

REL Mid-Atlantic Webinar
Mathematics Instruction and the Common Core: Where Do We Go from Here?
Q&A with William Schmidt, Ph.D.
October 1, 2015

In this webinar, Dr. William Schmidt of Michigan State University discussed helpful instructional tools for promoting the higher order conceptual thinking found in the Common Core Standards. The [PowerPoint presentation](#) and [webinar recording](#) are also available.

1. How can you incorporate remedial skills during instruction for the intervention students to get caught up with the curriculum?

There is a significant gap in knowledge between students needing intervention and students performing at grade level. Some districts have extra time scheduled to review or reteach fundamental math skills. This time is used for teachers to support students in building up the necessary background and fundamental skills to achieve at grade level. Students needing intervention are able to learn or re-learn foundational skills in this extra time while still working on learning progressions provided by grade-level standards.

2. How would you explain to parents how Common Core has changed problem-solving in math?

The Common Core encourages students to think deeper and to think critically. The Common Core has increased the amount of attention given to acquiring a deeper level of understanding and how algorithms work—particularly for earlier grades. The progressions encourage students to develop the fundamental skills and background to think critically about math. A national effort to explain the Common Core and support parents in understanding the changes would be beneficial.

3. What are some strategies for differentiating instruction through the Common Core?

Teachers can remain true to the learning progressions of the Common Core while ensuring advanced learners are engaged by offering advanced learners opportunities to learn concepts through alternate methods. While the class reviews a math concept, teachers can provide advanced learners with activities that allow them to gain an even deeper understanding of the concepts and/or additional ways to solve a problem that can strengthen their overall understanding of numbers.

4. Can you tell me more about using mathematical tools in instruction?

It is important for teachers, especially in early grades, to teach fluency of fundamentals skills and number properties without the aid of tools such as calculators. Once students have a deep understanding of those skills and understand number properties and operations, they should be

taught how to use tools to work on content they already know how to solve manually. Tools help find exact values and should not be used to determine if solutions are necessarily right. For example, an understanding of fundamental math properties can allow a student to estimate the correct answer to a problem; students should be able to project a range into which the correct answer falls, such as $x > 100$ or x is a negative value, and compare it to the solution they found. Students should not need to rely on a calculator to recognize if their solution is in a correct range.

5. How can I best prepare preservice teachers to teach math effectively?

If we expect students to have a deep understanding of math concepts, our priority should be to have teachers with an even deeper understanding of math concepts. Teachers need to ensure that they master math concepts to be able to effectively teach students deeper level concepts. Teachers with a deep conceptual and pedagogical understanding of math will be able to recognize students' misconceptions and better address erroneous assumptions that students make because they will understand where students are coming from with their questions and the learning progressions that will follow each of the skills.

6. What would an effective math lesson look like from an observer's standpoint?

An observer should see teachers encouraging students to access prior knowledge and connect it to their new learning. Teachers should address student misconceptions, and their answers should demonstrate a deep content and pedagogical understanding of the material. An observer should see students engaged in the lesson and the teacher working to engage all students. Teachers should be providing opportunities for students to engage in high-level tasks and answer higher order thinking questions. Teachers should analyze and explain examples of correct and incorrect solutions.

7. Why do people complain about Common Core so much, and what is the difference from previous curricula?

The Common Core State Standards (CCSS) are aligned with college and workforce expectations. They are a series of progressions that require higher order thinking skills and provide clear and concrete skills for students to learn. They include a deeper focus on fewer topics. The CCSS aim to provide the same set of rigorous standards in all schools across the country. Most current educational resources lack adequate alignment to the standards, which leads to differences between the standards themselves and their implementation. A national effort could help people (specifically parents) better understand the CCSS.

8. Do you think that the Common Core standards should be revised, and if so, how?

The implementation of the CCSS should be improved. There are few strong resources and materials available to support CCSS implementation.

9. Based on any data you have on hand, how well have the Common Core State Standards for Mathematics (CCSSM) been implemented in schools across the United States?

There is room for improvement in implementation of the CCSSM, specifically in the areas of appropriate curriculum and textbooks that align to the CCSSM.

10. How can one raise the rigor for kids who do not have the background for some of the higher level thinking in the upper elementary grades through high school?

Teachers should hold all students to the learning progressions at their grade level, including students who have forgotten or never learned foundational skills. However, for students missing background knowledge, some schools implement an additional period, class, or time slot in which struggling students review, re-learn, or learn those foundational skills. Students are able to build foundational skills while learning grade-level concepts.

11. How can we ensure that students build the fundamental skills and fluency they need early on?

To master the CCSS, students need a deeper understanding of numbers and how they work. Students need to build these fundamental skills and think critically to develop a deeper understanding of mathematics. Teachers can ensure that students master the fundamental skills and fluency and support students in building these skills.

12. How can we use technology to support implementation of the CCSS?

It is important to be cautious regarding the use of technology; teachers and parents should make sure that technology supports students' learning about the CCSSM before encouraging students to use technological tools to practice.