



Do Schools Challenge Our Students?

What Student Surveys Tell Us About
the State of Education in the United States

Ulrich Boser and Lindsay Rosenthal

July 10, 2012

Center for American Progress



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Introduction and summary

You might think that the nation's teenagers are drowning in schoolwork. Images of sullen students buried in textbooks often grace the covers of popular parenting magazines, while well-heeled suburban teenagers often complain they have to work the hours of a corporate lawyer in order to finish their school projects and homework assignments. But when we recently examined a federal survey of students in elementary and high schools around the country, we found the opposite: Many students are not being challenged in school.

Consider, for instance, that 37 percent of fourth-graders say that their math work is too easy. More than a third of high-school seniors report that they hardly ever write about what they read in class. In a competitive global economy where the mastery of science is increasingly crucial, 72 percent of eighth-grade science students say they aren't being taught engineering and technology, according to our analysis of a federal database.

These findings come at a key time. Researchers increasingly believe that student surveys can provide important insights into a teacher's effectiveness. When the Bill & Melinda Gates Foundation released findings from their Measures of Effective Teaching (MET) Project in 2011, they found that student feedback was a far better predictor of a teacher's performance than more traditional indicators of success such as whether a teacher had a master's degree or not. The mounting evidence on the importance of student surveys has also been shaping policy at the state and local level, and a variety of groups dedicated to the improvement of teaching—such as the New Teacher Project, a nonprofit that works to advance policies and practices to ensure effective teaching in every classroom—have been incorporating student surveys into their teacher evaluation and certification process.¹

Given the significance of this growing body of research on student surveys, we examined one of the richest sources of national student survey data and conducted an analysis of the background surveys of the National Assessment of Educational Progress.² Known as the Nation's Report Card, these assessments are

administered every two years by the National Center for Education Statistics. We looked specifically at the student questionnaire, which collects student-reported information on demographics and classroom experiences.

In reviewing the data, we examined a number of issues that track current debates over education policy and research. Given the recent debates over academic standards, for instance, we looked closely at issues of rigor and student expectations. Do students think that they are being challenged enough? Do teachers engage students in deep learning opportunities? We were also interested in issues of access since students provide an important, classroom-eye view of the resources that are available to them. Are all students being given access to the types of learning opportunities that they need to be prepared for college and the modern workplace? Are those resources distributed fairly among different types of students and schools?

Among our findings:

- **Many schools are not challenging students and large percentages of students report that their school work is “too easy.”**³ If students are going to succeed in the competitive global economy, they need to be exposed to a rigorous curriculum. But many students believe their class work is too easy. Twenty-nine percent of eighth-grade math students nationwide, for instance, report that their math work is often or always too easy.⁴ In some states like Virginia, nearly a third of middle-school students reported their work was often or always too easy.

This finding was consistent across grades and subject matter. We found that 51 percent of eighth-grade civics students and 57 percent of eighth-grade history students report that their work is often or always too easy. Elementary school students also revealed that they aren’t being challenged by their math work—37 percent of fourth-grade students reported that their math work is often or always too easy. Among high school students, 21 percent of 12th-graders said their math work was often or always too easy, while 56 percent and 55 percent respectively found their civics and history work often or always too easy.

- **Many students are not engaged in rigorous learning activities.** Almost a third of eighth-grade students report reading fewer than five pages a day either in school or for homework. That’s below what many experts recommend for students in middle school.⁵ Eighth-grade students across the country also report that they rarely write lengthy answers to reading questions on tests: approximately one-third of students write long answers on reading tests twice per year or less.

The issues are similar at the high school-level. Thirty-nine percent of 12th-grade students, for example, say that they hardly ever or only once or twice a month write about what they read in class. Nearly one-third said they write long answers on reading tests two times a year or less. Moreover, almost one-third of 12th-grade reading students say they rarely identify main themes of a passage when reading, and almost 20 percent said they never or hardly ever summarize a passage.

Note, however, that these data do not measure the quality of the work that students are performing in class—and the quality of the work can make a big difference in how much students learn. Students might be reading just a few, very rigorous pages every day, for instance. But given overall low reading scores—and the degree to which more reading promotes more learning—we believe these results should be cause for alarm.

- **Students don't have access to key science and technology learning opportunities.** For today's students, being prepared for college and the modern workforce means having access to high-quality curriculum materials in critical subject areas like math and science. But our analysis found that most teenagers say their schools don't provide important learning opportunities in science and technology. For instance, 72 percent of eighth-grade science students say they are not taught about engineering and technology.
- **Too many students don't understand their teacher's questions and report that they are not learning during class.** Nationwide, less than two-thirds of middle-school math students report that they feel like they are always or almost always learning in math class. Similarly, just under 50 percent of 12th-grade math students said they feel like they are always or almost always learning in their math class.

