or "that they focus equally on all students, regardless of their backgrounds or achievement levels"? Focusing equally on all students was the hands-down choice of teachers by an overwhelming 86 to 11% margin.

Nearly three-quarters of teachers (73%) reject the view that "the schools don't have to worry as much about advanced youngsters because their talent, resources and backgrounds have already set them on the right path."

Four-fifths (81%) believe that "our advanced students need special attention—they are the future leaders of this country, and their talents will enable us to compete in a global economy."

Figure 9—Commitment to Fairness and Equity

For the public schools to help the U.S. live up to its ideals of justice and equality, do you think it's more important that they:



OBSERVATIONS

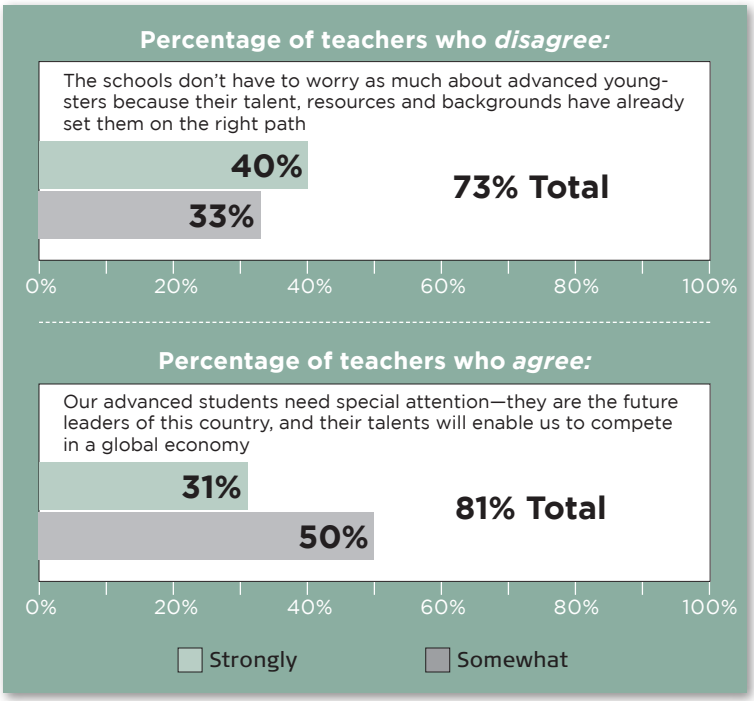
To teachers, equity means that no group of students should be neglected. If it were up to them, the schools would pursue this strategy: when students are behind, help them move forward; when students are ahead, help them reach their potential. Teachers believe that a rebalancing of school effort is needed.

> "If we're truly saying 'no child left behind,' hello!?!"

> "You know, I wouldn't feel right as a teacher knowing that I did all I can with one group and I kind of left another group just saying, 'You're advanced. You know it.' No, I have to teach . . . If they're already at the top of their game, how can you push them to the next level?"

> "I could have the next great writer in my course, and if I don't pay that extra attention to them, it's never going to happen."

Figure 10—Schools' Responsibility toward Advanced Students



WHAT'S THE DOWNSIDE OF FOCUSING MORE ATTENTION ON ADVANCED STUDENTS?

From the perspective of most teachers, there are few downsides to paying more attention to the needs of academically advanced students. Teachers do not worry, for example, that pushing such pupils to do more intellectual work at a faster pace will hurt their social development. A corollary concern—that singling out the academically talented may damage the self-esteem of less advanced students—also fails to resonate. Many teachers are concerned that struggling students might lose resources if their schools paid more attention to high achievers, but many are not.

Well over half (57%) reject the view that "pushing advanced kids to develop faster will endanger their emotional and social well-being," although 41% do worry that this could happen.

Almost three-quarters of teachers (73%) dismiss as overblown concerns that "paying too much attention to the accomplishments of advanced students will stigmatize the other students and damage their self-esteem." By a 38 to 21% margin, teachers working in the lowest-income schools—where more than three in four students are eligible for free or reduced-price lunch—are more likely to be concerned that this might happen than are teachers working in more affluent schools.

Figure 11—Potential Consequences of Concentrating on Advanced Students

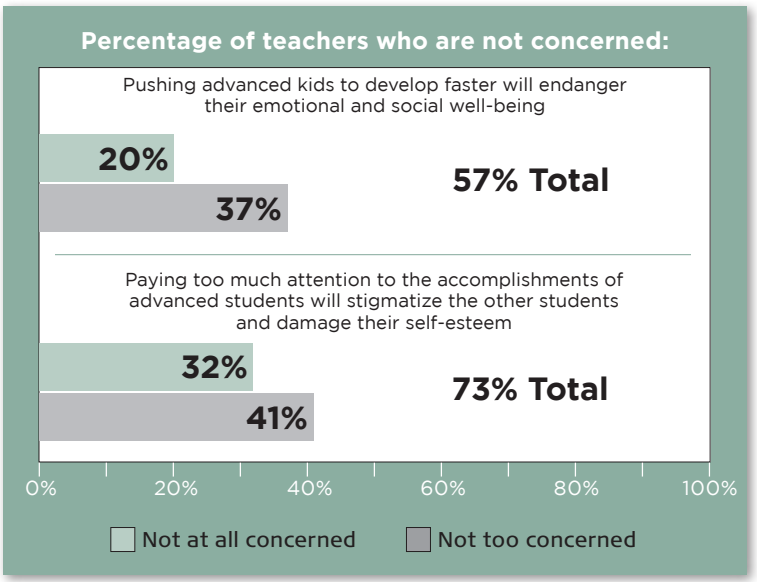
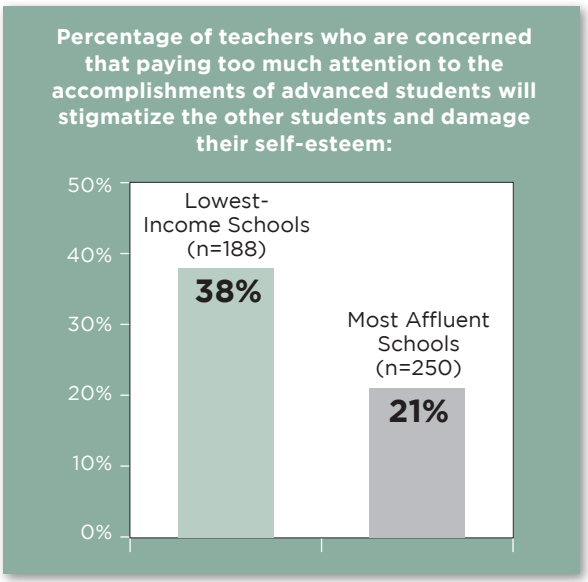


Figure 12—Potential Consequences of Concentrating on Advanced Students, by School Poverty Status

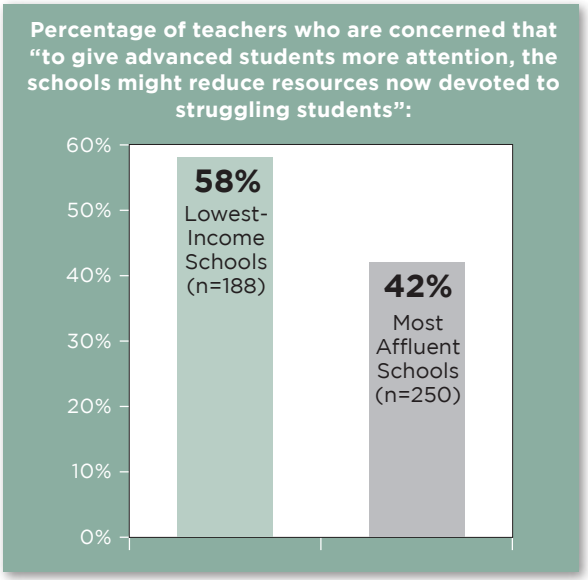


Note: *Lowest-income schools > 75% students eligible for free/reduced-price lunch; most affluent schools ≤25% students eligible for free/reduced-price lunch.*

Elementary school teachers are more likely than high school teachers to be concerned about potential impact on children's emotional well-being. Specifically, they're more likely than high school teachers to worry that paying a lot more attention to advanced students would stigmatize other children (30% to 19%). And they are more likely than high school teachers to worry about the emotional consequences of pushing advanced kids to develop faster (46% to 35%).

