Common Sense and the Common Core:

The Steps We Need to Take

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The United States seems to be on the verge of something very close to national K–12 mathematics standards. In 1989, the National Council of Teachers of Mathematics (NCTM) began this process by taking the bold step of describing the mathematics that should be included in elementary, middle school, and high school math programs. For more than two decades, much additional work has advanced consensus in this area, including further contributions from NCTM (e.g., 2000, 2006), the National Research Council (Kilpatrick, Swafford, and Findell 2001), and countless other groups and individuals within the mathematics education community. In 2010, we saw the completion of the Common Core State Standards for Mathematics, initiated by the National Governors Association and the Council of Chief State School Officers. As we move into 2011, 40 states have agreed to use the Common Core State Standards as the basis for their states' mathematics programs; others may yet choose to do so. What does this mean for you?

Even if you don't live or teach in an adopting state, you will probably be affected by the Common Core initiative. Over the next few years, common assessments will be developed around these standards, and the influence of these assessments is likely to be felt nationwide. It is therefore incumbent upon every educator involved with mathematics to understand the Common Core State Standards and the issues that surround them and, when called for, to implement the standards with common sense and professional expertise in support of excellent mathematics teaching that benefits every student.

Moving Past the Issues

As is true with opinions surrounding any document aimed at serving a large population, many of us might quibble about the details in "Common Core State Standards for Mathematics" (CCSSO and NGA Center 2010). We might have issues with specific wording, the grade placement of certain standards, or even the choices made in prioritizing topics within a level or across grades. We might be uncertain whether students should study Algebra I in grade 8 or grade 9, since the Common Core standards show considerable attention to some typical Algebra I content in grade 8, but not a full course, with much of that content repeated in the high school standards. And we might have questions about how to structure high school courses, since the high school mathematics standards are not presented in a grade-by-grade fashion.

These issues can be addressed as we move forward. After all, the Common Core standards are not designed to represent consensus, arguably an impossible goal to achieve. Rather, they reflect thoughtful professional decisions by a group of writers and advisors, based on a set of beliefs and assumptions. Perhaps different professionals might have made slightly different decisions. However, the benefits to be gained from focusing national attention on common standards are so significant, both for individual students and for the nation, that we have a responsibility to deal with the issues and move ahead. The widespread adoption of these standards represents a great opportunity to advance the work of the past 20 years toward improving mathematics teaching and learning in the United States.

Educators face considerable work to unpack and understand the content standards for each level. This work may take months, or even years, to accomplish well. And even as we progress toward this goal, I hope that periodically the standards themselves will be reviewed and revised, leading to further work in the future. So, let us begin this journey by shifting our focus from the issues to the intentions, goals, and overall priorities represented in these standards.

Getting the Big Picture

As a first step in understanding the intentions behind these standards, read the parts of the document that are likely to disappear as we become engrossed in the details of correlation charts, test specifications, and grade-level or course checklists. This includes the narrative in the introduction to the document, in grade-level overviews, in the Standards for Mathematical Practice, in the introduction to high school standards, and in concluding notes on high school courses. These narratives provide a rich foundation for individual reflection or a faculty study group preparing to plan for implementation.

Within the introduction to the math standards on pages 3–5, for example, there are important discussions about the intended balance of concepts and skills within the design of the standards, about what it means to understand mathematical concepts and ideas and the purposeful use of the term *understanding* in the standards, about considerations when sequencing instruction, and about accommodating differences in students' previous learning. The introduction also reinforces the importance of providing all students the opportunity to learn high-quality, rigorous mathematics, taught in accessible ways, and the importance of attending to equity as a central element to implementation. These pages also include insights into the meanings behind the phrases used to promote these standards—that they represent *fewer, clearer, higher* standards than many states' current standards. The introduction emphasizes the importance of prioritizing and focusing on a few key ideas at each grade level, as advocated in NCTM's *Curriculum Focal Points* (2006). And the discussion of coherence in the introduction sheds light on some of the underlying beliefs and assumptions that may have guided the mathematical development within the standards. I encourage all educators to carefully read, consider, and discuss with each other the implications of the narrative in the introduction to the Common Core math standards, focusing on how these implications reinforce us to teach mathematics deeply and for lasting effectiveness.

