

What Do Science Communicators Talk About When They Talk About Science Communications? Engaging With the Engagers

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Abstract

A series of workshops on impediments and solutions to best practice in science communication in Australia not only provided insights into the diversity of the community of practice but also reflected discords between best practice and popular ideas among practitioners.

Keywords

science, journalism, science, public perception of scientists, interdisciplinary science communication, science, public understanding of science, upstream engagement

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Science engagement in Australia is trapped in the 20th Century. It operates under an outdated model that aims to promote and celebrate science, rather than encouraging the public to participate in, and critically evaluate, scientific endeavours.

—Jenni Metcalfe (2013)

Surely these are fighting words! And when Jenni Metcalfe, a respected Australian professional science communicator, published those words in the online journal the *Conversation*, it triggered a flurry of comments supporting and rejecting the assertion. Her comment was a part of an article summarizing the findings of the first national audit of science engagement activities across Australia (Metcalfe, Alford, & Shore, 2012), and the online comments to the article varied from those agreeing that science communicators belonged too much to a science “fan club” to those who argued that the nonscientific community was too scientifically illiterate to be trusted to make big decisions on science.

The audit, funded by the Australian government’s Inspiring Australia science communications program (Inspiring Australia, 2010), involved analyzing 411 science engagement activities between January 2011 and June 2013 and found that almost 60% of them could be categorized as “deficit-model” activities.

However, it should be pointed out that the audit study also found that most science communicators actually favored participatory, critical approaches to science engagement but felt hindered by a lack of resources and organizational support for such engagement.

A rare opportunity to put the difference between knowledge and behavior relating to best practice to a test came at the Science Rewired Big Science Communication Summit, held at the University of New South Wales in Sydney, June 6 and 7, 2013. The summit, organized by a coalition of science communication agencies, including the CSIRO, Inspiring Australia, and Science Rewired, attracted over 250 science communicators, from government to private-sector agencies.¹

One of the key components of the summit was for participants, using participatory democracy workshops, to jointly nominate the key impediments to best-practice science communication, and solutions to them, to feed into the development of science communications policy. With Inspiring Australia as a funding and planning partner, the summit was seen as a good opportunity to engage the science communications community on what it perceived were the key issues that needed to be addressed by the program in future.

Following the Road to Best Practice

While there is no simple set of agreed guidelines for best practice in science communication, the large number of engagement activities undertaken around the world over the past 20 years or so have led to many broad principles of best practice.

Examples of these include the Australian Science and Technology Pathways (STEP) framework, the Dutch Rathenau Institute's nanotechnology engagement principles (van Est, 2008) or those of the United Kingdom's National Consumer Council (Involve, 2008). Their lists of best-practice engagement principles generally include such things as commitment and integrity, clarity of objectives and scope, inclusiveness, good process, knowledge sharing, dialogue and open discussion, and impact on decision making (STEP, 2012).

However, it could be argued that these are too broad to clearly define what is needed, and it is perhaps easier to define such principles by exclusion. So if we ask what does best practice *not* look like, it would not favor one-way communication, treat audiences as needing to be educated, treat audiences as a single block with similar attitudes and behaviors, or favor science knowledge over community knowledge. Nor would it mistake media coverage for media impact, confuse attitudes with values, and presume that everyone is going to be interested in science and technology issues if it is just presented to them in the right way.

To test the levels of best practice supported by science communication practitioners in Australia, the summit organizers sought to determine how closely or not the activities recommended by the summit workshops embraced any of these ways of thinking.

Methodology

There were five workshops ranged across different themes, selected by the organizers as issues that could generate useful inputs for future work:

1. It's a two-way street: Engaging *all* Australians in the sciences
2. Participative science: Encouraging the best in citizen science
3. Beyond tweets and blogs: Leveraging the changing media landscape
4. Diminishing degrees of separation: Developing collaborative approaches across sectors
5. Data at work: Developing the evidence base to guide future action

The workshops used a world cafe style, whereby participants sat at tables of between five and 10 people. And rather than come to the tables unprepared,

participants had been encouraged to take part in online discussions on the topics in the lead-up to the summit.

