

By Susan J. Cheng

How I'm standing up for science

The morning after President Trump's inauguration, I woke up to an email from AAAS (the publisher of *Science*) asking me, "How will you stand up for science?" This was a question I hadn't thought about or discussed much with other scientists, and I struggled to find my answer. However, after reading about how the Environmental Protection Agency was initially told to remove climate change information from its website and about travel restrictions that affected my colleagues, it was painfully clear that an answer was urgently needed. I wanted to do my part to protect science. But as a postdoc, without the seniority or security of a tenured professor, I wasn't sure what I could—or should—do. Now, after reflecting on why I first chose to be a scientist, I have found my own way to stand up for science.

In college, my professors showed me that successful scientists engage equally in research and teaching. They were active researchers who took time to teach others about the impact and importance of their work. I was fascinated to learn how environmental problems—such as contamination of drinking water, air, and food—could have been lessened if policy decisions and scientific research had been better integrated. I was inspired by seeing my professors develop research projects in response to specific environmental disasters. Through their example, I saw that learning science wasn't about memorizing facts for exams or getting a degree; it was about having a positive impact on the world, both socially and environmentally.

When I started my Ph.D. program, I eagerly signed up for teaching workshops and looked for opportunities to work with students. But as I continued through my graduate studies, planning to eventually apply for faculty positions at major research universities, I felt a growing pressure to publish. Given the competitiveness of the faculty job market, I thought I had to minimize "distractions" and focus exclusively on my research. I started declining teaching and mentoring opportunities, and I changed my mind about pursuing a concurrent master's degree in postsecondary science education. Eventually, I gave in to the idea that, for me to be successful in academia, my interests outside of research needed to come second—or wait until I had tenure.

But the 2016 presidential election and the start of this new administration have made me re-evaluate my responsibilities as an academic scientist. I find myself worrying not only about my own role and future in science, but also



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about the future for science in the United States. Reading about how scientists are finding different ways to stand up for science in the days after the inauguration—downloading data from federal science agencies, creating rogue "alternative" Twitter accounts for various government agencies, organizing the March for Science—makes me realize that I, too, can find my own way of protecting science, without waiting for tenure.

For me, standing up for science means reigniting my interest in education. Watching how research on climate change and other scientific evidence were sometimes disregarded during the election season reawakened my interest in how people learn and interact with science. Now, with the help of an education

research training program at my university, I'm working with undergraduate students in a class that covers ecology and climate change, studying what, why, and how students learn.

In the current political climate, research on how educators can effectively teach and communicate science—especially topics that could be considered politically controversial—seems more important than ever. I hope that the results of my education research will help me and others inspire students to be engaged scientists and science advocates, just as my professors inspired me to pursue a science career—and, more than a decade later, continue to inspire me to do my part to protect science. ■

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