Most States Lag Behind High-Performing Countries in Math and Science

Last week, the National Center for Education Statistics (NCES) released a new report *U.S. States in a Global Context: Results from the 2011 NAEP-TIMSS Linking Study*. The study used a statistical methodology to "project" state-level National Assessment of Educational Progress (NAEP) results for 8th grade students in mathematics and science onto the Trends in Mathematics and Science Study (TIMSS) scales. It then showed these results against the actual scores for the United States and the 46 other nations that participate in TIMSS. (Actual TIMSS scores were used, however, for nine states that administer TIMSS to a sample of students.)

The results of the study strongly reinforce the need for state leaders, educators, parents and communities to take seriously the work of ensuring that all students graduate from high school prepared for college and careers.

The average mathematics scores for all but one U.S. state - Massachusetts - fell below the TIMSS "high" benchmark *(students can apply their understanding and knowledge in a variety of relatively complex situations)*. The vast majority of U.S. states lagged far behind leading nations such as South Korea, Singapore, Hong Kong and Japan on average mathematics scores, and dramatically far behind on the percentage of students who reach the "advanced" benchmark.
in an op-ed in the Sun Sentinel that, "Common Core emphasizes the use of information to solve problems, rather than basic memorization of facts, and raises standards. The PARCC tests will measure students' proficiency on these skills." More...

Common Core Can Aid Our Schools

An editorial in the Lansing State Journal notes that, "When U.S. education leaders searched for ways to keep American children from trailing their counterparts in other nations, devising national standards emerged as an appropriate response." More...

(Students can reason with information, draw conclusions, make generalizations and solve linear equations).

Over the coming years, it will be critical for states to continue the work of implementing the Common Core State Standards (CCSS) to increase the number of students who can apply their understanding and knowledge of mathematics. As TIMSS expert Dr. William Schmidt has noted, "the Common Core State Standards for Mathematics are an important improvement over the state standards that they replaced" and "their consistency with the international benchmark set by top-achieving countries shows that the CCSS are coherent, focused and rigorous, key attributes of math standards from countries that outperform the U.S. on international assessments."

Unfortunately, many state leaders, educators, parents and citizens may not have received this message through the press coverage surrounding the study's release. In many cases, the results for states were compared to the international average score - and the vast majority of states met or exceeded the international average in mathematics. Governing, for example, declared that students in many states "perform pretty well" and The New York Times led with the news that the majority of U.S. states "outperformed the international average".

There is little meaning to be gained from "horserace" comparisons with the international average score, which is largely only a function of which nations participate in the assessment. For example, while TIMSS includes some leading nations such as South Korea, it also includes many nations where many students have very little educational opportunity - such as Morocco, Indonesia, Oman, Ghana and Saudi Arabia. It does not, meanwhile, include a number of countries, such as France, Germany, the Netherlands and Switzerland, which have outperformed the U.S. on the Program for International Student Assessment (PISA) in the past.

By the end of the year, we will have a great deal more information about the performance of students across states and the nation as a whole. NAEP results for states in both mathematics and reading, in 4th and 8th grade, will be released in early November and results from the 2012 PISA - which will focus on mathematics literacy for 15 year olds but also assess
reading literacy and science literacy - will be released in early December. State leaders, educators, parents and citizens should use these results to deepen their understanding of student performance along the path toward graduating academically prepared for what comes next.

**News**

**Testimony of Achieve President Michael Cohen to the New York State Senate Standing Committee on Education**

On October 1 Achieve President Mike Cohen gave testimony to New York's Senate Standing Committee on Education during its public hearing, "The Regents Reform Agenda: 'Assessing' Our Progress." The hearing was held in Syracuse, NY. For an excerpt from his prepared remarks and a link to the full testimony, go [here](#).

**Achieve Builds Capacity**

Don Brown is Achieve's Chief Financial Officer. Reporting to the CEO, Don is responsible for overall management and direction of all aspects of financial accounting, planning and reporting for Achieve's operating and programmatic activities. Serving as a member of the Executive Leadership Team, he shares responsibility for understanding the wide-ranging needs and expectations of the organization's internal and external constituencies.

