If they bring these experiences up, are you prepared to have that conversation? Are you prepared to acknowledge their experiences are real and damaging?

Finally, explicitly provide opportunities for unofficial professional development: a student under-supported at their home institution may not know what they are missing, what they should be asking for, or what support they should expect. For example, we explicitly offered to write our students recommendation letters for future opportunities, and provided guidance on graduate school applications and fellowship opportunities. In general, be proactive about sharing information!

Final Questions

Taking on the responsibility of running an REU can feel overwhelming—as first-time REU organizers, we certainly felt this way many times throughout the process! While our guiding questions forced us to be intentional about every decision, we know there are many questions that we likely failed to consider. Nevertheless, our care and attention to detail was affirmed after our program ended—several of our students thanked us for "creating a space where [they] did not feel like an outsider." We hope these parting questions provide some grounding for your work, regardless of where you are in the planning process: *Are you excluding the students who could use REUs the most? Are you using your power to create a space where any student can feel uplifted and affirmed?*

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Siddhi Krishna

Marissa Kawehi Loving

Credits

Photo of Siddhi Krishna is courtesy of Siddhi Krishna.
Photo of Marissa Kawehi Loving is courtesy of Marissa Kawehi Loving.

The Road Less Traveled?

Lloyd Douglas

I can't say that I was always good at math. I remember as a child, my father, who had a sixth-grade education, trying to explain decimal-to-fraction conversions to my sister and me. He may as well have been speaking a foreign language. I couldn't understand what decimals had to do with fractions, much less be able to convert one to another. My father eventually got frustrated and gave up trying to explain it to us as we had no clue. However, afterwards, I didn't stop trying to figure out what he was talking about. Finally, a light went off in my head. I tried one case, and it worked. Then I tried several more and they all seemed to work, too. I learned two things from the experience. First, although I can be inspired by others, I learn better by thinking about things myself. Second, if you work hard enough, you can figure out some things—though perhaps not all.

After clearing that hurdle, I excelled in math, at least for a while. I went to an engineering high school in Brooklyn, NY, because I thought I wanted to be an engineer. To be honest, I didn't really know what that meant. My high school was very competitive. Only the top junior high school students in the city were even allowed to take the entrance exam, and only about the top 10% of those were admitted. It was here that I faced my next big math roadblock when studying plane geometry. There were these "non-math" things called theorems and proofs. "Why did I have to learn how to prove something that has already been proven," I asked myself. I struggled big time. It was a feeling similar to when my father was trying to teach us decimal-fraction conversions and just seemed completely alien to me. I made it through the semester, though, and then things returned to "normal" when the second half of plane geometry was applications of the theorems. I told myself that I was glad that I'd never have to prove a theorem again. That couldn't have been further from the truth!

In college, I wasn't sure what my major would be. I've always had broad interests and was dismayed that I had to choose one thing. I delayed the decision for as long as I could and took courses that majors would take in chemistry, German, mathematics, and physics before somehow deciding to major in math. I struggled through advanced calculus because, as the professor said, this was the course where you had to prove the theorems that you used in calculus. So, my nemesis had reared its ugly head again, but it seemed worse this time and I didn't know if I'd get through it. But something caused me to stick it out. After an exam

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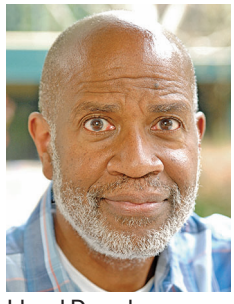
where I didn't particularly do well, my professor called me aside and encouraged me to pursue the discipline because of something she saw in me. I never figured out what she saw in me. She didn't say, and although I was curious, I wasn't going to ask. That simple phrase of her saying that she saw something in me was enough encouragement to keep me plugging away, even though every math course I took after that was proof based.

Despite my struggles as an undergraduate, I decided to apply to graduate school. People told me that graduate school was easier than being an undergraduate because you only took classes in your major. I did relatively well in my first graduate program and earned a master's degree before entering a PhD program elsewhere. I soon decided that I didn't want to be there, so I sought employment. But jobs were hard to come by, so I stayed in graduate school until I finally got a job working for the US Navy as a mathematician. In the meantime, I had been in graduate school long enough to finish my coursework and pass one qualifying exam, but after I left, I never looked back. That job with the Navy was the beginning of a federal career which spanned over 30 years. I spent 23 years at the National Science Foundation, during the last 14 of which I was a program officer in the Division of Mathematical Sciences. It was there where I found my niche in the profession: enabling the careers of others. This wasn't exactly the same as the encouragement that I received in college because it wasn't on a one-on-one basis, but what I wanted to do was to be able to provide opportunities for as many people as I could to pursue mathematics and give them the ability to have that one-on-one experience with other mathematicians. My career as a program officer was where I received most of my federal achievement awards. Even now, more than ten years after leaving NSF, people come up to me at conferences and tell me how much I influenced their lives and contributed to their career success. I reflect that if I hadn't been encouraged I wouldn't have been in a position to do that. I am glad to have been able to do so.



Lloyd Douglas

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