

DIVERSITY, EQUITY, AND INCLUSION STATEMENT

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My teaching experience is with undergraduates at the University of Minnesota, who were mostly white, some from a rural background, but also included minorities of Somali, Asian, and black students in particular. I also worked with students with various disabilities, from hearing-impaired, to anxiety, to memory-impaired.

In my personal life, I have grown up in a majority black small town public school system. I became familiar with the struggles many rural public K12 schools face with regard to the poverty of its students.

As a postdoc living internationally, I have had the opportunity to meet many European researchers as well as Chinese and Japanese researchers, and understand their cultures and educational experiences.

My main contribution to equity and inclusion so far is teaching students who had poor math skills upon entering college, and helping them through the skills needed to enter Calculus or fill in gaps in their knowledge from the K12 system. Going forward, working specifically with women and students with disability is most of interest to me, as I feel I can help these students most and would enjoy doing so.

WORKING WITH DIVERSE EXPECTATIONS AND LEARNING APPROACHES

As an instructor, my approach to math may not match that of my students. I think it is important to help students grow past any learning approaches that don't work for them, including adjusting to higher than anticipated expectations of the class. However, not every student is most successful using the same study habits, and highlighting and celebrating diverse approaches is also important, not only for inclusion of minorities but also for promoting better problem solving.

In teaching low-level math courses to freshmen, while the cultural background of the students was largely similar to my own, their perspective on math was quite different from mine. It took time for me to learn just where my students were with regard to their high school preparation, which was sometimes shockingly low, for example not understanding fractions or how to read basic algebraic expressions. As well, it became clear that the students needed time to adjust to a college course where they are treated as adults, instead of children as in high school.

I worked with many students individually to address either their gaps in hard or soft skills. Frequently, the soft skill needing addressing was the attitude toward math being incomprehensible or irrelevant. Usually, taking the time to explain problems slowly in office hours helped make math seem more achievable. I also believe consistency with breaking down problems helps reassure struggling students.

I'd say the most important skill I brought to teaching these students was patience. Once I understood which gaps in knowledge or which disadvantaging learning approaches need to be addressed, usually just taking the time to explain concepts or alternatives was very effective. Examples include: introducing mnemonics to help memorize material, helping students to "work smarter, not harder", and asking the student to explain in detail why something is not working.

As another example, a large part of the flipped-classroom courses I taught was having students work in groups during class. Some students were resistant to this, and I tried to use a variety of approaches to get students to engage. I know some of the methods I used were not effective, but a few worked, in particular think-pair-share and modeling good groupwork by instructors. Math often gets the impression of a solo pursuit by geniuses. I promote problem solving in groups to dispel this myth, but also because groupwork leads to better finding better solutions.

ADDRESSING ISOLATION OF MINORITIES

As a undergraduate student, I was president of the club Women in Physics. At the time, I did not understand the importance or impact of such niche organizations. As a student, I simply found it fun to be around people interested in the same things I was. However, now I know that it is crucial for students to have a network of mentors, peers, and mentees who share a cultural background, personal identities, or disabilities.

In the classes I have taught, students usually find the other students like them. But, there are always some students who are isolated, and they are the ones who require checking in on and suggestions on how to find peers they can work well with. I have done this in my teaching, when I know two students are stuck on understanding a similar concept, I suggest they try to figure it out together. Another great avenue is open office hours, during which students can meet new students. The vast majority of the time the students come in with the same questions, which offers a lot of reassurance to them.

On reflection of my time being president of women in physics, it was most valuable for me to help the younger women in physics explore the opportunities they had. So when possible, I plan on pairing any of my mentees or students with people they themselves can assist.

Recently, I have experienced the social isolation of being an American women in Japan, and the disconnection from the other researchers I work with as a result. While I know this has negatively impacted my research output, I have gained an understanding of being disadvantaged for personal attributes. I hope discussing my experience with students will offer them guidance.

Going forward, I would emphasize organizing programs for minorities, and mentoring student-lead minority groups. My experience being a counselor for the Mathematics Project at Minnesota, a program for minority students, will serve as a good model to build supportive mathematical gatherings.

LISTENING

In discussion with the only black professor at the University of Minnesota Math department at the time, she stated that she had declined the opportunity for promotion, that she did not want to be included into the department as a usual professor. This choice did not make sense to me. However, in learning more about other minorities' experiences, it seems a common desire among minorities to not want to participate in optional work activities or social events, and rather just do the job duties in a time efficient manner. In hindsight, this makes sense that people from diverse backgrounds may not feel a workplace designed for white men is where they want to devote their free time.

I gave this example to highlight that it is key to listen to what people of diverse backgrounds want and really hear them, and to not assume laziness or other incompetency based on working styles as long as the core duties have been performed well.

As a final story, during one semester I was a teaching assistant for a senior professor who refused to accommodate official anxiety-related disability accommodations in his class. It was very difficult to understand how to support those individual students and the class as a whole when they felt unfairly treated by the professor, and moreover what power if any I had as a TA to address the harsh class policies. In the end, I don't think anyone had a good experience that semester, and I did not try to challenge the class's unfair policies. I did try to support the students via good instruction and honest communication, which I felt was as much I could do given my position as a TA.

For students, to truly have equity, there is some responsibility on the part of the instructor to adjust to meet the needs of students. At a minimum this means fulfilling disability accommodations, but also having flexible enough policies to accommodate extenuating life-circumstances of students or other gaps in students' skills. As well, it is important to understand that students may not have the career goals which you think they do, and therefore avoiding a one-size-fits-all approach to teaching goals.