Statement of Educational Philosophy

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Principle: The fundamental purpose of education is to instill a belief in the power of the individual to transform the world.

I've come to believe that the "banking" model of education in which the teacher acts as the giver and the student is a passive receiver is a fundamentally flawed approach. Paulo Freire's critique of this philosophy has always resonated with me: "The more students work at storing the deposits entrusted to them, the less they develop the critical consciousness which would result from their intervention in the world as transformers of that world." Rather than viewing students as empty vessels in which deposits of knowledge must be made, retained, and catalogued, I view students as dynamic constructors of understanding. This knowledge, as Freire puts it, "emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other."[1] My experience has led me to believe that this transformative power is not restricted to some elite subset of humanity, but is available to all people everywhere.

Many students I've encountered seem to have internalized the traditional view, unfortunately. Through no fault of their own, they've been told both explicitly and implicitly that the path to success in school is most safely traveled by following directions. My perspective, on the other hand, is that there are many ways for students to succeed. I believe I am at my best as an educator when I support a student's personal process of realizing his or her inalienable right and underlying ability to set a unique course and follow it. Promoting autonomy in my students has required me to build relationships characterized by intellectual and emotional safety, mutual respect, and trust. In the context of supportive teacher-student relationships, I can model the ownership of mistakes in finding one's path. This has challenged me to level with my own failures, but I've found that revealing how I've transformed some of my own struggles into sources of strength shows students that I mean what I tell them: in my classroom, mistakes are welcome opportunities for growth.

Principle: Effective educators approach students by capitalizing on their existing strengths rather focusing on their deficits.

I strive to match Eleanor Duckworth's description of her teaching: "I propose situations for people to think about and I watch what they do. They tell me what *they* make of it rather than my telling them *what* to make of it." As Jacqueline and Martin Brooks suggest, "This approach values the students' points of view

[1] Freire, Paulo. *Pedagogy of the Oppressed* (1970), p. 72-73.

and attempts to encourage students in the directions they have charted for themselves."[2] In contrast to the traditional conception of students in terms of the knowledge they lack, an asset-based model affirms and empowers students. While I initially found it difficult to take the leap of faith required to realize a student-centered vision, my current teaching style has grown truer to this ideal by incorporating intentional practices such as student-led discussions of student-generated mathematical conjectures, performance tasks requiring the use of math to propose solutions to authentic issues of social justice, and explicitly fostering a growth mindset[3] by connecting students' strides in other areas of their lives to their potential as powerful users of mathematics.

Principle: An educator is primarily a designer and facilitator of engaging learning experiences.

When students are engaged in activity that is personally meaningful, appropriately challenging, and intrinsically motivated, they will persist in the fact of difficulty and gain confidence in their ability to transform the world around them. I've learned that designing for engagement cannot be done in a vacuum – the best learning experiences are carefully crafted according to particular students' strengths, interests, personal goals, and background knowledge. In fact, the opportunity to create the conditions in which students are most likely to experience the thrill of engagement is the most fulfilling aspect of the work of education for me.

I identify with the analogy Harvard physics professor Eric Mazur uses to describe his constructivist approach to teaching: "I used to get in front of my students and do all the science for them. I should have been showing them how to do it themselves. If they were studying the piano, I wouldn't have gone, 'sit down, I'll play the piano for you.' "[4] In this domain, my life experiences have led me to a succinct maxim: the best way to learn math is to do math. Furthermore, since a student's mathematical understanding must necessarily grow more intricate and complicated over time, a key responsibility of the math teacher is the "[p]rovision of opportunities for students to determine, challenge, change or add to existing beliefs and understandings through engagement in tasks that are structured for this purpose" while simultaneously encouraging the "[d]evelopment of students' meta-awareness of their own understandings and learning processes."[5]

One particular activity I've found incredibly useful in terms of activating students' metacognitive abilities is called "math metaphors." Several times during the year, I'll ask students to answer a few open-ended questions such as, "If math were a food / animal / movie, it would be (blank) because …." Next, I'll

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[2] Brooks, Jacqueline and Martin Brooks. *In Search of Understanding: The Case for Constructivist Classrooms (*1999), p. 5.
[3] Dweck, Carol. *Mindset* (2006).
[4] Dreifus, Claudia. "Using the 'Beauties of Physics' to Conquer Science Illiteracy." *New York Times,* 17 July 2007.
[5] Richardson, Virginia. "Constructivist Pedagogy," *Teachers College Record* 105:9 (December 2003) 1623-1640.

pass out a rubric and ask students to "score" each of their responses from "very negative" to "very positive." Finally, I facilitate a discussion in which students unpack their metaphors, wrestling with what their answers reveal about how they conceptualize the subject of mathematics, what led them to these beliefs, and how their views affect how they approach math. I've found that not only do I continue to hear new responses each time I run this activity, but this angle of exploring students' attitudes and dispositions also provides a valuable framework for ongoing conversations about how their metacognitive beliefs and practices can morph and shift over time.

Principle: Mathematics is the science of the patterns we find in our world.

My approach to teaching mathematics is similar to Mazur's approach to teaching science. One key measure of success is the degree to which students internalize and act on a belief in their power to tinker, test, hypothesize, experiment, and discover their way to mathematical truths, and then reflect on and articulate their unique learning pathways. As Jerome Bruner argues, in this way, "[m]astery of the fundamental ideas of a field involves not only the grasping of general principles, but also the development of an attitude toward learning and inquiry, toward guessing and hunches, toward the possibility of solving problems on one's own."[6] One key idea I have taken from Bruner's work and woven into my own teaching practice is that the general metacognitive process of learning how to learn is even more important than the specific learning that occurs in every subject in any classroom.

In particular, I see eye-to-eye with Bruner on the virtues of intuitive thinking as a catalyst for analytical thinking, with "the first importance to establish an intuitive understanding of materials before we expose our students to more traditional and formal methods of deduction and proof."[7] Therefore, my philosophy of education places mathematics in a manifold role. By capitalizing on their instincts, I believe I can show students how they are natural mathematicians. In my classroom, students come to expect to be asked, "Why? How do we know this is true?" following by my insistence to invoke the power of math: "How can we generalize this?"

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[6] Bruner, Jerome. *The Process of Education* (1977), p. 20.
[7] *Ibid*, p. 59.