Students also often report difficulty understanding their teacher's questions. Twenty-five percent of middle school math students report that they sometimes or hardly ever understand what their teacher asks. Thirty-six percent of 12th-graders report they sometimes or hardly ever clearly understand what their math teacher asks.

- **Students from disadvantaged background are less likely to have access to more rigorous learning opportunities.** All students, regardless of their family background, should have access to a high-quality education. But our analysis of student feedback found that students from disadvantaged backgrounds are less likely to have the same access to robust learning opportunities. Consider, for

72 percent of eighth-grade science students say they are not taught about engineering and technology.

instance, that 74 percent of higher-income fourth-grade students report that they often or always understand what their science teacher is saying, compared with just 56 percent of lower-income fourth-grade students.⁶ Among middle-school students, 80 percent of higher-income middle-school students report often or always understanding what teachers ask in math class. In contrast, just 70 percent of low-income students report often or always understanding their math teacher. Meanwhile, 66 percent of higher-income 12th-graders reported they often or always understand what their math teacher is saying, compared with 60 percent of low-income students.

There are also racial gaps in some areas. For instance, in the fourth-grade 73 percent of white students and 72 percent of Asian and Pacific Islander students said that they clearly understand what their science teacher talks about. In contrast, only 56 percent of black; 54 percent of Hispanic; and 58 percent of Native American and Alaska Native students say they do. In middle school, 83 percent of Asian and Pacific Islander students and 79 percent of white eighth-grade students report that they clearly understand what their math teacher is saying. But only 67 percent of black students; 70 percent of Hispanic students; 69 percent of Native American and Alaska Native students report understanding their teacher.

To be clear, there were not opportunity gaps in every area that we looked at. We examined disaggregated data for all of the relevant background questions and we reported the results only for questions in which there were significant gaps.

Our analysis leads us to the following recommendations:

- **Policymakers must continue to push for higher, more challenging standards.** To ensure that all students are ready for the global economy, we need to expect more of our students and schools they attend. The Common Core standards are one way to help states and districts make progress on this issue, but far more needs to be done.
- **Students need more rigorous learning opportunities, and our nation needs to figure out ways to provide all students with the education that they deserve.** Too many students report not being engaged in class. They don't understand what their teachers are teaching them and they feel like they are not learning. Our nation can—and should—do more.

- **Researchers and educators should continue to develop student surveys.** We hope this report launches additional research into the use of student surveys. Researchers such as Ronald Ferguson, senior lecturer in education and public policy and director of the Achievement Gap Initiative at Harvard University, have made significant advances which we describe below. But we need to know much more about these tools, and what they reveal about the student experience.

Over the past few years, many states have engaged in promising reforms that address the issues we raise in this report. But our findings suggest we need to do far more to improve the learning experience for all students. We hope that the interactive state-by-state maps available on our website—together with the findings and recommendations in the following pages—will inspire engagement with students’ perspectives in the search to find new and better ways to provide students with the knowledge and skills that they need to succeed.

Background

There has been a growing recognition in recent years that student surveys are an important component of measuring teacher performance. In many ways, it's not particularly surprising that students would be a reliable source of information about the quality of their education. After all, students spend most of their day interacting with teachers. And for their part, many schools and districts have been collecting student survey data for a long time. The earliest examples of using student perceptions to assess teacher performance date back to at least 1896 when students in Sioux City, Iowa were asked to provide input on their teachers.⁷

The student surveys of today, however, are far more detailed and sophisticated, capturing a much more robust view of the classroom experience. Similar to most previous iterations, today's student surveys examine the experience of students at the classroom level. A recent study by the Bill & Melinda Gates Foundation's Measures of Effective Teaching project—a partnership of researchers and educators dedicated to studying what makes an effective teacher—found that teacher-evaluation systems that combine classroom observation with student achievement gains and student feedback on teacher performance have more predictive power in determining how effective that teacher will be with future students than traditional predictors such as the number of years spent teaching or whether a teacher has a master's degree.⁸ It also improves the reliability of the evaluation and provides important diagnostic feedback that can be used for teachers' professional development.⁹

The Measures of Effective Teaching project study utilizes Tripod surveys, which were developed by Ferguson, co-director of the Tripod Project over a 10-year period surveying more than 300,000 students in hundreds of schools and thousands of classrooms.¹⁰ States that have incorporated student surveys into their teacher-evaluation systems have, for the most part, relied on the Tripod surveys because of their proven reliability and depth.

