



Voices  
from the  
**Field**

Four educators weigh in on math instruction challenges facing schools today

# Closing the Math Achievement Gap with 1:1 Anytime, Anywhere Live Instruction

**eSCHOOL NEWS**

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Think Through Math



# Closing the Math Achievement Gap with 1:1 Anytime, Anywhere Live Instruction

The days when K-12 students were expected to have math skills that were “a mile wide and an inch deep” are in the past. Driven by the long laundry list of standards that every state was expected to cover, this expansive mindset has since been replaced by more focused, in-depth standards set forth by the Common Core State Standards and similar initiatives. These standards involve high-order thinking skills—not just rote memorization—and require a hands-on, differentiated teaching approach that starts at the primary level and extends to middle school, high school, and beyond.

To embrace and adapt to this new environment, districts and schools are combining 1:1 computer implementations with intuitive software and “anytime, anywhere” live instruction to meet and exceed their students’ individual math learning needs. Here, four educators weigh in on the key challenges their districts are facing in this realm, discuss their strategies for effectively overcoming these issues, and give their prognoses on the future of K-12 math education.

## Educator Voices

### Krista A. Hannah

Krista Hannah is a 17-year veteran teacher with Guilford County Schools, in High Point, NC. She has taught all subject areas in grades two through six, and is on her sixth year teaching middle school math.



### Foster Leaf

Foster Leaf is the school operations manager at Morris K. Udall Middle School, part of the Isaac Elementary School District in Phoenix, AZ. Foster has held prior roles within the district as an instructional technology coordinator, instructional coach, and math teacher.



### Randy Shuler

Randy Shuler is the principal of Sanford Middle School Math, Science & Technology Magnet, located in Sanford, FL. As a 20-year educator, he strongly believes the future of student learning will be contingent on forward-thinking educators who are willing to engage students with innovative methods.



### Elisa Begueria-Salamero

Elisa Begueria-Salermo has worked for Roswell ISD located in Roswell, NM, for 15 years as an elementary and middle school teacher, principal, and currently as the Instructional Turnaround Leader for the district.





## Adapting to Standards, Leveraging Technology

Many states have recently adopted more rigorous standards and assessments. What challenges are your teachers facing in the classroom related to teaching new standards that they're not familiar with, and how are you supporting both teachers and students through the transition?

When the Common Core was adopted, Ferndale Middle School in High Point, N.C., immediately adopted a new curriculum while phasing out its existing program. "This posed some inconsistencies, where teachers weren't really sure of what exactly they were supposed to be teaching," recalls **Krista A. Hannah**, M.A. Ed., a sixth-grade math teacher. "Even now, instructional methods aren't completely maximizing student learning in some areas (i.e., test questions)."

At Morris K. Udall Middle School (MKU) in Phoenix, **Foster Leaf**, M.Ed., interim school operations manager, says teachers are still trying to "unwrap the standards and figure out exactly what they look like and what they mean." Arizona's performance descriptors have helped, he adds, by laying out the standards and showing what they look like at the novice, developing, proficient, and advanced levels. Still, he says teachers are being asked to teach students how to think at a very high level of rigor—something that instructors aren't necessarily familiar with. "Students are also lacking some of the prerequisite skills that are needed to be able to solve these high-level problems, and there are only 180 days in the school year," says Leaf. "Between the math itself and the required prerequisite skills, where is the time to put into all of this?"

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**Randy Shuler**, principal at Sanford Middle School Math, Science & Technology Magnet, concurs, and says that it's one thing to understand the standard itself, but teaching it at the more rigorous level can create problems. "Getting to the actual 'application' piece can be difficult," says Shuler, "and almost requires a differentiated learning approach (i.e. an instructional framework that involves providing different students with different avenues to learning)."

At Roswell ISD in Roswell, N.M., Turnaround Leader **Elisa Begueria-Salamero** says getting teachers up to speed on the new standards has been a challenge, namely because Common Core covers a broad swath of learning objectives. To overcome this issue, Roswell ISD hired two content specialists to create standards-based guides (made up of academic vocabulary, basic instructional activities, teacher reference materials, and other components) and a pacing guide for the standards-based instruction. The district also relies on Think Through Math's standards-based, personalized math instruction for grades three through high school. "Sometimes teachers read the standards," says Begueria-Salamero, "and don't really grasp all the components and skills required to master those standards."



## I'm Just Not a "Math Person"

How do you combat a student's perception that they're just not a "math person?" Can software on its own help a student dispel that perception, or is 1:1 teacher support to build confidence part of the solution—and how does differentiated instruction ensure that students achieve success in math?