Teachers are divided over whether giving advanced students more attention may have the unintended consequence of reducing the resources that go to struggling students: half (50%) are not concerned that this would happen but 45% are. Teachers working in low-income schools are more likely to be concerned (58%) than teachers working in affluent schools (42%).

Figure 13—Distribution of Resources a Zero-Sum Game, by Poverty Status



Note: Lowest-income schools > 75% students eligible for free/reduced-price lunch; most affluent schools ≤ 25% students eligible for free/reduced-price lunch.

OBSERVATIONS

We wondered whether teachers favored a no-pressure school environment where protecting students and imparting self-esteem to all is paramount, even if excellence goes unrecognized. But most teachers do not believe that the emotional health of advanced students will suffer if schools push them harder. Most also don't think that saluting their accomplishments means that struggling students will feel slighted. Such concerns are somewhat more prevalent, however, among teachers working in low-income schools.

RACE, INCOME, AND TALENT

The concern that paying a lot more attention to academically advanced students could result in racially skewed classrooms is not widespread among teachers. Still, most teachers do worry that talented youngsters from low socioeconomic backgrounds are ignored because they may not have someone at home or in the school system to watch out for them.

Most teachers (58%) are not concerned that paying greater attention to the needs of advanced students might mean that "those classes will end up disproportionately white and higher income"; but 37% are concerned. Teachers working in inner-city schools are more likely to worry about this, however; over half (52%) of them worry that such classes would end up excessively white and affluent, compared with their suburban (37%) and rural (28%) counterparts. Teachers in low-income schools are also likelier to worry about this (48%) than teachers in affluent schools (33%).

There is a widely shared sense among teachers that "academically talented youngsters from low socioeconomic backgrounds are often overlooked—they fall through the cracks because no one advocates for them," with almost six in ten teachers agreeing (59%), compared with 37% disagreeing. Teachers working in low-income schools are even more likely to agree (76%), compared with their counterparts in affluent schools (52%).

OBSERVATIONS

Teachers seem less worried about the political appearance of academically advanced classes that are skewed by race or ethnicity than about the possibility of low-income and minority students falling through the cracks because their parents might lack the know-how to promote their interests. Teachers think the context of students' lives matters most—if youngsters come from families with low socioeconomic backgrounds and are pigeonholed by the schools, it may be more difficult for their talent to carry the day.

"They [school board members] feel that there's not enough minorities and poverty-level [students]. They pull from other groups to put them in the honors classes, but they're watering it down. They have to water down the curriculum. Again, it's a political thing."

Figure 14—Concern about Demographic Skew in Advanced Classes, by School Type and Poverty Status

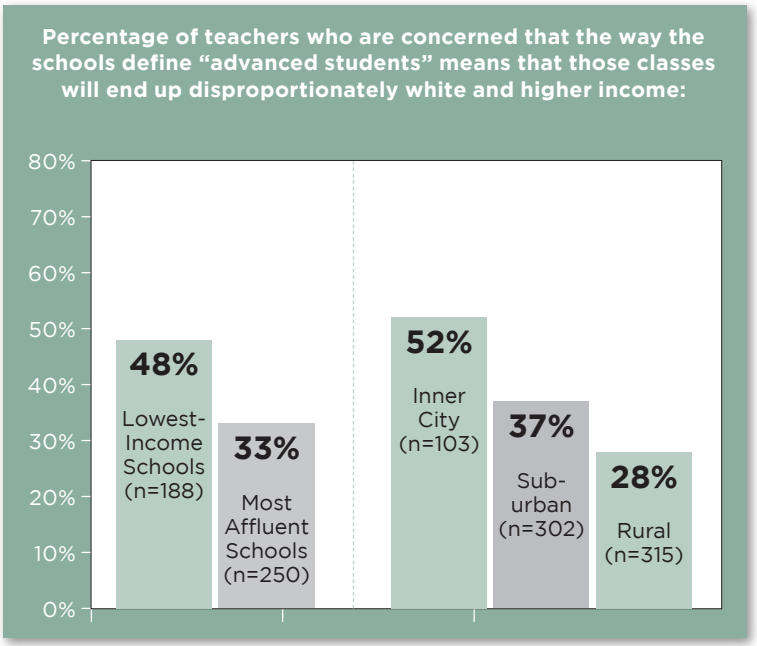
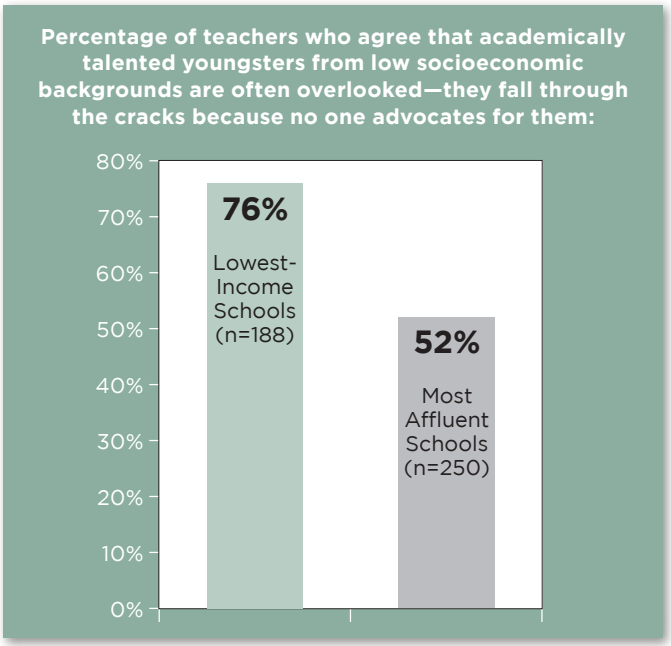


Figure 15—Relative Concern about Neglect of Academically Talented Poor, by School Poverty Status



Note: *Lowest-income schools > 75% students eligible for free/reduced-price lunch; most affluent schools ≤ 25% students eligible for free/reduced-price lunch.*

> **"For my school, we're half white, half Hispanic. The majority of the Caucasian parents are really involved and really advocate for their children. The majority of the Hispanic parents really aren't familiar with the education system in America. They don't know what you need to do or what you have to say to get things done. They're not advocates."**

The lack of focus on academically advanced students does not seem to be driven by teachers who hesitate to pay much attention to the best and brightest. On the contrary, teachers say it's wrong to neglect these students, especially because teachers' definition of equity means teaching each child to her or his individual potential. If anything, teachers are quite open to a reordering of schools' priorities so that academically talented students get more attention and more resources.

SECTION 3
TEACHERS TALK ABOUT THE SCHOOL ENVIRONMENT

Teachers point to powerful factors in the school environment that may cause schools to neglect high achievers. They indicate they face pressure to raise the test scores of low-achieving students and that their own preparation programs provided inadequate training on how to work with advanced students. Many teachers report that their schools have few classes segmented by academic ability—yet most teachers believe that advanced students would thrive in such classes. And according to teachers, it is a real challenge to implement differentiated instruction in their classrooms.

IMPACT OF NCLB ON ACADEMICALLY ADVANCED STUDENTS

Teachers believe that holding schools to account for bringing the standardized test scores of underachieving students to proficiency has pulled attention and resources away from higher-achieving students. Few teachers say positive things about the impact of the No Child Left Behind Act (NCLB) on academically advanced students. More than three in four (77%) agree that "getting underachieving students to reach 'proficiency' has become so important that the needs of advanced students take a back seat."

Only 10% of teachers say that NCLB has had a positive impact on advanced students, while 50% say the impact has been negative, and 35% termed it neutral.

