

Engaging with ‘activists’ and ‘alternatives’ in science communication

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Abstract

‘Alternative’ and ‘activist’ are words with meanings strongly influenced by the social context of their use. Both words refer to concepts, things or people that stand in opposition to other concepts, things and people that are often taken for granted, and not elucidated. In science communication studies, ‘science’ is often an unelucidated concept. Indeed, in recent history, efforts within academia to map the perspectives on science that we might explore with the public have proven fractious, to say the least. In everyday science communication practice, however, we can readily see that there are many differing perspectives on science (and its alternatives) and on how, as the activists urge, it should (or should not) be deployed. This commentary encourages a symmetrical approach to understanding ‘alternative’ and ‘activist’ in the context of science communication, which has the potential to bring out a range of perspectives and provide a context for democratic engagement.

Keywords

Science communication: theory and models; Alternative science; Activist

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‘Alternative’ is a provocative word when used to describe science-based knowledges. Alternative technology claims to be greener, and alternative medicine kinder, than their standard counterparts; ‘alternative science’ has a wide range of meanings, but includes the abhorrent crime of pseudoscience and the apocalyptic threat of anti-science. The power of these terms to structure people’s relationships with science makes it worth thinking about what we mean when we talk about alternative science.

‘Alternative’ is a word that has been used more and less often in English: its salience seems to fluctuate. It enjoyed a boom in England in the early 1550s, and there were several more discrete surges over the following century. Then it went quiet, until the late 1960s [Google, 2020, accessed in 2020]. While it is difficult to

attribute cause to these spurts of 'alternative' in the sixteenth century, they coincide with the Acts of Uniformity, a series of laws that prescribed which prayer-books could be used in English churches [Jones, 2005]. In an environment characterised by restriction, the word 'alternative' becomes useful for describing some other thing that should not be there. In the sixteenth century, the approved prayer-book was the one thing that should be there. Anything else was alternative — and, in that case, subject to severe punishment.

'Alternative' is often used in the negative. We ask 'what's the alternative?' when we suspect there is none. British Prime Minister Margaret Thatcher famously earned the nickname 'Tina' when she declared of the free market, 'There Is No Alternative': she thus asserted the intolerance of capitalism towards other economic systems [Fulcher, 2015]. As Séville [2016] notes, by asserting TINA one also asserts that there is no choice to be made, which rules out dialogue and the usual democratic processes.

The element of 'all or nothing' can be seen in the history of the term 'alternative medicine'. This term (and the medicines) was widely used in the U.K. from the 1970s onwards, and prompted concerns within the well-established and high-status medical community that it might be understood as a complete rejection of the monolith of mainstream medicine. For some people it did mean that, but for others, the term 'complementary medicine' allowed the monolith and the alternative a more peaceful coexistence [Zollman and Vickers, 1999].

We do not talk about alternatives in areas of life where there is plenty of free choice. We do not talk about alternative cake, for example, because there is no definitive or essential 'cake' which is clear to everyone as the official, monolithic cake, against which all other cakes stand in relation.

The historical period between the prayer-book and Thatcher is the period of modernity, and of modernity's structuring principle, science. In this time of increasing conformity and standardisation, science was the tool for 'making things the same' [Alder, 1998]. In the early years of modern science in seventeenth-century England, its chroniclers made specific reference to religious discord, and the ensuing civil war. Science would not separate us into 'mortal factions', they said: unlike theological questions, politics or human affairs, Nature could be debated and discussed without our being so provoked as to kill each other [Sprat, 1667]. The experimental method, moderated by collegial observers, brought scientists to consensus. A divergence of ideas, leading to incompatible positions, is a sign of crisis in science, to be kept out of public sight while we build a new consensus, forget the past, and then settle into the new but comfortable 'normal science' [Kuhn, 1962]. During this new era, there is no alternative. As the prayer book was to organised religion in England, and capitalism still is to economics over most of the globe, so science is to knowledge and problem-solving about nature: the thing that should be, to the exclusion of all alternatives.

