

EdVenture's Marc Drews was asked about the changes in the rigor of our state standards over the years and his response is in line with much of the thinking of the members of SCORS, as he shared the following.

As a long-time mathematics educator (working with the Basic Skills emphasis in the 80s, SC Frameworks in the 90s, and the standards movement throughout the 2000s), I can't help but believe the issue isn't as much when the content is taught but more the how and the why. The problems we are facing are systemic in nature and result from the collision of several factors facing our schools; including, to name just a few:

- The obsession on testing, that has done little to inform us of anything substantial since the release of the Nation at Risk Report thirty-five years ago;
- The decline in the numbers of prospective teachers and the exodus of too many existing ones;
- The multitude of issues facing our rural communities in terms of equity and access of resources and support; and
- The deterioration of the sense of purpose experienced by many children and their families and the general lack of confidence in their school systems.

The love of mathematics begins early and always through play and conversations with caring adults. Puzzles, patterns, and playful interaction with their world helps establish a sense of numeracy. Frequent and simple interactions with our youngest learners, including counting, sorting, identifying shapes, and estimating, go a long way in establishing a foundation that helps build problem solvers, children who can reason, and people who are empowered to make decisions.

Mathematics is not about a timed test to see how fast a third grader can write the facts. Learning mathematics is more than knowing formulas and solving equations, understanding attributes of geometric figures, and being able to determine the likelihood that something might happen. Mathematics is not number crunching, it's all about play--from toys and puzzles to brain teasers and board games--as noted mathematician Francis Su says about the subject, "it's recreational exercise for the mind." ...and it starts with our youngest learners.

Math teachers are charged with inspiring the joy of learning, to nurture imagination and creativity, and to stimulate the sense of wonder and curiosity. What better way to make all that happen than through mathematics content? Where else can we explore the wonder of infinity? Or the frequency both pi and phi are found in nature? And there's Pascal's triangle, the Fibonacci sequence, the Mandebolt set, ...

Dr. Su reminds us that mathematics allows all of us to experience structure through randomness, the elegance of connections, and even the importance of fairness and justice. Because of our mathematical thinking, we enrich our ability to make sound decisions and enhance our sense of reason.

But, unfortunately, the teaching and learning of mathematics has become focused on the results of an end-of-year standardized tests with teachers marching through a set of standards in what can be easily perceived as the Stepford Educators. That is what needs to change.

Our students learn to think mathematically when they acquired the ability to count, sort, identify patterns, and represent things with symbols. We continue to help build on that foundation through conversations and not picking up a pencil nor using that pencil to darken bubbles on an answer sheet. Throughout our students' journeys learning mathematics, the focus must be to prepare them to think, to reason, to develop their spatial sense, to communicate, to anticipate, to estimate, to predict, to interpolate, to analyze, to plan, to interpret information, to use tools appropriately, to make decisions, to solve problems using various strategies.

These are the life skills our students should be learning in math class as a result of what is placed in the curriculum. ...and it starts with our youngest learners.

In my work, I often have a chance to ask teachers about their personal "math stories" and there is a tendency to see a grimace, followed by a comment that they really haven't had a good experience in math. That feeling plays out in classrooms everywhere. It's our job, as educators, to sell and promote mathematics every day to our students, their parents, and our community. It's hard to sell something that you don't love.

What we need today, to alter the tide and truly address the issues of a "sea of mediocrity" shared in the 1983 A Nation at Risk Report, is a stronger sense of

advocating that mathematics is the most important tool for science, computing, and engineering and a part of all technological discoveries that have enriched our lives. Families need to better understand this so children enter classrooms (as well as libraries and museums, etc.) with a greater passion for why they are there in the first place.

Over the past two decades, our state has invested heavily in testing programs, along with the support for frequent curriculum revision efforts and teacher training. As we look at our return on investment, we need to roll up our sleeves and address some some serious issues. As communities begin having these critical conversations, I hope they are mindful that what is taught is important and how it is taught is just as important, but what is most important are the many reasons why we are teaching mathematics.

***It's not about a test.***

***...and it starts with the youngest learners.***

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#### About Marc Drews

Next month, Marc Drews will begin his term as the president of the SC Council of Teachers of Mathematics. Currently, he is in his seventh year enjoying his second career as EdVenture's Director of Strategic Partnerships. He began his career over forty-two years ago in Charleston County teaching high school students to love algebra and geometry. In 1987, he accepted a position as a math consultant with the SC Department of Education, where he worked in a variety of leadership positions, retiring on Pi Day 2008.

In 1996, he was named the principal investigator of the NSF grant that helped create the state's regional infrastructure designed to support science and mathematics education. As the director of the South Carolina Statewide Systemic Initiative, one of his roles included coordinating the work of the Governor's Math and Science Advisory Board. He also served as the state superintendent's designee to the Governor's School for Science and Mathematics' Board of Trustees from 1992-2002.

He has been honored by several state organizations for his work, including the State math teachers' organization as a recipient the Outstanding Contributions to Mathematics Education in 1993, by the state science teachers with their greatest honor as their 2015 Catalyst Award winner for contributions to science education, and by the state's International Baccalaureate Schools for their highest honor, the Saylor Award in 2008.

Marc proudly identifies his greatest roles as being a husband of one, a father of three, father-in-law of three, and grandfather of five.

Marc Drews, Director of Strategic Partnerships

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