In contrast, a larger proportion of teachers (30%) think NCLB has had a positive impact on academically struggling students—still far from a majority but higher than the 10% who say it's had a positive impact on high-achieving students.

Figure 16—Focus on Underachieving versus Advanced Students

Getting underachieving students to reach "proficiency" has become so important that the needs of advanced students take a back seat

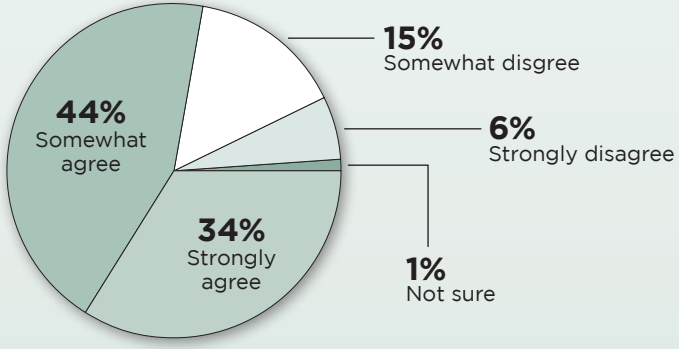


Figure 17—Impact of NCLB on Advanced Students Relative to Others

What kind of effect would you say NCLB has had on the students at your school?

Group	Positive	Negative	Neutral
Academically struggling students	30%	46%	20%
Average students	15%	44%	38%
Academically advanced students	10%	50%	35%

OBSERVATIONS

Teachers in the focus groups talked repeatedly about the drive in their buildings to bring up the scores of so-called "bubble kids"—students with standardized test scores just below proficiency levels. In these conversations, teachers often blamed the No Child Left Behind Act and the need to make adequate yearly progress—for them, it was the clearest embodiment of the negative impact of the trend toward high-stakes testing.

> **"I went around asking teachers if they recommended any of the students for the gifted programs. Nobody has, because they're so concerned with those low kids and getting them to pass. That's our concern. We're not even worrying about the high kids. They're not being identified."**

> **"I'm aware of their numbers. I know where they are. I know who's on the bubble and who I have to push up. We have meetings. I'm on the leadership committee at the school. We have meetings about, 'Okay, who is only two points away from meeting the [state] goal?'"**

> **"At our school, we really broke it all down and we looked at all the gainers and sliders, the kids who have gone up over the last year, or have gone down. All the kids that are what we called 'on the bubble'—that's where the last two years, all of our focus has gone to those kids."**

TEACHER TRAINING

Teachers report receiving little grounding on how to work with academically advanced students. They say the preparation programs they attended as well as the professional development they got once they had their own classroom were unlikely to emphasize this kind of training.

Nearly two-thirds (65%) report that their education courses or teacher preparation programs focused either very little or not at all on how to best teach academically advanced students. Relatively few (34%) say there was a lot or some focus on this subject in their programs.

Nearly six in ten (58%) say they have had no professional development over the past few years that specifically focused on teaching academically advanced students. Four in ten (41%) report that they have.

Figure 18—Emphasis on Teaching Advanced Learners in Teacher Preparation

Thinking back to the school of education or teacher preparation program you went through, how much focus did it put on how to best teach academically advanced students?

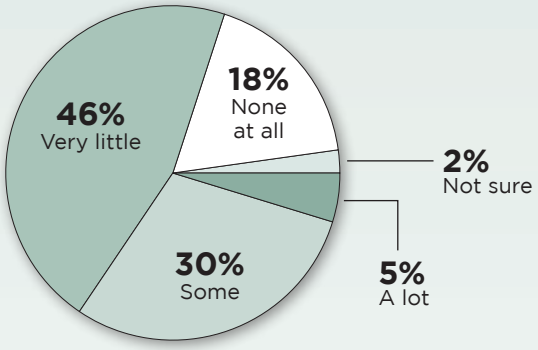
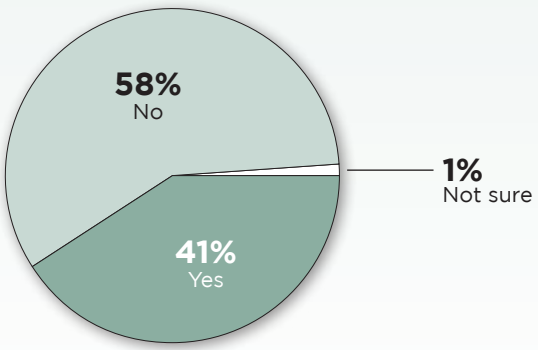


Figure 19—Professional Development Focused on Academically Advanced Students

Over the past few years, have you had professional development specifically focused on teaching academically advanced students, or not?



OBSERVATIONS

It seems likely that advanced students will fare better when taught by teachers who have had some special training in working with that population—and some research supports this[3]—but few teachers talked about having received such training. In one focus group, teachers responded in rapid-fire fashion with a series of negative responses to the question of whether their training included a focus on teaching high-achieving students:

> **"No."**
>
> **"None."**
>
> **"Next to none."**
>
> **"I went to a conference once—that's what I got, and I teach honors."**
>
> **"To me, the whole GATE [Gifted and Talented Education program] subject was one chapter of one class."**

HOMOGENEOUS TRACKING

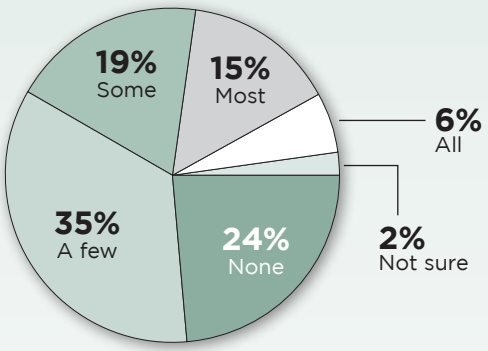
Teachers overwhelmingly believe that academically talented students would thrive in classes grouped by academic ability; tracking would be especially beneficial, most believe, in math. But they also report that such classes are rare in their schools.

About six in ten teachers (59%) say that at their school few or none of the core subject classes are homogeneously grouped by academic ability. Elementary (69%) and middle (59%) school teachers are more likely than high school teachers (44%) to say their schools have few or no such classes.

By an overwhelming 72 to 14% margin, teachers believe that advanced students are more likely, not less likely, to reach their academic potential in homogeneous classrooms.

Figure 20—Core Subject Classes—Extent of Homogeneous Grouping

About how many of the core subject classes at your school are homogeneously grouped by academic ability?



By a margin of 50 to 20%, teachers believe that even average students are more likely, not less likely, to reach their academic potential in such classrooms. The margin is far narrower when teachers are talking about struggling students (46% to 36%).

Almost three in four teachers (74%) believe that "mathematics is the one subject where students could really benefit from homogeneous grouping." Just 20% disagree. And when asked to think about the consequences of having schools pay a lot more attention to the needs of academically advanced students, more than half of teachers (57%) expressed concern that "there will be a big shortage of top-notch math and science teachers who could teach advanced students at a very high level," versus 40% who said that they were not concerned.

OBSERVATIONS

Judging by what teachers report, ability-grouped classes are not widespread. On the one hand, the very word "tracking" has taken on a negative connotation in education circles,

Figure 21—Likelihood of Reaching Academic Potential within Homogeneous Grouping

When classes are homogeneously grouped by academic ability, how likely do you think students are to reach their academic potential?

Group	More Likely	Less Likely	Little Difference
Academically struggling students	46%	36%	13%
Average students	50%	20%	28%
Academically advanced students	71%	14%	12%

as critics warn that it can foster racial inequalities and may typecast low achievers—without giving them the chance to be influenced by high achievers and perhaps become higher achievers themselves.[4]

On the other hand, teachers believe that high achievers pay a price for the fact that schools eschew tracking. Moreover, many teachers see a special need for ability grouping in math.