In several respects, the Tripod surveys could be called the “next generation” of student surveys. In contrast to other student surveys, the Tripod surveys are administered at the classroom level with multiple versions tailored for different grade-level bands. The Tripod surveys are designed around what Ferguson calls the “7 C’s Framework.”¹¹ The “C’s” relate to a teacher’s ability to explain concepts clearly, gauge whether their students understand the material, and demonstrate that they care about the student’s learning and overall well-being. When teachers are doing well across all seven measures, Ferguson argues, students will be engaged in what is going on in the classroom—“through the engagement, they’re going to do the work that leads to more learning.”¹²

At the core of the Tripod survey is the idea that it’s key to instill “a love of learning” in students.

One of the more surprising results of Ferguson’s early research is the degree to which student engagement matters. At the core of the Tripod survey is the idea that it’s key to instill “a love of learning” in students. In other words, student engagement comes before student achievement. The Measures of Effective Teaching project also shows that there is a robust relationship between students who were in classrooms with teachers that performed well on the 7 C’s Framework and student learning. To underscore the point: Fifty percent of students at the lower-25th percentile of classrooms—classrooms where students’ scores were lower than 75 percent of their peers on standardized tests—agree with the statement, “My teacher explains difficult things clearly.” In comparison, 79 percent of students at the upper-75th percentile of classrooms—classrooms where students’ scores were above 75 percent of their peers on standardized tests—agree with the statement, “My teacher explains difficult things clearly.”¹³ In addition, 40 percent of students at the lower-25th percentile of classrooms agreed with the statement, “Schoolwork is interesting,” while 67 percent of students in the upper-75th percentile of classrooms agreed with that statement.¹⁴

The Measures of Effective Teaching results hold a great deal of promise for new evaluations systems, and, given the significance of the findings, a number of organizations have begun to implement student surveys into their evaluation systems. The New Teacher Project, for instance, has incorporated student surveys into its teacher evaluation and training, arguing that while student surveys are not a replacement for other reliable measures, they can provide valuable feedback.¹⁵ Educators 4 Excellence, a teacher-led nonprofit organization dedicated to education policy, has also argued that the use of student surveys for teacher evaluation in New York City public schools is a necessary ingredient for a robust teacher-evaluation system. Their report outlining the elements of a high-quality teacher-evaluation system included

student surveys as 10 percent of a teacher’s overall evaluation.¹⁶ Nationwide, more than 11 states have recommended that student surveys be incorporated either as a required or an optional measure in their teacher evaluation systems.¹⁷

Moreover, the implications of the student survey research stretch well beyond teacher issues. Other organizations have used student surveys for a variety of purposes. The Council of Chief State School Officers, for example, recently began using student surveys to gauge alignment between classroom instructional practice and state standards. Rhode Island also utilizes a student survey called “SurveyWorks,” which asks students about their overall school experience, learning activities, school resources and conditions, and school safety, among other areas of concern. Although these surveys are not tied to teacher evaluation, they do strive to capture student voices.

National survey data

To help shine a light on the importance of student surveys—and to get a better sense of what’s happening in the classroom—we decided to examine one of the richest sources of national student survey data. Specifically, we conducted an analysis of the background surveys of the 2009 and 2011 National Assessment of Educational Progress.¹⁸ Known as the “nation’s report card,” the National Assessment of Educational Progress survey is administered every two years by the National Center for Education Statistics.

The National Assessment of Education Progress survey is quite different from the Tripod surveys we highlighted earlier. The Tripod surveys were developed over a 10-year period to answer specific questions about teaching effectiveness, the overall classroom learning environment, and student engagement, whereas the National Assessment of Education Progress survey has been developed in a more ad-hoc fashion since the 1990s.¹⁹ Further, the full version of the Tripod surveys are also more lengthy (about 20-30 minutes for each questionnaire) and tailored to different grade level bands, while the National Assessment of Education Progress background questionnaires are much simpler. They do not vary much by grade level, and they are intended to take only about 10 minutes of a student’s time to complete.²⁰

For its part, the National Assessment Governing Board recently released a report titled “NAEP Background Questions: An Underused National Resource,” which outlined plans to improve the National Assessment of Education Progress background questionnaire. The report explains that while the background questionnaire has been pared down in recent years, the National Assessment Governing Board plans to invest in renewed development of the survey. It hopes that improvements to the survey will turn the background questionnaire into a more useful source of information.²¹

Methods

In preparing this paper, we examined background questionnaires from the 2009, 2010, and 2011 National Assessment of Education Progress. We looked at fourth, eighth, and 12th grade surveys and used the most current data available for each subject area. The math and reading data are from 2011; history and civics data are from 2010; and the science data are from 2009. We downloaded the data from the website for our analysis in the winter and spring of 2012.