The word 'alternative' bounced back to life in the English language in the late 1960s [Google, 2020], running counter to all this sameness and uniformity. A surge of activity, on science-related matters such as women's health, the environment, war and famine among many other concerns, showed that, of course, there is an alternative, and not just one either: there are many prayer books, many economic

systems, and many ways of developing and organising knowledge. These alternatives did not just burst out of the void at that moment: they were always there, just out of sight of the mainstream. As Giddens [1991] points out, the monolith does not have to be real, provided it exists at least as a central, structuring idea, or 'grand narrative'. The role and capacities of science in modernity can be thought of as one such narrative. When we talk about 'alternatives', then, we should also identify and scrutinise the narrative that the alternative is 'other' to, or we are only seeing half the picture.

'Activist' also popped out of obscurity in the late 1960s [Google, 2020], as a word for someone who acts on their beliefs about how the world could be different: that is, they take action, on the basis of their beliefs, to produce some sort of change. Like Habermas's publics, they tend to oppose the prevailing order [Habermas, 1996], such as, in the U.K., urging the legalisation of abortion in 1967 [Kandiah and Staerck, 2001], or protesting against the demise of re-usable glass bottles in 1971 [Herring, 2001], 'Activist' has negative connotations in English: it tends to refer to an inconvenient opposition (for a discussion see Murtha [2018] and Kutlaca, Zomeren and Epstude [2020]). The label can be understood as an insult [for example, Bulman, 2020]; and in particular, some scientists feel uncomfortable with its political connotations: during the COVID-19 pandemic, Harvard epidemiologist and public health officer Mary T. Bassett [2020] reminded colleagues, via the pages of *Nature*, that "the label 'activist' should be an honour, not a slur or reproach." When activists are successful in causing welcome change in the mainstream, or their point has been taken, they tend to attract more positive descriptors such as 'campaigner', a 200-year-old political usage with roots in the idea of the dogged and loyal soldier.

When we use the word 'activist', then, it is important to know whether we are talking about the person who undertakes an action to further their beliefs, or whether we mean only the inconvenient opposition. Stephen Hawking was an activist in science communication, for science and health policy, and stood out from other scientists in taking action in the public sphere; but he was not considered inconvenient. Greta Thunberg is an activist in science communication, using science-based arguments to call for a more sustainable environment. Thunberg, inconveniently, blocks the streets and distracts children from their schoolwork. Both Hawking and Thunberg have used science communication to raise attention to their cause, but a rough online analysis shows that Hawking is more often the campaigner than Thunberg, who is overwhelmingly more often the activist.

Despite the narrative of stability and consensus, disagreement and change do of course happen in and about science, as historians and sociologists of science have amply demonstrated. Their research shows how the methods (plural) of science are often insufficient to bring science to consensus [see, for example Shapin, 1975; Shapin and Schaffer, 1985; Gieryn, 1999; Collins and Pinch, 1982; Locke, 2014]. An institution that prides itself on its internal cohesion will work hard to develop and maintain its machinery for agreeing; it will offer less, if any, infrastructure for disagreeing, especially if the disagreement persists [Collins, 1985]. While science maintains a silence on the matter, the disagreement is 'outsourced' to domains we do not normally think of as scientific: disagreements are resolved by appointment panels in universities, by editorial boards of journals, and by conference organisers who populate their community with the right-thinking people. When the

disagreement is exposed to the public, the un-popular scientists cross a line in taking their 'other' ideas to non-scientific audiences, where activists and journalists may or may not engage with them. Communication about dissent thus becomes a feature of the public sphere, which adds to the disquiet within the scientific community [Gregory, 2003; Cassidy, 2005].

This process of marginalising and expelling dissent is an example of 'boundary work' [Gieryn, 1999], and the concept is very useful for thinking about science and its 'others', in the lab and elsewhere. Wherever a line is drawn between science and some other knowledge, or between some scientists and their colleagues, or some publication and another one, we can imagine a boundary being established between what is 'in' and what is 'out'. Boundary work maintains and/or moves the boundary. We can see it being done in the gender or ethnic make-up of a conference panel, in the contents pages of textbooks, or in a group being labelled 'alternative' or 'activist'. Boundaries are pushed in both directions: a researcher who fails to publish in the journals of his or her field might start a new journal and get published there, or they may write a popular book [Gregory, 2005]; or a challenger to the orthodoxy might adopt the language of established science [Locke, 2014]. A stable boundary between insiders and outsiders is either one that is not contested, or it is one that is being pushed with equal vigour from both sides.

