JCOM

RESPONSIBLE SCIENCE COMMUNICATION
ACROSS THE GLOBE

Commentary: rethinking iteratively (from Australia)

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Abstract

The invitation to ReThink science engagement is irresistible and timely. And that rethinking will be informed by the location in which its done. While 'speaking for' wide swaths of the world, in this case, Australia and its region, would be meaningless and probably not terribly useful, the call to ReThink science engagement with this place in mind is encouraging and welcome. The following commentary, then, will focus on what rethinking science engagement might look like from Australia with the guiding frame of "responsible science communication" at hand and some of the core concepts of ReThink at the fore — reflection, co-creation, and openness in science engagement. To add a counterpoint to the ReThink projects core concepts, I briefly suggest some further concepts to 'trouble' easy interpretations of approaches to science communication — reflexivity, co-production, and science communication for the public good. Taken together, all of these concepts provide a useful frame for some of the major issues and opportunities for science communication in our region but also highlight the tensions in current approaches to science engagement. These tensions are worth struggling over and unpacking in relation to global differences and aims for science engagement.

Keywords

Public engagement with science and technology; Science communication: theory and models; Social inclusion

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Why a rethink is helpful in the Australian context

There are a number of pressing issues for science engagement in our region — the pandemic, climate instability, transforming innovation systems across the region, and vast inequity in relation to access to research are our contexts for science communication and engagement. While the Covid-19 pandemic brings new issues to the fore, there is a real sense that some old issues have been exacerbated and laid bare by the pandemic. Mis-information (information that is incorrect but shared without intent to deceive) and dis-information (deliberately sharing information to deceive) are usually at the top of the list of 'problems' that science engagement

might solve [Cacciatore, 2021]. This may prove to be unfortunate as this certainly is not one 'phenomena' and as other disciplines explore mis and dis-information they seem to recapitulate some of the early years of science communication debates about the wisdom of policing public statements about science. However, more fundamentally, information equity, public participation in science itself, and a renewed focus on the 'why' of science engagement — as in 'why do it?' — should perhaps be seen as more 'basic' to our current situation. A study by Metcalfe [2019] found that, roughly 10 years ago, Australian science communication practitioners were aware of co-creation models, preferred engagement opportunities over one-way literacy drives, and were enthusiastic about evaluating their efforts. However, Australian institutions and funders preferred discreet events with experts talking to audiences in a uni-directional manner aimed at improving literacy and were reluctant or unable to allocate resources for evaluation. While no recent data has updated this view, the tension between what practitioners want or know to be useful and productive science engagement and what is possible in the Australian institutional context remains a vexed issue.

Co-creation and co-production

Co-creation is intuitively a good idea to guide collaboration and encourage a set of practices to invite a range of perspectives into science engagement, but we rush to these practices at our peril. The basic idea seems to be that science communication practitioners should be a conduit for co-creation of events, communication products, digital spaces, and collaborative design. In this issue, colleagues give a productive example of how co-creation can happen, emphasising a co-design process, carefully curated collaborative spaces, and ample opportunity to collaborate and to reflect on that collaboration (this issue, "Co-design methodological approach for citizen science communication strategies directed to quadruple-helix stakeholders"). Such examples are useful, if only because such well-resourced opportunities remain a rarity, especially in Australia. And while the resourcing of co-creation opportunities is perhaps a common enough concern, it also raises issues about the other enabling features that true co-creation needs. That is, there are a number of barriers to co-creation, not just resources; some of these barriers are the ways in which co-creation itself is conceptualised. The most concerning of these conceptions is that co-creation will be a process that leads to progressive and inclusive outcomes, especially when scientific knowledge is part of the equation of co-creation. The ambivalence about co-creation activities is not that, as a set of practices, they cannot work; it is more about what other preconditions need to be met for them to work.

A prior notion of co-production Sheila Jasanoff might inform our practices more fully — we may need to think of our co-creation practices in a different way before they can be successful. Jasanoff writes "briefly stated, co-production is shorthand for the proposition that the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it" [Jasanoff, 2004, p. 2]. For science engagement, we need to slow down, unpack, and understand this insight fully. Otherwise, co-creation can be a way of perpetuating, at worst, inequity, at best, the status quo. We must first understand the ways in which the practices of engagement itself produce part of the social and perhaps scientific order. It is apparent that, even in 2021, science communicators, knowledge brokers, science engagement practitioners still predominantly take 'science' as their object and the outcomes of research as the starting point for

co-creation. While many would argue that co-creating joint outcomes means 'upstreaming' the core questions that get asked in research to early in the process, and including a diversity of perspectives in formulating research, there is little evidence that this routinely happens and inadequate reflection on what it would mean if it did. Would the purpose be to change the outcomes of research? The outcomes and methods of science? Society? Would the outcomes change our assumptions about anything?