> **"The only class that we group by in my school is math, and they do that extensively. They have sixth-grade-level math in our seventh-eighth school, all the way through high school geometry. They've even talked about introducing a trig class, which blows my mind, at the eighth-grade level, but some kids I guess are ready for it."**

DIFFERENTIATED INSTRUCTION

Heterogeneous grouping of students in a classroom implies that teachers will respond flexibly to the different learning levels among the students in their classroom. But teachers evince serious doubts about how well they are carrying out differentiated instruction in their own lessons.

More than eight in ten (84%) teachers say that, in practice, differentiated instruction is difficult to implement.

OBSERVATIONS

Differentiated instruction—the strategy whereby teachers adjust their material and presentation to the diverse array of academic abilities within a given classroom—is tricky to implement, according to teachers. Education experts and policymakers who believe that this is the optimal alternative to tracking should recognize that, from the perspective of teachers, it is easier said than done.

Figure 22—Benefits of Homogeneous Grouping in Math

Do you agree or disagree? Math is the one subject where students could really benefit from homogeneous grouping

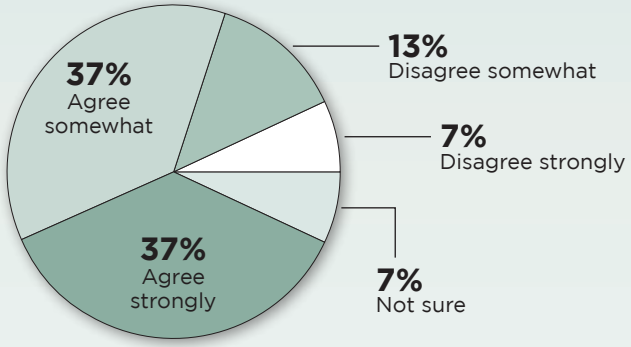
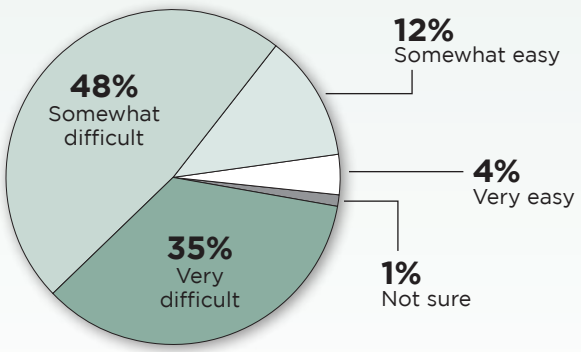


Figure 23—Relative Difficulty of Implementing Differentiated Instruction

In your judgment, how easy or difficult a mission is it to implement differentiated instruction on a daily basis in the classroom?



> **"I think you beat yourself up. There's such a wide range of skills. I try my best. I say my prayers at night. I have to believe in what I'm doing."**

The following description of what it took for one teacher to try to make differentiated instruction work sounds like an engineering exercise requiring the most delicate and complex analysis and judgment. It also reveals substantial self-doubt about the execution:

> **"Language arts, we've really been struggling because we do have so many different levels of kids. They're always in the same classes all mixed together, so I do a lot of differentiated instruction with tiered lessons and flexible grouping. Where kids are really, really strong in writing they're with a particular group of students for writing activities. Then they might be in a different group altogether for reading, just depending on where their levels are. [Moderator: How do you identify that?] Some is teacher observation; some is testing and assessment scores. At the beginning of the year, a lot of it's based on the state standards test scores that they showed the previous year. Sometimes there's teacher observation that follows them [here] as well."**

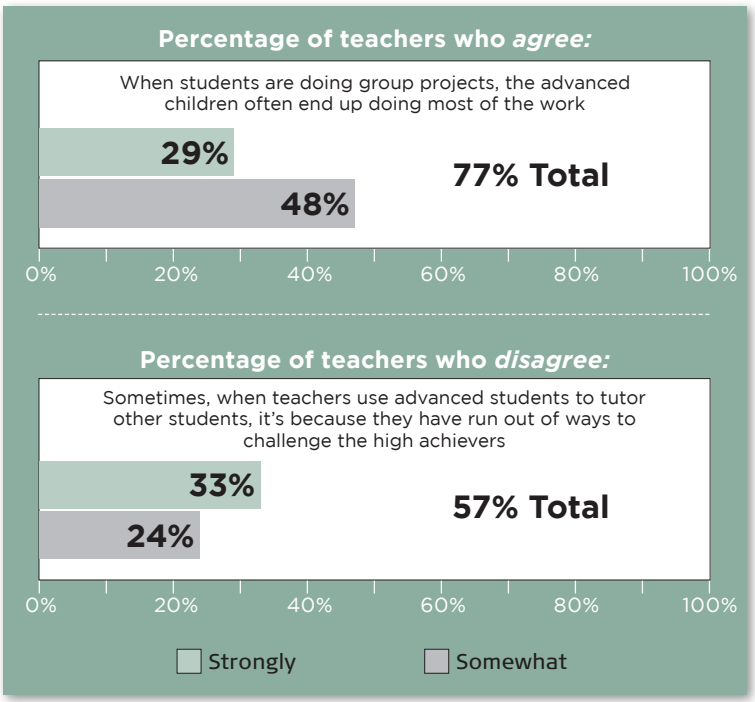
WHAT ABOUT OTHER STRATEGIES?

Most teachers have doubts about group work, thinking that the less academically inclined students defer to the advanced students. But teachers don't think that using advanced students to tutor their peers means the special abilities of advanced students are going to waste.

"When students are doing group projects, the advanced children often end up doing most of the work," say 77% of teachers. That problem appears more troublesome among teachers who have not had professional development on teaching academically advanced students. More than eight in ten of these teachers (82%) believe that the smarter kids inevitably do the work. But this point of view hardly disappears among teachers who have had some professional development; here, too, 68% agree that, in group projects, it is the advanced students who end up doing the work.

Using advanced students to tutor their peers is perceived in a more positive light, with 57% of teachers rejecting the view that "sometimes, when teachers use advanced students to tutor other students, it's because they have run out of ways to challenge the high achievers."

Figure 24—Impact of Certain Instructional Practices on Advanced Students



OBSERVATIONS

While group work is supposed to foster cooperative learning, teamwork, and shared responsibility, from the teachers' standpoint, in practice it often results in a team of one. It may be that, with more training, teachers could better execute the strategy, but it is important to acknowledge teachers' broadly held perception that things are not currently working as intended.

> **"When you do pairing and grouping, one thing that I've found personally is that my higher-achieving students, regardless of whether they've been labeled . . . carry the weight. They do all the work. My other ones are all playing."**

GRADE ACCELERATION

To hear teachers report it, grade acceleration—or skipping a grade—rarely occurs these days.

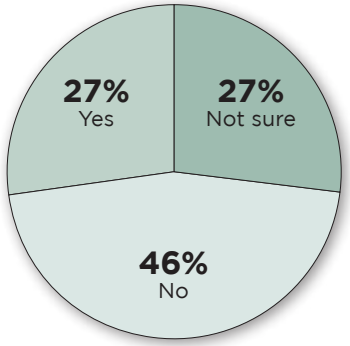
Approximately one in four teachers (27%) reports that their schools allow students to skip a grade, while a plurality (46%) says they do not. Teachers in high school (48%), middle school (45%), and elementary school (46%) are almost equally likely to report that their schools do not allow grade skipping. The fact that such a large proportion of teachers overall (27%) is unsure what their school's policy is may also indicate that grade acceleration rarely occurs.

OBSERVATIONS

That so many teachers either think their district's policies prohibit grade acceleration or are unsure suggests that many school districts today actively discourage the practice.[5]
A few teachers in the focus groups lamented that the progress of talented kids was thereby constrained.

Figure 25—Grade Acceleration

Does your school allow students to skip a grade—also known as grade acceleration, or not?



