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As mathematics educators at all levels consider effective implementation and instruction related to state or Common Core standards, a frequently asked question is, “What does it mean to be fluent in mathematics?” The answer, more often than not, is, “Fast and accurate.” Building fluency should involve more than speed and accuracy. It must reach beyond procedures and computation.

Principles and Standards for School Mathematics states, “Computational fluency refers to having efficient and accurate methods for computing. Students exhibit computational fluency when they demonstrate *flexibility* in the computational methods they choose, *understand* and can explain these methods, and produce accurate answers *efficiently*. The computational methods that a student uses should be based on mathematical ideas that the student understands well, including the structure of the base-ten number system, properties of multiplication and division, and number relationships” (p. 152). What a wonderful description of fluency! It reminds us that a student cannot be fluent without conceptual understanding and flexible thinking.

Focusing on efficiency rather than speed means valuing students’ ability to use strategic thinking to carry out a computation without being hindered by many unnecessary or confusing steps in the solution process. Accuracy extends beyond just getting the correct answer. It involves considering the meaning of an operation, recording work carefully, and asking oneself whether the solution is reasonable.

Fluency encompasses more than memorizing facts and procedures. In fact, I believe memorization is one of the least effective ways to reach fluency. Anyone who has spent time teaching in the elementary grades realizes how many students are unsuccessful at rote memorization and how often they revert to counting on their fingers. We would agree that third or fourth graders who are counting on their fingers certainly have not reached a level of fluency, even though they may do it pretty quickly and accurately!

How do we help students progress from the early stages of counting to mathematical fluency? Let me give you a personal example. At the beginning of the school year, I gave a class of third-grade students a sheet with 10 addition facts. Under each fact was the word “explain,” followed by a line. I asked one of the students the sum of the first fact, 8 + 9, and she immediately began to count on her fingers—certainly not the action of a student who is fluent with addition facts. Before she reached the sum I asked her, “What do you know that would help you find the sum of 8 and 9?” She thought for a brief time and replied, “Oh, it’s 17.” When I asked her how she had gotten that without counting, she looked at me and said, “I just took 1 off the 8 and gave it to the 9. That made it 7 + 10. That’s easy—it’s 17.”

One might argue that child was not fluent. I believe, however, that she demonstrated fluency and more. She was able to use her understanding of place value, addition, and the associative property to arrive at a correct response. She was efficient, accurate, and flexible in her thinking—all in a matter of seconds. What made the difference between her fumbling first attempt and her successful second one? It was being provided with the chance to stop and think about what she already knew and apply that understanding to 8 + 9.

Do we give students the opportunity to think about what they know and understand and use it in ways that make sense to them? Do we model questions that students should be asking themselves as they strive to reach fluency in mathematics? As the student completed that assignment, she didn't need much more prompting. She continued to work on the rest of the facts efficiently and flexibly. She no longer needed to count on her fingers to complete the assignment.

It is interesting to note that fluency isn't mentioned in the high school Common Core Standards. The standards for grades K–8 refer to fluency in relation to mastery of basic facts and computational skills. As we think about fluency, we should realize that it is more than procedural. Are there mathematical topics in which we want students' thinking to be flexible, efficient, and accurate beyond computation and procedures? Can a student reach fluency in areas of geometric thinking, algebraic thinking, statistical reasoning, or measurement? What does geometric fluency look like? What are the characteristics of a student who is fluent in algebra? What areas of fluency in the K–12 curriculum reach beyond procedures and calculations but are not mentioned in the standards?

Our students enter school with the misconception that the goal in math is to do it fast and get it right. Do we promote that thinking in our teaching without realizing it? Do we praise students who get the right answer quickly? Do we become impatient with students who need a little more time to think? As we strive for a balance between conceptual understanding and procedural skill with mathematical practices, we must remember that there is a very strong link between the two. Our planning, our instruction, and our assessments must build on and value that connection. Fluency entails so much more than being fast and accurate!