

Teaching Philosophy

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I am dedicated to reducing the degree to which my students' success may be limited by their socioeconomic status, previous negative experiences in mathematics, or being part of an historically marginalized community. I do this by presenting mathematics in such a way that students feel confident in their ability to master it (if they put in the time) and making mathematics more engaging and relevant to my students' lives. Living with a physical disability which requires voice recognition to produce mathematical script gives me a particular interest in supporting students with disability who are interested in mathematics. As a result, I have mentored several math students with disabilities, providing them knowledge and support toward using assistive technologies. My efforts have resulted in six University of Minnesota, Center for Educational Innovation "Thank a Teacher" Awards. I also average 5.5 out of 6 in the student ratings of my teaching performance.

My path to teaching mathematics started when I pursued my undergraduate in mathematics teaching in the "Urban Teaching Program" at Metropolitan State University, and subsequently earned my state teaching license. The program had very strong emphases in developing teaching strategies to better serve marginalized communities, in learning their histories in the United States, and in serving as a student teacher in a school whose students were largely from these communities. Along the way, I also volunteered in many venues; tutoring students with mental illness toward their GED, tutoring in afterschool programs and in underserved high schools in Minneapolis.

My interest in more advanced mathematics led me to apply to the graduate program at the University of Minnesota, where I became a TA for Calculus I/II and Linear Algebra with Differential Equations. My duties included two discussion sections (30 students each) that met twice a week where I was responsible for preparing students for exams. I generated/graded quizzes and homework as well as assisted in the grading of the common midterms and final.

It was during this time that I applied techniques from my "[Mathematics Comprehension Strategy Log](#)." This is a compilation I made, while in the teaching program, of mathematics education strategies which have been shown to minimize the achievement gap among marginalized communities. Among other techniques, I used "Think-Aloud" where you give students access to your inner math voice as you work a problem, and "Internet Workshop" where students gather and share web resources relevant to the class content.

Additionally, I experimented with monitoring comprehension using an app called [PollEverywhere](#) that gave real-time feedback while teaching. I also experimented with increasing student engagement through an online collaborative learning tool: [Perusall](#). Their website hosts teaching materials and allows students to engage with each other regarding those materials. It also maintains an "engagement score," which gives me feedback. This became very useful during the COVID pandemic in keeping students engaged while distance learning. I also made class notes for each lesson available to my students via PDFs.

Through these teaching experiences, I've grown to believe that effective instruction requires us to ensure mathematical content is accessible, relevant, and interesting to students. Without a concerted effort, math is often accessible only to students with certain backgrounds and motivations. Unfortunately, this perpetuates historical inequities in academia and society. So, we must challenge ourselves to provide learning environments in which students with weak mathematical backgrounds, or initial disinterest in the subject can access mathematical ideas and find motivation to study them. These goalposts are what motivate and guide my experimentation in teaching.

As a result, within my presentation and materials, I create on-ramps for students who might be struggling due to mathematical deficits. Examples include thinking about which prior math steps are assumed in my presentation, and briefly reminding students along the way; or providing class notes which include more step-by-step explanations for those struggling with prior math. I also apply mathematics to things students might be interested

in (sports, biology, video games, etc.). I've been surprised at how frequently math books or lessons fail to include simple graphs or images that would provide a student with an intuitive understanding. These good practices are now ironed into my teaching style.

And while the specific technologies and techniques I use will evolve over time with experience, my goal of ensuring that every student in my classroom has a path to success will not change.