Dispelling the myth that some students just aren't "math people," is an ongoing challenge for **Hannah**, who sees instructional software and 1:1 teacher support as the key tools to overcoming this challenge. "We're working with 21st-century learners here; students have the world at their fingertips and can access whatever information they need," says Hannah, whose school uses a 1:1 tablet program with its middle school pupils. By combining those devices with Think Through Math's individualized learning programs, she's been able to integrate instruction with technology to differentiate instruction and turn more students into math people. "Think Through Math's differentiated approach allows students to get instruction," says Hannah, "and to also be assessed on their independent ability levels."

**Leaf** says adaptive technology platforms like Think Through Math are very useful in the classroom, where students can take pre-assessments, determine their respective "levels," and then receive instruction that may or may not be similar to what the next student is working on. "We have to teach to state standards, and sometimes it's difficult to differentiate for 30 students across five different classes in a single day," says Leaf, whose district uses a 1:1, in-school Chromebooks program. "That's where the software comes in and helps to fill those gaps." With Think Through Math, for example, students get certificates when they hit specific goals and earn points as they work their way through the program. "I've overheard them saying things like, 'Oh, I got a reward today—I like math now,'" says Leaf. "They're excited about it, and some of our students are even using Think Through Math on the weekends."

According to **Shuler**, it's not unusual to find students who are frustrated with math. "For some, it's a desperate struggle," says Shuler. "We try to teach them upfront about growth mindset, and that they really need to put an effort forth in order to change their statuses." Shuler says Think Through Math supports those efforts, mainly by showing students that, even if they got an answer wrong, this is the right way to do it. "If they run into barriers, there's always someplace that they can get help," says Shuler, since Think Through Math online certified math teachers are available to students before, during and after school, as well as on weekends.

**Begueria-Salamero** says her district develops a math baseline—centered on a screening assessment—to determine initial math aptitudes and then build the student's confidence in the subject over time. "We want to avoid the frustration that can ensue when you try to teach to a group that you assume is all on the same level," says Begueria-Salamero. "With a technology-enabled baseline screening, we can let the students be the experts. They're born with technology, so that is the best way to engage them."

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## Addressing the Math Teacher Shortage

The shortage of skilled math teachers has been a recurrent topic in education media for quite some time. How is your district dealing the math teacher shortage so that student performance isn't negatively affected?

"Finding teachers who are highly qualified in mathematics is almost a rarity for most school districts," according to **Hannah**, whose district implemented a "mission possible" program focused on hiring and developing highly qualified instructors in math, science, and language arts. "Our district provides professional development through our regional and district math coaches," says Hannah. "We're very lucky to have such great support and resources to help us with that."

**Leaf** says his district uses social media platforms like Facebook and YouTube to spread the word about open positions. "To make sure student performance isn't impacted, we work hard to get the word out in many different ways," says Leaf, "including trade fairs, referrals from existing teachers, and partnerships with universities." The district also relies on Think Through Math's live instructional support to help fill in the gaps left by the shortage of skilled math teachers. On-demand online teachers provide engaging, one-to-one instruction, so all students get the help they need, when they need it.

**Shuler** feels, "Math is one of those areas where you really want a teacher to be engaged. It's so easy to turn pupils off with traditional teaching methods and/or a mediocre and monotone approach. It just doesn't work with math. With Think Through Math's support, we're able to meet these students' math needs and make the instruction as personalized as possible." The district has two different rooms where students receive individual math instruction. The first is a computer lab, where students work on Think Through Math with an onsite assistant. In the second room, pupils can "fill in the gaps" in their math knowledge by getting extra support—both from classroom teachers and Think Through Math's live instructors. "The second room is smaller and more 'individualized,'" said Shuler. "We use it for one-on-one instruction with about three students at a time."

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At Roswell ISD, **Begueria-Salamero** says all principals participate in 90-minute-long "common planning times" every week to ascertain the district's teacher needs and come up with ways to fill the human resource gaps. "Once we get them onboard, we do a lot of professional development to get teachers up to speed on our programs, the standards, and other important aspects of math education," says Begueria-Salamero. "Supporting our math teachers is a big priority for us." Think Through Math offers multiple levels of professional development and training support including: onsite training, online training, ongoing training, as well as professional development resources and support tools.



## Addressing Specific Knowledge Gaps

Math curriculum often builds on information learned previously, and requires frequent and sustained practice by the student. How do you deal with summer learning loss and lack of prerequisite knowledge when starting a new school year, or even a new lesson, and how do you manage the special math needs of ELL students?

As a sixth-grade teacher who works with students during their first year of middle school, **Hannah** doesn't always have the luxury of knowing where a student stands when he or she enters her classroom. "We send home a letter prior to the first day of school that describes what we're going to work on and encourage them to familiarize themselves with the content," says Hannah. Once students are registered with Think Through Math, these issues become less pronounced. "They can work on programs right through summer or winter break," says Hannah.