> **"I actually got in a lot of trouble . . . There was a child who was so smart. He was so smart. . . . The ESE person went nuts. She said, 'How dare you suggest that he skip a grade?' I said, 'I tested him. He's in kindergarten and working out of a second-grade math book. He's reading on a fourth-grade level. What are we going to do with him?' She said, 'That's not your problem.' Usually, these kids are just left there. Unless a teacher feels some kind of moral obligation to move them along, nobody's moving them. So many kids could probably skip or be in really advanced classes. Who even has time to notice them?"**

What teachers report about the practices and policies of school systems raises important questions for educators and policymakers. If differentiated instruction is the pedagogical strategy-of-choice when mixing students of different abilities, how does one respond to the report from teachers that this strategy is difficult for them to execute in their classrooms? If many teachers say they have little training in how to work with academically advanced youngsters, and if grade acceleration is unpopular (or not even on the table), how are school districts effectively cultivating the talents of their strongest students?

CHAPTER 4
TEACHERS TALK ABOUT SOLUTIONS

Teachers favor changing school and district policies so that grouping students by ability becomes more common, yet they also report that schools now eschew that strategy. Given their lack of support for NCLB, it is somewhat surprising that a majority of teachers also favor amending it to add another mandate: requiring schools to break out and report the test scores of high-achieving pupils. But it is not surprising, given their sense of what is happening now with teacher training, that teachers overwhelmingly recommend an overhaul so that greater emphasis is placed upon academically advanced students. One proposal is clearly rejected by most teachers: grade acceleration.

Two in three teachers (68%) favor a proposal that would open up "more specialized magnet programs and district-wide schools that bring advanced students together." Teachers working in the nation's lowest-income schools are considerably more likely to be in favor of this proposal than those working in more affluent schools (by a 76 to 61% margin).

Three-quarters (76%) of teachers overall would like to see the nation "relying more on homogeneous classes for advanced students so that they learn faster and in greater depth."

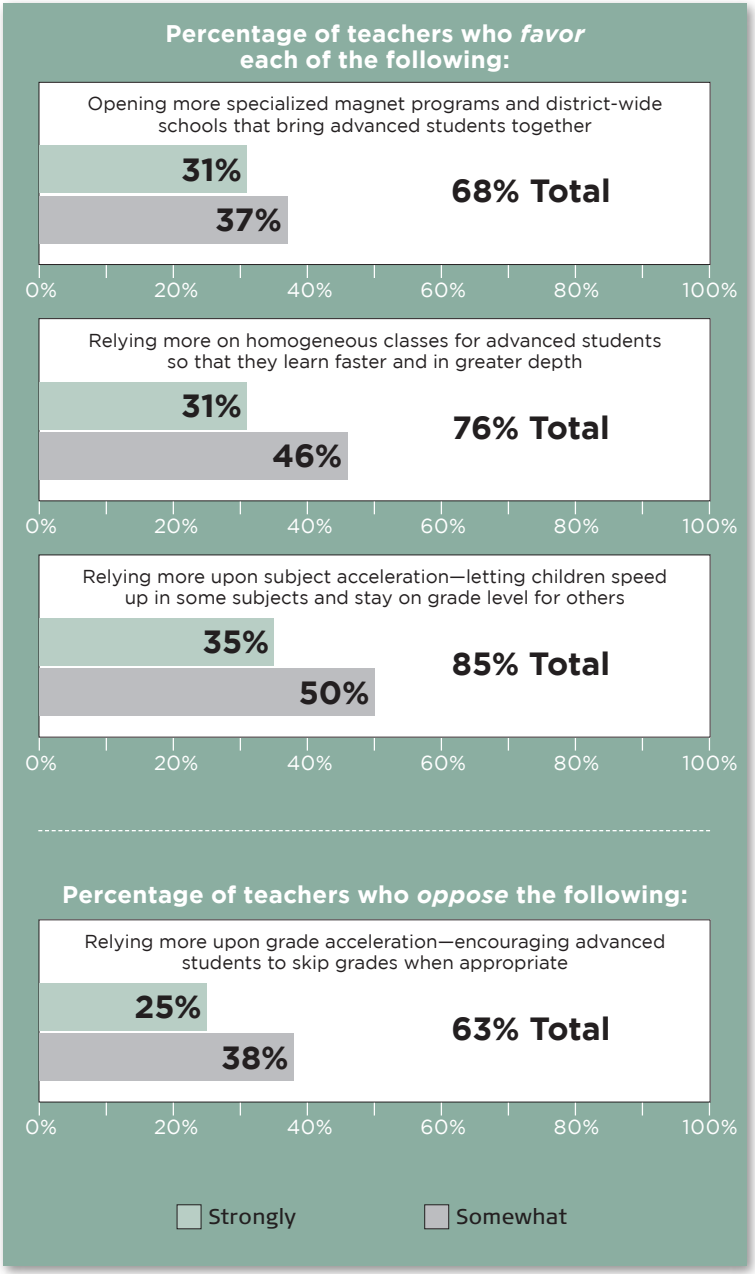
More than eight in ten teachers (85%) also favor more reliance on "subject acceleration," i.e., moving students faster when they have proven their capacity to learn at a quicker pace.

But 63% oppose "encouraging advanced students to skip grades when appropriate."

OBSERVATIONS

Teachers' attitudes seem logically consistent: they say they're having difficulty executing differentiated instruction in their

Figure 26—Proposals for Serving Advanced Students Better



classrooms and think their schools are less likely to pay attention to academically advanced students for a myriad of reasons. They believe that pulling high achievers together—whether in classrooms or in schools specifically tailored for them—would be an effective countermeasure.

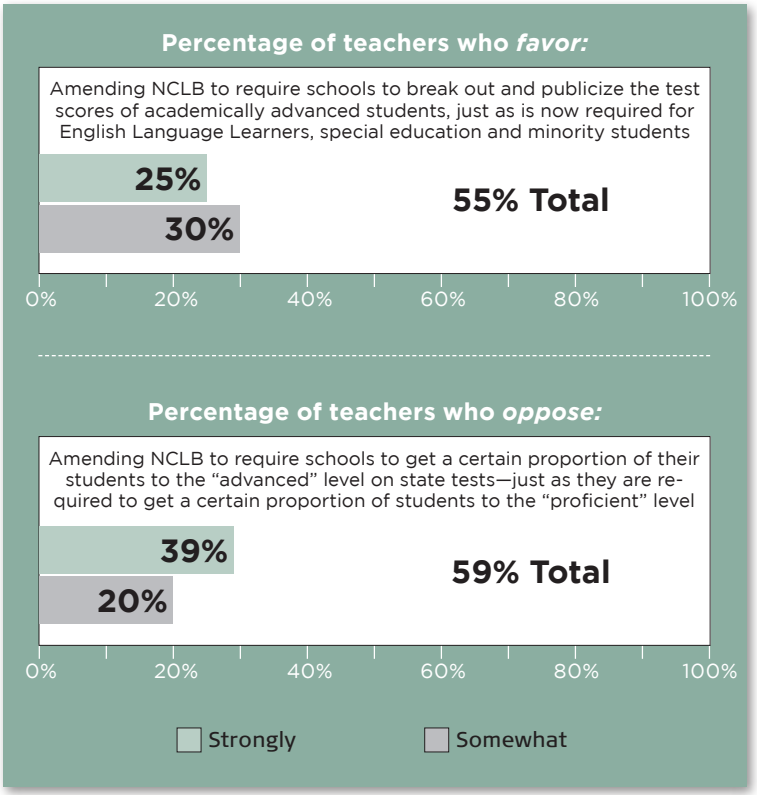
> **"Honestly, if I could ability group and have a whole group of kids, like in math, that was at this particular level, I guarantee you I could do so much more with those kids than just differentiating."**

AMENDING NCLB

A majority (55%) of teachers favors a proposal to amend the No Child Left Behind Act to "break out and publicize the test scores of academically advanced students, just as is now required for English Language Learners, special education and minority students," while 28% oppose it.

Most teachers (59%) oppose amending NCLB "to require schools to get a certain proportion of their students to the 'advanced' level on state tests," while a much smaller share (33%) is in favor. Teachers working in low-income schools—central to what NCLB intended to target—are substantially more supportive of this proposal than those working in the wealthiest schools by a 42 to 26% margin.

