

## Work / Careers

might even conclude that career setbacks are beneficial, without acknowledging that those setbacks lead many others to leave their field altogether<sup>1</sup>. Some researchers will encounter barriers and setbacks beyond anything we have experienced – for example active discrimination, harassment (see [go.nature.com/3dkxz1k](https://go.nature.com/3dkxz1k)) or severe financial distress – and leave their fields as a result. It is important to understand what the advice that our communities pass on is rooted in, and that none of us can be truly representative of all aspiring scientists. Every scientist has their own barriers to overcome, but let's beware of extrapolating that, because something was not an issue for us, it is therefore not seriously problematic for those around us.

### Different paths

During the pandemic and its aftermath, relying on conventional thinking and others' biased experience is more dangerous than ever, especially because of the documented ethnic-, class- and gender-based disparities of COVID-19's impact in our communities<sup>2-4</sup>.

Those of us who are senior enough to be giving advice and setting expectations can enhance the quality and inclusivity of our working environments by asking our students and colleagues about the barriers they face, with a view to understanding the factors that might exclude people from career progression. Those around you might well have had to deal with hardships and circumstances that are different from yours; so, when involved in mentoring conversations, make time to ask which ways forward would work for them, rather than just recommending your own path. The fact that you overcame a barrier does not preclude it unfairly excluding many others.

Seeking further mentorship and support from others whose background is similar to yours, and who have faced similar barriers in their career, can be particularly helpful in this regard. Frank but sensitive conversations around these issues might feel awkward, but in helping us to better understand how to support one another, they could be key to reducing inequities in scientific careers.

**Dave Hemprich-Bennett** is a postdoctoral research assistant in molecular ecology at the University of Oxford, UK. **Dani Rabaiotti** is a postdoctoral research assistant in conservation science at the Zoological Society of London. **Emma Kennedy** researches staff development at the University of Greenwich, London.

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Ana Valenzuela-Toro examines the fossil of a seal.

CAROLINA S. GUTSTEIN

# LATIN AMERICAN CHALLENGES

Cumulative barriers can hold researchers back.  
By Ana M. Valenzuela-Toro and Mariana Viglino

**A**s female researchers from Latin American countries (one of us now works in the United States, the other in Argentina), we're used to career obstacles. These range from limited funding to language barriers and the 'tax', in terms of time (*Nature* **583**, 479–481; 2020) and emotional energy, incurred when people from groups under-represented in science participate in diversity initiatives. These barriers knit together to create problems beyond the obvious.

The current focus on diversity, equity and inclusion in science is welcome, but efforts to combat biases can lack nuance. Researchers from under-represented communities often experience the intersection of sexism, racism, and colonialism. In other words, the career barriers we face have a cumulative effect.

Our academic journeys illustrate these obstacles. Many of these are also encountered by other early-career researchers from Latin America, especially women and scientists who are LGBTQIA+, people of marginalized sexual orientations and gender identities.

### Funding barriers

Latin American countries invest significantly less in science, technology, engineering and mathematics (STEM) than do high-income countries, so the continent's researchers have less access to funding opportunities and

smaller budgets than they might elsewhere<sup>1</sup>.

This has an impact on performance in the laboratory and in the field, not only affecting the scope of the research we can do, but also limiting our attendance at international conferences, which are important opportunities for networking and creating collaborations. For both of us, the first international meetings we attended, after securing funding from the conference, became a pivotal step in our academic journey, allowing us to meet people who became mentors and long-term collaborators.

In addition, we must deal with the invisible burden of the visa application. For researchers from countries without 'passport privileges', attending international conferences in the global north means coping with endless paperwork that can be more time-consuming and emotionally overwhelming than overcoming the financial constraints.

Visa applications can be especially difficult considering that acceptance of an abstract for a paper or poster can be slow. And there is no guarantee that the application will be approved, or that a visa-holder will actually be granted entry when they arrive at their destination.

The two of us have had similar experiences with visa applications. We have been asked awkward questions, such as whether we have any intention of carrying out illicit activities, and been asked to disclose private information

about our family members, personal health, social-media accounts and financial situation, ultimately to prove that we are not trying to emigrate from our own countries.

## Unwritten rules

Even when you overcome these issues, the reduced exposure to meetings outside Latin America can result in feelings of unfamiliarity and discomfort when international networking and mentoring opportunities do materialize.

These events are full of hidden or unwritten norms, ranging from dress codes (what does 'business casual' even mean?) to how to navigate social events and pitch yourself and your work to colleagues or potential mentors. These difficulties are exacerbated by language differences, which can reduce international conferences to stressful rather than enriching experiences. They create the feeling that we don't belong, despite the expectation that Latin American researchers have to 'perform' at the same level as everyone else.

