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NATHAN CHAPPELL



Members of Te Pūnaha Matatini Whānau, a student-led group in New Zealand, relish opportunities to build skills such as event planning and networking.

GRADUATE-STUDENT INITIATIVES

How advocacy gives back

Purpose-driven student leaders learn management skills and gain a support community.

BY KENDALL POWELL

In 2016, structural biologist Christina Roman co-founded a graduate-student drive to help recruit and retain a more diverse group of PhD candidates at her university. Since then, the team has boosted the numbers of successful PhD applicants from under-represented groups. She loved seeing how her team's work was directly affecting the lives of others.

Roman and two student colleagues at the University of Chicago in Illinois had set up the drive, known as the Graduate Recruitment Initiative Team (GRIT), to address a disconnect between the university's approach to diversity and the needs of graduate students from minority groups.

But for Roman, a PhD student in biochemistry and molecular biophysics, working with GRIT yielded another powerful benefit — organizational skills that she could apply

directly to her thesis work. To organize GRIT's efforts, she produced spreadsheets that listed completed tasks, approaches that had or hadn't worked and goals yet to be completed, broken down into 'next actions'.

She realized that she could use the same rigorous planning, note-taking and record-keeping habits in the lab, including printing out all her data and stapling them into a lab notebook so that she could have everything in front of her and in one place. "I organized my working space and my brain to fit how I was looking at recruitment and retention of diverse students," says Roman. "Now, I can see the fastest solution to try in my research."

She says that her advocacy work has also given her more confidence in pursuing her degree. "For me, as a person of colour, the PhD sometimes seems impossible. But my work in GRIT makes me feel like I can do it."

Although some PhD programmes offer training and workshops in organizational

skills, volunteer activism and initiatives give students hands-on experience with team and project management and negotiation, all of which transfer well to a science career.

Volunteering also creates opportunities for students to meet people outside their programme, offering an escape from the pressures of the lab. "The GRIT students," says Vicky Prince, dean of graduate affairs for the Biological Sciences Division at the University of Chicago, "have emerged as leaders".

MINDFUL CONVERSATIONS

Today, GRIT has 60 members and links applicants from all under-represented groups (URGs) with current biological- and physical-sciences students, who act as mentors during the application and recruitment process and connect new students with faculty mentors. "We saw the power in getting faculty members who aren't minorities to hear the stories and experiences of minority students in ►

► science,” says biochemist Cody Hernandez, another GRIT co-founder.

GRIT’s leaders say that they have perfected the crucial skills of negotiating and listening. These qualities are especially important during the sometimes-tense conversations they have with faculty members about race and self-identity, and with colleagues who hold strong and conflicting opinions. The students have worked, for example, to refute the false idea that few qualified URG students apply to their university, and have shared with majority-group faculty members how negative stereotypes affect their career advancement.

“You are going to hear things you don’t like from people you respect,” says biochemist and third GRIT co-founder Mathew Perez-Neut. “You can’t be inflammatory or aggressive. You have to empathize, be tolerant and be patient in these situations.”

He thinks that these skills will translate well to managing teams of researchers who won’t always agree on scientific approaches or interpretations of data. “GRIT continually gives back to me,” Perez-Neut says, citing the strong relationships he has forged with faculty members — who will write his recommendation letters — and student peers.

But he also stresses the importance of not taking on too much as a volunteer, and of sharing the burden with co-pilots who can take over when research gets busy or life overwhelms. It’s equally important, he adds, to have faculty-member allies who can offer advice, help students to navigate administrative bureaucracy and advocate on behalf of a student group.

People often expect more from student leaders than from students who are less involved, and so ask them to participate in other activities. Those who launch or join such volunteer initiatives must learn to say ‘no’ when an activity doesn’t line up closely with the original goal, the GRIT leaders advise. “It’s important to have a laser-beam focus on what you want to accomplish,” Perez-Neut says.

During his master’s degree in ecology and evolution at the École Normale Supérieure (ENS) in Paris, Lucas Paoli focused on how students could address climate change. As part of a French national student sustainability group, Paoli had the opportunity to participate in the United Nations Framework Convention on Climate Change Conference of the Parties (COP) meetings. At these events, countries negotiate and implement climate-change policies.

But he noticed that few French universities were participating in the meetings, even though they are encouraged to join in as research non-governmental organizations (RNGOs). So, Paoli proposed that the ENS apply for COP accreditation to participate in the UN meetings as an RNGO.