Crystal Hill joined as our Director, Human Resources & Operations where serves as a strategic business partner overseeing all of Achieve's Human Resources Programs and supporting Achieve's overall strategic goals and objectives, aligning human capital with business needs, fostering a culture of employee engagement, implementing HR best practice and ensuring legal compliance.
Zachary Child now serves as a Program Associate for Science. He primarily works to support adoption and implementation of the Next Generation Science Standards. Additionally, he conducts research and assists in developing communications to promote College and Career Ready education policies.

EQuIP Peer Review Panel Seeking Members

Achieve is pleased to launch and facilitate the EQuIP Peer Review Panel. In January 2013, EQuIP collaborative state leaders expressed a desire to create and select a stable group of experienced reviewers to evaluate the quality and alignment of lessons and units to the Common Core State Standards. These lessons and units will serve as models and provide educators access to a shared set of high-quality instructional materials. The EQuIP Peer Reviewer Panel will convene in person twice each year, starting with a mandatory EQuIP Peer Review Panel Training January 22-24, 2014 in Washington, DC. Apply online by November 8, 2013. More...

Toward the Integration of the NGSS and Common Core in the Classroom

- Observe how animals build bridges and use those observations to design a solution to avoiding puddles at school.
- Develop models to explain how plants communicate via chemical cues.
- Mathematically describe the structure of radio waves that could allow cars to communicate to prevent crashes.

These are just a few components from the model K-12 student tasks being developed by a group of 18 experienced science, math and engineering teachers and administrators.

In early September, Achieve gathered this group to begin developing model tasks for
K-12 classrooms. The innovation: these tasks integrate the Next Generations Science Standards (NGSS) and Common Core State Standards in Mathematics (CCSS-M).

"It is an exciting time in science education," said Ben Twietmeyer, a chemistry teacher from Illinois. "We are moving from primarily only teaching science content to developing students' knowledge and science skills. Focusing on evidence based explanations and application, the math science performance task pulls together the big ideas of the NGSS and Common Core Math Standards."

In integrating the NGSS and CCSS-M, the model tasks intend to do more than simply include science, mathematics and engineering as separate components within the same task. The model tasks will showcase a spectrum of opportunities to integrate these disciplines to support a shift in instruction.

"Working with a science teacher broadened my understanding of writing and teaching integrated tasks," said Jennifer Abler, a high school math teacher from Michigan. "We spent a great deal of time discussing what integrated really means. It's not teaching math and science parallel to one another but using the skills of each content area to strengthen the understanding of the content of both subjects."

In addition to providing examples of creative integration of the NGSS and CCSS-M, a key purpose of the model task project is to demonstrate how others can develop integrated science and math tasks.

To support this effort, when the model tasks are published, they will be accompanied by project planning materials that show the criteria and process the writing teams used to develop the tasks.

The writers emphasized that the model tasks are only a first step, and creating effective tools for science, mathematics and engineering teachers should be a collaborative, ongoing process.

"This opportunity allowed me to recognize that great tasks, or lessons, don't just happen," said Abler. "They take time to develop, time to revise, and time to evolve as we consider using them with our students."
Achieve will continue to work with the states that adopt the NGSS through the coming years to refine these tasks and to develop other tools to support the implementation of the NGSS. The initial model tasks and support materials will be released online in winter 2013/2014.

PARCC Update

The Partnership for Assessment of Readiness for College and Careers (PARCC), a consortium of states working together to create next-generation assessments, convened nearly 400 educators in Chicago in October for its bi-annual Educator Leader Cadres (ELC) meeting. "The PARCC ELC meeting provided me with the latest information about the new assessment tools for Illinois students," said Annice Brave, an Illinois ELC team member and high school English teacher. "I am excited about finally having quality tools to measure what my students know and are able to do. We will have a test that will engage our students and give me a real picture of their readiness for college and career and how well I have done my job." More...

