I O C D

International Organization
for
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Perspective

It's time to fix the inequality problem in science

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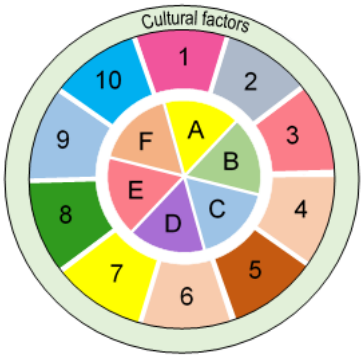
Women shared in the Nobel Prizes in both chemistry and physics in 2018. Sadly, this has been an all-too-rare occurrence. Frances Arnold, a co-laureate of the Chemistry Prize, was only the fifth woman to receive it among a total of 181 chemistry laureates since the prize was first awarded in 1901. Donna Strickland, who shared the Physics Prize, was only the third out of 210 Physics Laureates since 1901. Disparities between women and men are only slightly less extreme in the biomedical field, with twelve women having received the Nobel Prize for Physiology or Medicine out of a total of 216.

A recent Comment in Nature highlighted a study of biomedicine prizes which examined Nobel Prizes and top awards by five major US institutions over five decades from 1968 to 2017, showing that men receive more cash and more respect for their research than women do.

Gender is just one aspect of the broader challenge of equity, diversity and inclusion (EDI). Diversity covers a wide range of characteristics related to a person's identity, as illustrated in the Diversity Wheel.



Diversity Wheel

Internal dimensions of a person's identity (A-F: gender identity/expression; gender; sexual orientation; mental/physical ability; national origin; race/ethnicity) are usually permanent, while acquired dimensions (1-10: age, education, political belief, family, role, language and communication skills, income, religion, appearance, work experience) change over the course of a lifetime. Cultural factors determine attitudes towards each characteristic.

Many organizations have given increased attention to addressing gaps and challenges in EDI. For example, in the UK, the Royal Society holds an Annual Diversity Conference in science, technology, engineering and mathematics (STEM). The Royal Society of Chemistry has an Inclusion and Diversity Committee and has published a report on the diversity landscape of the chemical sciences. The American Chemical Society also strongly promotes diversity and inclusion. The Natural Sciences and Engineering Research Council of Canada promotes EDI through an eight-point action plan.

Despite such efforts, and a variety of legal frameworks and institutional initiatives in many countries, there remain massive gaps globally in equal opportunities for diverse people as a result of conscious or unconscious biases at individual and organizational levels. As pointed out in a recent paper from an IOCD group, a key missing ingredient seems to be the cultural dimension. Thus, *"while rules, policies, and affirmative action measures may increase access in principle for disadvantaged communities, in practice they do not automatically cause a cultural change in the attitudes of the historically advantaged population, nor do they prevent the operation of tacit, covert or unconscious biases."* The paper stressed the importance of moving beyond the established formal mechanisms and also attempting to address underlying biases and inappropriate behaviour that derive from lack of skills in handling situations where diversity is an issue. In particular, it recommended that training is needed to develop ***cultural competence*** at individual and institutional levels.

This approach has now been discussed further in an Editorial by the IOCD group, about to be published by Angewandte Chemie International Edition. Recognition of the importance of cultural competence and the use of the term itself date from the 1980s. Theory and practice have been especially developed in the social work and health fields, arising out of recognition that health outcomes for patients can be strongly determined by the capacity of service providers to operate in cross-cultural settings and overcome pre-existing patterns of thought and behaviour that, however unintentionally, disadvantage patients from diverse backgrounds. Cultural competence, framed as part of a broad set of 'intercultural and global competencies' has also been emphasised as an important skill for graduates, including in STEM giving them the capacity to *"work effectively with people who define problems differently than they do."*

IOCD encourages the widespread adoption of cultural competence as a practical approach to enhancing equality, diversity and inclusion in the sciences.

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