But there are some limitations to our analysis that should be noted. In a handful of states, for instance, not enough students took the survey to provide reliable results, so data from that state is either missing or responses to certain aspects of the survey are unavailable. This was especially true for surveys of 12th graders, as far fewer states administered enough surveys to 12th graders than for fourth and eighth graders. The missing responses are indicated on the tables where relevant.

The National Assessment of Educational Progress survey is also designed to offer a descriptive study of students nationwide and is not intended to provide information as to the causal relationships between the background variables it measures and student performance.

Finally, it's worth underscoring some of the key differences between the National Assessment of Education Progress and the Tripod surveys. The National Assessment of Educational Progress background questionnaire is an add-on to a state-by-state assessment. While it's reliable and widely used, it is not meant to be a vehicle to assess every detail of classroom practice. In contrast, the Tripod survey is used on a much smaller scale but provides a far more detailed look at classroom practice.

Our findings

Many schools are not challenging students, and large percentages of students report that their school work is “too easy”

If students are going to succeed in college or the modern global economy, they need to be exposed to a rigorous curriculum. But many elementary- and middle-school students believe that their class work is too easy. For instance, 29 percent of eighth-grade math students nationwide report that their math work is often or always too easy. In some states such as Virginia, nearly a third of middle-school students reported that their math work was too easy.

This finding was consistent across grades and subject matter, and we found that 51 percent of eighth-grade civics students and 57 percent of eighth-grade history students report that their work is often or always too easy. Elementary-school students also revealed that they aren't being challenged by their math work—37 percent of fourth-grade students reported that their math work is often or always too easy.

At the high-school level, students thought that their work was a bit more rigorous but not by much. We found, for instance, that 21 percent of 12th graders said their math work was often or always too easy, and 56 percent reported their civics work was too easy. Another 55 percent reported that their U.S. history work was too easy.

To be sure, students saying that math is too easy does not mean that math is, in fact, too easy for them. In other words, the data reflect how students perceive their work and not the actual rigor of their work. Indeed, while many students are claiming that their math work is too easy, they are not actually performing particularly well on math exams. Consider, for instance, that in math only 40 percent of fourth graders and 35 percent of eighth graders are performing at grade level on the National Assessment of Education Progress.²² There are a number of potential reasons for this disconnect. Some of it might speak to technical issues such as a gap between local curricula and what's being tested by the exam. It's also possible that students do poorly on the National Assessment of Education Progress

because they're not challenged in school. What's clear, though, is that the current data don't allow for an analysis of why this is happening, and far more research needs to be done to increase the understanding of what student perceptions tell us about their classroom experiences.

Many students are not engaged in rigorous learning activities

Less than one-third of middle-school students report reading fewer than five pages a day either in school or for homework. That's less than the benchmark of 20 minutes of reading a day that many literacy experts recommend for students. Middle-school students also report that they rarely write lengthy answers to reading questions on tests, and almost a third of students write long answers on reading tests less than one or twice per year.

We found similar results in the upper grade levels as well. For instance, nearly one-third of 12th grade reading students say they rarely are asked to identify main themes of a passage when reading. Almost 20 percent said they never or hardly ever summarize a passage. A third of 12th graders report that they have a class discussion about what they have read two times a month or less.

These data do not measure the quality of the work that students are performing in class—the National Assessment of Educational Progress questionnaire does not address that level of detail—and the quality of the work they do in class and the material they read can make a big difference in how much students learn. Students might be reading just a few very rigorous pages every day. But given the overall low reading scores—and the degree to which more reading promotes more learning—we believe these results should be cause for alarm.

Students don't have access to key science and technology learning opportunities

For today's students, being prepared for college and the modern workforce means having access to high-quality curriculum materials in critical subject areas such as math and science. Much attention has been paid in recent years to the importance of improving science, technology, engineering, and mathematics education, and it's clear that many jobs in the global economy will require a deep knowledge of math and the sciences.

But our analysis found that most teenagers say their schools don't provide important learning opportunities in science and technology. We found, for instance, that 72 percent of eighth-grade science students say they are not taught about engineering and technology.

