

GYA

connections

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GYA Connections - Issue 10

01 Leadership

Leadership skills in the scientific workforce 4

Leading during the COVID-19 pandemic: Notes from Egypt 6

Past Co-Chairs discuss their time leading the GYA 8

Defining science leadership for the GYA 14

02 GYA Activities

Barriers to diversity among young scientists around the globe:
Examining discrimination and harassment at the workplace 20

Hardcore science skepticism 26

Science with Society: A Trust in (Young) Scientists video project 32

03 Meet the New GYA Members 2022 36

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Editorial

by Junpeng Li

GYA Connections Editor-at-Large, 2020-2022, GYA Member 2018-2023

With COVID-19 and its variants sweeping the globe, it is clearer than ever that the world is more precarious than we might have previously thought.

We have witnessed how chaotic a leaderless world can be. Strong leadership is therefore needed to help us through difficult circumstances, as well as to prepare for an uncertain future.

Leadership entails teamwork. Good leaders understand that they need their teams (or societies) functioning well and cooperatively within their capacities to succeed, and such leaders should proactively help others to develop their capacities.

While leadership brings power, it should have human liberty as its ultimate goal. Rather than inciting populist sentiment or fear, good leadership should encourage the pursuit of scientific knowledge and incorporate the best available science into its decision-making processes.

The world in 2022 is full of conflict, with leaders across the globe playing people against one another, and using knowledge and science as a tool in power games. How can we combat this trend? This is an important question for all scientists with a conscience.

Leadership is pertinent to young scientists, of course. Just think of the career ladders in our respective institutions, departments and disciplines. We all know how important (being) a good leader is to our own research and living – and indeed to human knowledge as a whole. We also know how our

efforts can sometimes be hampered by employment conditions, promotion criteria, reward systems, and inequalities regarding gender, ethnicity, age, etc.

Some of us undertake leadership roles or are expected to do so, but feel uncertainty when facing these overwhelming obstructions. Others seem to be born leaders and embrace the rigors that accompany it. But regardless of our feelings toward leadership, it is a critical issue worthy of deep thinking.

Given the vision of the Global Young Academy – *science for all; science for the future* – it makes much sense in our 10th issue of Connections to reflect on how science can foster better leadership – and vice versa – and how strong leadership can help build more inclusive, democratic, and prosperous societies.

We do hope you enjoy the articles and features in this edition, and look forward to your feedback.



Junpeng Li

GYA Connections Editor-at-Large

Email: junpeng_li@ccnu.edu.cn

Leadership skills in the scientific workforce



Sandeep Kaur-Ghumaan

Are leaders born or are they made? This question is often debated when it comes to the subject of leadership.

As with other fields, the world of research has its fair share of leadership concerns. This applies to managing research groups, or even leading departments or institutions.

Many questions about leadership have occurred to me since I started my academic career: Does leadership come naturally to all leaders? Is there a particular set of instructions one should follow to be a good leader? Can leadership be taught? Does the environment and organisational structure play a role in leadership?

Successful academicians are expected to be capable of fulfilling multiple and competing demands, but at the same time academic success is nearly always associated with effective leadership.

Indeed, “leadership in academia” involves influencing or guiding situations and developments that are governed by public management and heightened international competition. Moreover, academic leadership currently comprises both research leadership, that is, leading research projects and inspiring a research group, and administrative leadership, that is, successfully carrying out the administrative tasks required in today’s academic world.

Academic leadership has been described as “a black box where we know the input and the intended outcomes, that is, flexible, high-quality, path-breaking and ever-changing universities,” (Braun et al.).

In the process of building my research group in the Department of Chemistry at the University of Delhi, I learned a few things about scientific leadership that were definitely not taught when I was a student.

First, not many leaders are actually born with the required skills and abilities. Rather, many become leaders by acquiring these qualities through experience and ongoing education.

Second, for leading a research group or a scientific organization, knowledge of one’s field is often insufficient to lead well. Indeed, knowledge alone cannot solve most of the challenges that organizations face, for example, resource acquisition and decision-making, as well as day-to-day problems and issues such as personnel decisions, equipment, funding, etc.

Third, a successful scientific career is guided by the collaborative nature of science and has become an interconnected activity among various organizations and countries that bring together scientists from across the globe.

Fourth, true success in any scientific organization not only comes from having world-class scientists, but also having a support system built around researchers and scientists – a team with the right skill-sets that fits the organization’s unique culture.

Lastly, in the 15 years of my scientific career, communication and transparency have emerged as areas that one must excel in to achieve success.

But there is one other crucial area.

For me, the key to gaining solid leadership skills is to observe great leaders, learn what makes them tick, and try to embody those characteristics.

Sandeep Kaur-Ghumaan is an Associate Professor working in the Department of Chemistry at the University of Delhi, India.

Email: skaur@chemistry.du.ac.in

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Leading during the COVID-19 pandemic:

Notes from Egypt

Mohamed Elhadidy

During a once-in-a-lifetime crisis like the COVID-19 pandemic, effective leadership is required more than ever.

For me, some core elements that leaders possess include being able to guide and mentor a team, and motivate, coach, and inspire them to achieve a certain goal.

Below I will summarize some professional challenges and opportunities I experienced in 2021, during the peak of the pandemic in Egypt.

Teaching

My Institution, Zewail City of Science, Technology and Innovation, moved all classes/lectures online. Although I missed the in-person aspects of teaching, I embraced the use of online teaching technologies to boost my students learning. I did this by “flipping” my teaching strategy, and providing the students with lecture handouts, videos, and animations before classes for them to

review. I then used class time for problem-solving and drawing on their higher-order cognitive skills through questioning. This really helped foster an active learning environment rather than having the students sit through a traditional lecture format.

Research

Here, my situation was more challenging. In 2021, I had just established my own research lab to develop a better understanding of the pathogenesis, ecology, evolution, and transmission of bacterial foodborne and zoonotic diseases. As a Primary Investigator, my own greatest challenge involved absorbing budget restrictions because most funding agencies (understandably) redirected funding towards COVID-19 research.

However, most of my team’s work depended on bench experiments, which need to be carried out in-person. Like many other places in the world, we were actually restricted from doing this because all research labs in my institution shut down for almost 6 months. This really posed challenges for our wet lab experiments, especially those experiments examining functional

traits of microorganisms and microbial phenotype-genotype association studies.

Our junior colleagues and students had far more to worry about. Most of my students were desperate to publish to fulfill graduation criteria and obligations. But since students were restricted from entering labs, they lacked both hands-on experience with essential laboratory techniques, as well as actual data or results to publish.

Research pivot

During our institution's six-month lab shutdown, I changed the direction of our lab's research into *in silico* analysis and genome-wide association studies. I also opened up the type of work students could carry out, allowing them to write focused literature reviews and providing concise summaries of a research topic with a knowledge gap, or an emerging research topic.

In one of our recent manuscripts¹, we performed a comprehensive *in silico* screening (by means of computer modelling or computer simulation) for toxin-antitoxin (TA) modules on one of the most prevalent food-borne pathogens (Campylobacter) and assessed the distribution and conservation of the predicted TA modules among this bacterial pathogen.

Another review article, written by one of my undergraduate students, provided a genomic overview of the evolving epidemiology of methicillin-resistant Staphylococcus aureus (a type of bacteria that is resistant to most antibiotics). A further two *in silico* analysis and genome-wide association studies, as well as one review article is currently being drafted, while another review article is currently under review.

Lessons learned

I used the lockdown as an opportunity to build more cross-institutional and international collaborations virtually, and to open opportunities for partnerships that otherwise might not have materialised.

I have been lucky enough to participate in and facilitate leadership programs over the years, which has allowed me to become deeply connected with many strong and passionate leaders worldwide. Translating this experience to my home country of Egypt, I believe we can build a strong, interconnected network of African and globally-inclusive leaders to tackle the world's pressing issues jointly.

One of the lessons deeply learnt, especially in the field of infectious diseases, is that a threat somewhere will be a threat everywhere, and that many of today's global health challenges are not confined to any single region. Thus, international and interdisciplinary collaborations

are essential. I continue to strive for collaboration and interdisciplinary work, as I believe it is the most effective way to tackle the complexity of the problems currently faced by societies across the world.

Part of my vision is to continue strengthening my network and to help transform it into one of the strongest interdisciplinary research groups in the world.

Interdisciplinary collaboration is truly important in Africa. Indeed, two clear examples of such successful cooperation are to be seen in having limited the spread of HIV in African countries, and reducing the incidence of Hepatitis C in Egypt.

These results were accomplished through vastly different approaches to foreign assistance, bilateral partnerships, and expert planning, but the successful results are an inspiration for leaders and early-career researchers as we near the end of the pandemic and its various restrictions.

Mohamed Elhadidy is a member of the GYA Executive Committee and a Professor at Zewail City of Science, Technology, and Innovation, Egypt, who works at the borders of microbiology, microbial genomics, food science, human and animal health, and bioinformatics.

Email: mmelhadidy@gmail.com

An illustration of a woman with long dark hair, wearing a purple blazer over a white shirt and black pants, holding a tablet with a pie chart. She is pointing her right hand towards a large green arrow that points diagonally upwards and to the right. The background features a large orange circle and a light purple background with other geometric shapes like a white arrow pointing left and a red arrow pointing up-right.

Past Co-Chairs discuss their time leading the GYA



Striving to establish a strong foundation

Being a Founding Co-Chair of the GYA was both prestigious and challenging. I was privileged to work alongside the wonderful Greg Weiss and 10 talented Executive Committee members striving to establish a strong foundation for an international organization with a sustainable vision to present a voice of young scientists around the world. This is the vision that pushed us to work as hard as we possibly could to remain true to all GYA members.

When we first established the GYA, we set priorities in four areas: recruiting active members, planning meaningful activities, securing funding, and establishing our Office. With support from the InterAcademy Partnership and National and Young Academies around the world, we were able to recruit an active and resourceful first group of members. We were also successful in securing financial support from the Volkswagen Foundation so that we could establish the Office with a Managing Director – phew! Greg and I no longer had to spend our nights and days replying to endless emails!

