

Making remote learning add up

Before COVID-19, Suzanne Mayer helped students rev up their math learning in person. Here's how she solved the virtual teaching problem.



EDUCATION LAB

In the before times: Math teacher Suzanne Mayer would wake up at 5:30 a.m. and arrive at Seattle's Aki Kurose Middle School by 6:45. At 8, students would begin stopping by her classroom for extra help. At 9, she would teach for 4½ hours, give her kids additional math support informally over lunch, then go back to the whiteboard for more. On Tuesdays and Thursdays, just

in case students needed more assistance, she'd stick around for 1½ hours more.

That schedule was part of an audacious, decade-old experiment to get all students at the diverse school to accelerate their math learning. It relied on using the school building as a shared physical space where students could ask any teacher for help working through a proof or problem. And it seemed to be working: State figures show that Aki, a school where 77% of students last year were low-income and more than half were students of color, demonstrated high growth on standardized math tests.

Now, in COVID times: Instead of traveling from her North Seattle home to school, Mayer makes the trek to her cold garage.

There, she settles into a hot-pink chair in front of a district-issued Dell laptop that sits on a pink riser. To her left, another laptop; to her right, a giant TV monitor; behind her, a whiteboard. Her elbow rests atop a notebook, a foot away from her tablet.

Her setup lets her see what she's doing; what her students see her doing; and what her students are doing in response to math problems, such as calculating the midpoint for two segments. But having less face time, she said, makes the 58-year-old veteran feel "like a brand-new teacher all over again."

And the kids? "Some kids don't need the extra help — they're just flying gloriously through this ridiculous COVID time," Mayer said. But "there are a whole lot of kids for whom this is way harder. Those are the kids I worry about. I'm doing everything I can to try to reach them."

The story of how Mayer went from offering a lot of time in a shared physical space to an elaborate setup in her garage speaks to the difficulties of getting online teaching to resemble the instruction students were getting in person, if that's even possible.

The transition to online learning has been hard on everyone. Subjects like math, where so much instruction depends not on the answers but watching how students get them, present a particular challenge.

Kristi Martin, a math teacher in Tumwater, Thurston County, said she spent the summer coaching fellow teachers on getting students to interact with each other and the problems with teaching online. Martin, who sits on the board of the Washington State Mathematics Council, is also working on acceleration.

Her peers, she said, struggled to marry the tech with "using student thinking to propel learning."

Mayer makes 20 calls a week, trying to track down students who don't log in. "If kids learn math this year, I'll be whistling 'Dixie,' doing backflips down the hallway," she said. "What I want for them: To come out of COVID full, intact, with their mental and physical health."

A clean start

Mayer sometimes dons a mask that reads "Good Trouble," hinting at the unusual path she took to middle school math.

She started as a lawyer at General Electric in New York City, in a department that she said was dominated by men. She remembered coming home after a

long day, taking a shower at 2 a.m., and thinking: What am I doing with my life? Her father, a teacher, died, and she saw how former students honored him; it made her think about what her tombstone would say: "She was a really average lawyer," perhaps.

Her office closed and she moved back to Seattle.

She took those occurrences as signs and trained to teach, starting at Chinook Middle School in the Highline Public Schools District. She found her people. Her showers were no longer filled with existential dread.

Thirteen years ago, Aki Kurose recruited her. The school, she said, gives her a taste of New York that she'd missed: Diversity. Different kinds of clothing. The sound of many languages. In other words, what she calls "the real deal."

When she started at Aki, she noticed that only 5% of advanced math students were Black, even though they made up nearly half the school's enrollment. In her quest to change that, she found an ally in Mia Williams, who was then the principal and now leads Seattle Public Schools' Department of African American Male Achievement.

These kids, she thought, were all capable of the same academic achievement — they just hadn't been given the opportunity. So she and Williams tried to accelerate all kids in math. That's more complicated than it sounds: Since math is sequential, meaning most lessons depend on mastering previous instruction, they needed to make sure to bridge those gaps while moving students forward.

They made some early mistakes — for example, boosting students ahead without filling in the skills they missed — and people questioned her. One

person said, as she recalled, "you can't teach these kids accelerated math." She took that as a challenge, intent on proving her doubters wrong.

When her students struggle, she sometimes tells them: "Prove the naysayers wrong." They've absorbed that attitude, she said, perhaps because of their circumstances.

Every math teacher bought into the challenge.