Harvard's Ferguson of the Tripod survey project also note that there is a lot to be learned from comparing what teachers have to say to what students have to say. When both teachers and students agree on something, it's highly likely that their shared observation is an accurate description of what is going on in the classroom. When they disagree, however, you may need to dig deeper to find out what is going on. According to the National Assessment of Education Progress background survey of teachers, the majority of teachers nationwide agree with their students about how much class time is spent on these critical subjects. We found that 64 percent of teachers nationwide also report that they spend little to no class time on engineering and technology. But these are crucial subject areas when it comes to preparing students for the modern workforce and are incorporated as key components of the Common Core for science and math.

Too many students don't understand their teacher's questions and report that they are not learning during class

Nationwide, just 65 percent of middle-school math students report that they always or almost always feel like they are learning in math class. Just under 50 percent of 12th-grade math students said they always or almost always felt like they were learning in their math class. Among eighth graders, these data vary significantly by state, and in some states such as Washington, only 58 percent of eighth-grade math students said that they felt like they were always or almost always learning in math class. In contrast, more than 70 percent of eighth-grade students in North Carolina reported that they felt like they were always or almost always learning in math class.

Students also often report having difficulty understanding their teacher's questions. Twenty-five percent of middle-school math students report that they sometimes or hardly ever understand what their teacher asks. Thirty-six percent of 12th graders report they sometimes or hardly ever understand what their teacher asks.

This is not to say here or elsewhere that teachers are to blame for this problem. Indeed, recently there has been far too much harsh criticism of teachers. Instead,

Nationwide, just 65 percent of middle-school math students report that they always or almost always feel like they are learning in math class.

we would argue that the nation has not done nearly enough to provide teachers and schools with the supports that they need to teach all students to high standards. These data should be cause for change and more importantly, serve as a call for more robust research on why exactly this might be happening. The data should not, however, be treated as causal research, and the responses from students could be skewed by other factors. Students, for instance, might feel social pressures to indicate that they're not learning in schools. But given the findings of the Measures of Effective Teaching project and other recent research, we believe these results need to be examined more closely.

Students from disadvantaged backgrounds are less likely to have access to more rigorous learning opportunities

All students, regardless of their family background, should have access to a high-quality education. But our analysis found that students from disadvantaged backgrounds were less likely to have the same access to the more robust learning opportunities as their more advantaged peers. Consider, for instance, that 80 percent of higher-income middle-school students report often or always understanding what teachers ask in math class. In contrast, just 70 percent of low-income students report often or always understanding their teacher.

Just 56 percent of low-income fourth-graders reported they understand what their science teacher says, compared with 74 percent of their higher-income students. And 23 percent of low-income 12th graders said that their math work was often or always too easy, compared with 19 percent of their more affluent peers.

FIGURE 1

Percentage of fourth-grade science students nationwide who report understanding what their teacher talks about in science, by poverty

National school lunch eligibility	Never or hardly ever Percentage/ Standard error	Sometimes Percentage/ Standard error	Often Percentage/ Standard error	Always or almost always Percentage/ Standard error
Eligible	8% (0.2)	35% (0.3)	24% (0.2)	32% (0.3)
Not eligible	5% (0.1)	22% (0.3)	28% (0.3)	46% (0.3)
Information not available	5% (1.2)	30% (2.6)	29% (1.5)	36% (2.9)

Note: Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2009 Science Assessment. This report was generated using the NAEP Data Explorer. <http://nces.ed.gov/nationsreportcard/naepdata/>

FIGURE 2

Percentage of eighth-grade students nationwide who report clearly understanding what their math teacher asks, by poverty

National school lunch eligibility	Never or hardly ever Percentage/ Standard error	Sometimes Percentage/ Standard error	Often Percentage/ Standard error	Always or almost always Percentage/ Standard error
Eligible	3% (0.1)	27% (0.3)	32% (0.3)	38% (0.3)
Not eligible	2% (0.1)	18% (0.2)	32% (0.3)	48% (0.3)
Information not available	2% (0.5)	26% (3.3)	35% (2.7)	38% (3.1)

Note: Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2011 Mathematics Assessment. This report was generated using the NAEP Data Explorer. <http://nces.ed.gov/nationsreportcard/naepdata/>

FIGURE 3

Percentage of 12th-grade students nationwide who feel they are learning in math class, by poverty

National school lunch eligibility	Never or hardly ever Percentage/ Standard error	Sometimes Percentage/ Standard error	Often Percentage/ Standard error	Always or almost always Percentage/ Standard error
Eligible	4% (0.3)	17% (0.5)	29% (0.8)	50% (0.9)
Not eligible	4% (0.2)	17% (0.5)	32% (0.5)	47% (0.8)
Information not available	4% (1.4)	20% (2.9)	29% (2.5)	47% (3.0)