Each workshop had one skilled moderator and a “brain trust” of two or three people who were considered experts on the workshop theme, and their role was to circulate around the tables and challenge ideas being discussed and provide additional data or information if needed.

The workshops were run in four parts:

1. The moderator summarized the online discussion and gave the workshop a “where-we-need-to-get-to statement” that had been developed by the moderator and brain trust as a result of the online discussion.
2. Each table group was asked to discuss the key impediments to the where-we-need-to-get-to statement and then write up its top three agreed-upon impediments.
3. Table groups then swapped their impediment lists with other tables and then discussed solutions to them, including actions to be undertaken. (At this point, several of the workshop themes also mixed the composition of the tables).
4. All ideas were then stuck on a wall, and everyone in the workshop voted on what they perceived to be the best ideas.

The five 90-minute workshops were then repeated, enabling conference participants to attend two different workshops.

The top ideas, by total number of workshop votes, were then put to the whole summit for voting on. However, before this happened, a special panel titled “Reality Bites,” comprising senior members of funding bodies, government departments, and science agencies, commented on the list, stating which ideas they felt were the most practical or impractical or which ideas already existed at some level.

The top 10 proposals put forward are outlined in Table 1, which were then used by summit organizers to hold a plenary discussion to generate a list of action outcomes.

Outcomes

Having done this, it was possible to look at the action items and ask how well they represented best practice in science communication.

And the answer? Well—the workshops were certainly successful in developing a list of agreed-upon principles, but the outcomes were perhaps rather conservative in nature. There were some very innovative ideas put forward on the day, but they did not necessarily emerge as the most popular ideas.

Table 1. Top 10 Actions.

Number	Votes	Theme: Issue	Action Recommended by the Summit
1	12	It's a two-way street: Community	Undertake broad and local "engagement" into better understanding communities' needs and trust factors
2	12	Better using the data: Know how to get the data you need	Provide models and standards for evaluation methodologies and best-practice examples
3	12	Diminishing degrees of separation: Communications not integrated within projects	Research grants to include communications/outreach components; embed science communications into science courses
4	11	Citizen science: Mismatched expectations	Develop best-practice models of citizen science that look at the impediments and solutions achieved and promote them widely for other citizen science projects to use
5	8	Better using the data: Know your objectives	Establish standards for evaluation, with well-considered tailored objectives for different audience
6	8	Beyond tweets and blogs: Competing for voice/ breaking through the noise	Establish wider networks that allow for real knowledge sharing and access to key influencers
7	8	Beyond tweets and blogs: Lack of knowledge about what is "beyond" tweets and blogs	Professional development/peer mentors/best-practice models/a national learning network
8	8	Beyond tweets and blogs: Lack of incentives/ recognition for scientists to communicate	Research grants to include communications/outreach components
9	8	Citizen science: How to resource training and data management	Granting bodies to develop "pilot" grants for citizen science with science mentor and seek to publish results
10	7	It's a two-way street: Culture	Provide best-practice models for collaboration and mechanisms to bring potential collaborators together

Others might be considered a bit too broad to be truly useful, such as “developing best-practice models” of things or “establishing wider networks.” Nevertheless, there were some “flavors” of clear best practice running through much of the recommendations, such as “using evidence-based approaches” and “standardized evaluations.”

Of note, though, was the absence of some things from the list that are current in discussion of best practice, as defined by current research, theories, or practices. These included values-driven attitudes, advanced segmentation of publics, and early-stage engagement or recruiting the public to be a part of the design process of public engagement or communication.

Discussion

So did the findings validate the statement that too much of Australian science communication is stuck in 20th-century mind-sets and practices? Perhaps. But there was also a clear desire for more best-practice adoption, evident from the numerous recommendations for best-practice guides and models to be developed.