At MKU, **Leaf** says one of the reasons the district selected Think Through Math was that the software offered access to live tutors in both English and Spanish. With 94% of its student population comprising Hispanic students, the district relies on the software platform to help it deliver differentiated math content to those pupils. "For many of our students, reading in English and understanding words that are very specific to math content can be extremely difficult—if not impossible," says Leaf. "Having access to a live, bilingual tutor has been very helpful."

**Shuler** says his district addresses summer learning loss and a lack of prerequisite knowledge by running summer camps, several of which are dedicated to math. Those students at higher risk take home devices that they use to complete a required 45 minutes of Think Through Math from home every week during the summer. "We track their progress," says Shuler, "and help them stay on track even when they're not in school."

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**Begueria-Salamero** sees technology as a great way to tackle summer learning loss, lack of prerequisite math knowledge, and the specific needs of ELL math students. "Any time you can use technology to quickly do a fast, baseline assessment, figure out where your students are, and then help them refresh their memories—or learn new content—the benefits are obvious," says Begueria-Salamero. "Our students with disabilities are also benefitting from the visual support and the vocabulary-building that the platform offers."



## A Look in the Crystal Ball

### What most excites you about the future of math education?

Challenges aside, the educators and administrators we interviewed for this article are optimistic about the future of math education and excited about the future.

"We're not working with students yet who have had Common Core since kindergarten, but once we do, I expect we'll see pupils coming to us who already have a solid understanding of Base Ten concepts and a better knowledge of how math really works," says **Hannah**. "As technology continues to evolve and as more teachers get accustomed to teaching to these standards, we're really going to have our next math explosion."

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**Leaf** says his district—which is currently at the 10-12% level for the AzMerit Exam<sup>1</sup>—is bracing for even better results in the future. "With the introduction of the Common Core, we can now compare ourselves to other schools in the state and around the country. That's very exciting, because we'll be able to show the world that students in a community like ours can learn and can achieve at the highest possible level."

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**Shuler** is enthused about the direction that math instruction is heading right now, and particularly in the areas of problem solving and critical thinking. "It's getting more hands-on and application-based, versus just following specific formulas and doing things a certain way," says Shuler. "Students forget formulas and traditional methods, but if you put them in the position where they really get a hands-on approach with math, it helps them succeed not only in school, but also later in life."

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**Begueria-Salamero** says she's just "very excited in general about math," and particularly about the positive impacts that the Common Core standards are having in the subject area. "I'm seeing more coherence across grade levels and much less disconnection," she says. "However, I'm most enthused about the way we're teaching math and helping students really learn the content, and then apply that knowledge both in and out of the classroom."

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<sup>1</sup>In November 2014, the Arizona State Board of Education adopted a new statewide achievement test, AzMERIT, for Arizona students.



## Putting the Math Puzzle Pieces into Place

As Think Through Math's CEO, **Kevin McAliley** has heard many transformation stories over the last few years. It does his heart good to know that his firm's mission to continuously improve the academic efficacy of its software while enhancing learning outcomes repeatedly comes to fruition in grades K-12 and at public and private schools nationwide. "We're very pleased to be able to show significant results both in and out of the classroom," says McAliley, who understands both the trials and tribulations associated with challenges like changing standards, teacher shortages, and the ongoing need to differentiate learning across a diverse student population.

"For the best success, students need to be able to learn at their own pace and get the material that's just right for them. Then, if they get stuck, they need individualized help provided by live tutors who respond quickly," says McAliley. "This, in turn, allows pupils to build resiliency, grit, and determination in a subject area that's not always easy to teach using traditional methods. Once they realize that if they keep working at it, they can grow and become great math students, the rest of the puzzle pieces fall into place."



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## About

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**Think Through Math** capitalizes on the power of the Web to bring together rigorous adaptive math curriculum and expert educational support at any time, in any place, making *true* 1:1 personalized instruction for *every* child an affordable reality for schools. Think Through Math provides *live* on-line, on-demand teacher support directly to the student at the precise point where he or she needs assistance within a lesson. Students can work with a certified math tutor, via audio or text, before, during, and after the school day, on weekends, and most holidays. Spanish-speaking teachers and audio support are included. Immediate access to a live teacher helps students avoid frustration and to persevere through more complex material, keeping them within their *zone of proximal development*. Think Through Math's unique intrinsic and extrinsic motivational features increase engagement and build self-esteem, so students increase their time on task. Think Through Math has received numerous awards since its introduction, including the 2012 and 2014 CODiE Award for *Best Math Instructional Solution*.

For more information, visit [www.thinkthroughmath.com](http://www.thinkthroughmath.com)

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