Mayer developed a reputation as a strong educator — so much so that Anna Dailey McCartney, a teacher in a different subject, did her student teaching under the math instructor.

McCartney calls Mayer "the best teacher in the city" because "she is simultaneously probably the hardest teacher the kids have ever had, and also their favorite."

One of Mayer's secrets, McCartney said, is that she convinces students that intense math learning is in their best interest, sometimes motivating them by the statistics that could govern their lives: You have X percentage, she'll tell them, of getting financial aid if you've taken calculus by 12th grade.

Now, every kid at Aki takes two math classes every year: one at grade level, and one "empowerment" class to catch them up if they're behind or have gaps. Grading is based solely on mastery, not participation or character. As of two years ago, the demographics of the ninth grade algebra class — where she teaches accelerated eighth graders — matched those of the school.

The pandemic threatened the deliberate structure the school created around

math.

But it might have prepared Aki to better weather a landscape filled with disruption and concerns about learning loss.

Pandemic disruption

The first few months were difficult. At first, Mayer's Wi-Fi was spotty. She enlisted a teacher's husband to set up Google Mesh to strengthen her network.

Early efforts to get Seattle Public Schools students connected focused on elementary kids; some high schools already had distributed laptops. "The technology piece was just the dealbreaker," she said. The school didn't know who had the appropriate tech, so it enlisted its teachers to call families, about 20 a week, to inquire.

She was impressed — but also teary-eyed — when she learned how many of her students were using their cellphones to attend school because they were the only devices they had. Last spring, she said, was terrible. Families needed food, shelter and other necessities before they could crack open a math book. "If you're worried about having food, you're certainly not going to be worried about doing my algebra."

The last month of school was better than the first two, as more kids started showing up. But that process of pivoting to virtual learning, she said, "definitely was not fast enough."

Summer break gave her the chance to breathe. More families got devices. Teachers got together to think about restoring some semblance of normalcy.

She thought about her job as a lawyer, when there wasn't much technology at the time; it made her rethink the process of teaching students.

What they need, she realized, was to be able to pivot and navigate and solve problems.

All this was complicated by the fact that she didn't have her usual help. Because of increased student privacy rules, it took six weeks for her student teacher to be allowed into her classes.

She started trying different technology platforms and settled on a type of educational software called Nearpod.

Now, if students don't participate, she sees their names flashing in red. Their screen on hers goes black, and she knows they haven't touched the math tools.

She'll call their names and say, tell me where you're doing your work so I can stop bugging you.

Letting students lead

Students are asking different kinds of questions now.

When they struggled with linear equations, she broke them down: What does data mean? What does this represent? Instead of immediately solving the problem, they came away with a deeper understanding of its parts.

Last week, amid a lesson on linear functions, one student asked, how much money do you need for retirement? That made her think about layering linear

equations on real-world issues.

All this adjustment has taught Mayer a lot.

"I'm almost 60. I'm getting closer to retirement. I'm thinking, in my own personal career, it's a much shorter term," she said. "As educators and as an education community, I really hope to God we take this opportunity to think about how we are educating our students, what is really important for them to understand and know."

She's critical of the teaching she's done until now, realizing she needs to teach students much more than how to solve an equation.

They need, she said, to learn about the civic and political processes. To find their voices while they solve problems.

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About the series

Education Lab is a Seattle Times project that spotlights promising approaches to persistent challenges in public education. The Seattle Foundation serves as fiscal sponsor for education Lab, which is supported by grants from the Bill & Melinda Gates Foundation, Amazon and City University of Seattle. For more, go to seattletimes.com/education-lab

How to teach math during a pandemic

- **Be Bold:** Don't be afraid to make hard choices. "do those crazy outrageous things you think are going to make your kids move forward," says aki Kurose

math teacher Suzanne mayer.

- Own your mistakes. "We spend all this time trying to convince kids to put their thinking forward even when they're wrong," she said. "We want to celebrate mistakes. Somehow we don't treat adults the same way."
- Apologize when you blow it, she said — kids will give you grace.
- On technology: Try everything, but first practice without an audience of students.
- Make sure you look at your learning platforms from the students' view before deploying it.
- Identify your philosophy of teaching and let the tech follow, said Kristi martin, a math teacher in Tumwater, Thurston county. don't let cool, shiny tech objects distract you.
- Ask for student feedback, whether through surveys or simply asking them, how can i make this work better for you? How can i support your learning through this time?