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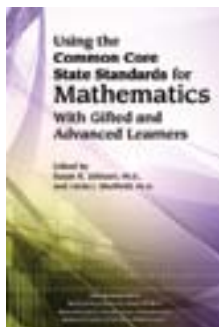
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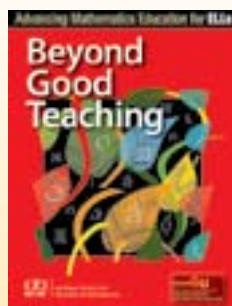
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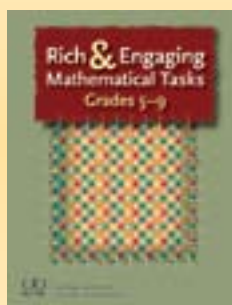
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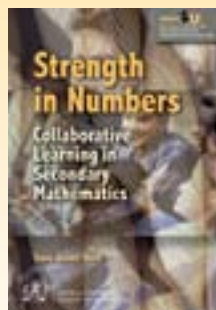


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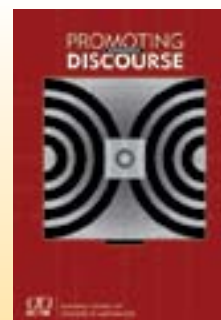


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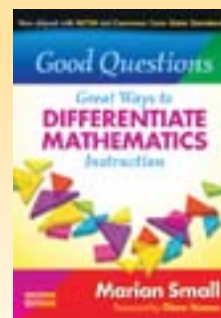


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Prepare for More Realistic Testing Results

Matthew R. Larson and Steven Leinwand

Educators in 45 states and the District of Columbia are hard at work interpreting and implementing the Common Core State Standards for Mathematics (CCSSM) (CCSSI 2010). This work typically involves teacher participation in professional development activities focused on developing an understanding of the Content Standards as well as the Standards for Mathematical Practice. Across the country, educators are also engaged in an analysis of the model content frameworks, item prototypes, and achievement level descriptors being released by the two national assessment consortia: The Partnership for the Assessment of Readiness for College and Careers (PARCC) and Smarter Balanced Assessment Consortia (SBAC). Although math-

ematics teachers still have to prepare their students for current state assessments, many educators are beginning to ask—with justifiable anxiety, given the consequences attached to student performance—how their students might perform when the new assessments are first administered in the 2014–2015 school year.

PREDICTING PARCC AND SBAC RESULTS

It is impossible to predict PARCC and SBAC results with certainty because the results will depend on a variety of factors, including how PARCC and SBAC performance standards required for proficiency will be set. Despite this, there is strong evidence that educators nationwide should expect significant reductions in the percentage of students deemed to be proficient when compared with the proficiency rates currently reported by states using their own assessments.

A case in point is the nagging concern of many that nearly all states during the No Child Left Behind (NCLB) era set low proficiency standards as evidenced by the discrepancy

between the proficiency percentage reported on the National Assessment of Education Progress (NAEP) and those reported by individual states. For example, **figure 1** shows that in 2009 only Massachusetts had a state standard for proficient performance in grade 8 mathematics that was equivalent to the NAEP standard (Bandeira de Mello 2011, p. 13). Every other state's standard for proficient performance on its state assessment was lower than the NAEP standard and resulted in somewhat higher to significantly higher reported rates of proficiency.

A report prepared by the American Institutes for Research (AIR) (Phillips 2010) compared the mathematics proficiency standards in each state with the international benchmark used in the Trends in International Mathematics and Science Study (TIMSS). Comparing current state proficiency standards with international benchmarks is instructive because one of the criteria for the development of the Common Core State Standards for Mathematics was that the standards be internationally benchmarked.

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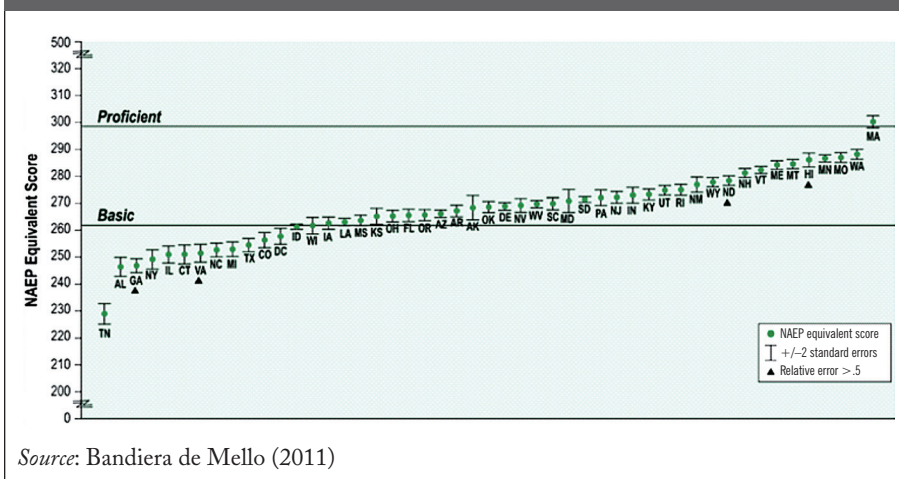
Compare 2007 eighth-grade mathematics proficiency, as reported by states under the NCLB requirements, with an estimate of percent proficient if the states had used a high, but not advanced, internationally benchmarked common standard. One will see that the mean eighth-grade state math proficiency rate would drop from 62 percent to 29 percent. The rate would also drop in each of the 48 states included in the study, with the exception of Massachusetts and South Carolina (Phillips 2010).

