

services and training that they need to conduct safe and responsible research. I agree with others who have noted that researchers need relevant training or apprenticeships before conducting fieldwork¹. With multiple Himalayan field seasons behind me, I consider it my responsibility to advise and mentor colleagues who are venturing into similar settings for the first time. The counsel that I have received from my mentors and supervisors should become more prevalent in the scientific community: the better prepared your research teams are for the realities of fieldwork, the more enjoyable and productive your research will be.

Of course, it's also the responsibility of researchers themselves to prepare for the fieldwork ahead. I took some informal fitness and backpacking training courses with colleagues before my first couple of expeditions. This and more-formalized training can prove invaluable, and wilderness first-aid or medical training from non-profit organizations, such as the Red Cross, should be a requirement for at least one member of every research team⁴. There are also field camps and expedition preparation courses offered by companies and institutions worldwide. These courses do cost money, which can reduce participation by early-career geoscientists. I would like to see these costs in the future either subsidized or covered by the research project or associated institution.

Fieldwork should be a positive experience, and should continue to engage and encourage the involvement of young and motivated scientists for generations to come. A more-open conversation about concerns over field safety is necessary for our community.

On that terrifying day, I thrashed below the river's surface, overwhelmed by the water's force. I lost my hiking poles in the confusion. Finally, I fought my way to the surface as a current slammed me into a gravel bar. Gulping in air, I hoisted myself onto the gravel. I was alive.

Had I been alone, or without my equipment, field experience or survival instinct, I am not sure that I would have been so lucky. As I curled up in my sleeping bag that night, I realized that despite everything that had happened that day, there was nothing else that I would rather be doing — and I aim to keep doing it, safely. ■

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TURNING POINT

Empathetic outreach

Kale Edmiston, a postdoc at the University of Pittsburgh in Pennsylvania, uses neuroimaging to study mood and anxiety disorders. He describes how living as an openly transgender researcher has inspired his outreach endeavours.

Has your experience as a transgender scientist informed your outreach?

Yes. I was the only out transgender PhD candidate at Vanderbilt University in Nashville, Tennessee. As word got out, I started getting contacted by members of the transgender community asking for health-care assistance. Few health-care professionals are trained in transgender issues, which contributes to this group's lack of access to health care. And 41% of this population in the United States reports at least one suicide attempt, according to the 2014 National Transgender Discrimination Survey.

What did you do with this information?

I co-founded the Trans Buddy Program, which operates through Vanderbilt and aims to improve health-care outcomes for transgender people. We wanted to create a network of people who can provide support and assistance. Since 2015, we've trained dozens of people and helped at least 450 clients. I also think that institutional investment in transgender leadership for these sorts of programmes, and creating more opportunities for transgender people to lead transgender health advocacy and health-research projects, is important.

How do your insights guide your research?

Being embedded in a community with high rates of anxiety, depression and suicide has given me a sense of urgency and commitment to doing clinically informed mood- and anxiety-disorders research. But I chose to pursue psychiatric neuroscience as a research assistant when I analysed data on individuals who had experienced childhood mistreatment, and found a correlation between the severity of mistreatment and the volume of the fusiform gyrus — the brain region that processes facial recognition. I decided to explore how people who are at risk of developing mood and anxiety disorders process visual information. The visual cortex is overlooked in psychiatric neuroscience. I thought it was a missed opportunity to think about how our perception of the world informs how we engage in and react to environments.

Does academia adequately support diversity?

Certainly not. Many female under-represented scientists have articulated the issues — such as



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access to mentorship and struggles adjusting to academic culture — that can affect all under-represented individuals in science. Still, things are getting better. I was able to find excellent mentors, peer support and programmes.

What programmes helped to build your career?

First, I received a career-development fellowship — the Summer Program in Neuroscience, Excellence and Success (SPINES) — for under-represented scientists, at the Woods Hole Marine Biological Laboratory in Massachusetts. Meeting both peers and mentors from all over the country was game-changing for me. I also received funding from the Point Foundation in Los Angeles, California, which offers scholarships for LGBTI (lesbian, gay, bisexual, transgender and intersex) students.

Do transgender graduate students face unique academic challenges?

I don't think people realize that transgender prospective graduate students might not get a fair evaluation. Transitioning and coming out typically occurs during crucial young-adult periods when a student is building their grade-point average and undergraduate transcript. Many trans folks take a pause from school during that time. What does that mean in terms of being evaluated in a pool of people who haven't had those challenges? I was an anomaly, as I started my transition during my first semester as a PhD student, which I would not recommend, because it was a lot of stress at once.

How can we level the playing field?

We need to rethink our evaluation systems. Once people are able to access graduate school, we must provide support and mentorship to make sure they are retained. ■

INTERVIEW BY VIRGINIA GEWIN

This interview has been edited for length and clarity.