Note: Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2009 Mathematics Assessment. This report was generated using the NAEP Data Explorer. <http://nces.ed.gov/nationsreportcard/naepdata/>

There are also racial gaps in some areas. In fourth grade, for instance, 73 percent of white students and 72 percent of Asian and Pacific Islander students said that they understand what their science teacher talks about. In contrast, only 55 percent of black, 54 percent of Hispanic, and 58 percent of Native American and Alaska Native students say they understand what their teacher talks about. By middle school 83 percent of Asian and Pacific Islander students and 79 percent of white eighth graders report that they understand what their teacher is saying. But only 67 percent of black students, 70 percent of Hispanic students, and 69 percent of Native American and Alaska Native students in eighth grade understand what their math teacher is saying.

We did not, however, find opportunity gaps in every area. As part of our analysis, we looked at disaggregated data for all of the relevant background questions, and we reported the results only for questions in which there were significant gaps among student subgroups.

FIGURE 4
Percentage of public school fourth graders nationwide who report clearly understanding what their science teacher asks, by race and ethnicity

Race/ethnicity	Never or hardly ever Percentage/ Standard error	Sometimes Percentage/ Standard error	Often Percentage/ Standard error	Always or almost always Percentage/ Standard error
White	5% (0.1)	22% (0.2)	28% (0.2)	45% (0.3)
Black	8% (0.3)	37% (0.4)	24% (0.4)	31% (0.4)
Hispanic	8% (0.4)	38% (0.6)	24% (0.4)	30% (0.5)
Asian/Pacific Islander	4% (0.3)	24% (0.8)	29% (1.1)	43% (1.2)
American Indian/Alaska Native	11% (1.0)	31% (1.2)	26% (1.3)	32% (1.4)
Two or more races	7% (0.9)	27% (1.4)	28% (1.4)	38% (1.6)

Note: Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Prior to 2011 students in the "two or more races" category were categorized as "unclassified." Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant.

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2011 Mathematics Assessment. This report was generated using the NAEP Data Explorer. <http://nces.ed.gov/nationsreportcard/naepdata/>

FIGURE 5

Percentage of public school fourth graders nationwide who report clearly understanding what their science teacher asks, by race and ethnicity

Race/ethnicity	Never or hardly ever Percentage/ Standard error	Sometimes Percentage/ Standard error	Often Percentage/ Standard error	Always or almost always Percentage/ Standard error
White	2% (0.1)	19% (0.2)	32% (0.2)	47% (0.3)
Black	3% (0.2)	30% (0.4)	31% (0.5)	36% (0.4)
Hispanic	3% (0.2)	27% (0.5)	33% (0.4)	37% (0.6)
Asian/Pacific Islander	1% (0.2)	15% (0.6)	29% (1.1)	54% (1.2)
American Indian/Alaska Native	3% (0.4)	28% (1.3)	35% (1.4)	34% (1.5)
Two or more races	3% (0.5)	24% (1.3)	32% (1.4)	42% (1.6)

Note: Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Prior to 2011 students in the "two or more races" category were categorized as "unclassified." Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant.

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2011 Mathematics Assessment. This report was generated using the NAEP Data Explorer.
<http://nces.ed.gov/nationsreportcard/naepdata/>

Recommendations

Our analysis leads us to the following recommendations.

Policymakers must continue to push for higher, more challenging standards

Academic standards provide students and teachers with a clear set of goals that they can strive toward, and many states have been trying to ratchet up the rigor of their education systems by adopting higher academic standards. The Common Core— a collaborative interstate initiative to raise academic standards led by the National Governors Association and the Council of Chief State School Officers— is an effort to develop and implement national college and career-ready standards that increase the rigor of education across the country.²³ The initiative has received near-unanimous support across the country. Forty-eight states have joined the initiative, and 47 have formally adopted the standards—a rare achievement for contemporary reform efforts.²⁴

Our findings highlight the need for more rigorous standards like those put forth through the Common Core. It also suggest that states, districts, and the federal government should invest in other ways to raise the bar so that all students graduate from high school ready for college and the workplace. This includes expecting more of teachers, parents, and our schools.

Students need more rigorous learning opportunities, and our nation needs to figure out ways to provide all students with the teachers—and the teaching—that they deserve

Teaching is not easy work, and most teachers work very hard every day at their practice. But it's clear that too many students are not being engaged in class. These students don't understand their teachers, and they don't feel like they are

It's clear that we have a long way to go before science, technology, engineering, and math curriculums are aligned with opportunities available in the modern workplace.

always learning. Our nation can—and should—do more. There are many tools for improving teaching practice, and they start with a shift in policy. For instance, we need to do more to promote next-generation teacher-evaluation systems that give teachers the feedback that they need. We also need to improve the culture of teaching. This means creating an ethos around developing the practice—one that's focused on constant improvement.