And there were some important nuances to the findings. For instance, while it was true that the final list of 10 items voted on might not be judged as clear best practice, there were many ideas that did not progress forward from the workshops by popular voting that might have provided better examples of best practice, as argued by Jenni Metcalf or in most of the literature (Groffman et al., 2010; House of Lords, 2000; Nisbet, Hixon, Moore, & Nelson, 2010; RCUK, 2002; Rowe & Frewer, 2000). For example, some of the suggestions that did not get into the top 10 included the following:

Theme 1: Identify and understand people’s emotional/physical/intellectual needs for science.

Theme 1: Embed scientific knowledge into the community’s already existing systems/cultural activities.

Theme 2: Practitioners must gain an understanding of different communities and their values, interests, and motivations (use successful examples).

Theme 3: Use an evidence-based approach to choose communication that works.

Theme 5: Recognize iterative nature of evaluation and collaborate with relevant experts for evaluation.

Significant insight into the workshop processes was provided by the brain trustees and moderators, who were asked to provide qualitative assessments

of the process shortly after the summit. Several stated that many of the best ideas discussed in the workshops were often swamped by practical or more standard ideas, both in discussion and voting.

One moderator stated, “It was frustrating to see the best ideas often languishing because they were unfamiliar, or people didn’t have a lot of understanding of them.”

Another stated, “The mix [of ideas] was ranging from some quite strong ideas through to good, and a couple of clunkers. This discouraged me a little because we were hitting the medium and the right tail of the bell-shaped curve. I would have preferred a couple of highly innovative, and then a range through quite strong to generally good.”

He also stated, “I think you probably need a bit of culling to get the best people in a room to come up with ideas.”

This is another crucial issue for any deliberative democratic process as to whether a final filter of expertise needs to be applied, although it is challenging in terms of public engagement with science and technologies, which is often premised on breaking down hierarchies of expertise.

Those blogging on the workshops, as observers, also made some interesting comments, such as “At the conference I was surprised at the voices of science communicators both on Twitter and in the room who were either advocating for ‘brand science’ or denying that we’re trying to catalyse behavioural change.”

Conclusion

The data collected from the workshops were certainly useful for framing future directions and priorities—and the Inspiring Australia program has begun developing actions based on the key recommendations raised—but it was perhaps more useful as a barometer of the science communications community and indicators of where it might need to put priorities collectively and individually toward best practice. And it appears that while there is an aspirational trend toward best-practice principles (and there were some strong examples evident in the workshops), the averaging-out effect of a popular vote actually led to a reduction of best-practice outcomes.

Second, if the summit audience was typical of the audience surveyed for the audit of science communications activities in Australia, were the findings of that report as much due to an averaging-out effect that hides the examples of best practice that occur? Indeed, one consistent theme from the summit workshops was that best-practice examples in all fields need to be found and more actively promoted. This indicated that there was a desire to adopt best practice—whatever that might mean for different individuals—and a need for a clearer definition and examples of what that might be.

It is difficult, of course, to take any broad community, such as science communicators—who include people working in education, science engagement, marketing, media and promotions, and so on—and apply broad findings to them, but it is also instructional to take the measure of any such community to know what you do not know. For the case of science communicators in Australia, and possibly for science communicators in many countries, it might also now be relevant to start asking deeper questions about access to professional training, promotion of science communications theory, and the motives or not to access such information. After all, they are surely the types of questions we would now be asking of any citizen group or community, having undertaken a participatory democracy process with them and found similar discords between knowledge and behaviors.

But it might first be necessary to ask, Just how relevant is “best practice” in day-to-day science communication for those many communicators who work in institutions that are less concerned with actual science engagement with the public and are charged with either directly informing stakeholders, engaging in education programs, or simply raising awareness of their activities?

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Note

1. Which begs the question, what is the collective noun for science communicators? A channel of communicators? An engagement of communicators? A diversity of communicators?

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