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Laura Kingsley: Sarasota County schools changing how math is taught

By Laura Kingsley, Guest Columnist

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As an educator, it has been exciting for me to open the newspaper and read debates about math and how best to support our children.

Recently, algebra has been the focus of attention, with articles, letters and editorials in the Herald-Tribune: For example, "Is algebra an unnecessary stumbling block in US schools?," "The algebra puzzle" and "Algebra is necessary."

The March 30 Herald-Tribune editorial on the requirement for students to pass algebra challenged educators: "Something — including math-teaching methods— needs to change in this picture."

Well, "something" is changing!

We have all heard people lament that they are not good at math — or, worse, that they hate it. Indeed, many of us grew up feeling frustrated by teachers, especially at the elementary level, who conveyed that message, which may have been reinforced in our homes. As a result, we became victims of a mindset that did not let us think positively about our potential to learn math.

Carol Dweck, author of "Mindset: The New Psychology of Success," cites research that shows a positive mindset contributes to children's math competence. When children believe they have the ability to succeed in math, if they productively struggle and make enough of an effort, they can improve their chances of success.

This recent algebra debate surrounds the question of whether we should expect high school students to pass Algebra I because many of them may not require it in their careers. Sarasota County Schools Superintendent Lori White is a great proponent of encouraging children to productively struggle through difficult ideas: "Algebra concepts develop in our students ways of reasoning and problem-solving that have applications in understanding ideas in other subject areas and real-life problems. The foundational skills give our students access to higher levels of learning and competitive careers."

We want to graduate children who confidently think about the challenging questions they face as consumers and voters, who are not swayed by others who purport to know what the best answer is.

New York City's response to the alarming failure rate on Algebra I exams is similar to our own district's approach. Instead of arguing the merits of learning and understanding algebraic concepts, we are focused on improving and enhancing math instruction in our elementary schools. New York City schools are providing fifth graders with specialized math teachers; Sarasota County schools are focused on every elementary teacher.

Thanks to a grant from the Charles & Margery Barancik Foundation, over the course of one year, our elementary math teachers will receive three days of training with district math specialist and University of South Florida Sarasota-Manatee professor

Sue D'Angelo.

After each day, teachers collaborate on lesson planning and evaluate students' performance on the work that requires deep math discussions that stretch the children's (and maybe even the teachers') thinking. Teachers then engage in instructional rounds: They observe a colleague teach a math lesson and examine how each of them could improve and enhance instruction.

Gone are the days when students succeed in math by simply answering computation questions. Our teachers now expect students to solve complex problems that require them to productively struggle and perhaps use multiple strategies. We ask children to independently work on a challenging problem and write about it in a math journal. Then they share their observations with students in a small group, while the teacher listens and thoughtfully considers which students will be selected to present their work to the class. Opting out or giving up is not possible, thanks to the structure of the lessons. Working together, teachers and students create an environment in which mistakes are not viewed as failures but as part of learning.

D'Angelo explained the importance of algebra: "In elementary school, our goal is for students to build a foundation for formal algebra by thinking 'algebraically' every day as they make sense of story problems. They work hard to read and interpret story problems, create equations, and justify their reasoning as to why their answers makes sense. Students look for patterns and relationships between numbers to help them understand how our number system works. ... The more students begin to talk about patterns they see and how they manipulated the numbers to solve a problem, the more confident they become in their ability to do math."

We owe it to our children to equip them with the language of mathematics as they anticipate competing in our global economy. We are committed to providing our students with the best instruction possible.

The debate about whether to use Algebra I as another graduation requirement will continue in the political arena. But there should be no debate about the importance of teaching our children the math skills they will need to think analytically and solve problems they will face throughout their lives. With the help and support of foundations, donors, educators and a supportive community, we are doing just that in Sarasota County's public schools.

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