CASE STUDY

Midtown West Elementary School

In Ted Pollen's 4th-grade classroom at Midtown West School in New York City, a racially, ethnically, and linguistically diverse group of 27 students is deeply engaged in a mathematics inquiry focused on understanding the concepts of range, mean, median, and mode. Some are seated around tables, while others are in pairs or trios on the rug in the classroom meeting area. While some teachers might introduce the terms with definitions and rules for calculating them and give students a worksheet of problems to fill out, Ted's class has been conducting a study that provides them with the data they are now analyzing. Earlier in the week, they measured and recorded the height of everyone in their classroom and all the children in one of the kindergarten classrooms who are their "reading buddies." Each then figured out how to display the data distributions with bar graphs they constructed individually so as to be able to figure out the range, mean, median, and mode for each class and compare them. Working in teams, they use manipulatives and calculators as they advise one another about what to do.



Ted — an African American teacher who is a graduate of and now mentor teacher for Bank Street College — moves unobtrusively among groups, occasionally asking questions to help move students (and his two student teachers) to the next level of understanding. He chooses questions carefully to extend students' thinking at the edge of their zones of proximal development. Ted says to one group, "Think about your design. What's the best way of displaying the data so you can make an actual comparison?" To another, he says, "Can someone give me the range for kindergarten? Our range? Are there any outliers?" This led the group to realize that despite little

overlap between the two groups, there were a few relatively short 4th-graders and one very tall kindergartner. A student said proudly, pointing to that data point, “That’s my reading buddy!”

In yet another group, Ted observes to one of the boys, “You’re having the same problem that she’s having,” pointing to a tablemate to encourage the two of them to work together. They begin counting and calculating to solve the problem jointly. Ted never gives away the answer, but he assists the problem-solving process with questions that carefully scaffold student understanding. In their groups, students engage in vigorous debates about the answers, explaining their reasoning to one another, re-counting their data, marshaling evidence, and demonstrating their solutions in different ways. Ted does not attempt to adjudicate the disputes. He allows the groups to work through their problems until they reach the answer.

Ted watches over an autistic student working with a one-on-one aide. The student sings to herself while she progresses through her work. In the hubbub of the classroom, her singing is not a distraction to the others, as they all focus intently on finding solutions to this highly motivating puzzle. Every student has made significant progress in developing a deep understanding of these key statistical concepts that often elude students much older than them.



After about 45 minutes of in-depth mathematics work, Ted asks the students to “keep all of your data together in your math folder” to come back to tomorrow. As everyone cleans up their work and puts their folders away, Ted quietly sings an African song while he sets up snacks. Ted’s singing shifts to English: “In everything we do and everything we say, you and I are making history today.” This signals to students that what they do matters and is important. It is also a reminder of the historical references Ted has placed all around the students, with a timeline hanging from a line across the ceiling holding cards that record events in chronological order.

Around the hardworking groups of children, student work covers the walls: A classroom constitution that was collectively developed and signed by each student and teacher is displayed, along with a “Problem Parking Lot” with stickies listing various problems and questions the class has agreed to return to. On the back shelves, one set of tubs offers manipulatives for

mathematics. Another set of tubs includes books labeled by type, all connected to current topics of study: authors who have been studied by the class each merit a tub, as do African American biographies, other biographies, books about slavery, Ted's favorite books, and more. Handmade globes hang from the ceiling, and the rug in front of the whiteboard is a frequently consulted map of the world.

Also on the walls are many posters with tips about areas of the students' work. One summarizes the rules for "Book Club." Another asks, "What is figurative language?" The poster defines what most would think of as high school terms: simile, metaphor, hyperbole, personification, alliteration, onomatopoeia, idiom, allusion, and oxymoron, offering concrete examples of each.

School Supports Make It Possible

Invisible in this moment are the school supports that make this productive hubbub possible: free breakfasts for all children; free transportation for children who live in temporary housing; a Family Center that offers workshops, cultural connections, and family support services; extended after-school time and services; biannual student–family– teacher conferences; and a set of children's rights that includes the following: "I have a right to be happy and to be treated with compassion in this school." "I have a right to be myself in this school. This means that no one will treat me unfairly." And "I have the right to be safe in this school." Community building and conflict resolution are explicit schoolwide efforts. Although the school is overcrowded, it is welcoming in every respect.

Source: Adapted from Darling-Hammond, L., & Oakes, J., with Wojcikiewicz, S. K., Hyler, M. E., Guha, R., Podolsky, A., Kini, T., Cook-Harvey, C. M., Mercer, C. J., & Harrell, A. (2019). Preparing Teachers for Deeper Learning. Harvard Education Press.