Teaching Statement

Bella Tobin

My motivation to teach mathematics is to help all students appreciate the beauty and elegance behind the rigor of mathematics. I love when a student finally understands a concept with which they've been struggling. For a brief, wonderful moment the student feels pride in their work, and a smile may sneak onto their face, something they may not have expected in a math class. These are the moments that I live for. As satisfying as it is when I overcome a mathematical obstacle or an idea clicks in my brain after a struggle, it's somehow even more satisfying when I see it happen for my students.

I ask my students how they feel and think about math. More often than not, students in more elementary classes tell me how much they struggled in math, and they were just not good at it, as if it is unattainable set of rules that they will never understand. These are the students who need me the most. My passion for mathematics education can overcome their doubts. Throughout the semester, I help my students learn to think mathematically and abstractly explore the concepts they struggle with. I not only care about my students' success, but also about their relationship to the subject. I try to make the classes fun and interactive, so my students enjoy mathematics and appreciate the fun even throughout the difficulties.

Learning is for a lifetime, especially for teachers. Beyond striving to give good lectures and being available for outside help, I ask my students questions and work to understand their way of thinking. While I generally receive good feedback from my students, I often reflect on my teaching so I can continuously improve. While teaching a course designed for future elementary school teachers I ask my students to share what they think makes a good math teacher, not only so they can reflect on their abilities, but also to help me grow and adapt as a teacher. I also ask my students to reflect on their learning. They are asked to tell me about their accomplishments in the course, and their struggles, and most importantly, I ask them about their plans to improve their work for the remainder of the course. I have noticed that this has positively affected the habits of my students.

As a student, I always appreciated the intuition examples can provide when being first introduced to a concept. Now, as a teacher, I give my students examples before diving into any abstract statements. When discussing the theorems or properties, I often reference the initial example, so they can see how it is applied. However, I also know the emphasis should be placed on the abstract concepts and understanding why a theorem or property holds. In more advanced classes it is standard to provide proofs and expect students to complete proofs, however, I believe this can also be done in more elementary courses. Whenever possible, I have my students discover math concepts. I have my students work together to answer a specific question, for example, in a precalculus class this might be "What is the general formula for log(ab)?" I provide leading questions, such as "how do logarithms relate to exponents? How do the properties of exponents affect logarithms?" I may give them an example, such as is "how does log(15) relate to log(5) and log(3)?" I encourage the students to get up and work on the board, which often leads to more discussions and discoveries within the group. I walk around and listen to each group, answering their questions and providing additional leading questions. In fact, when my students are doing group discoveries, I respond to most questions with additional questions, encouraging them to think critically and problem solve. Almost every time they are able to solve their problem, but they weren't yet aware of their own abilities. Towards the end of the semester the students generally start to answer their own questions immediately after asking it, because they finally understand how able they are to think about mathematical concepts, and how powerful their own brain is.

Often times, it's the students who claimed to struggle the most who are the most receptive to this method.

For some classes, especially ones that serve as prerequisites for future courses, I have to balance content coverage with the time needed to teach through a more inquiry-based model. In these cases, it's necessary for me to lecture at least some of the time. As a student, I always struggled to learn by way of lecture, so I pay close attention to my spoken and written words when I'm lecturing to a class. I try to write in big letters, underlining important words or definitions, and boxing in the names key concepts. I tend to talk fast, so I try to slow down and pause often to make sure the students are able to take notes. I also pay close attention to my students reactions, so I can adjust if necessary. If I see looks of confusion, I make sure to take a step back and discuss the concept in a different way, provide an example, or elaborate on details. If I see boredom, I will try to add a fun fact, an interesting application, or a surprising consequence to keep the students engaged and interested. Some students can have difficulty taking notes as well as following the lecture, so whenever possible, I post notes online so they can focus on learning instead of writing everything down.

Every class is different, and I try to adapt to my students' needs so I can help them gain confidence, grow as mathematicians, and enjoy the subject. I truly care for my students, and enjoy helping them find the beauty in mathematics, at every level. Teaching mathematics is my passion, and has been a goal of mine for many years. I believe that with the right teacher, anyone can understand and enjoy math. I am striving to be that "right teacher" for as many students as possible.