
Realities and Opportunities in Public School Settings

Cathy Martin, Denver Public Schools

I grew up in Texas, and I moved to Colorado in 1989. To put some context to the K–12 system, I want to tell you a little bit about different types of schools. I am now the executive director of curriculum and instruction for Denver Public Schools, and I was the math director for 13 years. We have 207 schools in Denver, and they're both charter and district managed. So when you think about the teachers that you're preparing to come into our schools that could be for charters, district managed, private schools, or rural schools.

With more than 92,000 students, we have a very diverse population. We have more than 140 languages spoken in Denver Public Schools. The majority of our students are Latino, followed by white/Caucasian, and then African Americans, and smaller numbers of Asian and American Indians. Our schools are an average of 67 percent free and reduced lunch. Our teachers teach in schools with poverty, and we have several of what we call "newcomer centers," for students from other countries. Thirty-seven percent of our students are bilingual learners, and the primary language spoken is Spanish.

While I'm telling you about Denver, this could be any urban district in the United States; this is not unique to Denver. Our state test is CMAS, and CMAS math for Grades 3–5 on average across the district is 32 percent to 40 percent proficient. Moving up to Grades 6–8, it's 20 percent to 30 percent proficient. There's a problem at middle school. At high school, our state test is the PSAT/SAT. It will be the first year this year that ninth-graders took the PSAT 8/9, and for 10th grade, about 34 percent meet the benchmark for the PSAT. For SAT at the 11th grade 34 percent hit the college benchmark. Therefore, you can see we have a lot of work to do in Denver, and we have many opportunities for growth. One opportunity is that we have significant gaps between student groups at all grade levels, and, if you're familiar with Colorado graduation requirements, you know that in 2021 our students graduating high school will have to demonstrate competency in mathematics and literacy in order to graduate—for the first time ever. Now, there's a whole menu of competencies from PSAT, SAT, ACT, the ASVAB, or you can score a certain level on the AP test, and so you get the picture that there are lots of different ways folks can graduate.

Denver has set some ambitious goals, as I'm sure all school districts have done, and we've also set what we call instructional priorities. As Mike Steele was saying, instead of doing all these 371 things or collecting all of this data, what we're trying to do is to focus on what we see as four areas for instructional improvement. The first one is early literacy, which should be no surprise to you. But this is really about having kids on track in reading and writing at third grade, which then the trajectory from there through high school is really strong. The second one is culturally responsive education. We have talked a lot about equity and social justice, but we're also talking about the cultural responsive aspect so that we honor kids' cultures—their cultures, their families' cultures, their backgrounds. Another one is coaching and leadership in service of "best first instruction." The interesting thing about that is we have yet to define best first instruction. We're all about coaching and leadership, so we need to think about how to support our school leaders, whether that's principals, assistant principals, deans, teacher leaders, in really being to be able to coach and lead for best first instruction. The last one is college and career readiness. I'm happy to say our work this year on college and career readiness includes a focus on secondary mathematics.

Another area of opportunity for DPS is around recruiting, developing, and retaining teachers for every DPS school with incentives and supports for teaching in our highest-need schools. We have a real need at middle school, you heard the data for our middle schools, that's our lowest achievement data that we have. We have a really difficult time finding middle school teachers who are qualified in mathematics. At the same time, we're redesigning the high school experience, and part of that is, for the first time ever, we have a mathematics strategic plan that's getting district-wide attention. We've had strategic plans before, but none could get the leverage that we needed. Let me add also that oftentimes we'll hire teachers and they'll be gone in two or three months, so the STRIDES group, which is working on thinking about how you support teachers in their first few years, is really important because in urban schools we often see them leave quickly.

Another thing that should be on your horizon as you think about preparing teachers is that we're focused on meeting the needs of all students but doing it by thinking about three pathways in high school. The first one is the early college schools, where students will earn credit, college credit, in high school, through concurrent enrollment classes. They have to score at a certain level on the Accuplacer so that takes a certain bent on what we need to study in mathematics to prepare for the Accuplacer placement test. The second one is what I call our comprehensive high schools, those that look at preparing kids for college more so than careers and using the PSAT and SAT as a real driver in that. Third we have our pathway schools for students who are over age and under credit. We need to accelerate their attainment of credits as quickly as possible and that's done through a quarter system or a trimester system, which has definite disadvantages in terms of the time the kids have.

So, here are our realities. Here is what you are up against in preparing students to come into K–12 education. One is this intensive focus on testing. I was in one session and talking about administrators who were very concerned about testing—as well they should be—because their schools are evaluated by those student results. I would say to you that your challenge is to think about how you can help your prospective teachers and the school leaders that you work with to think about smart test preparation. How you do it in a way that embeds it in the instruction. Can you stop the pattern of teaching on certain days and then stopping and preparing for the test on other days, but instead tie it all together?

