Actions speak louder than words

Diversity of thought and perspective fosters innovation and productivity. Equity is an ethical imperative. There is plenty of scope to improve both diversity and equity in our field and this issue's Focus puts the spotlight on actions today for a more inclusive tomorrow.

In early November, more than one hundred professional astronomers, science communicators and administrators met in Japan, under the auspices of the International Astronomical Union, to discuss equity and inclusion in our profession, the very first of more than 350 IAU Symposia to focus on these issues. It joins a number of such meetings around the world kick-starting and maintaining momentum in the fight for equal opportunities for all in science. Since 2016, the European Astronomical Society has also consistently included a session on Equity and Diversity in their annual European Week of Astronomy and Space Science — *Nature Astronomy* is proud to have sponsored and helped organize three of these sessions. But it is important that equity stays on everyone's radar beyond such special outings.

Back in 2017, we published our first Focus issue on Gender equity in astronomy, where we showcased how women astronomers are severely disadvantaged in almost all aspects of their professional lives — they get on average fewer citations, ask fewer questions in conferences, participate less in international collaborations, and lead fewer missions than their male counterparts. These assertions were not based on anecdotal evidence but on hard data painstakingly gathered by national and international societies, funding agencies and highly driven individuals (often women, often during their own free time). When will we finish defining the problem and start discussing actionable outcomes?

This Focus on Diversity, equity and inclusion best practices and solutions highlights various initiatives, programmes and actions working today for a better tomorrow. The fight for equity and inclusion in astronomy and more generally in science is highly complex. Best practices and solutions can be as unique as each individual wanting to break into science. Kathryn Johnston's Perspective is important as it utilizes concepts from social sciences to present a framework of understanding inequity and cultures of exclusion within academia that is not anchored to any one individual axis of discrimination (such as gender or race). This general framework then allows her to glean ways of disrupting such cultures of exclusion at their root.

Homing in on specific initiatives, Lisa Kewley presents her Perspective on the different best practices and solutions being implemented across Australia in university astronomy departments and research institutes. In a similar vein, Francesca Primas discusses in her Perspective initiatives and programmes within the European Southern Observatory and across Europe working toward equity and inclusion. Finally, Alexander Rudolph, Kelly Holley-Bockelmann and Julie Posselt present a Perspective on PhD bridge programmes within the USA, which for the past several years have infused American graduate schools with a diverse cohort of aspiring scholars.

Equity and inclusion do not stop at gender. Race, disability, gender and sexual orientation are only some of the different axes of discrimination and exclusion that need to be disrupted. If data about the gender fractions in academia are only now starting to become available, data about other aspects of discrimination and the very important intersectionality between them are all but non-existent. However, some initiatives tackling more than one kind of exclusion are starting to appear. In a Comment by Kumiko Usuda-Sato and collaborators, we learn about various initiatives led by the National Astronomical Observatory of Japan to make astronomy accessible to differently abled people. Inclusive outreach fundamentally addresses inequity at the very beginning of the academic pipeline. In addition, Aparna Venkatesan and collaborators discuss in a Comment best practices on how to engage indigenous communities in Hawai'i and beyond and include them in the scientific process, while being respectful of their rich culture of indigenous knowledge.

Engaging a diverse audience with science and then drawing from that audience equitably to populate undergraduate science programmes is however not enough. As Adam Burgasser discusses in his Comment, undergrads often engage with science within a fixed mindset that leads to problems that eventually result in the well-known 'leaky pipeline'. Instead, a growth mindset equips students with the tools to face adversity. Joyce Yen, in turn, discusses in a Comment clear guidelines on how to encourage equity and inclusion within hiring committees, showing that it leads to significantly more equitable results. The Focus concludes with a Comment by Hannah Dalgleish and Joshua Veitch-Michaelis looking at the effect that an international astronomy camp operating over the last 50 years has had on the make-up and progression of its cohorts.

Clearly, no single Focus issue can cover all initiatives and programmes currently underway to foster equity within our field. Indeed, over the three years *Nature Astronomy* has been around, we have published a number of other pieces on the issue — engaging deaf students, using the Internet to engage under-served communities in rural Mexico, or astronomy for development in developing nations. Academic publishers, as well as funding agencies and professional societies have an important role to play when it comes to such actions by leveraging their considerable international reach. At *Nature Astronomy*, we are committed to keep highlighting such efforts around the world and we invite you to contact us with your projects and ideas. During the IAU Symposium in Japan, a resolution was drafted, informed by the discussions in the meeting and the insights of several key people in the field that will be presented in the next IAU General Assembly with the goal of being adopted by the IAU Executive Committee. In a similar vein, funding agencies have now started implementing a number of diversity clauses and requirements, aimed at incentivizing researchers to organically integrate equity and inclusion practices in their projects from the get-go.

At the end of the day we can only achieve equity in academia if everyone consciously and actively confronts inequity and exclusion to right the wrongs of the past. Start by calling out conscious and subconscious bias. The next time you initiate a project, take a good look at the list of your co-investigators. When you are invited to give a talk at a conference, ask about the make-up of the other plenary speakers. Make sure that the venue is accessible to people with disabilities. Before allocating time to a proposal, take a minute to consider whether the author list really reflects the sort of equitable field we want to have. Actions speak louder than words and the time to act is now! ❐

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