Shifting to virtual conferences during the COVID-19 pandemic has alleviated some of these issues. More Latin American researchers, including ourselves, have been able to attend and present their work at international conferences, and even to organize them. In fact, we co-organized a round table on diversity, equity and inclusion in science as part of one meeting on marine tetrapods (four-legged vertebrates), earlier this year.

However, many international conferences are still expensive (the exchange rate from dollars or euros to Latin American currencies is often unfavourable). The combination of cost and all the obstacles mentioned earlier fuels the idea across the academic community that we, Latin American researchers, are passive spectators rather than active contributors in science.

## Language barriers

Latin American researchers and others from non-English-speaking countries are expected to publish in English (see *Nature* <https://doi.org/gmf666>; 2021), the standard language of science (even in this piece). Yet, it is often not taught in schools in our region. Many Latin American researchers cannot access English courses until they have paid positions, which, in turn, are difficult to get without a solid record of scientific publications in English, creating a chicken-and-egg situation.

During the peer-review process, editors and reviewers often make negative comments about language and request revisions by people whose first language is English. But these requests usually don't consider the corrections already made by co-authors from English-speaking countries before submission. This compounds the impression

that manuscripts with lead authors from non-English-speaking countries are somehow less professional. Moreover, paying for professional translation and editorial services imposes an extra financial burden on Latin American authors<sup>2</sup>.

In our countries, these services can cost the equivalent of one month's rent, making them inaccessible. Therefore, free online translation tools, combined with the generous help of non-academic friends and colleagues, and countless hours of self-proofreading and editing are key to overcoming this barrier and publishing our work in English.

## Access barriers

Access to literature is usually taken for granted, but most Latin American academic and research institutions can't cover the exorbitant costs of open-access agreements with the largest academic publishers.

Journal paywalls exacerbate disparities between Latin American researchers and colleagues in the global north. Links between north and south are already weak because of the funding issues highlighted above, and become weaker still when researchers are not able to read each other's papers.

Often, the only way to access published literature is with the help of collaborators at foreign academic institutions, or through social-media platforms. For example, we are both members of Facebook groups devoted to sharing papers between Latin American colleagues. Without this international social-media community, we might not have been able to complete our research.

## Gender biases

Studies show that conscious and unconscious gender biases are still prevalent in peer review<sup>3</sup>. Manuscripts authored by women are more frequently rejected and less likely to be published than are those by men<sup>4</sup>, perpetuating a cycle of invisibility: one in which papers get rejected, resulting in fewer future scientific opportunities, and thus in fewer papers and perhaps more rejections in the long term.

Even when female researchers overcome these obstacles and finally publish in peer-reviewed journals, an additional barrier exists: the lack of peer recognition, including lower citation rates.

Fewer citations means being considered less often to present work at conferences and having decreased opportunities for networking, interrupting the path to academic success. Contributions by women are seen as less relevant than those by male scientists, resulting in fewer citations overall, reinforcing the 'invisibilization' of female researchers.

When we think about the most cited or published authors, frequent guest speakers at conferences, or most internationally distinguished scientists in our own research fields,

how many Latin American women come to our mind? (Un)surprisingly, nearly none. If we ask you to do the same exercise, you will probably achieve the same result. This is not explained by a lack of Latin American female researchers, but, rather, by the consequences of the intersecting barriers discussed above.

## Steps you can take

There is no straightforward solution to these intersectional issues; however, we suggest some starting points:

- First and foremost, listen with empathy whenever Latin American researchers – particularly women and other under-served scientists – talk about the challenges they experience.
- Use whatever platform you might have to amplify and recognize their research.
- Journals editors and reviewers should be more aware of accessibility barriers, and that English might not be an author's first language.
- When writing a paper, reflect on how representative the papers you cite are. Include articles led by colleagues of different gender identities and from different geographical areas, thus increasing the diversity of research cited and discussed. A similar strategy can be applied when suggesting reviewers.
- Make conferences more accessible. Promote virtual attendance and funding sources for people who have difficulties travelling, and foster equitable networking opportunities between people from diverse backgrounds and academic stages.
- Ultimately, don't forget that many Latin American researchers are starting their academic careers from an unequal position; the only way to level the playing field is if we all, as a community, take actions to dismantle these barriers.

**Ana M. Valenzuela-Toro** is a Chilean PhD candidate at the University of California, Santa Cruz, a Peter Buck Predoctoral Fellow at the Smithsonian Institution's National Museum of Natural History, and a Clinton Global Initiative University fellow. **Mariana Viglino** is an Argentinian postdoctoral fellow based at the National Scientific and Technical Research Council Patagonian Institute of Geology and Palaeontology in Puerto Madryn, Argentina. She is also a member of 'La Colectiva por una Ciencia sin machismo', an activist group dedicated to fighting sexism by promoting inclusive practices in scientific institutions and drawing attention to the inequalities that women and LGBTQIA+ researchers experience.

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