

A Matter of Individuals: A statement of teaching philosophy

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Individuals count. This simple idea is at the heart of my view of teaching and learning. It encompasses a stance that I take as a teacher and encourage my students to take as learners. We engage in learning for very personal reasons, each with our own motivations and enthusiasms to guide our choices. I see it as my role to support each of my students in his or her individual intellectual pursuits.

Students enter my classroom to learn mathematics. The traditional way of thinking about this is that if we tell them the correct stuff, they will learn it. Most often, if we take this approach, we walk away wondering why they didn't learn what we taught them: "But I know I gave a good lecture on that."

Learning is an active process, something that students *do*. It is my job to help them find ways of learning that work for them. Since I have many different kinds of individuals in my classroom, I must find many different kinds of ways of helping them learn.

I often began my teaching in Science One each year by taking my students and their bicycles to a beach near the university. There I asked them to work on the following problem: Determine the direction a bicycle went given a set of tracks. They were told that the sand had settled and the tread marks were no longer visible. To solve this problem, they were forced to think about bicycles and how they work. Usually, they started out just looking at the tire tracks in the sand. As the students progressed in the analysis itself, they realized that the bicycle is important. While the students were working, I would walk around and pop in on their interactions. This provided an opportunity to observe them in action and I could start to get to know them and how they approached problem solving.

Because I am committed to encourage the growth of individuals in my teaching, this necessarily implies that I must discover things about the individual students and that they must learn about me. To do this, I need them to know that I am committed to support them in their learning.

Getting personal in education is risky. It results in the transformation of the students' image of me as the ultimate authority into a view of me as a

guide and participant in their exploration and discovery. One implication of this shift in my attitude and my behaviour is that my students experience my ignorance and become more willing to expose their own.

I sometimes use biological models to teach mathematics. Students see me use mathematics to explore biology. In turn, they use their understanding of biology to explore the mathematics. They become comfortable embracing their own ignorance as a driving force in building their individual picture of the world. The transition from fear of ignorance to embracing ignorance requires that we build a deep level of trust in our community of learners.

Trust plays a central role in learning. Trust is the willingness to risk being vulnerable. In order to learn well, students must explore the frontiers of their understanding. This implies that they enter previously unknown territories and stake a claim in those places. Naturally, this is a scary thing. Most of us are insecure about whether we can learn difficult things. My role as teacher is to say “do it!” and then participate in the exploration by encouraging the students to experience our community as a safe place to take these risks. They view the class as a group of interdependent individuals. They support and receive support from each other as much as from me.

Students are tentative about trusting. They initially seek the safety of structures such as course outlines and reading lists. They soon realize it is more satisfying to move beyond simple knowledge and work towards understanding. To do this, they build their own picture of ideas and interconnections between ideas. I am there as one source of dialog. Their classmates are also a source of dialog and they discover that this level of engagement rewards them with understanding.

Trust is also an issue for me, as a teacher and as a person. To bring my teaching to the level of the individual, I take risks. I try new things in the classroom. Sometimes my ideas work well, and sometimes they don't. My students offer valuable insights into what works and what doesn't. Indeed, I have learned most of what I know about teaching from my students.

How does this all happen? Building a learning community requires effective communication.

I listen. I learn about my students from listening to what they say as they express intellectual ideas and as they discuss their learning experiences. I ask them to tell me about their individual experiences. Throughout this process, I encourage them to express themselves clearly and powerfully by insisting that they do so and helping them “tune” their expression for clarity

and expressive power. They learn that good communication skills help them achieve understanding and learn that my classroom is a safe, nurturing yet demanding place in which to do this.

I follow up on their communications and they follow up on mine. We establish a controlled feedback loop. Iteration is not sufficient. I give them a level of individual feedback that promotes growth on each iteration and the result is that our communication (and our relationship) grows progressively deeper and more effective. I respect their thinking and their ideas. I give them opportunities to do the best work they can by talking about their ideas with them. This is an individual process and recognizes that each student has different dynamics in the feedback loop.

I love teaching because I love the dynamics I experience by treating my students as intellectual equals. They bring so much energy into their education and into my life. Every day, a few of my students visit me in my office. We share ideas and engage in dialog. I share their excitement and enthusiasm as they go through periods of great discovery and personal growth. I also support them when they face obstacles to their learning. The best feelings I get from teaching come from watching my students grow. They are constant reminders of the reasons that I chose to become a mathematician. I see my own youthful enthusiasm and excitement in them and recognize just how contagious these things are. I often think that I get more from them than they get from me even though I know they do gain enormously.

I feel privileged to be a part of the individual growth and development that my students experience. The more I teach, the more humbled I am by the understanding that what is happening to the individuals in my classroom is so much larger than just the interactions between each of them and me.