Where this is most obvious in the Australian context is in relation to the rich knowledge of Indigenous Australians, knowledge that is routinely gestured at, but seldom called upon to formulate research questions that are called 'scientific' [Norris, 2014]. So 'engagement' can surely happen with Indigenous Australians, social scientists can co-create with Indigenous Australians, but 'doing' scientific research from an Indigenous perspective still does not enjoy the pre-eminence that has emerged from the ideas of a 60,000 year old culture. There are some hopeful signs that this can change and in areas of ecology (the Atlas of Living Australia https://www.ala.org.au/indigenous-ecological-knowledge/), astronomy, and mapping (Sam Provost), indigenous researchers are changing the assumptions of fields quite radically. But what the rush to 'co-creation' obscures is that there are entire realms of knowledge that are assumed to be 'social' while others are clearly seen as 'scientific' — science engagement is currently positioned to reinforce these assumptions about knowledge, not question them.

The Australian situation indicates what is at stake at understanding the features of co-production before rushing to the practices of co-creation, as useful as they might be. The routine demarcation of indigenous knowledges as 'cultural' and Western science as 'scientific' has been part and parcel of Australian postcolonial knowledge co-production. To encourage science engagement, with this demarcation intact does not advance responsible science engagement nor does it provide an equitable stance among collaborators.

Reflection and reflexivity

The pandemic has, amongst other things, encouraged reflection. Methodologically, this has been evidenced by the number of pandemic diaries that have appeared as researchers struggle to understand and make meaning in real time [see for example Metcalfe et al., 2020; Barbelet, Bryant and Spencer, 2021]. The ReThink project also makes ample use of reflection to guide practitioners in their thinking and to "intensify the interactions they had with audiences even more" [Roedema et al., 2021]. The implications of being reflective through the ReThink experiments and diaries are said to enable practitioners to "deploy openness and reflexivity actions". In their article in this issue "Using design to stimulate reflexivity about responsible science communication," Salmon and Bailey describe a process whereby science communication theory becomes 'practice-able' and where their own understandings are transformed. This is especially exciting because, while instances of reflective practitioners are commonplace, reflexivity — where practices change due to reflection and are acknowledged to do so, are rare. A key open question — what does practicing science engagement do for the practice of scientists? Does the nature of the questions they ask, their methods, their interpretations change after they have done engagement with a range of publics? How would we characterise that change — is it progressive?

This is an important question for the future of science engagement in Australia (and beyond). As a country with a relatively long history in science communication and public engagement with science, at least institutionally for 60 years [Gascoigne et al., 2020] and a number of awards for science communication and communicators, the achievements and success stories are remarkably thin. The transformative potential of the reflexive scientist and their ability to connect with multiple audiences *and* feed back the results of those connections into the practice of science needs further exploration. Diaries and interviews as well as the design opportunities described in this issue have great promise for answering the open question about what reflexivity does for science — and what it means for the future of science communication.

Openness and the public good

The ReThink report champions a specific approach to 'openness' as an individual capacity expressed in interpersonal settings with a largely psychological dimension. For science communicators, the report argues "openness refers to the ability to temporarily put aside one's own perspective in order to be able to take an open look towards the perspective of 'the other' (ReThink 16). While this is an important perspective to take as an interpersonal communication stance, this needs to be balanced with a more social and institutional expression of openness among practitioners. This social stance toward openness might further broaden the institutional roles and capacities of science engagement practitioners. To complement the work that the ReThink team has done and position science engagement practitioners for future success, it would be interesting to find out how individual capacities for openness map against explorations of what science engagement is for. One can imagine that openness could be a rhetorical stance that initiates conversations between people about science and research, but goes no further. This is a fundamentally normative issue, less about individual capacities and more about the ethics and epistemology of the field of practice. In the Australian context, a group of science engagement practitioners and scholars are circling around the idea of science communication for the public good and are commencing a program of work under the aegis of a UNESCO chair for Science Communication and the Public Good held by Sujatha Raman [see, for example, Raman et al., 2018]. We hope to complement the work that the ReThink team has done on individual repertoires and openness in science engagement with an approach that defines the public good ends of science engagement and links them with other normative questions — is information equity a human right? Is access to science?

ReThinking iteratively

The rich and provocative work in this issue, reporting on both the ReThink project and colleagues responses around the world stimulates an opportunity to iterate and rethink science engagement in new ways. The core concepts of reflection, openness, and co-creation open up more questions about the history and future of our field. The 'reflective turn' to diaries and other autoethnographic methods is already rendering important insights. Pressing on to incorporate those insights to change and transform science and science communication will not come easy and may require the field to question some of its fundamental assumptions. Likewise, inclusiveness and responsibility require inviting others in through co-designed and co-created engagement opportunities, but that may not be enough for responsible

science engagement, at least in Australia, where the fundamental assumptions about what people are being invited to do need more reflection and transformation. Openness, too, needs iteration; while individuals can display a capacity for it, what does it mean for an entire field to adopt openness as a concept? These are bright questions emerging from a dark time of pandemic and, in Australia, dramatic climate change. They point to a world, from where I sit, where it is time to answer the normative question of what science communication and engagement, reflective/reflexive, co-created/co-produced, with an open or public orientation is for.

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