That first year of the GYA was an eventful and life-changing time for me. I learned to be an authentic leader with the help of my GYA colleagues – people who have become my life-long friends.

I have learned how to manage sleep deprivation juggling my research duties and GYA matters, which prepared me well for motherhood and three children. I learned how to cherish and respect differences in cultures, genders, backgrounds, and mindsets. I also learned how powerful these differences could be when trying to realise the shared vision of making the world a better place.

What I miss most about being a GYA Co-Chair are the friends I have made, and I hope we will be reunited again soon.

Cheers to the GYA!

Nitsara Karoonuthaisiri, National Center for Genetic Engineering and Biotechnology, Thailand, Founding GYA Co-Chair 2010/11

A shared endeavour for the greater good

There is so much value in collective leadership. That was my key takeaway from being a GYA Co-Chair, both in terms of personal joy and the actual results.

How the GYA is structured, with its shared leadership among Co-Chairs, in the Executive Committee and in pretty much every activity, is fantastic. Indeed, the GYA sees leadership as a collaborative endeavour rather than an accolade.

Being a Co-Chair made me more aware of, and changed, my particular lens on scientific and societal issues and ways to address them. Collaborating across continents and cultures forces us to verbalise and challenge and hopefully address our hidden assumptions. It has been a rich experience to work intensively on projects like the science leadership programmes (SLPs) with like-minded colleagues from entirely different backgrounds.

It is this unique mix of developing deep friendships, learning, and achieving something meaningful for a larger group of people that makes shared leadership a powerful personal experience. In terms of results, the programs have been larger in scale and impact than they would have been without a shared model.

I hope the GYA and the SLPs will inspire academic institutions such as universities and research institutes to take up genuinely collective leadership models: this would lead to more inclusive and effective scholarship and, subsequently, better solutions to our societal problems.

***Eva Alisic**, University of Melbourne,
Australia, GYA Co-Chair 2014-2016*





I joined the GYA in 2012. When I became a Co-Chair in 2015, our first Managing Director, Dr. Heidi Wedel, became my first mentor. She was very kind, but tough at the same time when teaching me about meeting the expectations of being a leader of the GYA. My second year was even more exciting, as Heidi was leaving and the GYA initiated a search for a new Managing Director. This is also when the GYA moved from Berlin to Halle.

Looking back, it seems like the first five years of the GYA were like an incubation period that ensured the GYA could become well settled. From 2015 onwards, the organization emerged and since then has shined and become all the more visible.

I could not thank the GYA more for the shared experiences and great friendships that I formed. Not only did I get to understand the German funding system, but also the recruitment process of the Managing Director and support staff, where transparency and diversity were the top priority. As much as we say that members are the key driver of the GYA, a strong Office is also essential to its success.

The GYA respects the role of leadership not just because what the GYA Constitution says. I remember very well when the Executive Committee and Co-Chairs had to decide to move the AGM from one host country to another (in this case, from Turkey to the Netherlands). Throughout the process, the safety and well-being of our members was our top priority. That was a tough decision, but we survived beautifully.

If asked what I like the most about the GYA, my simple answer is “being able to develop long-term friendships that you could never find elsewhere”.

And if asked what I have missed the most after becoming an alumna, my answer remains the same.

Orakanoke Phanraksa, National Science and Technology Development Agency, Thailand,
GYA Co-Chair 2015/2016

Leadership Journey

My two years of being a Co-Chair were simultaneously some of the most mentally & emotionally challenging years of my life, and also some of the most rewarding!

Challenging why? As Co-Chair, one is suddenly thrust into the limelight. As the “face” of the world’s most excellent young scientists, I always felt the burden of upholding this image. Moreover, I suddenly had to be informed about the many activities and commitments of the GYA at all times!

In addition to the external expectations were the internal ones, where during one’s term the GYA was expected to noticeably move forward!

In order to rise to these expectations I had to up my public speaking, member motivation, and especially email writing & responding games!!

The biggest reward of being Co-Chair, however, was getting to work with my two successive Co-Chairs, Tolu and Koen – two of the most supportive and generous individuals I have ever met.

Each of us totally made up for the other’s shortcomings, and I think the Co-Chair structure in the GYA is a stroke of genius! Add to that the warm and continuing relationships that I developed with the ECs that I was part of, our international partners and the members of the Advisory Board.

But above all: the honour of serving such a wonderful organisation – the members were my biggest cheerleaders and motivation, and those two years as Co-Chair will always stand out as some of the most worthwhile of my life.

*Connie Nshemerierwe, Actualise Africa,
GYA Co-Chair 2018-2020*



A note from our Managing Director



When I became the Managing Director in 2016, I thought my role would primarily be that of the experienced organisational backbone of the GYA, which would itself act as a sort of training ground for young leaders. I must admit that my perspective substantially changed sometime after having experienced the second or third set of Co-Chairs.

There are different valuable approaches to helping advance the GYA, and I am happy to see that the organisation relies on many of them, one after the other. But there is also progress and continuity, in the sense that leadership structures built up by earlier teams prevail, and mostly undergo periodic fine-tuning. The present global pandemic has necessitated a third consecutive virtual AGM, which poses completely new challenges to GYA leadership. Members now have less time and energy to devote to the GYA due to the difficult societal circumstances that prevail across the globe, as well as their own personal and professional circumstances.

Perhaps what is currently needed the most is for GYA leadership to pose questions and seek guidance themselves by asking GYA members what the GYA means to them in this new setting, as well as what it should mean to future cohorts of early-career researchers.

Perhaps we need to re-center, and place at our core the exchange with peers and transnational bonding – which is something that would require the initiative and leadership of each and every member.

This could indeed be the leadership model the GYA presently needs the most, and this is nothing I would have anticipated with all my experience.

*Beate Wagner, Managing Director,
Global Young Academy*

Defining science leadership for the GYA





**Jennifer Plaul, Robert Lepenies, and
Encieh Erfani**


The Global Young Academy (GYA) celebrated 10 years at its 2019 Annual General Meeting, and launched a new Strategic Plan in the following year with the vision “Science for all; Science for the future”. The GYA aims to support inclusivity in science systems and effective science communication – science for all – and to empower its members and all early-career researchers (ECRs) to apply science and research to work toward more sustainable and equitable societies – science for the future. The founding vision of the GYA – to give a voice to young scientists – has become, over the last 10 years, the heart of the entire organization’s work, and thus its mission.

To reach this vision in upcoming years, collaborations are needed which transcend geographical and disciplinary boundaries. The global COVID-19 pandemic, but also climate change, biodiversity loss, and many other challenges demonstrate unmistakably the importance of international and interdisciplinary approaches to successfully tackling global problems. To help shape solutions to these complex challenges, the world needs science leaders.

The GYA aims to empower young scientists not only to take on leadership roles, but also to exercise a certain kind of leadership – one that is inclusive and collaborative.

Members of the GYA have the opportunity to adopt leadership roles within their careers, and cultivate them within the GYA itself, in a variety of ways. And yet, from each new generation of GYA members emerges the observation that reaching out across disciplines and to society requires capabilities and practical knowledge that are often not a part of typical academic training.

To support the development of future science leaders – scientists, scholars and researchers who are engaged to have a positive impact in society – the Science Leadership Programme (SLP) was



developed, and has since had a ripple effect around the world, both within and beyond the GYA.

A Brief History of Science Leadership in the GYA

Throughout discussions in 2009, the GYA's founding members laid the grounds for capacity-building to be one of the pillars of GYA work, along with improving the research environment for ECRs and working together to solve society's grand problems.

Early meetings of GYA members reached the conclusion that cross-cutting capabilities to foster connections – between scientists themselves across disciplines, and between scientists and society – are not part of classic research careers, and yet these capabilities are urgently needed to solve pressing global problems and to stabilise societal trust in science. There was a consensus that young scientists and researchers need leadership skills to collaborate more effectively and to make an impact.¹

In 2014, GYA members published the results of an international survey of ECRs called the Global State of Young Scientists (GloSYS).² Two central findings from this study would shape future GYA projects: 1) mentoring and support structures are crucial for ECRs' successful career paths; and 2) focused training for the professional capabilities that academics and scientists need in their careers is especially lacking in low- and middle-income countries. With this data, former Co-Chair (2011-13) Bernard Slippers gained the support of the University of Pretoria in South Africa and, with a grant from the Robert Bosch Stiftung, launched the first Africa Science Leadership Programme (ASLP) in 2015.

The ASLP, co-developed with KnowInnovation, continues to offer training and mentoring structures to facilitate the practice of collaborative leadership capabilities and simultaneously build a network of

emerging future science leaders across the African continent. The programme not only emphasises team management and thought leadership, but also the societal responsibility of scholars to address complex problems in Africa and beyond, and the importance of cross-disciplinary collaboration for thinking outside the box and for innovation. The ASLP was designed to have a multiplying effect, with a curriculum that could be replicated at universities and institutions in Africa and elsewhere, to promote academic leadership which is inclusive and reflective.

Since its beginning, the ASLP has reached over 200 ECRs, trained many new facilitators and inspired and supported regional satellite programmes in Africa and in other world regions. Meanwhile, demand for the programme has increased exponentially: in recent years, hundreds of applications are submitted for the approximately 20 Fellow slots per year.

Inspired by the ASLP, another GYA Co-Chair (2015-17), Orakanoke Phanraksa, launched an independent Science Leadership Programme in the Association of Southeast Asian Nations (ASEAN) in 2017, with the support of the National Science and Technology Development Agency Thailand (NSTDA). Now known as the ASEAN SLP, this programme has similar aims to the ASLP, adapted to meet regional needs and interests.

Trends and challenges related to the research environment of young scientists in the region were analysed in a further GYA GloSYS research project in the ASEAN region, the results of which were published in 2017.³ The GloSYS ASEAN study recommended for young scientists the support of meaningful international and regional collaboration, an expansion of mentoring, and opportunities to be trained in mentoring.



