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To the Mathematical Beach

By Francis Edward Su



President's
Message

I thought I had chosen the right book for the occasion. On this Saturday morning, I was volunteering with a program called Reading to Kids that seeks to inspire underserved youth in Los Angeles to enjoy reading. Assembled before me was a group of eager Latino and African American children from the neighborhood.

The book I chose was about going to the beach. It was at the right reading level, with playful illustrations I thought would be appealing. Nevertheless, after reading just a few pages in a most spirited voice, I could tell that the kids did not share my enthusiasm.

So I asked, “How many of you have ever been to the beach?”

To my surprise—though this part of LA is just 15 miles from the ocean—only one of the eight children raised a hand. Wasn’t going to the beach a quintessentially Californian thing to do?

Some reflection supplied potential explanations. In a low-income neighborhood, parents often work multiple jobs to make ends meet, so they may not have had the time or resources to bring their kids to the beach. And when an African American friend of mine heard this story, he said, “Black families don’t take their kids to the beach” and explained how this was a vestige of a segregated era when African Americans were not allowed in public pools and beaches.

Whatever the reason, I had missed something essential for connecting with my students: the historical, cultural, and economic context they brought to the classroom.

That episode helped me reflect on how I teach college students. What context am I missing that hinders

my connection with my students? How often do I take the time to get to know their backgrounds? What are the primary experiences that shaped them, and do those present obstacles or opportunities for learning? And in what ways does the mathematical beach say “open to all” but still feel restricted?

These questions appear unrelated to mathematics, but if we ignore their effects, some of our students will not flourish.

We should try to know our students as whole people. Even as I write this, a Gallup-Purdue survey of 30,000 college graduates is making the news. It shows a strong correlation between certain

college experiences and certain life outcomes—including employee engagement and multiple measures of well-being (purpose, social, financial, community, physical).

In particular, those who, as students, felt “supported” in college—defined as those who would affirm all three: (1) “my professors cared for me as a person”; (2) “I had at least one professor who made me excited about learning”; and (3) “I had a mentor who encouraged me to pursue my goals”—were twice as likely now to be engaged at work (57 percent vs. 25 percent) and three times as likely to be thriving in all areas of well-being (17 percent vs. 6 percent).



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Sadly, only a quarter of all college graduates could say their professors cared for them as a person, and only 14 percent said they felt supported in all three ways.



What can we as instructors do? I offer just a few ideas here and would love to hear yours.

- Show students you want to know their stories. A questionnaire, as part of a first assignment, could have thoughtful questions such as, What’s your favorite book? Most important person in your life? A nonacademic obstacle you are facing right now? Make the questions optional or general so that students don’t have to divulge much if they don’t want to.
- Use your knowledge of student stories to craft examples that they can relate to. This includes using a variety of cultural names and the pronoun “she” in generic examples.
- Highlight contributions from diverse sources. Photos or stories from a diverse set of mathematicians offer our students multiple chances to identify with a role model and show that the mathematical beach can be enjoyed by everyone, regardless of economic or cultural background.
- Where possible, try to keep your course structure from placing undue barriers on various groups. For instance, I once realized that by scheduling office hours only in the late afternoon, athletes could not come see me. Be especially sensitive to disadvantaged groups, such as students with part-time jobs or those whose weekend is consumed with family obligations. Homework announced Friday and due Monday may not leave enough flexibility.
- Offer ample opportunities for students to express mathematical ideas in their own words, using their own examples. By inviting

them to tell their own stories, you empower them to make math relevant in their cultural contexts.

- Open up about your own stories. What are some of the academic or nonacademic obstacles you have faced? Your students will appreciate them because stories of struggle are universal.

We should never lose sight of the fact that the ability to know our students, and be known, is one of the most important aspects of teaching. Our students, especially the most disadvantaged ones, will feel better supported, and the extra effort we take will enrich our own lives as well.

Even a failure to connect can break the ice and start a conversation. In my case, I put down the book about the beach and said to my kids with a smile, “Tell me stories about what *you* like to do for fun.”

This August, MAA is celebrating its centennial MathFest in Washington, D.C. Over the last century, we have established a vibrant and inclusive community that nurtures the human side of mathematics and supports all aspects of a faculty member’s life. Join us. Celebrate with us! 🍷



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Left: The beach at Port St. Johns, South Africa, the morning after a storm forced a partially anchored structure into tracing out concentric circles on the sand. The photo, by James Metz, appears in the MAA Found Math galleries (<http://bit.ly/YYN1T0>). Send your photos for possible inclusion to foundmath@maa.org.