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PHYSICS AND HUMANITY

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The physics community of practice has been active at all levels in promoting the advancement of women. However, the percentages of women in university departments remain generally lower in physics than in the life sciences. Arguments relating to teaching and research loads and work-life balance are comparable in these disciplines.

The Global Survey of Physicists carried out in 2010 by IUPAP (R. Ivie and C. Tesafaye (2012) *Physics Today* **65**(47) showed both similarities and contrasts in the work experiences of women and men, in less developed countries and more highly developed countries. The Survey was carried out in 8 languages, across 130 countries, and had 14932 respondents. It reported that women had significantly less access to most resources for career advancement.

This paper will address these questions: why is the advancement of women relatively slow in physics? What concepts are useful to physicists in understanding gender in science? When a successful initiative is concluded, why do numbers and workplace practices snap back towards the status quo before the intervention? It will be argued that these questions are closely linked. Different dominant factors in the choice of physics have been suggested, including perceived gender bias in the field (C.M. Ganley et al (2018) *Am. Ed. Res. J.* **55**(453), and the belief that innate talent is a prerequisite, combined with the stereotype that women do not possess this talent (S.J. Leslie et al (2015) *Science* **47**(262).

Much has changed in the environment for women since 2010. Observable trends include factors such as the many initiatives to attract and retain women, and vocal anti-harassment campaigns. Geopolitical factors include a rise in the “abandonment of the liberal order”, reductions in science funding, and changing threats of conflict affecting even the university environment. In this altering context, it is vital to obtain data on trends and on disciplinary contrasts.

The International Science Council has funded the project “A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?”. This project is led by the International Mathematical Union, partnered by 10 scientific Unions and organisations. The project includes a survey in which two of the aims are to provide contrasts across disciplines, and to identify trends based on data from the 2010 Survey. A Joint Data-backed Study on Publication Patterns builds on the study by the International Mathematical Union (Mihaljević-Brandt et al (2016) *PLoS ONE* **11**(e0165367). A Database of Good Practices is being designed, with reference to the structure suggested through the UNESCO SAGA project. These works will contribute evidence to support decisions on the best deployment of our resources in initiatives aimed, in part, at improving the university environment for women, noting that knowledge of science is universal, but is shaped by local culture (M.T. Lin (2017) *Int. Conf. on Women in Physics*).

Apply to be considered for a student award (Yes / No)?

No

Level for award (Hons, MSc, PhD, N/A)?

No

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