

Countering the narrative of imposter syndrome through a culture of inclusion and diversity

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I wrote briefly in my teaching statement about the importance of working to make both the discipline and the community of physics inclusive of marginalized groups, and of the indispensable role that teachers play in fostering a culture of inclusion and diversity. I also wrote about the ways in which I work in my classrooms to engage my students on issues of diversity and inclusion, in particular how I strive to elevate voices and narratives that are underrepresented in physics and astronomy. In this statement, I will speak to these issues in more depth, and I will bring a special focus on an issue which I feel deeply impacts physics students from underrepresented backgrounds: imposter syndrome.

In my teaching statement, I wrote about the series of events that brought me to physics at Dickinson College, and about the culture of personal engagement between faculty and students and of enthusiasm for the discipline of physics. Despite this environment, at some point in the second half of my undergraduate education (exactly when I cannot now recall) I first began to experience feelings which I later understood to be *imposter syndrome*. These feelings began quietly enough: comparing my exam score to another student's here, saying that I'd never be as knowledgeable as my professor there. As I moved from undergraduate into graduate school at Montana State University these thoughts became much more frequent and significantly stronger, and eventually congealed into a single idea:

“I don't belong here.”

The narrative that wants to play out in my head typically goes like this: “everyone here is very good at physics; I am not that good at physics; I'm deceiving everyone into thinking I'm good at physics; it's only a matter of time before everyone discovers I'm not as good as them; when they do they're going to be angry that I deceived them; when that happens they're going to tell me to leave; maybe I should just leave on my own before that happens.” Learning to counter that narrative has been a journey, one that I am still working to fully internalize. One step which greatly helped me was to engage with a group of my peers who were also suffering from this narrative. Through this process I gained both a sense of community and a language with which to describe and counter my feelings. Perhaps most importantly, however, was that I gained a sense of *normalcy*; that this was common and not at all disqualifying.

Obviously, any student may start to suffer from feelings of imposter syndrome, and it is important to recognize the signs that a student is feeling like they do not belong and take steps to help them regain their sense of community. That said, there are some students, particularly women and persons of color, who are going to be at increased risk of imposter syndrome, and especially of fully internalizing the fraudulence narrative and leaving the discipline before they can be “discovered”. Studies have shown, for example, that women tend to experience imposter syndrome more frequently and more severely than men, and that the general motivations for imposter syndrome differs between men and women (Clance & Imes 1978; Kumar & Jagacinski 2006). Topping & Kimmel (1985) suggested that particularly women who suffer from imposter syndrome are significantly less likely to attain faculty positions. Women with imposter syndrome are also more likely to think intelligence and skill is an innate quality (Kumar & Jagacinski 2006).

Students from underrepresented groups may also suffer unique forms of isolation due to implicit bias, stereotyping, and microaggressions. An internal “I don’t belong here” narrative due to impostor syndrome is reinforced by an external sense of “You don’t belong here” from their colleagues. This may or may not be intentional on the part of students and faculty, but it is the effect that should be the priority. Eliminating sources of isolation cannot simply be a passive activity; faculty must take an active role in creating an inclusive environment. First and foremost, we can explicitly state our belief that women and persons of color belong and are welcome in the discipline. We can work to counter stereotypes when we encounter them, and call out microaggressions when we see them (or when they are brought to our attention). Finally, we can address specific issues like the idea that skill in physics is due to innate talent rather than training and practice.

My experience teaching at Montana State University has provided some meaningful opportunities to engage with traditionally underrepresented groups in physics. Two of the three REU students I have mentored were female (Heidi Dritschel and Alissa Roegge), and female students consistently represent 50% or more of the total MSU Solar Physics REU program. I approached both experiences as opportunities to engage with these students on the issue of female-underrepresentation in physics, and I strove to create an working environment that emphasized their place within the physics community. I am proud to say that Heidi is now a postgraduate student in Mathematics at Oxford and that Alissa went on to apply to graduate schools in both Physics and Astronomy, for which I was delighted to provide wholehearted letters of recommendation.

I have also worked to address imposter syndrome and related issues in the ASTR-110 (Introduction to Astronomy) course which I teach at MSU. First, my highest priority for any class is show students that science is something that can be done by anyone. Most

of the students in this class do not come with any science background, and most will not go on to a career in any science. Nonetheless, I want them to know that they belong in science as much as anybody. Second, I work continuously throughout the class to eliminate microaggressions that may discourage participation by women and persons of color. As a particular example, when I divide students into four-person teams to complete the in-class activities, one student acts as the “recorder” for the group. I explicitly state that this is not to always fall to the female(s) in the group to perform this duty. Through these methods I hope to break stereotypes of who can assume leading roles in science, and who a “good” scientist is.

Finally, given the limited window I have had to engage meaningfully with these issues in my career so far, I recognize that I have a great deal of room for personal and professional development in the future. Like my commitment to remaining adaptable to new methods and techniques in my teaching of a physics and astronomy curriculum, I anticipate continually striving to incorporate new knowledge and experiences for engaging with students on issues of diversity, inclusion, and community. I am eager for an opportunity to explore these questions at an intellectually ambitious institution among students, faculty, and staff from diverse backgrounds.