Figure 27—Support for Amending NCLB



OBSERVATIONS

In some ways, it is startling to see teachers support any extension of NCLB's reach, given that they so often refer to it critically during focus group discussions. Yet teachers' support for breaking out and publicizing the test scores of advanced students—even if it is not overwhelming—makes sense. They have seen more attention paid to struggling students because of the schools' drive to move more "bubble" students to proficiency. If the schools were also required to report the standardized test scores and progress of their high-achieving students, they reason, that might drive attention and resources to them.

> **"I think our new superintendent puts a lot of pressure on all of the schools to perform. I think No Child Left Behind has put pressure on everyone. Can you really blame anyone for wanting to get their low-performing children up? . . . You know? They have to make their AYP [annual yearly progress] or else."**

PROFESSIONAL DEVELOPMENT FOR TEACHERS, ENRICHMENT FOR STUDENTS

The vast majority of teachers (90%) favors "having more professional development for teachers to develop skills for teaching advanced kids."

Additional enrichment opportunities for high-achieving students outside of schools—through mentoring and internship programs, for example—gain overwhelming support from teachers; virtually all (96%) favor this proposal, with 59% saying they strongly favor it. Support is more intense among teachers working in low-income schools, where 71% strongly favor this initiative, compared with 50% of teachers working in wealthier schools.

Just 25% of teachers, or one in four, report that their school currently has mentorship or internship programs that take academically advanced students outside the classroom environment, compared to 62% who say their school does not have such programs and 14% who are unsure.

OBSERVATIONS

With teachers acknowledging that they've had little training on how to work with academically talented students, it makes sense that they would favor more professional development in this area. As for mentoring and internship programs, teachers may be hoping to inspire advanced students with experiences

Figure 28—Support for Professional Development and Enrichment for Advanced Students

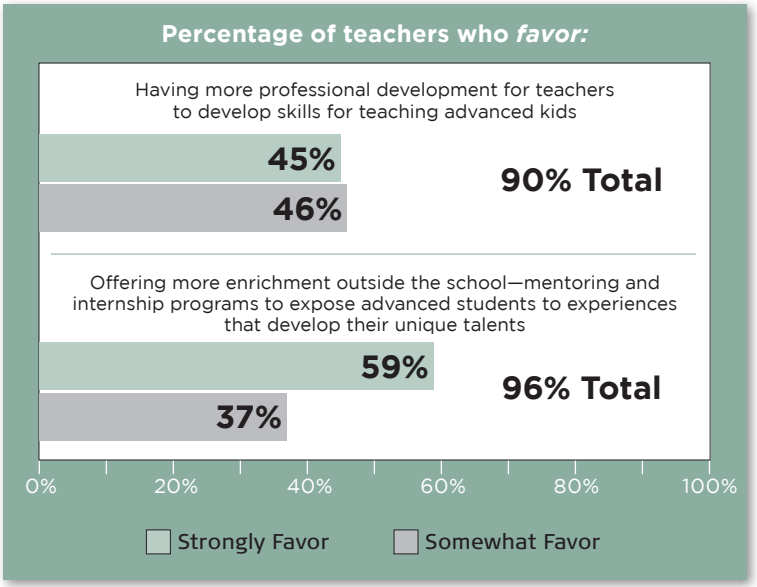
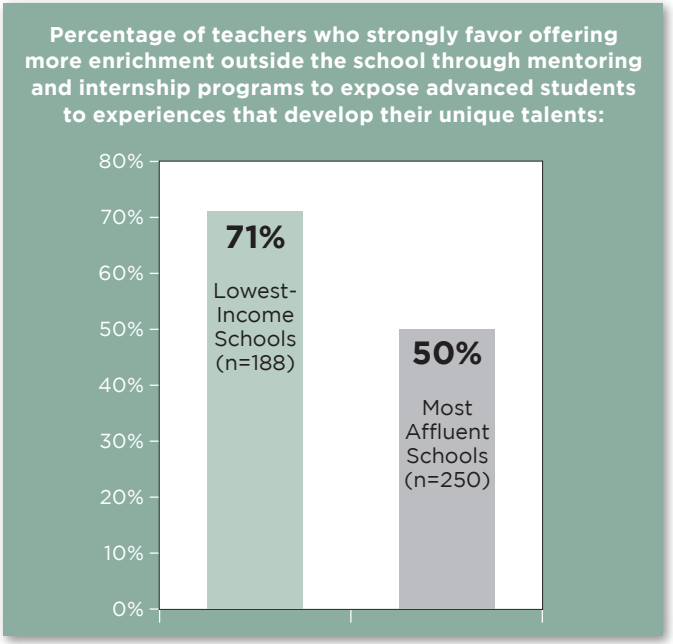


Figure 29—Support for Enrichment for Advanced Students, by School Poverty Status



Note: *Lowest-income schools > 75% students eligible for free/reduced-price lunch; most affluent schools ≤25% students eligible for free/reduced-price lunch.*

and role models beyond the school walls and leverage resources beyond those of their schools.

> **"At one point, we had Senior Seminar. I don't even know if we still do it. Some sort of an internship opportunity I think is helpful for them."**

Those who are comfortable with the status quo when it comes to educating academically advanced students are in an unenviable position. They must either ignore the attitudes of teachers or convince them that, all their experience and observations notwithstanding, things are better than they appear—or that they could be better with some retooling and retraining. Those who suspect teachers of harboring elitist attitudes because they favor homogeneous classrooms should note that teachers working with the country's poorest youngsters are sometimes even more supportive of homogeneous grouping.

Those who believe there's something to gain from listening to the observations and insights of teachers on the ground have plenty of work to do. Achieving consensus on, paying for, and implementing even a small part of the teachers' reform agenda would take a monumental effort over a long period. It could well require reexamining some dominant assumptions embedded in how the best and brightest are schooled today. But at least the reformers would have teachers on their side. And—as any student, principal, superintendent, governor, or president knows—it's good to have teachers on your side.

Given that this is a study of public school teachers' attitudes about and experiences with academically talented students, it's useful to know just how much exposure teachers in this sample have with such students on a day-to-day basis. On the whole, the findings suggest that teachers may have relatively small proportions of academically advanced students in their own classroom during a given school year, with the numbers highest among high school teachers. The vast majority of teachers overall (77%) estimates that "0% to 25%" of their current students are academically advanced. Still, 23% report that more than one in four (between 26% and 100%) of their current students could be deemed academically advanced; among high school teachers it is 37% (versus 20% among middle and 14% among elementary school teachers). Additionally, two out of three teachers surveyed (67%) say that their school has separate classes geared explicitly for the academically advanced. Again, this differs considerably depending on grade: 90% of high school teachers say their schools have separate classes, compared with 75% of middle and 47% of elementary school teachers.

NOTES

[1] Arthur Schlesinger, Jr., "What Is an American?" in *One America Indivisible: A National Conversation on American Pluralism and Identity* by Sheldon Hackney (Washington, DC: National Endowment for the Humanities, 1999), 173.

[2] A study looking specifically at Advanced Placement programs through the eyes of AP teachers is in progress and will be released in 2009.

[3] See Free Library, "Certification and Specialized Competencies for Teachers in Gifted Education Programs," http://www.thefreelibrary.com/Certification+and+Specialized+Competencies+for+Teachers+in+Gifted...-a062684723.

[4] A recent National Research Council report on fostering student motivation in urban high schools, for example, recommends that "both formal and informal tracking by ability be eliminated. Alternative strategies should be used to ensure appropriately challenging instruction for students who vary widely in their skill level" (6). Committee on Increasing High School Students' Engagement and Motivation to Learn, National Research Council, *Engaging Schools: Fostering High School Students' Motivation to Learn* (Washington, DC: National Academies Press, 2003), www.nap.edu/catalog/10421.html.

