September 2021

POSITION STATEMENT FROM THE GYA 2021 INTERNATIONAL CONFERENCE OF YOUNG SCIENTISTS

Trust in Science

PREAMBLE

There is a growing perception that trust – in science, in public institutions, in each other – has weakened. Although empirical evidence points to a solid trust in scientists on a global level,[1] we see harmful effects of misinformation on specific issues, such as with climate-change denialism, anti-vaccination movements, or various conspiracy theories. This brings us to consider how science is communicated to the public, the intricacies of science policy advice, and the integrity of the scientific process itself. In June 2021, the Global Young Academy (GYA) convened its members and alumni along with early-career researchers, and science policy actors from around the world to discuss "Trust in Science" at its online International Conference of Young Scientists. Over 170 GYA members and alumni and over 490 external guests from 114 countries took part in the conference.

WHY TRUST IN SCIENCE?

At the core of the scientific enterprise is the aim to be trustworthy. Scientists are continuously working to maintain and increase the trustworthiness of science, through e.g. open access policies, transparency of methodologies, peer review processes, reproducibility of experimental data, prioritising engagement in cross-disciplinary science, and communication of research. However, scientific knowledge is continuously evolving: New discoveries, new perspectives, or further research can change how we understand a specific topic or even an entire field of knowledge. In times when decisions are urgent and values are divided, this uncertainty can exacerbate mistrust. Yet, society needs a certain level of trust in scientists and the integrity of research systems, in order to ensure scientific freedom and to make use of evidence for informed policy debates and decisions.

[1] Pew Research Center, Sept. 2020, "Science and Scientists Held in High Esteem Across Global Publics"

How to strengthen trust in science?

Science policy advice – The COVID-19 pandemic spotlighted the importance of science policy advice: scientific evidence has been crucial to good decision-making and the development of life-saving vaccines, while the evidence base continues to evolve with the crisis itself. In panel discussions, we explored how timely information, robust data, and thoughtful processes including diverse perspectives can build bridges of trust between science and policy, and work towards successful solutions to public health issues. There is also much to be learned from different national and regional public health approaches to current and past diseases.

Science communication – Effective science communication that strengthens trust in science is more complex than the mere dissemination of research results. People are more likely to listen to a straightforward message, in language they understand, from people they trust. Science communication needs to point to problems, but also to solutions and concrete actions that empower individuals, communities, and governments. Further, scientists should be aware of communication which aims to erode public trust in science. To counter this, science communication that is both honest and accessible can play a key role in providing trustworthy evidence to the public. It is a shared responsibility of scientists, the media, policy makers, and the public to ensure that accurate and trustworthy communication is possible and is protected from abuse.

Open science – Transparent, sustainable and equitable science systems are needed for science to retain the trust of the society. While open access publishing is increasing on a global scale, few publishing models are equitable; author-pay models can disadvantage many researchers globally and incentivise the proliferation of predatory journals. Current subscription-based models for disseminating and evaluating research output are flawed, creating problems that range from lack of transparency and additional costs to the public, to delays in publication of timely scientific results and unequal accessibility. These challenges are particularly exacerbated for researchers in the early stages of their careers, or from countries with underfunded science systems.

Pressing global issues – How does trust in science impact the adoption of evidence-informed policies on pressing global challenges? Among the many challenges the world faces, we discussed climate change and sustainable food systems, focusing on the need to understand these topics from a holistic and global perspective, as well as to address them with truly integrated approaches in order to achieve the UN Sustainable Development Goals (SDGs). Science should both provide reliable prognoses and develop technologies and actions that can limit risks and support sustainable developments, taking into account social and cultural contexts. Engagement with the public is crucial, since sustainable solutions need both top-down and bottom-up action; they need broad public support and behavioural changes, for example in energy use and food choices.

WHAT CAN EARLY CAREER RESEARCHERS DO?

Here, we summarise some of the most important takeaways from the GYA International Conference of Young Scientists. We encourage individuals and organisations to consider how each of these might apply in their own context.

- ENGAGE WITH POLICY. As individuals with scientific training, researchers can be equipped to inform policy in areas related to their field of study. We encourage science organisations to offer training in advising, advocacy, diplomacy, education, technical writing, and communication. Early-career researchers can get involved by taking up extracurricular science policy activities or voluntary work in organisations with a science policy nexus.

- COMMUNICATE WITH ALL! Starting from openness to communication across disciplines, researchers should be able to explain their work to people who are not in their field. Storytelling methods can help break down complex issues and explain the scientific process. Seek out training opportunities for science communication, and speak to the public (e.g., through social media and at science festivals). When scientists communicate their research, they contribute to building and maintaining public trust, which is ultimately required for transformative change.

- MOVE BEYOND THE "KNOWLEDGE-DEFICIT MODEL". To strengthen trust, it is important to consider context, social identity, emotions, and values involved in pressing issues. Do not just see members of the public as individuals who have a knowledge-deficit; While not everyone may know about the science in question, they have other forms of knowledge that are crucial for finding and implementing solutions. Rather, see science as a social activity that is in dialogue with the public. Establish credibility, provide practical solutions, and use narratives that connect to people. Engage with and support the establishment of institutions which address the complexities of the science-society relationship and involve different stakeholders to solve problems.

- SEEK INTERDISCIPLINARY PERSPECTIVES. Research and innovation to solve pressing global issues require new cross-disciplinary methodologies and skills. Participate in capacity building opportunities and reach out to networks of scientists, including young researchers, to connect to diverse perspectives and foster creative new ideas and partnerships.

- MAKE AN IMPACT. Form alliances to work on concrete problems where you believe you can meaningfully contribute or make a difference. Even seemingly small steps can have a butterfly effect, influencing and engaging others to make a larger impact.

- OPEN UP SCIENCE! Participate in discussions about open science to gain awareness about science systems. Support transitions to more open and equitable science on a global scale, from the research, review, and publication process, to the accessibility of research results and data for other researchers and the public.

About the GYA

The vision of the GYA is science for all; science for the future, and its mission is to give a voice to young scientists and researchers around the world. The GYA, founded in 2010, is an independent science academy of 200 outstanding early- to mid-career researchers from six continents who are selected from across disciplines based on their academic excellence and commitment to engage with society. GYA members serve five-year terms, and the GYA presently counts members and alumni from 94 countries. The GYA administrative Office is publicly funded and hosted at the German National Academy of Sciences Leopoldina. The wide array of GYA activities is supported by a range of international public and private funders.