Teaching Statement

When I taught my first course, I had no clue as to what my role with my students should be. Naively, I imagined a sufficient relationship with my students was a simplistic one of give and take, as in “I give lectures, you take notes.” Having taught courses every semester for the past five years and having interacted with several hundred students, my understanding of what it means to be an effective teacher has, to say the least, changed significantly. I now understand that teaching mathematics is a multi-faceted experience that is influenced not only by what I do inside or outside the classroom, but also by the attitudes I bring to every interaction with my students.

The first thing I realized about teaching is that I needed to be organized. Even now, before each semester begins, I start planning out the semester week by week, preparing the lecture notes for the first few weeks, and start thinking about the kinds of questions I want to ask on tests. Initially, being organized was solely for my own benefit; however, after a couple of courses, I quickly learned that students are generally appreciative of my organization. If they need to miss class, I can tell them exactly what material we will be covering. They will know well in advance when they need to start studying for each exam. Before each class, students know what section I am covering in the textbook, so that they can review the material ahead of time. Having a calculated plan for a course is a benefit that gives my students a recognizable structure that they can and do pick up on.

Being organized is also applicable to the presentation of material. In my experience, students will literally write down everything that I put onto the board. Therefore, if what I write on the board is sloppy and jumbled, then the notes that my students take will also be sloppy and jumbled. This is paramount when it comes to working example problems. If I do several of the same type of problems at the board, I write and explain each problem in a very similar way, as if to give my students a model for how a problem should be done and how they should present it to me. Generally students pick up on this, even going as far as writing down any annotations I may append to a problem when they themselves work a problem. Mathematics is a language with its own syntax and grammar and should be presented in a manner so that students can easily learn its correct usage.

Another thing that I have learned about teaching is that, much like organization, the attitudes which my students bring to each lecture are a direct reflection of the attitudes which I bring to class each day. If I give off the impression that I find a certain topic boring or uninteresting, then my students will automatically tune themselves out. If I focus on only the negative things that happened on a test, then my students will only have negative thoughts about the test. The important thing about this mirror-like relationship is that it can be used to improve a student’s overall experience. If I encourage a student and willingly take time to help them understand a concept, that student will start to feel a little more confident about themselves and their ability. If I get to class a few minutes early to interact and joke around with the students, they will find me more approachable and are more willing to ask me for help. In 2009, for Time magazine, Meg Ryan said of Tom Hanks, “He’s interesting because he’s interested.” This is absolutely true of teaching: my students are only going to be as interested as I am.

In mathematics, as with everything in life, there is a profound difference between knowing how to do something and being able to do it. The only way to bridge the gap between ability and knowledge is practice. During each of my classes, in addition to regularly assigned
homework, I provide students with additional problems that they can use to supplement what they are learning. I encourage my students to work at least a handful of these extra problems, because the more they work with a mathematical idea, the better they will understand it and be able to apply it in the future. When I teach, I try to bring up previous ideas discussed in the course and make them relevant to the current context. For instance, I give my students problems that involve more than one major concept, e.g., combining the second part of the Fundamental Theorem of Calculus with finding the arclength of a curve. As I progress through the material of a course, I do my best to provide my students with ample opportunities to improve and build upon their past and newfound mathematical skills.

One concept I have learned recently is that students need to be encouraged to work problems on their own. If a student is unsure of how to work a certain problem, they can come to me and I will gladly help them; however, I will not simply provide a solution for them. I will not be there to show them how to work problems on the test, so what good does it do the student if I just give him or her the answer? As English novelist E. M. Forster put it: “Spoon feeding in the long run teaches us nothing but the shape of the spoon.” It is important for students to recognize they are unsure about how to solve a problem, and it is imperative for them to develop the skill to work through that uncertainty and find a solution.

To try and teach my students this skill, I provide my students with an encouraging environment where they can feel comfortable working through any misgivings that they may have. When discussing a problem with a student, I will ask questions such as “What kind of problem is it?”, “What kind of techniques do we know about solving these types of problems?”, and “What have you tried so far?” It is important that I encourage the student to drive the discussion of the problem, without being pushy or disrespectful. Depending on their feedback from my questions, I can commend them or I can gently edify them. If a student is worried about making a mistake, I tell them an embarrassing story about a time I made a mistake (and believe me, I have several of these stories). I let them know that it is fine to make mistakes, because mistakes are not failures--they are opportunities to learn. My hope is that through these type of discussions, my students will develop the skill and the confidence to continue to try working problems even when they feel uncertain.

When I taught my first course, I was unaware of the scope of mathematics education and the impact it could have on my classes. The more students I have taught and interacted with, the more I have learned about effectively communicating and reinforcing ideas to my students. I am starting to see what I need to do in order to encourage students to obtain a better understanding of mathematics. My intent is that I will continue to become a more effective educator, because I believe that by teaching mathematics I am providing my students with knowledge and skills that will positively impact their lives and eventually the lives of others around them.