Working with Christian Lorenzi, director of scientific studies for the ENS, Paoli secured accreditation last July for delegates from his university to attend the COP-24 meeting in Katowice, Poland, which will take place next month,

and other COP meetings beyond. The two also designed a course to prepare student attendees for the experience. “These COP meetings are where the international climate-change regime is created,” says Paoli. “Sending students seemed the best way to train them for such fields.”

Lorenzi, a cognitive neuroscientist, says that the programme’s early success is due to Paoli’s passion, which convinced him that ENS students should participate in the COP events.

“It’s important to have a laser-beam focus on what you want to accomplish.”

He says that Paoli was highly organized and efficient: “He had the capacity to engage me with his confidence that it was possible to do this big thing.”

For his part, Paoli says that his COP experiences helped to prepare him for interviews and to secure his current position as a PhD student in ocean microbiology at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland.

His efforts have also provided an outlet for his creative energy when he needs to do something other than lab work. “I can’t write bioinformatics code for the entire day,” he adds.

PURPOSEFULLY CONNECTED

A student-led group through New Zealand’s Te Pūnaha Matatini (TPM) Centre of Research Excellence, hosted by the University of Auckland, helps to foster its members’ event-planning and time-management skills. Called TPM Whānau, the group grew out of a desire to connect the centre’s 70 or so early-career researchers who are spread across the country, enabling transdisciplinary research on complex systems and networks.

‘Whānau’ translates roughly to ‘extended family’ in the Indigenous language of New Zealand, te reo Māori. The group’s events help to create a sense of community among members because they are geographically distant from each other, explains Reno Nims, an anthropology PhD candidate at the University of Auckland and current chair of TPM Whānau.

The TPM Whānau committee meets twice monthly on Skype or Zoom videoconference calls. In 2017, the group held a retreat that involved all facets of event planning — booking a meditation centre in the hills an hour outside of Auckland, organizing a hike into the bush and arranging speakers on topics such as big data, privacy and data sovereignty among Indigenous groups.

For student leaders who are juggling research, classes and extracurricular activities, time management is essential. Nims navigates his lab work and TPM Whānau responsibilities using the ‘Pomodoro’ method, setting a timer for 25 minutes of uninterrupted work on a particular task, followed by 5 minutes of break. He uses the project-management app Trello to break down a big event into individual tasks, and LeechBlock to selectively block web-surfing.

He reserves Mondays and Fridays for e-mails, literature reading and TPM Whānau projects. On Tuesdays, Wednesdays and Thursdays, he sifts through and identifies fish bones from historic Māori archaeological sites for his thesis research.

Nims’s days are busy, but he says that his motivation to be a student leader arises partly from a wish to build a research community for himself. “I’m creating an environment where I can get something out of it — that keeps up my energy to keep doing it,” he says.

At Washington University in St Louis, Missouri, meanwhile, student leaders in the BioEntrepreneurship Core (BEC) help other students to gain entrepreneurship knowledge and relevant skills.

The BEC hosts seminars or meetings with chief executives and founders of start-up biotechnology or biopharmaceutical companies. “These are a bit like informational interviews (where potential jobseekers ask for informal career advice), but with a dozen of us — everyone benefits from being able to ask a chief executive questions,” says Zuzana Kocsisova, co-president of the BEC and a PhD candidate in developmental biology.

The BEC also organizes tours of local companies and holds an annual business-planning competition.

Initially, Kocsisova joined as the BEC marketer, enabling her to learn basic graphic-design skills in Adobe Illustrator, how to build a website, handle e-mail-marketing lists and use LinkedIn to invite speakers. “These are things I would not have learned as a grad student, and I learned them very fast,” she says.

She also learnt how to delegate effectively by asking a specific person to do a task by a clear deadline, scrapping her earlier practice of throwing out a group e-mail that asked: “Can anyone do this?”

Kocsisova also boosted her networking skills by building connections with the St Louis entrepreneur community. Last year, for example, she attended a fundraiser and talked with the city’s major venture-capital investors.

Kocsisova says that she views working with the BEC, or on other student-advocacy activities, as an integral part of postgraduate training. The activities aren’t taking away from anyone’s studies, she says: “Becoming a leader is what you are supposed to be doing in graduate school.” ■

Kendall Powell is a freelance science writer based in Lafayette, Colorado.

CORRECTION

The Spotlight article ‘An alternative Japan experience’ (*Nature* **562**, S53–S55; 2018) incorrectly stated that Nak Young Chong joined JAIST as a visiting professor. In fact, he was jointly appointed as associate professor at both JAIST and AIST.