During the 2011–2012 school year, Kentucky administered its new K-PREP statewide assessment, which was designed to be representative of the Common Core State Standards. At the middle school level in 2010–2011, Kentucky reported that 65 percent of middle level students were proficient in mathematics, but that number dropped to 40.6 percent proficient under the new assessment in 2011–2012 (Ujifusa 2012). This drop was similar to the mean estimated drop in the AIR report. Taken together, this evidence may indicate that most states will experience a significant drop in their math proficiency rates when the new assessments are implemented.

PREPARING THE PUBLIC FOR LOWER PROFICIENCY RATES

Given these expected, and in some cases significant, drops in the percentages of students deemed proficient, educators at the state, district, and building levels should begin preparing stakeholders for this likelihood to mitigate the panic and overreaction that might occur when results of the new assessments are released in 2015. Classroom math teachers need to be aware of and clearly understand the reasons behind the potential drop in proficiency rates and begin to educate their school leaders about this likelihood, as many school district leaders have neither the

Fig. 1 This chart shows NAEP scale equivalents of state grade 8 mathematics standards for proficient performance, by state, for 2009.



Source: Bandiera de Mello (2011)

time nor subject-matter expertise to anticipate and appreciate the nuances of these new results.

What should the key messages be? The critical message, no matter how difficult it is for many people to accept, is this: Most states have set relatively low performance standards, and current proficiency rates reported under NCLB do not adequately reflect what students need to know and be able to do in math to compete internationally (Phillips 2010). Two factors exacerbate the problem.

First, most state assessments under NCLB have a propensity to assess math skills in isolation at a low-level depth of knowledge (Herman and Linn 2013). Second, state tests have not assessed mathematical processes in addition to content as outlined in the Common Core's Standards for Mathematical Practice. In other words, current state proficiency rates under NCLB in many states inflate students' true level of mathematical understanding when measured against an international performance standard. We need to confront this fact and move forward from a new, more realistic baseline of student achievement.

Additional important messages that need to be developed and communicated include these:

- Comparisons to past scores on state assessments will have little value. Results of PARCC and SBAC will reflect the performance of a new assessment, with new standards, set to a higher performance standard.
- States and school districts that have adopted teacher evaluation systems tied to student performance on assessments will need to consider that any decrease in the percentage of proficient students as measured by PARCC or SBAC likely occurred because of a change in the performance standard under the new assessments and not a decrease in instructional effectiveness.
- Many states still use paper-and-pencil assessments, and the new assessments will be administered electronically. Therefore, math teachers will need to provide students with experience taking mathematics assessments online to prevent any potential drop in performance because of the change in assessment platform.
- School boards and the public need to understand that it will take time for meaningful improvement to occur in proficiency rates and in teaching and learning under the new assessments.

- It will take time to implement CCSSM and for students to develop the habits of mind outlined in the Standards for Mathematical Practice. Therefore, math teachers cannot wait until 2014–2015 to begin the process. Implementing the Standards for Mathematical Practice can begin immediately. If teachers work collaboratively to interpret and implement CCSSM (Kanold and Larson 2012), they can successfully begin the process before schools or districts pronounce formal efforts.
- Adopting higher content standards and setting a higher performance standard are essential if we are to give our students the opportunity to learn the math they need to become productive members of society and to compete in a marketplace that is increasingly global in nature.
- Parents will need to hold their students “to the highest standards that push them out of their comfort zones” (Friedman and Mandelbaum 2011, p. 124). Without students engaging in meaningful mathematical work, both inside and outside school, the goals of higher achievement under the Common Core will be impossible to achieve.

PERSEVERANCE IS NOT JUST FOR STUDENTS

If the results of the new assessments of CCSSM result in lower proficiency rates, it will be easy for—

1. teachers to become discouraged;
2. school administrators to overreact and implement counterproductive practices to find quick fixes;
3. school board members to remove school leaders to demonstrate that they are taking action;
4. parents to believe that their child’s school is failing;

5. business leaders to use lower scores to point to the failure of the educational system; and
6. policymakers to declare CCSSM a failure.

None of these knee-jerk reactions are likely to help or improve the teaching and learning of mathematics.

The first Standard for Mathematical Practice states that students will “make sense of problems and persevere in solving them” (CCSSI 2010, p. 6). Although these standards are processes that students are expected to engage in as they learn the Content Standards, we need to recognize that to achieve the vision of higher mathematics achievement for all students, *perseverance* will be critical for not only students but also the entire *system*. All those involved in educating students and who are interested in their success will need to persevere in the face of criticism if proficiency rates decrease under PARCC and SBAC, have the courage necessary to accept that previous scores were artificially high, and work from a new baseline to support better teaching and learning for all students.

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