



Math As An Activism

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NYC teacher, writer, and activist

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José Luis Vilson is a math educator, blogger, speaker, activist in New York City, NY. He is the author of *This Is Not A Test: A New Narrative on Race, Class, and Education*, and has spoken about education, math, and race for a number of organizations and publications, including The New York Times, Education Week, The Guardian, Al Jazeera America, Huffington Post, Edutopia, GOOD, and El Diario / La Prensa, NY. He is the founder of EduColor, a Math for America fellow and on the Board of Directors for the Center for Teaching Quality

Abstract:

In this essay, Vilson considers what the role of teachers are as learners in the classroom. He explores how teachers may overthink their work without perspective on the student mind. He problematizes the idea of lesson plans as tools for learning which conflicts with the flow of mathematical thinking. He openly observes what working without a lesson plan would look like for experienced educators, and the various assumptions of power within our classrooms. He concludes that teachers must get better not just in the rituals, routines, and relationships teachers have with students, but also in thinking about the student mind, and whether our pedagogy directly addresses student thinking.

What is it like to not know what you're doing?

That's a question I've wrestled with for the last twelve years of my teaching career. The gulf between mathematicians and math educators is the question of pedagogy. The idea that there's a difference between knowing the math and teaching the math has made for some for great discussion about math education. To what degree one must know the math and one must be able to teach the math at any level isn't necessarily under contention. For instance, middle school math teachers often gripe that elementary general teachers shouldn't be teaching math because they don't have math-specific content knowledge. Conversely, high school teachers question middle school math educators' capacity to teach students higher-order thinking skills. Such an argument floats up to the college level, the professors who had the strongest voices in the early development of the Common Core State Standards.

Surely, we've gone beyond the argument that we can just put any adult in front of students and have them teach children math. The teachers should have knowledge at least two grade levels above the students they're teaching. They should know what the students should know now and where they will go next. With the more demanding content and practice standards across the country, it's become more imperative that teachers know where a curriculum might lead students.

But the flip side of this argument is whether knowing too much keeps teachers out of touch with students and the ways they think about math. Generally, the math teachers I speak to take their ease with math for granted. Some of us assume that only the students like us should learn the math instead of wondering how we can change our minds to teach the math the way they think. The issue, however, is that I kept lesson planning, pretending to anticipate mistakes, getting caught off-guard with some of the questions that were asked because I kept thinking like someone who understood the math, not like someone who didn't.

This isn't just a critique of math teachers, but teachers overall. Too many people come in with a stance of knowing it all. Too many people need to be the authority in the room ... or else. Too many administrators want to cut down on margins of error, so they attempt to standardize our approaches. Too many people pretend to want to hear students, but only want to hear how adult voices in the way students speak. Adults should constantly ask themselves if students came up with answers because they heard teachers talk this way or because they have full comprehension of the material. These may not be mutually exclusive, but worth exploring. In the age of accountable talk and whole class discussion, we may miss out on actively listening to and carefully eliciting student responses.

That's why a few years ago, after plenty of experience with teaching students math, I decided to quit lesson planning. That's not all the way accurate. I know what my lessons should look like. Over time, I have my rituals and routines – and respect – from the students, and through those r's, I also build relationships that allow the class to flow. I help plan units and know the standards back and forth. I graduated with a degree in computer science from Syracuse University and am prompted to stay mathematically sharp through the Math for America program here in NYC, so I have a strong mathematical background.

But as far as an actual lesson plan? Less is better.

Outside of a skeleton of a plan, I want students (and me) to be curious about the problems presented. I model questions I might ask myself about the problem given. I deny the opportunity for students to ask me questions first. In fact, during my warm-up, I tell students that I can't tell them the answer. I acknowledge that they've arrived at an answer and move along. During classwork, I'm relentless with questions. I hope the students have the last word early and often because I refuse to believe that I have all the answers.

On the surface, it looks like I'm following what everyone else is doing. Survival in our school system demands some form of subversion. Yet, one of the most subversive things we can teach students is the idea of active listening from adults. Adults must be observant not just in how students adhere to adult-shaped norms, but for the actual intellectual prowess of our students. Active listening means pulling ourselves (the adults) back and responding to the claims only when necessary. Underneath that façade of following the district's demands, I'm actively moving the power away from myself.

I prompt them to use their own process as long as it's complete, consistent, and correct. By complete, I mean that the problem has a conclusion, preferably a solution. By consistent, I

mean that the student can keep using the same method for the same type of problem. By correct, we hope that the ways and means that the student used to arrive at the particular answer.

As far as classroom discussion, we must learn how to swim in that discomfort of not knowing what might happen. We can try to anticipate how we would respond, but with 25-30 students in a class, that realistically could be 30 different and incorrect answers, most of which we wouldn't anticipate on a lesson plan. It's worth us being less authoritarian not because we need to be soft and cuddly, but because we must insist that the students wrest some sense of ownership in their works.

One of my goals is to prepare my students for high school. From my purview, that's a lever for equity because I'm allowing for students to open another door that's usually closed to them in the form of access to high school algebra. If they do well in algebra, they have more of an opportunity to graduate high school. Classroom discussions allow for a few key principles to spring forth. Our students must learn to not be denied. Our students must respond effectively to the tension in their relationships with peers and adults. Our students must know how to ask better questions. Our students must tap into the source of power whether it's granted to them or not.

The issue, of course, is that we have to build a sturdy bridge from top-down dictated pedagogies to one where students are held responsible for their direction. Sometimes, this direction won't look like what you want. Sometimes, they will be frustrated with the speed and availability of the math in front of them. Sometimes, they'll stay silent due to shock and uncertainty. Sometimes, we as adults will react against our intentions, too. We'll want to shove them into a math we prefer and it won't always be right. Sometimes, our biases show up when we're not reflective.

That's why one of our principles must be: learning is not linear.

We must acknowledge the ways that adults encourage discussion, too, and the problems they come with. Carrots and sticks like "participation points" still favors the extroverted if we don't have an internal rubric for what participation means. Technologies like online grade books can help with behavior in some ways, but it might discourage students from authentic discussion if all they do is parrot what the adults say. How we react to our students' voices often dictates whether they'll say something the next day as well.

Whole class discussions assume a great deal about the ways that students get schooled as well. My hope is that all students can participate in a vibrant discussion about the work in front of them. Yet, I know reality can make it difficult. We must work from the spaces where our students are most vulnerable and reimagine from there. What do we say to our English language learners and special education students who may have limitations about expressing their mathematical knowledge? What do we say to our black students who may have strong mathematical concepts, but don't express it in quiet enough, correct enough, or sitting down? What do we say to our Asian students who are immediately stereotyped for doing well in math but then struggle because we assumed too much? Our lesson plans sometimes keep us safe in our biases until we learn how to think like each student would, receive it how they would, and explain it how they would.

That's the work we undertake as math teachers: not just to know, but to know how to know. Let's discuss.