New Resources

OECD Skills Outlook 2013

OECD Skills Outlook presents the initial results of the Survey of Adult Skills, which evaluates the skills of adults in 24 countries. It provides insights into the availability of key skills and how they are used at work and at home. A component is the direct assessment of key information-processing skills: literacy, numeracy and problem solving in the context of technology-rich environments. Larger proportions of adults in the U.S. than in other countries have poor literacy and numeracy skills, and the proportion of
adults with poor skills in problem solving in technology-rich environments is slightly larger than the average, despite the relatively high educational attainment among adults in the U.S. Socio-economic economic background has a stronger impact on adult literacy skills in the U.S. than in other countries. Black and Hispanic adults are substantially over-represented in the low-skilled population. Literacy skills are linked not only to employment outcomes, but also to personal and social well-being.

Proficiency-Based Learning Website

The state of Maine has developed a website to help educators achieve a common understanding of proficiency-based learning. Proficiency-based learning refers to any system of academic instruction, assessment, grading and reporting that is based on students demonstrating mastery of the knowledge and skills they are expected to learn before they progress to the next lesson, get promoted to the next grade level or receive a diploma. The website, Getting to Proficiency: Helping Maine Graduate Every Student Prepared, provides technical assistance, resources and guidance for Maine school districts to implement the proficiency-based diploma, and to do so in a way that promotes student learning and achievement of the Maine Learning Results. Many Maine schools have already begun implementing proficiency-based learning to ensure that their students graduate from high school with the skills they need for success in college, careers and civic life. In proficiency-based learning, time is the variable and learning driven by rigorous standards is the constant.

Excellence Gaps

The University of Connecticut Center for Education Policy Analysis published Talent on the Sidelines: Excellence Gaps and America's Persistent Talent Underclass, which examines the underreported problem of students from particular racial and socioeconomic backgrounds dominating the ranks of
those who perform best on national assessment tests. The principal result of the Excellence Gap is the under-representation of low-income and minority students among those students performing at highest levels. This can be understood by looking at the very small proportion of low-income students who reached the Advanced level on the 2011 NAEP. In Grade 8, 8 percent of all 8th graders reached the Advanced level in mathematics. Extrapolated to the entire country, this amounts to approximately 290,000 of the 3.6 million U.S. 8th graders. Of the 44 percent of all students eligible for free and reduced meals (about 1.6 million), less than 40,000 would score at the Advanced level on the NAEP.

Standardized Testing and the Common Core Standards: You Get What You Pay For?

Eighty-five percent of American students attend school in a state that has adopted the CCSS. As these states transition from adoption to implementation of the new standards, many are grappling with how best to assess whether students are learning the material contained in the Common Core. Debates about the costs and merits of Common Core tests are raging in states across the country. In a new Brookings report, Brown Center Fellow Matthew M. Chingos critically examines the likely costs of the various assessment options that are available to states, but urges states to also consider test quality in addition to cost when choosing an assessment. This report can be very helpful in your states as you talk about the investment in next generation assessments aligned to the CCSS. Taxpayers get more bang for their buck when states collaborate, and students cannot afford for policymakers to compromise on assessment quality. All of the Common Core assessments under consideration cost less than a single textbook, and represent a drop in the $10,500 bucket of annual per-pupil spending on education. This report confirms that states would pay much more if they were to go it alone. What's more they would have trouble attaining high quality without collaboration.
Career Opportunities

Achieve has these career opportunities available:
- Director, State Policy and Implementation Support
- Program Associate, PARCC Assessment Technology
- Program Associate, PARCC Item Development
- Senior Advisor, PARCC ELA/Literacy Assessment
- Senior Advisor, PARCC Mathematics
- Senior Associate for Communications

Go to www.achieve.org/careers.

Connect with Achieve

Perspective is sent to you by Achieve, an independent, bipartisan, non-profit education reform organization based in Washington, D.C. that helps states raise academic standards and graduation requirements, improve assessments and strengthen accountability. Please feel free to circulate this e-newsletter to your colleagues.