[5] The authors of a Templeton Foundation report on academic acceleration—including single-subject acceleration, grade skipping, early entrance to school, and Advanced Placement courses—were outraged by how widely the schools dismiss it as a strategy, as the title of their report makes clear. See Nicholas Colangelo, Susan G. Assouline, and Maraca U. M. Gross, *A Nation Deceived: How Schools Hold Back America's Brightest Students* (Iowa City, IA: University of Iowa, 2004).

APPENDIX A—METHODOLOGY

These findings are based on data from a nationally representative random sample of 900 third- through twelfth-grade public school teachers who were surveyed by mail and online in winter-spring 2008. The survey was conducted by the Farkas Duffett Research (FDR) Group for the Thomas B. Fordham Institute. The margin of error for the overall sample of 900 is plus or minus three percentage points; the margin of error increases for subgroups within the sample.

The sample was randomly drawn from a comprehensive database of names and school addresses of current third- to twelfth-grade public school teachers. Because school districts typically begin identifying "gifted and talented" children in grade 3 or higher, teachers in grades K–2 were intentionally excluded from the sample. The sample was provided by Market Data Retrieval, a subsidiary of Dun & Bradstreet; data collection and tabulation were provided by Robinson and Muenster Associates.

The survey instrument was designed for two modes: paper (for the mail survey) and online (for use via the Internet). The survey instrument was extensively pretested with third- to twelfth-grade public school teachers prior to fielding.

A total of 6,000 questionnaires (along with cover letter and postage-paid return envelope) was sent to a randomly selected sample of third- to twelfth-grade public school

teachers in the United States. The cover letter described the research and included a URL address for those who preferred to participate online rather than completing and returning the questionnaire by mail. The first mailing was sent on February 19, 2008; a reminder postcard was sent on February 28, and a second complete mailing was sent on March 7. Surveys received through April 25 were tabulated and included in the final results.

A total of 900 surveys was received, 790 by mail and 110 online. The response rate for the survey is 15%. This rate is typical of survey research of this sort and reflects the challenges associated with randomly selecting samples, particularly those that comprise individuals not necessarily associated with a particular program of interest and not receiving incentives. As with all surveys, one of the risks of low response is that the pool of survey respondents could differ from the true population, thereby decreasing the ability to draw inferences from the data. Table A-1 compares the demographic profile of respondents to that of the overall population of teachers as collected by the National Center for Education Statistics (NCES). Though the population also includes grades K–2, the two groups are similar when it comes to such key variables as sex, urbanicity, and school type. In addition, survey results can be affected by nonsampling sources of bias, such as question wording. Steps were also taken to minimize these, as explained below.

Prior to survey administration, five focus groups were held with third- to twelfth-grade teachers. The groups were conducted in professional focus group facilities in Bethesda, MD; Denver, CO; Fort Lauderdale, FL; and Long Beach, CA. Participants were recruited to FDR Group specifications to ensure a proper demographic mix, and all the groups were moderated by the FDR Group. Quotations in this report are drawn directly from the focus groups. The purpose of the groups was to listen to teachers, to develop survey questions based on their input, and to use within the survey instrument itself language and terms teachers are comfortable using. The focus group discussions were crucial not only for crafting survey items but also for understanding teachers' various points of view. As a final check on validity, the questionnaire was pretested prior to fielding via telephone interviews with current public school teachers.

Table A-1—Demographics of the Teacher Population vs. Survey Respondent Sample

Sex	Population* (Gr. K-12)	Respondent Sample (Gr. 3-12)
Male	25%	21%
Female	75%	79%

School Type	Population* (Gr. K-12)	Respondent Sample (Gr. 3-12)
Elementary (3rd-5th)	52	42
Middle (6th-8th)	20	29
High (9th-12th)	23	29

Urbanicity	Population* (Gr. K-12)	Respondent Sample (Gr. 3-12)
Urban	31	31
Suburban	38	34
Rural/small town	31	35

**Sources—U.S. Department of Education, Institute of Education Science, National Center for Education Statistics, Digest of Education Statistics, 2006; NCES Schools and Staffing Survey, 2003–2004.*

APPENDIX B—NATIONAL SURVEY OF PUBLIC SCHOOL TEACHERS GRADES 3–12

The findings from High-Achieving Students in the No Child Left Behind Era are based on a national random sample of 900 third- through twelfth-grade public school teachers. The survey was conducted by mail and online between February 19 and April 25, 2008. The margin of error is plus or minus three percentage points. Complete survey findings in percentages are provided here. Totals may not add up to 100 percent due to rounding; similarly, percentages in the body of the report may not perfectly match numbers in this appendix due to rounding. An asterisk (*) indicates less than 1%.

1. Do you currently teach at:
Elementary school (42%)
Middle school or junior high (29%)
High school (29%)
Something else (*)

2. In terms of academic achievement, do you think that your school generally expects kids to learn:
Too much (13%)
Too little (19%)
Expectations are about right (66%)
Not sure (2%)

3. Would you say that the needs of academically struggling students at your school are a:
Top priority (60%)
Middle priority (34%)
Low priority (5%)
Not sure (1%)

4. How about the academically advanced students at your school? Would you say their needs are a:
Top priority (23%)
Middle priority (44%)
Low priority (32%)
Not sure (1%)

5. Please estimate the number of academically advanced students at your school this academic year.
0% to 25% of students (76%)
More than 25% to 50% (15%)
More than 50% to 75% (3%)
More than 75% (1%)
Not sure (5%)

6. Please estimate the number of academically advanced students that you personally are teaching this academic year.
0% to 25% of your students (77%)
More than 25% to 50% (13%)
More than 50% to 75% (6%)
More than 75% (4%)
Not sure (1%)

7. Over the past few years, would you say the attention and resources given to academically advanced students at your school has:
Increased (23%)
Decreased (26%)
Stayed about the same (45%)
Not sure (5%)

For the next series of questions, think about the students at your school in terms of their academic ability.

Question	Struggling Students	Average Students	Advanced Students	It's Equal	Not Sure
8. Who gets the most overall attention at your school?	63%	13%	7%	16%	2%
9. Who should get the most attention at your school?	24%	16%	5%	50%	6%
10. Who is your school most likely to focus on when it comes to tracking achievement data and trying to raise standardized test scores?	68%	15%	5%	11%	2%
11. Who is most likely to get one-on-one attention from teachers?	81%	4%	5%	9%	2%
12. And who is most likely to be taught with a curriculum and instruction specially designed for their abilities?	51%	19%	10%	18%	2%

When classes are homogenously grouped by academic ability, do you think that each group below is more likely to reach their academic potential, less likely or does it make little difference?

Group	More Likely	Less Likely	Little Difference	It's Equal
13. Academically struggling students	46%	36%	13%	5%
14. Average students	50%	20%	28%	3%
15. Academically advanced students	72%	14%	12%	3%

16. About how many of the core subject classes at your school are homogenously grouped by academic ability?
None (24%)
A few (35%)
Some (19%)
Most (15%)
All (6%)
Not sure (2%)

17. To what extent do you agree or disagree with the following statement: Mathematics is the one subject where students could really benefit from homogenous grouping.
NET Agree (74%)
NET Disagree (20%)
Agree strongly (37%)
Agree somewhat (37%)
Disagree somewhat (13%)
Disagree strongly (7%)
Not sure (7%)

18. Does your school have separate classes geared explicitly for the academically advanced students, or not?
Yes (67%)
No (32%)
Not sure (1%)

19. Does your school allow students to skip a grade—also known as grade acceleration—or not?
Yes (27%)
No (46%)
Not sure (27%)

20. Does your school have mentorship or internship programs that take academically advanced students outside the classroom environment, or not?
Yes (25%)
No (62%)
Not sure (14%)

21. At your school, how common is it for teachers in core subjects to use ability grouping in mixed-level classes?
NET Common (50%)
NET Uncommon (36%)
Very common (16%)
Somewhat common (35%)
Somewhat uncommon (15%)
Very uncommon (21%)
Not sure (13%)

22. In your judgment, how easy or difficult a mission is it to implement differentiated instruction on a daily basis in the classroom?
NET Difficult (84%)
NET Easy (16%)
Very difficult (35%)
Somewhat difficult (48%)
Somewhat easy (12%)
Very easy (4%)
Not sure (1%)

ELEMENTARY AND MIDDLE SCHOOL TEACHERS (n=621)

23. As far as you can tell, how accurate and reliable are the procedures and tests your district uses for identifying students eligible for the "gifted and talented" program?

