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Fewer and Deeper: The Common Core and Less is More

Every teacher knows how crowded the school day is. The amount of material to be taught is enormous – and seems to be constantly increasing as policymakers issue new mandates. The mathematics curriculum in the United States has in particular been criticized as "a mile wide and an inch deep" (Schmidt, McKnight, & Raizen, 1997). Teaching everything well is challenging even for the most experienced teachers because there is simply not enough time.

The Common Core State Standards for Mathematics addresses this problem in the elementary grades by narrowing the focus to "arithmetic along with those components of measurement that support it" (NGA Center for Best Practices & CCSSO, 2012, p. 3). Think of the elementary school mathematics curriculum as an overgrown garden that needs to be weeded so that the most important plants can flourish.

A little history can perhaps put this need for weeding in perspective.

Before the 1950s, elementary school mathematics included only arithmetic and a little measurement. During the New Math era – roughly from the launch of Sputnik in 1957 through the middle 1970s – researchers, mathematicians, and schoolteachers showed that elementary school children could learn much more than just arithmetic, including topics such as geometry, statistics, probability, graphing, and algebra. But the New Math's excesses led to a backlash, which came to be known as the Back to Basics movement. Back to Basics focused almost exclusively on paper-and-pencil arithmetic, with a heavy emphasis on rote mastery of computational procedures. But Back to Basics over-corrected and neglected conceptual understanding and applications, which led to poor test results (National Commission on Excellence in Education, 1983; McKnight & alia, 1987). By the early 1980s, a movement to reform school mathematics was being led by the National Council of Teachers of Mathematics (1980). NCTM emphasized problem solving and a broader curriculum and eventually issued the first set of national standards (NCTM, 1989), which launched the standards-based reform movement that is with us to this day.

This history shows that when we make corrections in education we often over-correct. For decades, the elementary school mathematics curriculum has swung like a pendulum between a tight focus on arithmetic and a broader focus that includes geometry, statistics, problem solving, and other topics. One way to view the Common Core is as another swing of this pendulum back to a tight focus on arithmetic, a swing that history shows may be an over-correction.

But this is not the whole story. While the Common Core does indeed focus the elementary school curriculum on arithmetic, it also requires that teachers "pursue with equal intensity conceptual understanding, procedural skill and fluency, and applications" (NGA Center for Best Practices & CCSSO, 2012, p. 3). The Common Core also calls for teaching the mathematical practices, which include problem solving, abstract and quantitative thinking, reasoning, mathematical modeling, using tools, attending to precision, and recognizing and using patterns, structures, and generalizations. The Common Core is not 1970s-style Back to Basics.

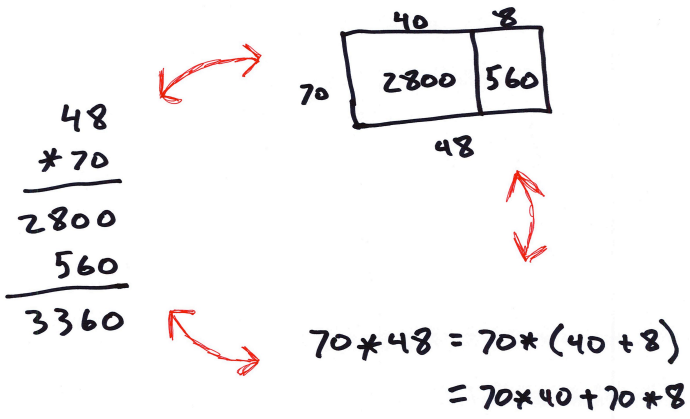
In many respects, the Common Core's approach is aligned with reform ideas NCTM has advocated for decades. But the Common Core writers realized that the kind of ambitious instruction both they and NCTM want takes time. Lots of time – which is why the garden needed to be weeded. The Common Core omits many topics the NCTM advocated for the elementary school in order to provide time to teach the remaining topics deeply.

Consider, for example, just one fourth grade standard, 4.NBT.5: "Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models."

Although this standard appears to be simply about teaching children a procedure for multiplying multi-digit whole numbers, it actually requires much more. Children must certainly be able to carry out the required multiplications, but

they must also be able to explain and illustrate their calculations using equations and arrays or area models. This means they must make connections between algorithms, area or array models, and equations that use the distributive property (see Figure 1).

Figure 1



Making such connections takes lots of time. So, while the Common Core covers less ground in the elementary grades, that ground is much more deeply dug into. Children learn more by focusing on less. An added benefit of taking time to make deep connections is the opportunity it provides for teachers to differentiate instruction. Students who struggle certainly benefit from the opportunity to slow down and focus on core content, but taking more time also benefits students who are high achievers, who are challenged to explain their thinking and go deeper in ways they have not traditionally been expected to.

Perhaps the biggest single change in *Everyday Mathematics 4* is its tight focus on the content that is called for in the Common Core. This content includes the facts and procedures of arithmetic, the principles and concepts that underlie those facts and procedures, and the uses and applications of those facts and procedures. These three – procedural fluency, conceptual understanding, and applications – make up what the Common Core calls rigor. EM4 builds depth of understanding that includes all three aspects of rigor and cannot be rushed.

Finally, besides making time for rigor and depth of understanding, EM4's tighter focus means that teachers have the time they need to help their students master the mathematical practices, those ways of thinking and behaving mathematically that are so crucial to long-term success in mathematics. For example, if we want children to "make sense of problems and persevere in solving them," which is the first practice standard, we need to slow down and give them time for thinking, for figuring things out on their own, and for creating a mathematical community. If we want children to develop the grit they'll need to handle demanding work in school and in life, then we need to give them time to wrestle with problems they haven't been shown how to solve. Developing proficiency in the other practices will also take time, time that the Common Core and EM4 provide.

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