The ASEAN SLP fosters science leadership in joint initiatives related to science and policy in the region, aiming to promote cohesion and collaboration between young researchers. The ASEAN SLP has been hosted in Thailand, Malaysia and Vietnam, with the organisational support of local Young Academies and funding by senior research organisations. The network established by the ASEAN SLP facilitated the formation of the ASEAN Young Scientists Network in 2018.

The success of these regional SLPs in nurturing mentoring, network-building and collaborative leadership capabilities intrigued newer GYA members, and in 2017, incoming Co-Chair (2017-19) Tolu Oni saw an opportunity for the GYA to provide science leadership training on a global level.

To reach a larger audience of ECRs, even beyond its membership, the GYA began offering 1-2 day workshops which could be easily connected to large international conferences. Since 2017, the GYA, in collaboration with partner organisations, has co-organised 9 Science Leadership Workshops, reaching over 250 ECRs. The workshops provide training in collective leadership capabilities, while empowering participants by fostering global, interdisciplinary networks and strengthening the voice of ECRs at international science meetings like the World Science Forum and the Latin American and Caribbean Open Science Forum (CILAC).

What does Science Leadership mean for the GYA?

What differentiates the GYA's approach to science leadership from countless other methods and styles of leadership training? One defining element can be found in the emphasis on the need for leadership in the context – and from the ranks – of science, as a crucial contributor to societal progress. With

the term “science”, the GYA refers to all forms of research, including the natural and physical sciences, social sciences, the arts and humanities, as well as engineering and medicine.

Another dimension is the decidedly global outlook taken: science leadership is interculturally adroit and global in its perspective. While it encourages regional cooperation, it also consistently fosters an enhanced awareness of the global context. Further, diversity and inclusivity as represented in the GYA's strategic outlook and its concept of science leadership are qualitative strengths of the network: different, unexpected perspectives can be harnessed for enriched discussions and outcomes.

Particular to science leadership for the GYA is also the idea that leadership is a collaborative process, and that there are many, even subtle ways to exercise leadership. The SLPs of the GYA are based on the Collective Leadership framework originally developed for the Earth Leadership Program (formerly Leopold Leadership Program).⁴ This framework was built to help leaders in academia, specifically in environmental disciplines, to be agents of change within their research contexts and in society. GYA members have the opportunity to use science leadership skills actively throughout their membership in the GYA and other ECR organisations.

The collective leadership concept moves away from a more traditional, leader-centred idea of leadership towards a more dispersed, shared or collective process in which the incorporation of diverse stakeholders and shared responsibility present more effective means to address today's complex challenges. When dealing with challenges that are too big for individuals, collective leadership provides tools to approach building a vision together,



building goals together, and thus constructing a more stable and robust path to solutions, in which everyone involved is invested from the start. These capabilities reach beyond one event; they are designed to be weaved into ECRs' daily activities.

The GYA's understanding of science leadership based on the collective leadership model acknowledges strength in diversity and diversity of strengths. Individuals not only bring different expertise to the table, but they also have different personal leadership strengths and abilities: to ask thought-provoking questions, motivate others, convene wide networks, or develop solutions. In collaboratively working toward common goals, awareness of one's own and others' strengths – those dimensions of leadership which come naturally – is an asset when building, nurturing and working with teams.

In workshops, participants are asked to use a spider graph to self-assess their strengths in various different leadership qualities. With this awareness, individuals can focus on personal development in certain areas, or on the need to include team members with complementary competencies.

Science Leadership methods in practice

Leadership is a broad concept, and there are many different understandings of what it is, or should be. When young scientists convene to take part in GYA SLPs, they arrive with a wide variety of expectations. The science leadership toolbox varies in each programme and workshop, but it starts with the aim to foster - through active participation and reflection in communicative situations – a deeper awareness of diverse communication styles and strengths, and spark ideas on how to best harness these for optimal collaboration in different scenarios. Self-awareness builds a foundation for cultural dexterity – being able to flexibly work across personal and

cultural preferences – yet another key to good science leadership.

Many layers influence ECRs' communication styles and problem-solving preferences: including personal (outlook on life, perspective on time), cultural (source of identity, unspoken codes of conduct, common language) and those related to their research fields (methodological and epistemological approaches). Participants in GYA SLPs interactively unfold these layers, to help them recognise and understand their own and others' underlying value differences, in order to communicate more effectively in interdisciplinary and intercultural teams.

All tools experienced throughout a science leadership training aim to provide ECRs with different ways to apply collective leadership in their career contexts and daily lives. The “collaborative mindset” encourages open-mindedness to new ideas and perspectives, delaying judgement when thinking creatively in order to start out with more – even unexpected – ideas on the table. This can look as simple as responding to others' ideas with “yes, and” instead of “yes, but”. In group brainstorming activities, participants also try out “divergence” before “convergence”: In a creative phase, all ideas are allowed, without any judgement or consideration of action (divergence); these ideas can then be clustered, sorted and subjected to questions about implementation feasibility in a second phase (convergence).

These and many other tools are devised to be replicable and reproduced, easy to use and teach, even by example. What can collaboration of the future look like if leadership becomes collective, open and agile, without compromising ethical principles of science and human rights? Young scientists and scholars, working to create knowledge the world needs to face global challenges, need to be equipped



to work and lead together. Looking to the future, the GYA aims to continue to (co-)organise global science leadership workshops, while supporting its members and their broader networks, as well as National Young Academies, to initiate regional SLPs, with a nascent programme in Latin America and the Caribbean on the horizon.

ECRs' share their SLP experiences in videos

In the first video, ECRs from around the world, including GYA members and alumni, discuss the challenges they face and how science leadership capabilities support positive and impactful actions. They also describe their key learnings and how they apply them in their own careers. Watch it here: <https://youtu.be/a0g8iEJhEdY>.

In the second video, members, alumni and ECRs in the wider GYA network explain what collective leadership means to them, and how they use collective leadership tools to work more productively and creatively with interdisciplinary and intercultural teams.

Watch it here: https://youtu.be/D70Y_wfLBF4.

Jennifer Plaul is a Senior Project Officer at the GYA, Robert Lepenies is a Professor for Pluralist and Heterodox Economics at Karlsruhochschule International University, Germany, and Encieh Erfani is a member of the GYA Executive Committee, and Assistant Professor at IASBS, Iran. Email: Jennifer.Plaul@globalyoungacademy.net

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Barriers to diversity among young scientists around the globe:

Examining discrimination
and harassment at the
workplace



Jonas Radl, Shaheen Motala-Timol,
and the GYA Women in Science
Working Group

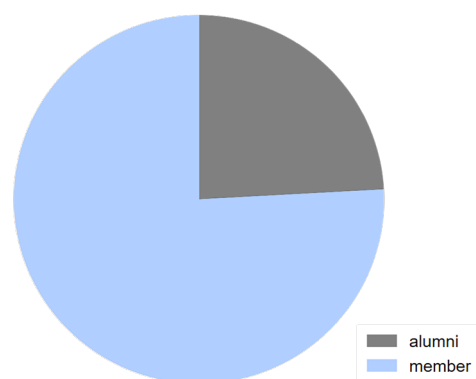


Figure 1: Sample description by member status

This article presents key findings from a survey carried out among GYA members and alumni in 2021 about workplace challenges in science. This survey was implemented by the GYA's Women in Science Working Group, with support by the GYA Office. The two principal domains that the survey set out to cover were 1) workplace policies promoting gender equality, and 2) experiences of discrimination and harassment. This article outlines the key insights gained based on evidence contained in the survey.

Background

Prompted by the “Me Too” movement, during the 2018 AGM in Thailand the GYA Women in Science Working Group began discussing plans to develop a survey about the harassment of women in academia. The scope of the survey grew over time, and eventually covered a broader range of related workplace issues. Moreover, instead of only surveying women, it was also directed to men and non-binary members of the GYA. The goal was to map the incidence of different forms of discrimination and violence experienced at work by excellent young scientists around the world, with particular focus on gender differences in the nature and intensity of workplace challenges.

Data

The survey was fielded between February and June 2021 and implemented using an online tool hosted on the GYA website. Invitations were sent exclusively through GYA channels, including emails, the GYA Newsletter, and message groups. There was also a dedicated announcement at the virtual 2021 AGM, during the “Women in Science” Forum session, to stimulate participation.

A total of 87 people completed the questionnaire. As shown in Figure 1 (above), 66 GYA members and 21 GYA alumni took part. With a membership of 200

members and 298 alumni at the time of the survey, this means that 33% of current GYA members participated in the survey, but only 7% of the alumni did so. The average age of respondents was 41.7 years, with a range of 32 to 56 (and one outlier aged 71).

Next, we consider the composition of the sample by scientific discipline. The breakdown in Figure 2 (below) shows a dominance by the Natural Sciences, which accounted for almost half of the received responses, followed by the Applied Sciences with around one-quarter, and the Social Sciences with less than one-fifth. There were few respondents from the Arts and Humanities or Formal Sciences.

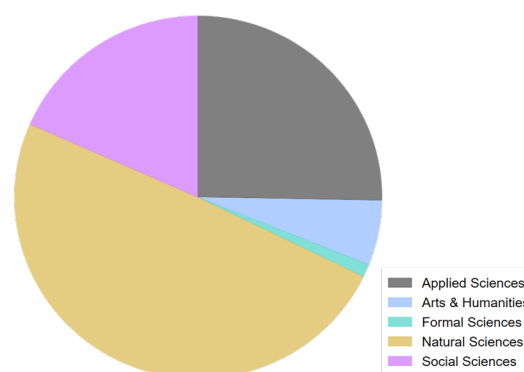


Figure 2: Sample description by main scientific discipline

Figure 3 shows the geographical coverage of the survey according to the continent where the respondents worked. Overall, the survey achieved fine geographical balance. The largest representations come from Europe and Asia, but we also see fair levels of participation from Africa and North America. While the share of Oceania is small, it is not far off what we would expect. The only corner of the world where the survey could not reach a roughly commensurate number of respondents was South America (see Figure 3).