Boundary work theory draws on constructivist sociology of science, which argues that science happens, to a greater or lesser extent, through social processes. Boundary work is scientific in the sense that it is intrinsic to the way scientists make decisions about, and bring order to, many aspects of science, including its knowledge content [Sismondo, 2004]. When we look closely at the 'others' of science — including popular science, and dissent in the public sphere — we may find that 'nothing unscientific is happening' (i.e. what is happening is scientific — it is what scientists do) [Collins and Pinch, 1979]. What gets labelled 'alternative' may be not so different from science after all.

From the same school of thought as boundary work come two further ideas that can help us here. The first is the idea of science as a 'Janus-face' [Latour, 1988]. Janus is a god from Roman mythology who has two faces, pointing in opposite directions: he sees forwards and backwards, left and right, at the same time. In everyday English, we use 'Janus' to mean someone who is 'two-faced': they say one thing and but believe the opposite, for example. In science, the Janus-face represents a community and a culture that tells two stories, one for the insiders, and the other for the outsiders. The inside story acknowledges the disagreements, the insults and the failures, but keeps them quiet; while the public story focuses on the neat successes. Telling the inside story to outsiders is a crime punishable by exclusion, and has led to the kinds of almost-mortal factions that the early modern scientists hoped to avoid — during the 1990s, angry discussions about how we should describe science to its publics became known as the 'science wars' [Gross, Levitt and Lewis, 1997; Labinger and Collins, 2001]. This tension also informs the suggestion that surfaces every now and then in our field that the scientific community should perhaps license or approve books that are published as popular science (for an explicit rejection of this position, see Royal Society [1985]).

The second useful idea from constructivist sociology of science is the symmetry principle. Because science makes clear through boundary work that a certain idea, person or practice is 'in' while others are 'out', we as analysts are aware of who the insiders and the outsiders are. When we think about the two competing sides of a story, it is tempting to look at, for example, the failings of the outsiders and the successes of the insiders, rather than looking equally at the pros and cons of both sides. It is also tempting to let the outcome of a controversy, or, if it is ongoing, the dominant position, inform how we analyse the events, with a kind of wisdom of hindsight. For example, if theory A is competing with theory B, and we know that theory B is eventually discarded, we might conclude that theory B was wrong, which is what caused it to be discarded. The symmetry principle offers a different approach: it entertains the possibility that because theory B was discarded, this caused it to be identified as wrong. That is, the value of B relative to A comes not entirely — or perhaps not yet — from qualities intrinsic to the theories, but from the way in which the communities involved behave in relation to the two ideas.

The symmetry principle is a useful tool for understanding how science moves along, and it emerged in response to decades of detailed historical, anthropological and ethnographic studies of how scientists do science. It recognises that empirical data does not necessarily lead to unambiguous answers (for an insight into why experiments can fail to resolve disagreements, see Collins and Pinch [1982]). It recognises the Janus-face, and sees the internal working as well as the claims presented in public. Instead of saying: data A is good and scientist B is just trying to make money, it examines the data and interests of both parties.

When we analyse one thing in contrast to another, and one is a monolith and the other is the alternative, it is common practice to take the monolith for granted and only to scrutinise the alternative. We do not spend much time, for example, investigating the motivations and understandings of people who participate in childhood vaccination programmes, nor do we ask people why they think the world is round. According to the symmetry principle, we should ask the same questions of both parties. We should give equal scrutiny to the different perspectives, and assume that the same causes (education, imagination, ignorance, religious belief, cultural context) produced the different ideas.

It is important to remember that the symmetry principle has been advocated as a methodological principle, not as an expression of a value judgement. It is a way of understanding what is happening, not of endorsing one side or the other. Analysing, for example, creationism using the symmetry principle helps us to understand its power for those who are passionate about it; this analysis does not say that creationism is equally as valuable to human culture as evolutionary theory (nor, indeed, that it is not).

To conclude, then, there are some questions that are worth asking about alternatives, activists and science communication, especially at a time when science, science policy and science communication are explicitly matters of life and death, and are being enacted before us all, every day. When we think about alternative science communicators, whom do we imagine as the non-alternative science communicators, and how do we distinguish these two groups? When we think about 'activists', can we look beyond the inconvenience and see the issue from all sides? The potential is clear: we could tell not only the outsider's story, but

examine and learn about the insiders too; and we could enable a more diverse critique and enhance the potential for dialogue. We may even be able to move on from the stifling authoritarian myth of ‘no alternative’.

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