This finding also highlights some of the issues around the Common Core and its implementation, and many observers have wondered if states have committed enough money and energy to provide teachers and schools with the training and materials that they need to teach to these higher standards. A recent study by the Center on Education Policy found that barely half of school districts in states that adopted the Common Core standards are taking the steps necessary to implement them. Teachers also don't see the new standards as all that different from existing standards, and 73 percent of teachers believe they're ready for the new standards.²⁵ That figure should concern reformers since it suggests that teachers are overconfident about their knowledge and ability to deliver on the new standards.

This issue is particularly key when it comes to science and technology. In order to compete in the global economy, students will need a deep knowledge of these topics. But our analysis reveals that a staggering number of students report that they spend little to no class time on science and technology. Further, it's clear that we have a long way to go before science, technology, engineering, and math curriculums are aligned with opportunities available in the modern workplace.

Researchers and educators should continue to develop student surveys

We hope this report launches additional research into the use of student surveys. While the National Assessment of Education Progress surveys clearly tell us something about students' experiences in their classroom, more sophisticated survey instruments must be developed to capture student perspectives. The Tripod Project is grounded on the assumption that much of the knowledge necessary for improving student outcomes is already present in most schools. What's lacking, however, are routine mechanisms for documenting student perceptions and well-structured ways to support teachers as they share ideas and work together to improve learning.²⁶

We also believe that more can be done to improve the National Assessment of Education Progress background questionnaire. We agree with the National Assessment Governing Board's recent report recommending that duplicative and low-priority questions be deleted.

However, we caution against making the National Assessment of Education Progress background questionnaire a key research tool for the evaluation of policy developments. Such an effort could make the exam overly burdensome and could potentially politicize the assessment. In particular, we recommend against the National Assessment of Educational Progress survey being used to evaluate Common Core implementation. That sort of work is better left to the states or other survey instruments.

In the end, it's clear that student surveys can provide important insights into a teacher's effectiveness, as well as the overall educational experience of students. A growing number of school systems such as Washoe County, Nevada, are considering using students to evaluate teachers, and Memphis already counts student surveys as 5 percent of a teacher's overall evaluation.²⁷ But far more needs to be done to better understand the role of surveys and to promote their use in schools and districts.

About the authors

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Boser has written a number of influential reports. His study of school spending included the first-ever attempt to evaluate the productivity of almost every major school district in the country. Hundreds of media outlets covered the release of the report, including *The New York Times*, *The Washington Post*, and the Associated Press. He has served as a commentator on social policy issues for many media outlets, including CNN, National Public Radio, and *The New York Times*.

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In 2010 Rosenthal earned her master's degree from the University of Chicago, where she studied the relationship between adolescent parenting among youth in foster care and multigenerational involvement in the child welfare system. Her studies were informed by her direct-service experience as a home visitor and child advocate with the Florida Guardian Ad Litem Program.