Figure 4 displays the sample composition according to gender. With a survey run by the Women in Science Working Group, it is unsurprising that a majority of women participated in the survey. Nevertheless, more than every third respondent was male, and there was one non-binary respondent as well (see Figure 4).

Workplace policies

The survey asked GYA members about the share of women working at their respective workplaces. As Figure 5 illustrates, the gender distribution at the covered institutions is fairly equal, although there are somewhat more workplaces with fewer than 20% women than workplaces with more than 80% women (see Figure 5).

One of the key motivations of the survey was to learn more about gender equality at the workplaces of outstanding young scientists around the globe. Figure 6 shows that in half of the institutions where GYA members and alumni work, there is a formal gender equality policy in place. In contrast, having an actual quota in place to fix minimum proportions of women in certain positions was still very rare (only 7% of respondents replied positively).

Somewhat more widespread were affirmative action plans, which are reported by 20% of the survey participants. In terms of pay, around two-thirds considered that men and women are equally remunerated for doing the same work, while 13% contend that this is not the case. In all cases, there is a fairly high proportion of people who did not know what policies and practices exist at their own institutions (see Figure 6, top of next page).

Workplace culture

The second key domain that the survey was designed to capture is perceived discrimination and harassment. A first question tapping into this sensitive theme was whether people felt comfortable voicing their professional opinions. In general, this is the case for the majority of respondents. However, there are notable gender differences in the answers, and it is

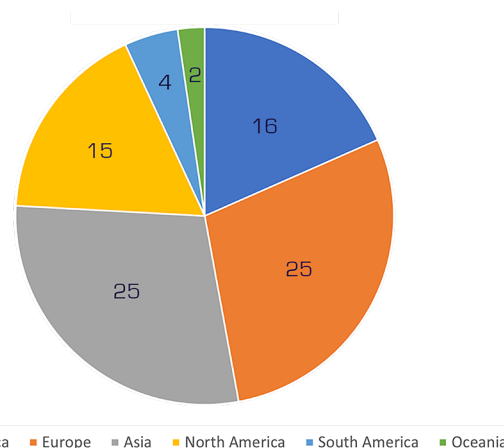


Figure 3: Sample description by continent (place of work)

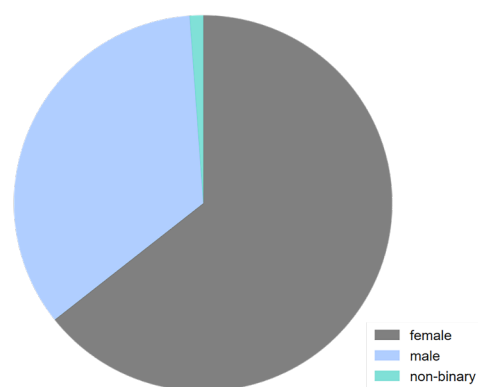


Figure 4: Sample description by gender

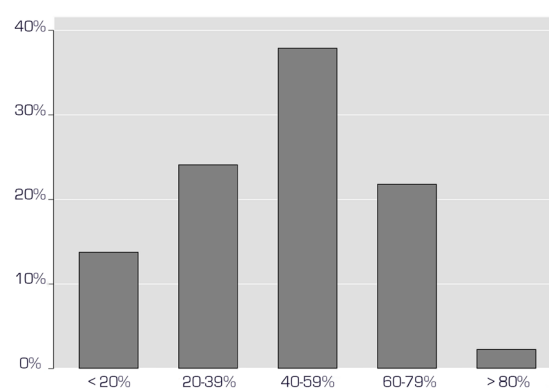


Figure 5: Proportion of women at the workplace

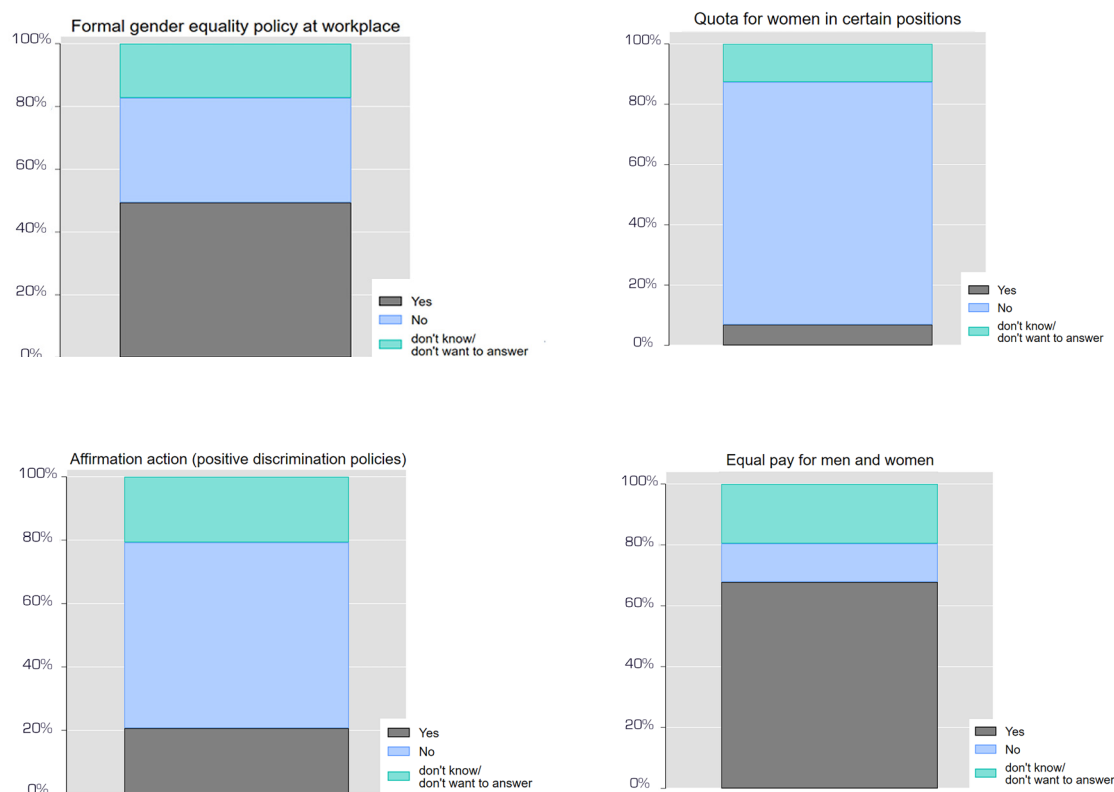


Figure 6: Workplace policies for gender equality

worth mentioning that every third participating female scientist did not agree or strongly agree with this statement (see Figure 7 below).

Another well-known issue is that women's competence is questioned more often than men's, and the survey tried to find out whether this is a problem among the outstanding female scientists in the

GYA too. As Figure 8 demonstrates, it very clearly is. There was about a 20 percentage point gap in the agreement with this sentiment between male and female scientists. Even among the emerging scientific leaders that make up the GYA, women more often feel that their competence is in doubt and that they need to show their worth more than their peers (see Figure 8 below).

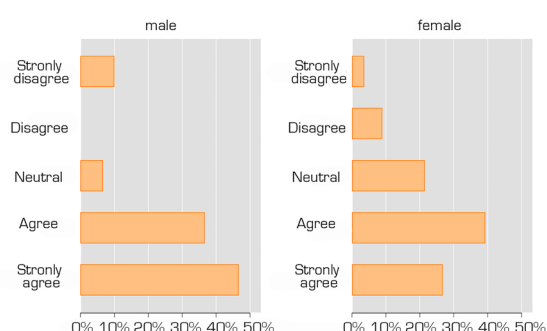


Figure 7: Level of agreement with the statement "I am comfortable to voice my professional opinion at my workplace", by respondent's gender

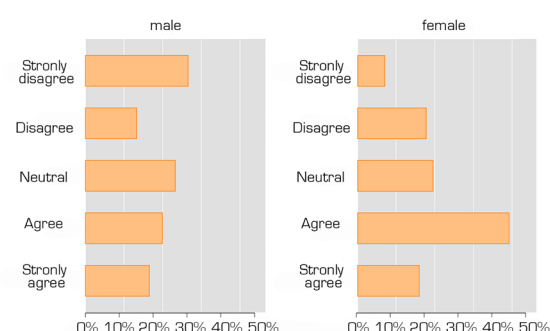


Figure 8: Level of agreement with the statement "I have to provide more evidence of my competence than other colleagues in the same position", by respondent's gender

A similar notion is expressed in the statement "My judgement is questioned in my field of expertise". Figure 9 displays the evidence from the survey. Whereas more than one-third of women either agreed (30%) or strongly agreed (5%) with this statement, this perception was much more marginal among men (14% agree, 4% strongly agree; see Figure 9).

Discrimination and harassment

Coming to the most problematic dimension, we also asked members of the GYA community whether they believe they had been discriminated against at their workplace because of their gender. As Figure 10 illustrates, more female scientists felt discriminated against based on gender (36%) than did male scientists (7%). The instances in which this discrimination took place (details not shown), were focused on recruitment, selection, and promotion, but also frequently in everyday situations. About one-third of those who perceived discrimination reported multiple instances.

A tangible case of everyday discrimination are hurtful comments directed at women. Thus, another question was posed regarding how frequently people heard demeaning remarks about women at their workplace. The findings displayed in Figure 11 are very telling. There are very few men who report hearing such comments either sometimes or often. By contrast, more than half of the women report hearing such remarks about women at their workplaces.

This finding is striking. Of course, GYA members and alumni almost never work in the same places, but it is unlikely that men would systematically work in more gender-inclusive environments than women. This disconnect in perceptions seems to indicate that even men such as those willing to participate in the GYA "Women in Science" survey tend to be somewhat insensitive or oblivious to hurtful words in an academic work setting, even if only subtly misogynistic.

