

The College Board, Mathematics and Data Fluency

COLEMAN: When I became president of the College Board, very few people saw the College Board as opening up new areas of merit. They saw us as certifying the inequalities that exist. The first question to ask is, is there something about the test itself that was unfair, that was either perceived to be or actually was deeply unfair. And it was our view that there are at least two things: the SAT came to be dominated by a kind of obscurity. So for example, what is the definition of an SAT word is a word you have likely not seen before and won't see again. And candidly, what does that have to do with succeeding in college?

And then moving on to mathematics in the redesign, we got rid of all those problems that used to be called "tricky." The really big new idea of the SAT is the only thing you're allowed to put on it that which is most widely used. So, we survey first-year math teachers and first-year college professors not only in math but outside of math, and we analyze which math is most used in their courses. That's a knowable question. At the same time, we ask high-school teachers what math is the most important for use in college and compare those two data sets. Any guess as to what we see?

LEVITT: My guess is that the high-school teachers say something that's orthogonal to what the college teachers say.

COLEMAN: It will break your heart. The college teachers say, "Very few things matter and matter a lot." The high school teachers say, "Everything matters." Think of the stress of that. They must do everything, or they are betraying their kids, which forced them to race through the curriculum lest their kids are not ready. What the college teachers say but is not heard is, if your students can do these core set of things, we can do the rest. But if those are shaky and they're merely faintly aware of them and aware of a lot of other mathematics, we're stuck.

And what are the core math concepts?

COLEMAN: The first is the most humble, but it's powerful, is arithmetic. The command of the four operations: subtraction, multiplication, division, and addition — but crucially, fractions. The next area of math that's hugely predictive of your future success is what I would call data analysis and problem-solving, including rates, ratio, proportion, designing quantities that interact with one another in that way, and watching their growth over time in development. The third area of math that's extremely widely used is what I would call the heart of algebra, which is linear equations. That portion of algebra is then very widely used in other disciplines to open up many other problems.

LEVITT: So what I find really compelling about what you just said, David, is that you are using data analysis to really understand what students need, and the outcome is that what students need in math, among other things, is data analysis skills.

COLEMAN: That's exactly right. And it's demonstrable. I'll tell you another interesting thing, Steve, that we haven't talked about. Do you know how when we grew up, students would call themselves, proudly, verbal kids or math kids, so you could get an 800 on the verbal section even though you didn't like numbers and you never had to encounter them. And there were a lot of kids like that. And then there were math kids. The new SAT disrupts that picture in what's called now not verbal, but evidence-based reading and writing. There are five passages, two of them always are a passage from science that includes numbers, data, and a passage from a social science, like economics, that includes data. You can no longer be perfectly verbal without being able to read and analyze data from charts, tables, and graphs. Because what was so silly was that people call themselves highly verbal and wide readers, when in fact they're illiterate when they reach science or the social sciences if they can't evaluate numbers.

LEVITT: Honestly, when David Coleman told me how heavily the new SAT emphasizes data, I didn't really believe him. I knew that he knew that I am on a mission to make data fluency an integral component of high-school math. I thought he was just telling me what I wanted to hear. But I analyzed the new SAT, and everything he says is true. Twenty percent of the SAT math questions test data fluency; and, amazingly, 10 percent of the questions on what used to be the verbal section are data questions also. A decade ago, those numbers would have been close to zero.

The College Board has quietly been leading the charge on data fluency. And that matters, because the SAT is becoming an even more powerful force for change in the education system. Students have, of course, always cared deeply about their SAT scores. But what you might not know is that the SAT is starting to be adopted by a few states as their high-stakes test for teachers and principals as well. I suspect that will become increasingly common. And if David Coleman has his way, there will be a lot of teaching to the test going on.

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