Exploring the Details

As we move beyond the big picture and delve into the specifics of the Common Core State Standards for Mathematics, a key strategy is to focus on, and to revisit frequently, the Standards for Mathematical Practice described on pages 6–8 of the math standards document. As a set, these eight intriguing statements open the door for the student-centered teaching approaches we see evident in our most effective classrooms. Although each statement is accompanied by only a short descriptive paragraph, these paragraphs provide a seed for extended study, learning, and discussion within a professional learning community focused on how to help students become mathematically proficient. As one example, the eighth standard addresses the notion of "regularity in repeated reasoning" (8). Examples in the paragraph that follow include division of whole numbers resulting in repeating decimals, calculation of slope, and multiplication of polynomials. Further reflection and discussion of the standards might yield the remarkable observation that the reason we can address the addition of whole numbers over fewer years than we might have done in the past is that we can help students see the pattern of regularity that appears in adding two three-digit numbers and how it can be extended to adding two four-digit numbers, two five-digit numbers, and so on to larger and larger numbers. All of the eight Standards for Mathematical Practice leave considerable room for this kind of exploration and expansion to address the most important elements of mathematical thinking and understanding. These standards represent a critical foundation on which all of the content standards rely; without adequate attention to the Standards for Mathematical Practice, we will never fulfill the potential of the Common Core State Standards for Mathematics to improve student learning.

Maintaining Our Focus on Excellent Teaching

As we reflect on how classroom mathematics teaching may change in light of widespread adoption of the Common Core State Standards, we may realize that we need to make some adjustments. We will likely choose to address some skills or concepts at different grade levels than we currently do, perhaps beginning or ending a few topics sooner or later than in current

practice. These adjustments are necessary if we are to adequately prepare students to demonstrate their mathematical knowledge and proficiency on common assessments.

But we must exercise caution by not narrowly interpreting every standard or example and by not trying to pay attention to specific words or phrases at the expense of what we know to be excellent mathematics teaching practices. Over the past several years, especially since the increase of sanctions and consequences based on high-stakes state tests, Ravitch (2010) and others have lamented the abuses to excellent teaching perpetrated in the name of accountability.[1] Much of this abuse has come about because of a narrow focus on skills and test objectives that often overlooked the richest (and least easily assessed) elements of state standards and lost sight of the broader goals of a strong mathematical education. As we take constructive steps forward, let us view every step we take through the lens of the professional mathematics educator to truly consider how to teach for understanding, proficiency, and the development of lifelong mathematical problem-solving tools.

If we do our homework well and understand the sound underlying philosophy of the standards, if we take the time to continue to learn and grow as professional mathematics educators, and if we rely on our informed professional judgment, we can see beyond the small details to the larger vision of mathematical understanding inherent in these standards—to help students become powerful and flexible mathematical thinkers. In the transitional narrative that immediately follows the presentation of the Standards for Mathematical Practice (and elsewhere), the writers of the standards have expressed well their reliance on the broader educational community to implement the standards wisely, supporting classrooms where expert practitioners employ effective strategies to help students develop all aspects of their mathematical tool kits, from understanding concepts and learning skills to internalizing a rich set of mathematical processes they can call on to approach a wide variety of situations. There is much for all of us to learn within the Common Core State Standards for Mathematics; simultaneously, each of us can bring to that learning our professional knowledge, experience,

[1] "Accountability makes no sense when it undermines the larger goals of education" (Ravitch 2010, 16).

and common sense. We must take full advantage of this unprecedented opportunity to work together across institutions, communities, and even states in support of raising achievement in the nation one student at a time.

References

Council of Chief State School Officers (CCSSO) and National Governors Association (NGA) Center for Best Practices. 2010. "Common Core State Standards for Mathematics." Common Core State Standards Initiative. http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf.

Kilpatrick, Jeremy, Jane Swafford, and Brad Findell, eds. 2001. *Adding It Up: Helping Children Learn Mathematics*. Washington, DC: National Academy Press.

National Council of Teachers of Mathematics (NCTM). 1989. *Curriculum and Evaluation Standards for School Mathematics*. Reston, VA: NCTM.

———. 2000. *Principles and Standards for School Mathematics*. Reston, VA: NCTM.

———. 2006. *Curriculum Focal Points for Prekindergarten Through Grade 8 Mathematics: A Quest for Coherence*. Reston, VA: NCTM.

Ravitch, Diane. 2010. *The Death and Life of the Great American School System: How Testing and Choice Are Undermining Education*. New York: Basic Books.