Sexual harassment is a very serious issue threatening the integrity of workplaces, and the abuses brought to light by the "Me Too" movement were the original impetus to undertake this survey. The prevalence of sexual harassment in academia is not properly understood yet. Figure 12 shows the incidence of reported sexual harassment among GYA respondents. According to this evidence, 9% of female and 7% of male scientists have been victims of sexual harassment during the last five years. This gender difference is smaller than was expected. Surprisingly, there was a slightly larger share of men who did not know or could not answer this question.

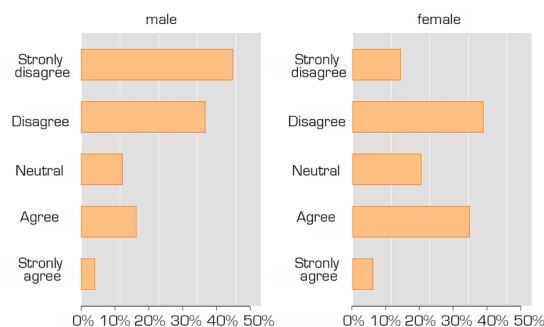


Figure 9: Level of agreement with the statement "My judgement is questioned in my field of expertise", by respondent's gender

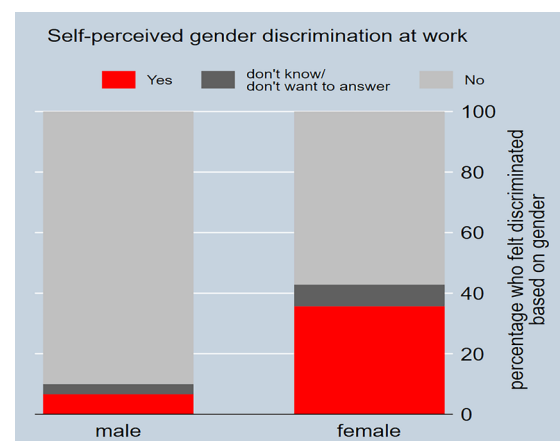


Figure 10: Self-perceived gender-based discrimination, by respondents' gender

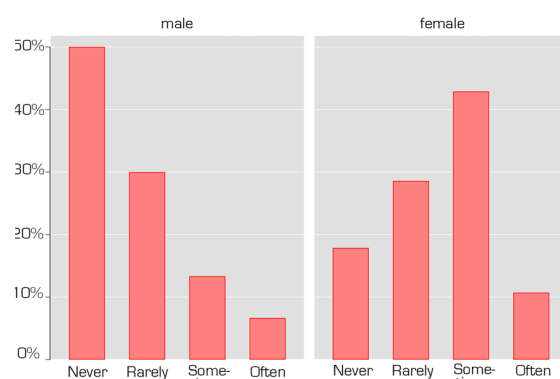


Figure 11: "How frequently do you hear demeaning remarks about women at your workplace," by respondent's gender

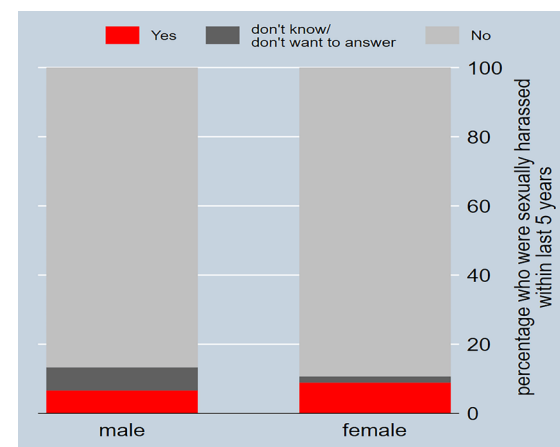


Figure 12: "Have you been subjected to sexual harassment at your workplace during the last 5 years", by respondent's gender

When following up on the specifics of these incidents of harassment, these most often involved sexual comments and jokes, but there were also cases of personal space being invaded in a sexual way, sexual gestures, and even inappropriate sexual touching. In half of the cases the perpetrator was a senior colleague or supervisor, and more than half were male. The incidents were never reported to the authorities, mostly due to fear of adverse consequences of reporting the harassment. In the one incident that was reported, the authorities did not handle the situation in a satisfactory manner for the victim.

Conclusions

Based on a survey carried out among members and alumni of the GYA, this article has delivered new evidence about issues with diversity policies, workplace culture and gendered experiences of marginalization, discrimination, and harassment. We offer three main conclusions.

Wide diversity of gender equality policies

There is a high degree of heterogeneity in the workplace settings of GYA members and alumni as it pertains to diversity. The share of women in these workplaces varies greatly, and so do the policies directed at managing diversity. There is a formal gender equality policy at about half of the covered institutions, while affirmative action is less common, and an actual quota system exists only rarely. Nevertheless, the majority of respondents perceives equal pay for men and women in the same positions.

Tense workplace cultures

Below the surface of formal policies, the GYA survey reveals a worrying amount of tension in workplace cultures. Female scientists often find themselves in vulnerable positions. Compared to surveyed men, women were twice as likely to feel that they have to provide more evidence of their competence than their colleagues. Similarly, they were twice as prone to perceive that their professional judgment is being questioned.

Discrimination and harassment

Sadly, the survey confirmed prior expectations regarding experiences of discrimination. Women were much more likely than men to report having been discriminated against based on their gender. More than every third female scientist feels this way, and more than half of them hear demeaning remarks about women with some regularity. These numbers reflect a persisting climate of patriarchy in many – albeit gladly not the majority of – academic contexts that feature high-level young scientists.

Finally, 9% of female as well as 7% of male GYA scientists responding to the survey report having been

subjected to sexual harassment during the last 5 years at their workplaces. While this is fortunately a minority, and the gender gap is smaller than anticipated, the survey demonstrates that not even the high-achieving young scientists that become members of the GYA are protected from such abusive workplace practices.

Jonas Radl is an Associate Professor of Sociology at the Department of Social Sciences of Universidad Carlos III de Madrid, Spain, and Head of a Research Group at WZB Berlin Social Science Center, Germany. Shaheen Motala-Timol is a chemistry-trained higher education professional and quality assurance practitioner for the Higher Education Commission, Mauritius.

Email: jradl@clio.uc3m.es; smotalatimol@gmail.com

Hardcore science skepticism



Economic Denial



**Opinion
Polarization**



Greenwashing



**Ignoring
Environmental Issues**

Sandra Lopez-Verges, Pradeep Kumar, James Curtiss,
and Lisa Herzog



Science Denial



Green Scam

Nearly three years of living with the fear, confusion, inconveniences, restrictions, and sometimes deadly consequences of COVID-19 has resulted in widespread pandemic fatigue around the world. The effects of this fatigue are manifold and far-ranging, and few can be considered positive. One outcome of this fatigue is an increase in public mistrust towards science in general, and vaccines in particular.

But how to overcome the public's general tendencies to value their own opinions and the prejudices of their chosen political tribes over scientific facts and findings?

To continue adding our voices to this discussion, following the GYA's 2021 International Conference of Young Scientists, which explored the theme of "Trust in Science" from various angles, two GYA Working Groups (WGs) – Trust in (Young) Scientists and Global Health – organised a joint webinar titled "Hardcore science skepticism – What can young scientists do?"

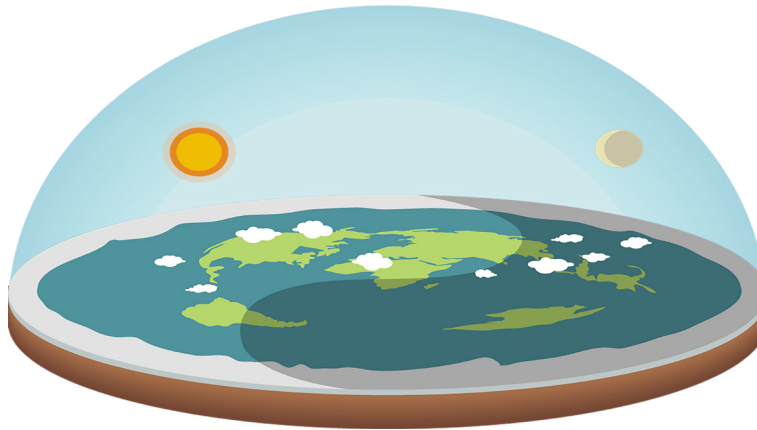
The webinar, moderated by past Executive Committee member Sandra Lopez-Verges, who is active in both of the organising WGs, aimed to reflect on areas such as vaccination hesitancy and its related components of distrust in science, as well as the anti-vaccine movement itself. Three experts in the field were featured, and a number of useful and viable discussions and solutions emerged.

This article explores some of the topics addressed in this webinar, as well as some practical suggestions that experts offered to overcome the challenges that scientists currently face.

The Rise of anti-science

Peter J. Hotez, a Professor of pediatrics and molecular virology at Baylor College of Medicine, United States, is Co-Director of the Texas Children's Center for Vaccine Development and Endowed Chair in Tropical Pediatrics. In addition to being a renowned vaccine scientist who led the development of vaccines to prevent and treat neglected tropical diseases and coronavirus infections, he is also a public commentator and policy advisor on vaccination policies. At the time of the webinar, the vaccine against SARS-CoV-2 that his group developed was under study and had not yet been approved. However, Peter did not discuss this, and actually presented it as a possible conflict of interest.

Flat Earth



In his presentation titled “The Rise of Anti-science in the U.S. and Globally”, Hotez spoke about his experiences as a vaccine developer and parent of an autistic daughter. These two things led him deep into the debate about the alleged – and now clearly disproven – connection between vaccines and autism (spoiler/book alert: “Vaccines Did Not Cause Rachel’s Autism”).

