

Bringing society inside the walls of scientific facilities

Reviewed Conference

PUBLIC AWARENESS OF RESEARCH INFRASTRUCTURES, SKAO GLOBAL HEADQUARTERS (U.K.), 18–20 JULY 2022

Reviewed by

Frank Nuijens

Abstract

The Public Awareness of Research Infrastructures (PARI) three-day conference held in July 2022 at the SKA Observatory's Global Headquarters (U.K.) discussed the science communication issues that practitioners face at research infrastructures, like community building, science diplomacy and equity, diversity and inclusion in STEM. We concluded that we need to bring society within the walls of the scientific facilities as much as we need to help scientists engage with society.

Keywords

Public engagement with science and technology; Public perception of science and technology; Public understanding of science and technology

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With 142 participants (of which 60 in-person), 24 nationalities from almost every continent and 53 talks in three days, this PARI conference was a focused and highly engaged gathering of science communication practitioners at research infrastructures around the world. A record-breaking heatwave and equally rare travel difficulties didn't stop them from traveling to Jodrell Bank in the U.K., where the headquarters of the SKA Observatory (SKAO) hosted the event (Figure 1).

SKAO's director-general Prof. Philip Diamond set the tone for the conference in his opening speech by reminding us that research infrastructures should always consider how the fruits of their scientific labour flow back to society. The SKAO's work in radio astronomy, for example, contributes to 11 of the 17 sustainable development goals.¹ Making clear that fundamental research benefits both science and society in many ways.

Audiences

Reaching audiences with no or low science capital² was a recurring topic of interest. At the Jodrell Bank Centre for Engagement, director Prof. Teresa Anderson

¹<https://sdgs.un.org/goals>.

²https://en.wikipedia.org/wiki/Science_capital.



Figure 1. Of the 142 participants attending the PARI2022 conference, 60 attended in-person. They got to enjoy the beautiful scenery of the Jodrell Bank site in the U.K., where the headquarters of the SKA Observatory is located. (Credit: SKAO/Paul Worpole.)

explained, they position science as part of culture, emphasising the ‘wow-factor’ and inspiring visitors of the annual festival of music, art and science, *bluedot*. The CERN microcosm exhibition taught the communications team that especially young visitors are enthused most by the location where the science happens, the actual labs, and meeting the scientists themselves, even if they aren’t stellar communicators. This was an important realisation because science relies on diversity in the backgrounds of scientists to generate new ideas and new perspectives, CERN’s Emma Sanders explained.

The persistence of the deficit model amongst science communicators [Anjos, Russo & Carvalho, 2021; Entradas & Bauer, 2019], recently identified as the number one challenge for our field [Scheufele, 2022], makes it difficult to reach the people who might benefit most from science dialogue and engagement. More training in communication theory and skills is needed and that means that institute and university administrators need to realise that simply because a scientist can talk, doesn’t necessarily mean they can communicate effectively with non-expert audiences, I explained in my conference contribution.

One of the most important stakeholders for research infrastructures are the scientists who use their facilities. To engage and facilitate them, many research infrastructures are working on community building strategies. Using a community building model, ASTRON’s Elise Brouwer discussed how LOFAR, the world’s largest low-frequency radio telescope, plans to move its community of active users from an institution-driven community to a community-led organisation. Adelle Coote from the Australian Research Data Commons (ARDC) shared her process of involving stakeholders of the ARDC, where the major challenge is to make something intangible like data services and expertise concrete.

EDI and sustainability

Another very important aspect in reaching a more diverse population with science communication is the growing attention towards equity, diversity and inclusion (EDI) in STEM. This matters not only because everyone deserves equal opportunities for a career in science, but also because audiences with low or no science capital need to recognise themselves in the scientists they meet, as was pointed out by Julia Riley from the Jodrell Bank Centre for Engagement.

One of the inspirational role models at PARI2022 was keynote speaker Dr. Claire Malone. As a physicist with cerebral palsy, she showed the conference participants that being a good science communicator doesn't need to be hampered by a physical disability. She linked her physics work on the Standard Model to her own challenges, comparing the so-called invisible particles to the invisibility of the LGBTQIA+ community in STEM. There are too few outspoken students in this group to give universities an incentive to build a support system. Malone reiterated the message that science needs more diversity in its role models, adding that everyone can be a role model for someone.

The session that followed about promoting EDI in STEM contained some practical initiatives to better include traditionally 'invisible' audiences. For example, with the science-in-colour project of the ALBA Synchrotron scientific and technical staff of the facility raise awareness of the importance of diversity in science amongst high school students in Barcelona. Melissa Van Dam of the Australian International Centre for Radio Astronomy Research (ICRAR) shared their outreach activities to try and plug the hole in the 'leaky pipeline' of STEM, which causes women in many career stages to leave science. ESO's Mariya Lyubenova reminded us that the term 'leaky pipeline' itself might not be so helpful, since the problem is systemic rather than accidental.

Sustainability is top of mind for many research infrastructures. EMBL (Germany) has an ambitious sustainability strategy outlining how they want to reduce their environmental impact by 2030. This is no small feat for a research infrastructure with six sites across Europe. Tabea Rauscher showed the many communication activities that were developed to support the implementation of the strategy, like using the Laboratory Efficiency Assessment Framework to enable behavioural change through targeted communication and empowerment.

Science diplomacy

Research infrastructures also play an important role in science diplomacy, as was highlighted by keynote speaker Dr. Marga Gual Soler. She distinguished three types of science diplomacy: 1) diplomacy for science, where cooperation between scientists but also countries is established to facilitate large-scale science, 2) science in diplomacy, where science can help tackle meta issues like food shortages, the energy transition, and other global issues, and 3) science for diplomacy, where science itself can facilitate peace by keeping the lines of communication open between countries at odds — the Jordan-based SESAME particle accelerator being one such example. Gual Soler advised science communicators to not only communicate about the science produced by research infrastructures but also about the wider benefits that flow from them like, for example, science diplomacy. She encouraged participants to keep in mind that even though science itself is not political, scientists are, and this should be acknowledged and discussed within research infrastructures.

Discussing wider benefits and societal impact are especially prominent when building a new large-scale research facility. Several speakers highlighted the need to work closely with local communities in South Africa and Western Australia around the construction of the SKA telescopes. SARAO's Anton Binneman explained how using critical discourse analysis to look at the frames and narratives used when community groups communicate about the telescopes can be an important part of the stakeholder engagement process.

In his closing remarks, conference host Mathieu Isidro from the SKAO highlighted how communicating the wider impact and benefits of research infrastructures in society is becoming more important in the work of communication professionals, perhaps even more than communicating the science itself. The natural function of communication within any organisation is increasing, bringing the outside world inside and functioning as the antenna within society. Together, scientists and science communication professionals can (and should) help deconstruct the proverbial ivory tower — a metaphor that is still fitting in many ways — of science, brick by brick, and build instead a forum where a wide range of issues can be discussed openly.

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Author

Frank Nuijens is team lead of communications at ASTRON, the Netherlands Institute for Radio Astronomy, and owner of FrankNu, a company that offers training and coaching to help scientists communicate effectively about their work. Frank has more than 25 years of experience as a professional in science communication and more than 15 years as a trainer of science communication skills. Professionalisation of the science communication field and its practitioners is one of his topics of interest and expertise.



frank@franknu.com

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