

Towards an Inter-generational Ecology for Global Science Partnerships

SESSION: Global Research Cooperation, Funding, and Partnerships

Stakeholder Statement: Global Student Forum

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The scientific community is described as a community because it is just that. It is a global network of diverse, interdisciplinary scientific fields across vast and varied research institutions and relevant sectors. The citizens of this community are some of the most cosmopolitan ever witnessed, traversing borders in search of new knowledge on health, computing, engineering, math, life sciences and physical sciences, science ethics, and the governance of research institutions. As scientific discoveries and frontier technologies emerge from this community, they directly impact the global capacity to achieve sustainable development, from climate change to food scarcity, to environmental degradation, fertility, infectious diseases, and urbanization.

But it is rare that science, technology, and innovation is embedded back into the educational community from whence it came. This is witnessed in the increased need for diplomatic science communicators with the rise in science-denial and pseudoscience. But also due to the evolution of the “science-for-profit” model, stimulating market-based patent and copyright inter-wars between corporate firms. To take bold and meaningful steps to establish and strengthen global science partnerships, it is essential that we move away from a “trickle-down” science which: separates research agendas; redistributes science service; and typically fails to cultivate an intergenerational ecosystem for science education to flourish.

Building global research cooperation and partnership requires comprehending the importance of educational pathways from STEM subjects in primary and secondary schools, through to the completion of a Bachelor degree or higher qualification, before entering industry-related jobs, to build capacity and achieve sustainable development. This is because as much as sustainable development is the outcome of innovation, *it is also the barrier to scientific discovery*. The intergenerational ecosystem is broken. It is colonized by systemic social barriers for women, persons with disabilities, ethnic minorities, indigenous and First Nations peoples: communities within the wider science citizenry upon whom the burden of disease, poverty, disadvantage, and inconsistent education already rests.

Research and innovation is then hindered by gender discrimination, group exclusionary behaviour, unsatisfactory returns, cultural language barriers, spatial distance between researchers, unequal opportunities, and in/out group behaviour socialized at a young age. Such barriers do not cultivate science and technological leadership and creativity for school children, where curricula do not embody democratic aspirations for a barrierless world. Instead it results in an ever-moving diaspora of incoming science students and early career researchers, who accept they must chase funding and traverse precarious working conditions to practice their craft.

The result has been the move to scientific democratisation. Open science and coding provide accessible and reusable, intercultural knowledge sharing, for knowledge creation, assessment, and evaluation. Such is an attempt to sustainably right the fragmented scientific and policy environment for fair

operationalization of science locally, nationally, regionally, and internationally. But this democratization also is the traditional science community's invitation to us all, to share in their citizenship.

The Global Student Forum, the umbrella organisation of the world's major representative student federations, believes in order to take up this invitation for significant change, we must embrace democracy and partnership in science education. Selecting priority areas, defining international frameworks and policy dimensions to foster multilateral research between officials, scientists, and corporations is not enough. *We need to remember that science is a community.* A community of all ages and stages of life, united by a passion for learning and innovation.

To truly achieve sustainable development, we need to socialize young changemakers with technical competencies such as digital skills, and STEM awareness relevant to their local context. This needs to be paired with global competencies for science citizens, such as critical thinking, interculturalism and teamwork.

This suggests an import in an intersectionality of engagement in the science community, for successful partnership. Such intersectionality not only includes science researchers and practitioners, but students and early career researchers on policy-based, business and community advisory boards. *Effective research is cooperation:* moving from competitive and homogenous individualism, to inter-generational, inter-group, inter-disciplinary, and inter-industry cooperation and collaboration.

In this way, we not only address sustainable development. In studying the ecology of the science community we are able to measure, assess, evaluate, and test our world democratically: through the eyes of the present, and the eyes of the future.