Hotez argued that anti-scientism and anti-vaccine attitudes developed in three waves. A first wave originated in the United Kingdom, where an alleged connection between certain vaccines and autism caused worries among parents. This wave began with a false (and later retracted) study published in *The Lancet* in 1998. The movement was inflamed on the internet, where vaccine skeptics can so easily spread false information.

A second anti-science wave occurred when anti-vaccination attitudes were picked up by right-wing U.S. political actors, including members of the Tea Party movement. To package them for widespread public consumption, these attitudes were given the benign label of “health freedom”. Again, the internet helped spread these views, despite their questionable origins and the effects they can have on public health.

The third wave of the anti-science movement picked up strength in 2020 when anti-vaccine NGOs, supported by political propagandists, began to spread doubtful material. This wave has spread widely ever since, thanks to the widespread networks found on the internet. Indeed, anti-vaccine and anti-science attitudes are now a global phenomenon, with rallies against COVID-related measures and vaccines taking place on six continents, even if they were not all based on the same reasoning.

Anti-science aggression and its history

Professor Hotez also emphasised the need to understand “anti-science aggression” in all its dimensions, including socio-economic inequality, politics, and geopolitics. The patterns of aggression, he argued, resemble those that were used against scientists and intellectuals by authoritarian movements in various countries during the 1930s and 1940s. At that time, many scientists whose views did not fit into the agendas of rulers were publicly vilified and described as “enemies of the people”; sometimes it was alleged that they were part of a global conspiracy.

A quick Google search reveals some of the language and tactics that Hotez presumably means. One particularly incendiary article is titled “NATURE publishes insane rant by Texas pediatrician Peter Hotez, who seemingly calls for United Nations SHOCK TROOPS to wage “counteroffensive” against all anti-vaxxers”, (spoiler alert: he didn’t).

It’s easy to dismiss such articles and websites out of hand, but that can also be counter-productive. Indeed, acknowledging the concerns raised in such articles gives us some clues on how to address such audiences (suggestion: being defensive is not always the best defense!).

In the *Nature* article referred to above, which was published in April 2021 and titled “COVID vaccines: time to confront anti-vax aggression”, Hotez stated that, “Accurate, targeted counter-messaging from the global health community is important but insufficient, as is public pressure on social-media companies.”

Round Earth



Why are such efforts insufficient? Because according to Hotez, disinformation has turned reasonable vaccination questions and concerns into conspiracy theories that ignite fears and outrage.

Hotez concludes his *Nature* article by suggesting that we should construct an infrastructure and place efforts towards combating anti-science in a way that is also done for other challenges such as cybercrime and climate change.

Hotez also called for scientists to communicate with a broader audience in a clear and respectful way, and for universities to recognise and support such work. The greatest challenge in many countries, he argued, is to detach anti-scientism from right-wing politics.

In recent times, social media has spread both dis- and mis-information, but it cannot be blamed for generating the information in the first place. Here, we need to get to the source of the disinformation and find ways to counter it.

Now more than ever, young scientists need to equip themselves with science communication skills. The need of the hour is to change the culture of science, such that scientists are more comfortable in communicating and defending their research.

Vaccine skepticism

The second speaker during the webinar was Claire Nevache, a political scientist specializing in human rights. Nevache is currently a research associate at the International Center of Political and Social Studies (CIEPS), Panama. She studies conservative political movements and how they impact public policies in Latin America.

In her talk titled “Understanding vaccines skepticism in Panama”, Nevache described the influence of a positivistic understanding of science on Latin American societies. According to such an understanding, science is associated with progress and modernity, and all criticisms of science are understood as irrational.

Nevache argued that it is a mistake to see the notions of rationality and irrationality as a strict dichotomy, as there are multiplicities of rationality and irrationality, and we may miss several social factors, especially within complex societies, if we assume a black and white picture. Neither the harm done in the name of science, for example, in ethically problematic medical experiments, nor even the possibility of other such rationalities are acknowledged in such a dichotomy.

Nevache also maintained that science skepticism or hesitancy should not be considered as “merely” being irrational. Rather, such attitudes often have multiple societal and economic causes that need to be identified, acknowledged and studied.

In pluralist societies, and particularly in the highly unequal societies of Latin America, the various logic systems that prevail in different social groups need to be taken seriously to increase exchange and discussion on scientific and societal issues, and thus boost trust in science by the ones currently left behind.

According to a recent study, science skepticism in Panama varies massively depending on people’s socio-economic background. For example, for disadvantaged individuals who have to work each day to cover their daily needs and have no health insurance, losing their income because they are suffering from the side-effects of a vaccination can be a daunting prospect. Moreover,



educational levels also impact one's understanding of the messages of vaccination campaigns. This in turn impacts the decision to trust a vaccine or not.

Such issues, as well as questions about the profits of vaccine companies, the geopolitical dimensions of vaccine policies, or the inequities of vaccine access between and within countries and regions need to be honestly answered by scientists to gain trust, Nevache argued.

She also emphasised that scientists need to break out of the framework of “rationality vs. irrationality”, and acknowledge that science (like any human activity) is never value-free.

Acknowledging the importance of contexts

The third speaker of the webinar, Bankole Falade, is a social psychologist working at Stellenbosch University, South Africa, and is a visiting fellow at the London School of Economics, United Kingdom. Falade works on science and health communication and science and beliefs.

During his presentation titled “Selling Science in the Risk Society”, Falade noted that vaccine resistance began in the 19th century, and emphasised that certain patterns, such as false claims about infertility or “neurological complications,” have come up again and again when new vaccines were introduced.

Falade argued that from a social-psychological perspective, it needs to be recognised that different groups in society deal with risk differently, with certain demographics being early-adopters, and other

demographics being late adopters or even outright rejecting the innovation. This applies to vaccines just as it does to any other innovation.

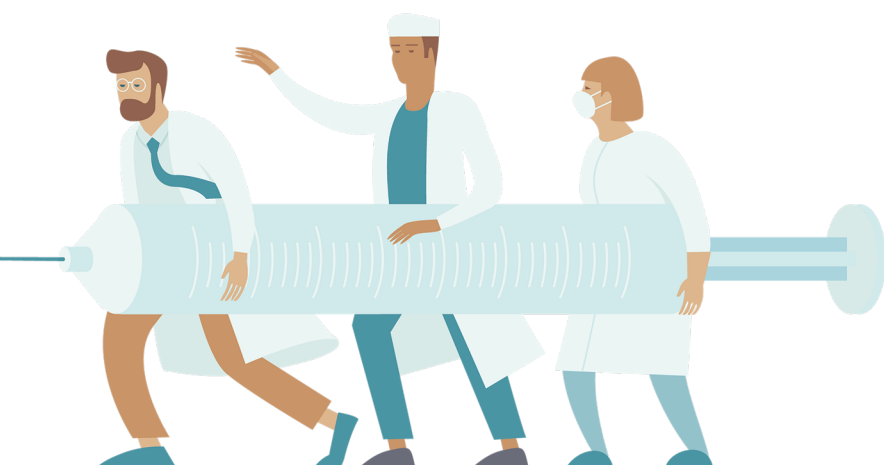
To overcome resistance, Falade says it is necessary to understand the position that somebody comes from, as well as the social and cultural context and the economic constraints that individuals face. Mutual understanding via engagement, dialogue, popularization, and participation may be a step towards overcoming resistance.

Still, attempts to manipulate public opinion through “public relations” or strategies of nudging raise various ethical issues. Instead, science communication needs to find out where others stand, and engage in real dialogue with others. We need to revisit the communication that we are engaged in and tone down any inflammatory language to maintain a level-headed discussion.

Key lessons learned

Several key messages emerged from the webinar:

- Natural sciences, medical sciences, social sciences and the humanities all need to collaborate to understand the causes of anti-science and to develop effective strategies against them.
- Social scientists need to address vaccine skepticism with the same urgency exhibited by medical scientists.
- Scientists need to understand both societal and cultural contexts when engaging in science communication, to find the right communicative approaches.
- Scientists have a responsibility to think about the ways in which they communicate with a broader public and the signals they send.



Specific steps the GYA has taken

As young scientists and scholars from around the world, science skepticism is a key challenge for GYA members.

Some members are faced with it on a daily basis, while others have started efforts, for example, in outreach, science communication, and science-policy-advice, to address these problems.

During discussions in the Trust in (Young) Scientists WG, it became clear that many young scientists worldwide lack the conceptual tools and practical guidance to start engaging in such activities.

The material is out there – but it needs to be brought to the audience. In early 2022, the Science with Society project (SCISO) was launched (see next article), which does exactly that: it provides accessible, freely available video clips that touch upon many of the issues that were also discussed in this webinar.

For example, the video “Conflict of interest” shows the ways in which corporate actors or lobbyists have often tried to influence the public perceptions of science, in ways that are very similar to the anti-vaxxer strategies described by Hotez. Further, a video on “Interacting with lay people” emphasises the importance of dialogue, while one on “Trust in Science around the world” directs viewers to research on the specific scientific constellations in different countries.

These videos are followed by a second series, produced by the National Institute for Science Communication (NaWik) that gives young scientists practical tips on how to start communicating with a broader audience, as well as background interviews and best-practice videos.

We thereby hope to contribute, through capacity-building, to the worldwide efforts to combat science skepticism and anti-science practices. For, as the title of the project also holds, we are convinced that science and society belong and thrive together.

***Sandra Lopez-Verges** is a Health Researcher at the Gorgas Memorial Institute of Health Studies, Panama. **Pradeep Kumar** works in the pharmaceutical sciences at Wits University, South Africa. **James Curtiss** is the Senior Communications Officer of the GYA. **Lisa Herzog** is an Associate Professor at the Faculty of Philosophy and the Center for Philosophy, Politics and Economics of the University of Groningen, the Netherlands. Email: slopez@gorgas.gob.pa*

Science Society





Lisa Herzog

Science with Society (SCISO) is a project by the GYA's Trust in (Young) Scientists Working Group, in collaboration with the German National Institute for Science Communication (NaWik), and funded by the Volkswagen Foundation from 2020-2022.