NET Accurate (55%)
NET Inaccurate (21%)
Very accurate and reliable (9%)
Somewhat accurate and reliable (46%)
Somewhat inaccurate and unreliable (15%)
Very inaccurate and unreliable (6%)
District doesn't have such procedures or tests (8%)
Not sure (16%)

HIGH SCHOOL TEACHERS (n=253)

24. Is it your sense that the content and curriculum for honors and accelerated learning classes:

Are truly rigorous and challenging (50%)
OR
Are too often watered down and lacking rigor (40%)
School doesn't have honors/accelerated classes (4%)
Not sure (6%)

HIGH SCHOOL TEACHERS (n=262)

25. About what percentage of the students in your school's honors and accelerated classes do you think are there for reasons that have nothing to do with academic ability (e.g., parental pressure, demographic diversity, a better learning environment)? Your best estimate will do.

0–25% (48%)
26–50% (21%)
51–75% (7%)
76–100% (6%)
Not sure (20%)

26. For the public schools to help the U.S. live up to its ideals of justice and equality, do you think it's more important that they:

Focus on raising the achievement of disadvantaged students who are struggling academically (11%)
OR
That they focus equally on all students, regardless of their backgrounds or achievement levels (86%)
Not sure (3%)

27. If you had to pick, what should be a greater priority for the nation's schools:

Maximizing the achievement of academically advanced students (26%)
OR
Closing the achievement gap (57%)
Not sure (18%)

To what extent do you agree or disagree with each of the following statements about academically advanced students?

Statement	NET Agree	NET Disagree	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Not Sure
28. Academically talented youngsters from low socio-economic backgrounds are often overlooked—they fall through the cracks because no one advocates for them	59%	37%	17%	42%	21%	16%	4%
29. "Advanced" is really a nonexistent concept—different youngsters are good at different things at different times	59%	39%	18%	41%	23%	16%	2%
30. Our advanced students need special attention—they are the future leaders of this country, and their talents will enable us to compete in a global economy	81%	17%	31%	50%	13%	4%	2%
31. The schools don't have to worry as much about advanced youngsters because their talent, resources and backgrounds have already set them on the right path	26%	73%	3%	23%	33%	40%	1%
32. Sometimes, when teachers use advanced students to tutor other students, it's because they have run out of ways to challenge the high achievers	38%	57%	6%	32%	24%	33%	5%
33. Too often, the brightest students are bored and under-challenged in school—we're not giving them a sufficient chance to thrive	73%	26%	26%	48%	17%	9%	1%
34. When students are doing group projects, the advanced children often end up doing most of the work	77%	21%	29%	48%	17%	5%	2%
35. Too often, students are labeled as advanced only because their parents are overzealous and know how to work the system	50%	47%	10%	40%	29%	18%	3%

Statement	NET Agree	NET Disagree	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Not Sure
36. Electives, humanities and the arts are getting short shrift because schools are putting so much focus on the basics	73%	23%	38%	35%	17%	6%	4%
37. Getting underachieving students to reach "proficiency" has become so important that the needs of advanced students take a back seat	77%	21%	34%	44%	15%	6%	1%

Some people have concerns about what might happen if the schools were to pay a lot more attention to the needs of academically advanced students. Other people think these concerns are overblown. How concerned are you about each of the following?

Question	NET Concerned	NET Not Concerned	Very Concerned	Somewhat Concerned	Not Too Concerned	Not at All Concerned	Not Sure
38. The way the schools define "advanced students" means that those classes will end up disproportionately white and higher income	37%	58%	8%	28%	38%	20%	6%
39. Paying too much attention to the accomplishments of advanced students will stigmatize the other students and damage their self-esteem	26%	73%	4%	22%	41%	32%	2%
40. Pushing advanced kids to develop faster will endanger their emotional and social well-being	41%	57%	5%	36%	37%	20%	2%
41. The tests and the experts will misidentify which students are advanced and which are not	47%	50%	8%	39%	37%	13%	4%

Question	NET Concerned	NET Not Concerned	Very Concerned	Somewhat Concerned	Not Too Concerned	Not at All Concerned	Not Sure
42. There will be a big shortage of top-notch math and science teachers who could teach advanced students at a very high level	57%	40%	20%	37%	25%	15%	4%
43. To give advanced students more attention, the schools might reduce resources now devoted to struggling students	45%	50%	12%	33%	35%	15%	5%

Thinking about academically advanced students across the nation, how much would you favor or oppose each proposal?

Proposal	NET Favor	NET Oppose	Favor Strongly	Favor Somewhat	Oppose Somewhat	Oppose Strongly	Not Sure
44. Having more professional development for teachers to develop skills for teaching advanced kids	90%	8%	45%	46%	5%	2%	2%
45. Offering more enrichment outside the school—mentoring and internship programs to expose advanced students to experiences that develop their unique talents	96%	3%	59%	37%	2%	*	2%
46. Opening more specialized magnet programs and district-wide schools that bring advanced students together	68%	28%	31%	37%	20%	8%	5%
47. Relying more upon grade acceleration—encouraging advanced students to skip grades when appropriate	33%	63%	7%	25%	38%	25%	5%

Proposal	NET Favor	NET Oppose	Favor Strongly	Favor Somewhat	Oppose Somewhat	Oppose Strongly	Not Sure
48. Relying more on homogeneous classes for advanced students so that they learn faster and in greater depth	76%	21%	31%	46%	16%	5%	3%
49.Relying more upon subject acceleration—letting children speed up in some subjects and stay on grade level for others	85%	12%	35%	50%	9%	3%	4%
50. Amending the No Child Left Behind Act to require schools to break out and publicize the test scores of academically advanced students, just as is now required for English Language Learners, special education and minority students	55%	28%	25%	30%	14%	15%	17%
51. Amending the No Child Left Behind Act to require schools to get a certain proportion of their students to the "advanced" level on state tests—just as they are required to get a certain proportion of students to the "proficient" level	33%	59%	12%	21%	20%	39%	8%

What kind of effect would you say the No Child Left Behind Act has had on the students at your school?

Group	Positive	Negative	Neutral	Not Sure
52. Academically struggling students	30%	46%	20%	4%
53. Average students	15%	44%	38%	3%
54. Academically advanced students	10%	50%	35%	5%

55. To the best of your knowledge, is your school currently identified as "in need of improvement" as defined by the No Child Left Behind Act, or not?
Yes (26%)
No (67%)
Not sure (8%)

56. Thinking back to the school of education or teacher preparation program you went through, how much focus did it put on how to best teach academically advanced students?
A lot (5%)
Some (30%)
Very little (46%)
None at all (18%)
Not sure (2%)

57. Over the past few years, have you had professional development specifically focused on teaching academically advanced students, or not?
Yes (41%)
No (58%)
Not sure (1%)

58. Are you:
Female (79%)
Male (21%)

59. For how many years have you been a public school teacher?
1–4 (13%)
5–9 (20%)
10–20 (34%)
>20 (33%)

60. Approximately what percentage of students at your school are African American or Hispanic?
0% to 25% of students (54%)
More than 25% to 50% (19%)
More than 50% to 75% (13%)
More than 75% (15%)

61. Approximately what percentage of students at your school are eligible for the free or reduced lunch program?
0% to 25% of students (28%)
More than 25% to 50% (28%)
More than 50% to 75% (22%)
More than 75% (21%)

62. Which best describes your school:
Inner city (12%)
Urban (not inner city) (19%)
Suburban (34%)
Rural (35%)

HIGH-ACHIEVING STUDENTS IN THE ERA OF NCLB

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