Endnotes

- 1 Stephen Sawchuk, "TNTP to Incorporate Student Surveys into Evaluations," *Education Week Blog: Teacher Beat*, December 14, 2011, available at http://blogs.edweek.org/edweek/teacherbeat/2011/12/tntp_to_incorporate_student_su.html.
- 2 National Center for Education Statistics, *Questionnaires for Students, Teachers, and Schools* (U.S. Department of Education, 2011) available at <http://nces.ed.gov/nation-sreportcard/bgquest.asp>.
- 3 This data is from a multipart question on the National Assessment of Education Progress (NAEP) Background Questionnaire (question 4). The question is phrased "How often do you feel the following way in your math class?" Students are asked to provide responses for a series of statements. One statement is, "Math work is too easy," and another statement is, "Math work is challenging." The inconsistent wording (omitting the word "too" from the challenging question) makes it difficult to compare the two questions in relation to one another. This type of conceptual inconsistency in wording on the background questionnaire is among things that National Assessment Governing Board recommended be improved in its recent report on how to improve the NAEP Background Survey, "The NAEP Background Questionnaire: An Underused National Resource." We were interested in the component of question 4 that asked students to rate how often they felt math work was too easy because it asks students to make a judgment about what the difficulty of their math class (and thus expectations of their performance in math) should be. Asking students to rate how often they feel "math work is challenging," from our perspective, asks more about the students experience of the work itself, which can be influenced by a number of factors, including their preparedness and ability, and does not ask them to make a value judgment about whether schools have the right expectations of them as students.
- 4 Students responses were given on a Likert scale, where they could select from the following answer choices: "always or almost always"; "often"; "sometimes"; and "never or hardly ever." We sometimes reported our results by combining either the top two categories or the bottom two categories (e.g. by combining "often" with "always or almost always"; or "sometimes" and with "hardly ever"). The exact combination of response categories is reported in the footnote for each relevant table and expressed in each sentence where data is presented.
- 5 In a study widely discussed by the Association for Middle Level Education, researchers found a positive correlation between the amount of time fifth-grade students spend reading texts and their achievement scores on a test of reading skills. The researchers found, specifically, that students with scores at the 98th percentile on the test read approximately 5 million words per year, or about 14,000 words per day. Students scoring at the 50th percentile read around 600,000 words per year. Many experts recommend that young people should have print encounters at a volume of 1 million to 2 million words per year, and a number of cities, including Tulsa and Denver, have started campaigns to have student read at least 1 million words a year, or about 20 minutes per night.
- 6 Lower-income students were identified as those students eligible for school lunches. Higher-income students were identified as those students who were not eligible for school lunches. For some students who took the survey, this information was not available.
- 7 Jackie Burniske and Debra Maibaum, "The Use of Student Perceptual Data As A Measure of Teaching Effectiveness" (Austin, Texas: Comprehensive Center, 2012) available at http://txcc.sedl.org/resources/briefs/number_8/index.php.
- 8 Bill & Melinda Gates Foundation, "Gathering Feedback for Teachers: Combining High Quality Observations with Student Surveys and Achievement Gains" (2012).
- 9 Ibid.
- 10 "Cambridge Education LLC," available at <http://camb-ed-us.com/QualityReviews/Tripodsurveyassessments.aspx> (last accessed June 2012).
- 11 The 7 C's are care, control, clarify, challenge, captivate, confer, and consolidate.
- 12 Tracy Crow, "The View From The Seats: Student Input Provides a Clearer Picture of What Works in Schools," *JSD* 32(6) (2001): 24–30, available at <http://www.learningforward.org/news/getDocument.cfm?articleID=2379>.
- 13 Bill & Melinda Gates Foundation, "Learning About Teaching: Initial Findings from the Measures of Effective Teachers Project" (2010), available at <http://www.gates-foundation.org/college-ready-education/Documents/preliminary-findings-research-paper.pdf>.
- 14 The standardized tests looked at by the Measures of Effective Teaching study were the Balanced Assessment in Mathematics and the SAT 9 Open-Ended Reading test.
- 15 The New Teacher Project, "MET Made Simple: Building Research Based Teacher Evaluations" (2012), available at http://tntp.org/assets/documents/TNTP_METMadeSimple_2012.pdf.
- 16 Educators for Excellence, "Beyond Satisfactory: New Teacher Evaluation System for New York" (2011), available at http://educators4excellence.s3.amazonaws.com/8/b5/5/152/1/E4E_Evaluation_White_Paper_FINAL.pdf.
- 17 Burniske and Maibaum, "The Use of Student Perceptual Data As A Measure of Teaching Effectiveness."
- 18 National Center for Education Statistics, *Questionnaires for Students, Teachers, and Schools*.
- 19 Marshall S. Smith and others, "NAEP Background Questions: An Underused National Resource" (Washington: National Assessment Governing Board, 2012) available at <http://www.nagb.org/publications/expert-panel-naep-bq-report.pdf>.
- 20 In a recent report the National Assessment Governing Board announced plans to extend the length of the questionnaire, which will help produce more detailed and informative results. See Smith and others, "NAEP Background Questions: An Underused National Resource."
- 21 Ibid.
- 22 National Center for Education Statistics, *The Nation's Report Card: Mathematics 2011*.

- 23 "Common Core State Standards Initiative," available at www.corestandards.org (last accessed June 2012).
- 24 Only Alaska and Texas have declined to participate in the initiative. Virginia joined the initiative without formally adopting the standards.
- 25 Scholastic and the Bill & Melinda Gates Foundation, "Primary Sources 2012: Americas Teachers on the Teaching Profession" (2012), available at <http://www.scholastic.com/primarysources/download.asp>.
- 26 "Multiple Measures of Teacher Effectiveness and Student Engagement", available at <http://www.tripod-project.org> (last accessed June 2012).
- 27 Sarah Butrymowicz, "Student surveys for children as young as 5 years old may help rate teachers," *The Washington Post*, May 13, 2012, available at http://www.washingtonpost.com/local/education/student-surveys-may-help-rate-teachers/2012/05/11/gIQAN78uMU_story.html.

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