Scientists around the world are confronted with threats to public trust in science on issues ranging from public health measures to climate change, and unfortunately there is often a perceived gap between science and society.

As members of the GYA, we believe that young scientists have a particular responsibility to help close this gap because we often have specific abilities and capacities that allow us to reach out to vital parts of society.

However, as scientists dedicated to our fields, we often lack the tools, the conceptual framework, and the encouragement to consider such questions and engage in communication activities.

Our project Science with Society (SCISO) aims to address these gaps by providing easily accessible content, in the form of freely available video tutorials, that enable scientists to reflect about the role of science in society, and to communicate with broader audiences.

SCISO provides insights not only about the practical tools of science communication, but also about the deeper roots of the problems, for example, perspectives on scientific integrity or incentives in science. Our target audience is early-career researchers around the world who want to contribute to a trustworthy and trustful relationship between science and society.

The SCISO Project



For this project, we have paired up with the German National Institute for Science Communication (NaWik), a non-profit organization that offers training for scientists, with funding provided by the Volkswagen Foundation. Over the course of two years, we have developed content, recruited the passionate science communicator Shruti Mandhani (University of Scheffield, United Kingdom) as presenter, and produced the videos clips themselves.

Building on research in science ethics, sociology of science and science communication, the clips contain both theoretical content and practical, hands-on tips for getting started in science communication. The films cover topics such as how to interact with lay people, taking responsibility for one's research, or opening up the "black box" of science.

SCISO also presents "best practices" of select researchers regarding various forms of outreach and

communication, for example in policy advice. We want to encourage young scientists to position themselves in public debates, and enable them to make active contributions to the solutions of societal problems.

You can check out all the videos on the SCISO page here: www.globalyoungacademy.net/sciso/.

The videos are also available on the GYA's YouTube Channel.

Lisa Herzog is an Associate Professor at the Faculty of Philosophy and the Center for Philosophy, Politics and Economics of the University of Groningen, the Netherlands. She is the co-lead of both the Trust in (Young) Scientists Working Group, and the At-Risk Scholars Initiative.

Email: l.m.herzog@rug.nl

Video tutorials on science ethics and science communication





Adeyemi Oladapo Aremu (South Africa)

Professor / Botany

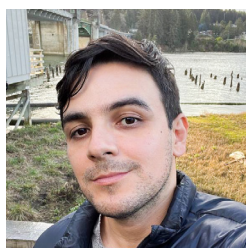
Based at the Centre for Indigenous Knowledge Systems, North-West University, Adeyemi is Honorary Researcher with the School of Life Sciences, University of KwaZulu-Natal, South Africa. His research team focuses on the value chain of African floras with medicinal, horticultural and nutritional potential. Currently Vice President of the South African Association of Botanists, he is also a member of the International Society for Ethnopharmacology.



Amarjargal Dagvadorj (Mongolia)

Medical Doctor / Health Policy and Maternal & Child Health

Amarjargal is a public health scientist working at the Parliamentary Research Service, Secretariat of Parliament of Mongolia, and was chosen as a global Young Physician Leader by the InterAcademy Partnership in 2019. She is passionate about evidence-based decision making, and her current research interests focus on pandemic preparedness in the context of resource-limited settings.



Amurabi Oliveira (Brazil)

Assistant Professor / Sociology and Anthropology of Education

Amurabi earned a PhD in Sociology from the Federal University of Pernambuco, Brazil, and since 2014 has been an Assistant Professor at the Federal University of Santa Catarina. He is a specialist in sociology and anthropology of education, with a focus on teaching social sciences in high school. In recent years, he has been focusing on the rise of conservative movements and their impacts on education in the context of a post-truth era.



Ana Elizabeth Ochoa Sánchez (Ecuador)

Civil Engineer / Water Resources and Climate Change

Ana is an Associate Professor at the Faculty of Science and Technology, University of Azuay, Ecuador. She has worked in regional climate and hydrology modelling, quantification of hydrological processes in Andean ecosystems, and detection and attribution of climate change in the Andes. She is also a contributing author for the Intergovernmental Panel on Climate Change Sixth Assessment Report.



Assaf Zinger (Israel)

Assistant Professor / Chemical Engineering

Assaf is an Assistant Professor in Chemical Engineering at the Technion-Israel Institute of Technology, and an Adjunct Assistant Professor at the Houston Methodist Academic Institute, United States. He has developed several nanotechnologies using various drug delivery systems, and is translating these findings into clinically relevant therapies. Assaf strongly believes that the quality of someone's research is not defined by their religion, gender, or skin color, and that a strong lab needs a heterogeneous population of students.



Carina Geldhauser (Sweden)

Lecturer / Physics and Machine Learning

Carina is a Lecturer at Lund University, Sweden. Her research deals with mathematical models in physics and the theoretical foundations of Machine Learning. She is active in science communication and women encouragement.



Carlo Altamirano-Allende (Mexico)

Physicist / Human and Social Dimensions

Carlo is a physicist with a PhD in the Human and Social Dimensions of Science and Technology from Arizona State University. His research interests lie within the science, technology, and innovation-policy interface. Carlo has experience working in both academia and the public sector in Mexico.



Dominika Latusek-Jurczak (Poland)

Professor / Management Theory and Trust

Dominika is a full Professor of Management and Head of the Research Center for Trust and the Department of Management at Kozminski University, Poland. Her field of research is trust within and between organizations in various contexts, particularly in transformations.



Edmond Sanganyado (United Kingdom)

Senior Lecturer / Environmental Forensics

Edmond is a Senior Lecturer in the Department of Applied Sciences at Northumbria University, United Kingdom, and the President of the Zimbabwe Young Academy of Sciences.

His work focuses on understanding the behaviour and impact of chemical pollutants in aquatic environments. Edmond was previously an Associate Professor at Shantou University, China.



Éva Dékány (Hungary)

Linguist / Syntax and Morphology

Éva is a Senior Researcher at the Hungarian Research Centre for Linguistics in Budapest, Hungary, and holds a part-time Senior Researcher position at Eötvös Loránd University, Budapest.

Her research focuses on formal models of sentence, phrase and word structure in natural languages.



Gary William Kerr (United Kingdom)

Associate Professor / Festival & Event Management

Gary has a PhD in Biology and a second PhD in Festival Management/Science Communication. He is a member of the Young Academy of Scotland and the Scotland Advisory Committee at the British Council. He specialises in the strategic leadership of festivals and cultural organisations. Gary is a Director at the UK's only charity ski slope, and Chair of the Board of Trustees at Sonic Bothy – an inclusive ensemble for musicians with disabilities.



Graham de Ruiter (Israel)

Assistant Professor / Inorganic and Materials Chemistry

Graham received his PhD from the Weizmann Institute of Science in 2013. After 3 years of postdoctoral research at Caltech, Graham became a faculty member at the Technion-Israel Institute of Technology, where he is the Azrieli and Horev Early Career Faculty Fellow. Graham currently heads the Inorganic and Materials Chemistry Laboratory, where his research interests include driving sustainable catalysis with earth-abundant metals.



Jane Yin-Kim Yau (Germany)

Researcher / Research and Information in Education

Jane is a Researcher on the EduTech team at the DIPF Leibniz Institute for Research and Information in Education, Frankfurt, Germany. She holds a PhD in Computer Science (Mobile Learning) from the University of Warwick, England, and held Postdoc positions at the Centre for Learning and Knowledge Technologies, Linnaeus University, Sweden, and Chair of Learning, Design and Technology, University of Mannheim, Germany.



Jovana V. Milic (Switzerland)

Assistant Professor / Smart Energy Materials

Jovana is an Assistant Professor at the Adolphe Merkle Institute of the University of Fribourg in Switzerland. Her research focuses on the development of stimuli-responsive (supra)molecular materials for energy conversion, with particular interest in photovoltaics. She is also invested in science outreach and policy, such as through activities and partnerships within the European Young Chemists' Network and International Younger Chemists Network.



Jude Ndzifon Kimengsi (Cameroon)

Associate Professor / Resource and Environmental Geography

Jude is Leader of the Research Group on Forest Institutions and International Development at the Faculty of Environmental Sciences, Technische Universität Dresden, Germany, and Associate Professor in Resource and Environmental Geography at the University of Bamenda, Cameroon. Jude's current research explores the links between pandemics (e.g., COVID-19) and natural resource-based livelihood dynamics in the global south.



Lalit Khandare (United States)

Director / Global Social Issues

Lalit is Development Practitioner & Interim Director of the MSW Program, Pacific University, and serves on the EDI Committee and the Faculty Senate. Lalit chairs the Council on Global Social Issues, and serves as a member of the Commission on Global Social Work Education. He is engaged in research in the area of public housing and urban redevelopment, homelessness, public health, domestic violence and social inclusion.



Laura Vanessa Zimmermann (United States)

Economist / Development Economics

Laura holds a joint position in the Department of Economics and the Department of International Affairs at the University of Georgia, United States. She received her BA in Philosophy, Politics and Economics from the University of Oxford, and her MA and PhD in Economics from the University of Michigan. Her work focuses on the economic and political impacts of large government policies in developing countries.



Lin Wang (United Kingdom)

Research Associate / Biomedical & Infectious Disease Research

Lin is with the Department of Genetics, University of Cambridge. Before joining Cambridge, he was a Charge de Recherche in the Institut Pasteur in Paris, France, and a Postdoctoral fellow in the School of Public Health, University of Hong Kong. Lin received his PhD from the Department of Electronic Engineering at Fudan University. His research areas include infectious disease modeling, computational biology, and evolutionary dynamics, among others.



Lydia Rhyman (Mauritius)

Researcher / Computational Chemistry

Lydia is a Researcher in the Computational Chemistry Group of the University of Mauritius, and the University of Johannesburg, South Africa. She is an Affiliate of the African Academy of Sciences and a member of the Royal Society of Chemistry. Her research interest lies in the use of Computational Chemistry to solve chemistry and interdisciplinary problems. She is involved in promoting Computational Chemistry in Africa and science education.