Another reality is students entering high school with gaps in their knowledge. Even if kids are lacking in some skills they can still engage in rigorous mathematics. So how do we ensure that the task we put in front of them gives them the most opportunities, or coming into high school with interrupted schooling and/or limited English?

A lack of diversity in the teaching course, that's a goal, or a driver in some of the groups. And teachers entering classrooms from alternative certification programs—they don't all come in through schools of education. Some teachers come in through Teach for America and other alternative certification programs.

In Denver, we don't talk about strengths and challenges—we talk about glows and grows. A new phrase to add to your vocabulary – at least it's not another acronym. Three overall glows, from across the different RACs that I had the chance to sit in on. First, thinking about this connection of tasks, instructional strategies, expectations, beliefs, and mindsets as tightly connected. You can't separate them, so in all of the work that you do, whether it's on active learning and tasks and instruction or the modules that you're developing, all of these need to be wrapped together. That is what is going to help the teachers in the classroom. The second glow is the focus on equity. It was really inspiring to sit in for a short time yesterday afternoon on the Equity and Social Justice Working Group and listen to the work that they're doing. Maybe if you all work from the top down, and we work in K–12 from the bottom up, maybe we'll actually make it happen. Finally, I so appreciate your commitment to improving the mathematical experience of prospective mathematics teachers; it was heartening to sit in and listen to the passion that you all have in preparing teachers.

Now, three grows. I assume you all are, but if you're not already intimately familiar with three NCTM publications I highly recommend you get familiar with them. First, *Principles to Actions*, the eight effective mathematics teaching practices. Spend time in the book and go back and look at those productive and nonproductive beliefs. Look at the teacher and student actions, when a particular practice is applied in the classroom. A lot of you all talked about professional development for instruction in terms of the Active Learning in Mathematics, in terms of the MODULE(S²) group, and in terms of STRIDES. I heard it in all three so don't reinvent the wheel if you're talking about instruction in secondary mathematics; use what we're using in secondary mathematics. The second one, the new one, is *Catalyzing Change in High School Mathematics*. That's a must-read, also. There's a very interesting table inside that aligns the effective math teaching practices with equitable practices. The more that we can explicitly connect things for our students, whether they're your college students or our high school students, the more likely it is that they will stick. Finally, the *Impact of Identity in K-8 Mathematics*, which is where the five equitable math teaching practices come from. But, it really could be the impact of identity in K-12 mathematics, it's just that the vignettes are really more for elementary and middle school. I encourage you to go back to the taking action recommendations for principals, coaches, specialists and other school leaders in *Principles to Actions* and *Catalyzing Change in High School Mathematics*. I think that will give you all ideas that you can take forward.

A few things that I noticed while I was here was that I didn't hear you talk about academic language development. That was a missing aspect of how you think about the design of the modules or the design of the active learning lessons. I would encourage you to really give it some thought about supporting academic language development. Another thing, and I see it in the written materials that you have, is that you write about standards that you want to be aligned up with the Common Core, but I didn't hear anybody talk about the Common Core Standards or state standards while I was here. As a gentle reminder, you may want to pull that back up in your work with respect to the teachers because that's a really key part. It also struck me when I was in the Active Learning group, and I heard a couple people talking about how that while many of you have been able to get those first-year courses, the intro to calculus courses that kids take, down to 25 to 30 students, some of you haven't been able to do that and so you're really running the big lecture hall.

A resource that we're all about in K-12 right now is what we call SEAL—social, emotional, and academic learning. There are instructional routines that go along with it, which, in my mind, we could connect with the equitable teaching practices in thinking about engagement. We talk about three routines. The first is a welcoming ritual, such as the warm up in high school, but focusing on something social—how the kids can connect with someone else when they first come in the classroom, and have a conversation about, “so, as you thought about the homework, what questions did you have?” Anything just to connect with another person. The idea is that people, adults, come to these meetings or come to classes, and they just rush in but they need to ground themselves first before they can really engage in the learning. Another routine is engagement practices where throughout there is time to stop and engage in group discussion or talk with a partner. Maybe it's a turn and talk, or it could be some sort of brain break. At the end, there's this idea of an optimistic closure, where we try to close today in a way that we walk out optimistic about what's going to happen. So, “What did you learn, what questions do you still have?” Just any way to sort of reel kids in, ground them a little bit, engage them throughout, and then send them off in an optimistic way.

I'll close by saying thank you for all that you do to prepare teachers to come into our schools, and it's been great to have an opportunity to visit with you.