Teaching Statement

One Sunday morning in April 2017, I came across the provocatively titled article[1], "Why is Silicon Valley So Awful to Women?" The article catalogued examples of discrimination against women in technology, but what stood out most was one phrase that postulated the underlying reason for this phenomenon: *that computer science and certain other fields fetishize "brilliance," cultivating the idea that potential is inborn*. The words "fetishize brilliance" stayed in my mind long after I read the article because they so cleanly encapsulated what had been frustrating me most as a woman who was, at the time, both a student and an instructor of computer science.

I had been thrown unexpectedly into first-time teaching that term because of a staffing emergency and hadn't had time to reflect on my goals as an instructor before I started. But it became clear to me after a short time in the classroom that what I most wanted was to show my students the value in struggling and deeply engaging with difficult concepts. Many students seemed to believe that they should just "get it," and that if they didn't it meant that something was wrong. Some apparently preferred to wait for me to provide answers rather than struggle and risk failure in finding a solution themselves.

My main objective in teaching became to show students that their ability is not fixed and it can be improved, but only through difficult and sometimes unpleasant intellectual exertion. There are a few ways in which I try to encourage this mindset in my students. On top of directly telling them that it's useful to struggle, I try to systematically break large, complicated problems into smaller, more manageable conceptual steps. I do my best to present this as a general process that can be applied to other problems, and hope that they'll come out of the course with knowledge of how to learn and solve problems that they can retain long after they forget the details of particular course topics.

It's important to empathize with the students and meet them wherever they are in their learning process. I consider my greatest strength as an educator to be my ability to see concepts from multiple perspectives, which lets me provide different explanations and approaches if I see that an approach isn't working for some students. I often pause during explanations in lecture to see if students are following; if I sense that they aren't, I'll explain more slowly and try to provide an alternative way to understand what I just said or did. I think it's helpful for students to see that, just because an approach that worked for others didn't initially work for them, that doesn't mean they're less capable or that they can't also find an effective way to learn. I often find that when students ask for help, they visibly relax when I confess to having also had some initial difficulty with the topic we're discussing, or even if I just acknowledge that, yes, this is a difficult topic, and many students struggle with it.

The reason I want to counteract computer science's cultural myth that success depends on innate brilliance is that our students will be more effective, independent learners if they believe they can improve their abilities through effort. Additionally, the "brilliance fetish" inflicts disproportionate harm on certain groups – notably, according to one study[2], women and African-Americans – who are not stereotypically seen as brilliant and remain underrepresented in computer science. If we promote a culture that discourages and alienates these people, we risk losing the talent and the innovation they can bring. It's my hope that, by encouraging more computer science students to adopt a growth mindset, I can do a tiny bit to make Silicon Valley less awful to women and other underrepresented groups.

I can teach most introductory courses in computer science and mathematics, as well as advanced courses in algorithms and numerical computing.

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[1] Mundy, L. (2017, April). Why Is Silicon Valley So Awful to Women? *The Atlantic,* retrieved from
https://www.theatlantic.com/magazine/archive/2017/04/why-is-silicon-valley-so-awful-to-women/517788/
[2]Leslie, S.J., Cimpian, A., Meyer, M., and Freeland, E. (2015). Expectations of brilliance underlie gender distributions across academic disciplines. *Science 6219*(347), pp. 262-265, DOI: 10.1126/science.1261375.