Mark Angelo O. Balendres (Philippines)

Researcher / Plant Pathology

Mark is a Plant Pathologist at the University of the Philippines Los Baños. His research focuses on the etiology, epidemiology, and management of diseases of economically important plants, with an emphasis on host resistance, seed pathology, and host-pathogen interactions.



Meng Wang (China)

Senior Geologist / Sedimentology

Meng is an Adjunct Professor at the University of Bologna, Italy, the Executive Secretary of the World Young Scientist Summit, a Founding Member and ongoing President of Young Earth Scientists (YES) Network, and a Steering Committee member of the Young UNESCO Climate Action Network (YoU CAN). His study area is Geology, with a focus on sedimentology and paleoclimate.



Mohammed Almahfali (Sweden)

Research Fellow / Arabic Discourse Analysis

Mohammed is a research fellow at Columbia Global Centers-Amman, Columbia University, and an Affiliated Researcher at the Centre for Advanced Middle Eastern Studies, Lund University, Sweden. He obtained his PhD in Arabic Literature at Cairo University in 2014. In 2017, he was awarded a two-year fellowship from the International Institute for Education—Scholar Rescue Fund IIE-SRF.



Muhammad Ali (Pakistan)

Associate Professor / Economics & Data Analyst

Muhammad is an Applied Economist who completed his PhD in Germany studying the economics of innovation. His research broadly covers two main topics: knowledge dynamics and water, sanitation, and hygiene (WASH). Before joining the university, he worked for the World Bank on WASH-related projects. Muhammad is currently working on a research project entitled "Exploring the National Innovation Systems in Developing Countries" as a Post Doctoral Fellow in Jena, Germany.



Nafisa Tanjeem (United States)

Assistant Professor / Transnational Feminism/Social Movements

Nafisa is an Assistant Professor of Gender, Race, and Sexuality Studies and Global Studies at Lesley University. She also serves as a Visiting Scholar at the Women's Studies Research Center of Brandeis University. Nafisa's research and teaching interests include transnational, post-colonial, and decolonial feminisms; globalisation and feminist politics; and transnational social justice movements with a specific focus on the United States and South Asia.



Natalia Kucirkova (United Kingdom)

Professor / Early Childhood Education and Development

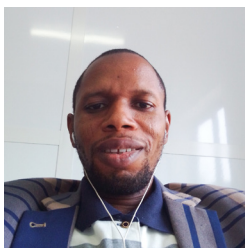
Natalia is a Professor of Early Childhood Education and Development at the University of Stavanger, Norway, and a Professor of Reading and Children's Development at The Open University, United Kingdom. Her work is concerned with social justice in children's literacy and use of technologies. She is the founder of the International Collective of Research and Design in Children's Digital Books that connects practitioners, researchers and designers.



Ofra Amir (Israel)

Computer Scientist / Artificial Intelligence

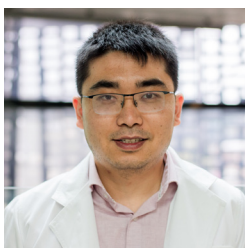
Ofra is an Assistant Professor at the Faculty of Industrial Engineering and Management, Technion - Israel Institute of Technology, where she leads the Artificial Intelligence and people group. Her research interests lie at the intersection of artificial intelligence and human-computer interaction.



Ovie Augustine Edegbene (Nigeria)

Senior Lecturer / Applied Aquatic Scientist and Socio-ecologist

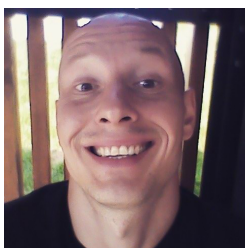
Ovie holds a PhD in Water Resource Science, and another in Hydrobiology and Fisheries. His research focuses on developing stressor-specific taxonomic and trait-based biomonitoring approaches for assessing riverine health and how the developed approaches can be used for ecosystem management and sustainability. His research has been transformative in advancing the science of aquatic systems biomonitoring in his home country and across Africa.



Qilin Wang (Australia)

Professor / Environmental Engineering

Qilin Wang earned his PhD from The University of Queensland in Australia. He is currently a Full Professor and Australian Research Council (ARC) Future Fellow at University of Technology Sydney. He has created a suite of technologies to revolutionize the science and practice of urban water management.



Rafal Majka (Poland)

Assistant Professor / Culture Studies and Sexual Health

Rafał holds a PhD in culture studies and also did a postgraduate degree in gender studies. His research focuses on HIV/AIDS activism, sexual health discourses, socio-cultural history of health and illness/disease, public health discourses and social infrastructure, and new biomedical technologies (PrEP, TasP, U=U). He has published articles on social change, post-capitalism, gender and queer studies, GBMSM sexual practices and public health.



Rita Orji (Canada)

Research Chair / Persuasive Technology

Rita is a Canada Research Chair in Persuasive Technology and a Computer Science Professor at Dalhousie University, where she directs the Persuasive Computing Lab. Her research at the intersection of technology and human behaviour focuses on designing interactive technologies for social and public goods. She applies her work to tackle real-life problems in various domains including improving a wide range of health and wellness objectives.



Ruchi Gupta (United Kingdom)

Associate Professor / Global Engagement

Ruchi is an Associate Professor and Global Engagement lead in the School of Chemistry, University of Birmingham. Her area of expertise is sensors, microfluidics, and analytical platforms. Ruchi is a recipient of RSC's 2021 Joseph Black Award and has received grants from Cancer Research UK, Leverhulme Trust, Research Councils UK, and the Royal Society of Chemistry, among others.



Sabrina Moriom Elias (Bangladesh)

Assistant Professor / Molecular Biologist and Bioinformatician

Sabrina is an Assistant Professor in the School of Environment and Life Sciences at Independent University, Bangladesh. She is a fellow of Beachell-Borlaug International Scholars Program, and is an Executive Committee member of the Global Network of Bangladeshi Biotechnologists. Sabrina is the current Secretary of the National Young Academy of Bangladesh, and a Young Affiliate of The World Academy of Sciences (TWAS).



Shankar Kausley (India)

Senior Scientist / Physical Sciences Research

Shankar is a Senior Scientist for Consultancy Services Ltd., and completed his PhD in Chemical Engineering from the Institute of Chemical Technology, Mumbai. His research interests include water and wastewater treatment, food quality prediction & functional coatings. Shankar is one of the inventors of Tata Swach®, a Nanotech water purifier, and is recipient of the DST-Lockheed Martin-Tata Trusts India Innovation Growth Programme 2018 Award.



Sibel Eker (Netherlands)

Systems Modeller / Climate Change Mitigation and Sustainability

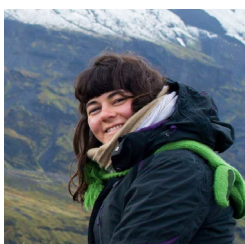
Sibel is an Assistant Professor at Radboud University, Netherlands, and a Research Scholar at the International Institute for Applied Systems Analysis, Austria. Her research focuses on drivers and implications of demand-side climate change mitigation, and co-production of mitigation and sustainability scenarios through simple integrated assessment models.



Stella Tsani (Greece)

Assistant Professor / Economics

Stella is an Assistant Professor at the Department of Economics, University of Ioannina, Greece. She holds a PhD in Economics and Business from the University of Reading, and works with inter-disciplinary and multi-sectoral networks on topics related to sustainable development, public policy assessment & sovereign wealth funds. Stella contributes to science communication with media publications and engagement in dissemination events.



Stephanie Jurburg (Germany)

Ecologist / Microbial Communities

Steph is a Microbial Ecologist who completed her BA in Ecology at Columbia University, United States, her PhD at Rijksuniversiteit Groningen, Netherlands, and has worked as a Postdoctoral researcher at Wageningen University and Research, the German Centre for Integrative Biodiversity Research & the Helmholtz Centre for Environmental Research. She studies how microbial communities form and reform after disturbance.



Thomas Nino Burelli (Canada)

Associate Professor / Civil Law

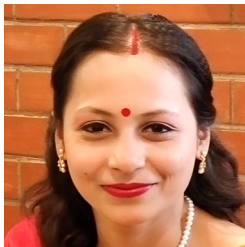
Thomas is an Associate Professor and co-holder of a Research Chair in Teaching Innovation of Law at the University of Ottawa, Civil Law Section. He is also the co-director of the Centre for Environmental Law and Global Sustainability. His areas of expertise are international environmental law (climate change), natural resources (biopiracy), video game law and game-based learning (simulation games, escape rooms, pervasive games, etc.).



Tomislav Meštrovic (Croatia)

Associate Professor / Clinical Microbiology and Public Health

Tomislav is a medical doctor and clinical microbiologist with a PhD in biomedical sciences, and an Associate Professor at University North, Croatia. He is a Fulbright Visiting Scholar at the University of Washington Medical School and the Institute for Health Metrics and Evaluation in Seattle, where he focuses on the global burden of antimicrobial resistance. He is also active in the WHO Global Learning Laboratory for Quality Universal Health Coverage.



Upasana Ray (India)

Virologist / Host-Virus Interactions

Upasana is a virologist working on host virus interactions and vaccine engineering. She is also an alumnus of the Indian National Young Academy of Science (IN-YAS) and participates in science outreach activities.

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Executive Editor:
James Curtiss, Senior Communications Officer
james.curtiss@globalyoungacademy.net

Editor-at-Large:
Junpeng Li (Central China Normal University)

Article Reviewers:
Kathryn Crowe (University of Iceland)
Monir Uddin Ahmed (Qassim University, Saudi Arabia)

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About the Global Young Academy

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 are supported by a range of international public and private funders. This publication was made possible with the help of GYA's core funding from the German Federal Ministry of Education and Research and the German State of Saxony-Anhalt.

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Co-Chairs: Roula Inglesi-Lotz
(University of Pretoria, South Africa)

Michael Saliba
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