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# Challenges ‘beyond the lab’: the current social, cultural and political context for science communication

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## Introduction

In this section we summarise the implications of the current social, cultural and political context for science communication, and discuss three key ideas which are shaping science communication research and practice. The first of these is the growing political polarization apparent in anglophone countries. The second is an overview of the debate about the appropriate response of the scientific community to the recent shift in political language in the US and UK which has sought to denigrate the value of experts and expertise in political decision-making. The third development is the fragmentation of the media landscape, the reported rise in 'fake news' and the implications this has for environmental science communication.

## Growing political polarisation

As discussed above, political orientation and ideology are amongst the most significant influences on attitudes and responses to scientific evidence (Whitmarsh & Corner, 2017). It is perhaps unsurprising then that the recent fragmentation seen in electoral democracies across the Western world (the election of Donald Trump in the US, and Britain's vote to leave the European Union being two notable examples), has been accompanied by increasing tensions around communicating environmental science (and its perceived implications for policy and society).

It is important to emphasise the significance of the political turmoil that has washed through some European nations, and particularly the US, as it is likely to have repercussions for decades to come. The UK witnessed a sharp rise in hate crimes following the Brexit referendum, attributed by the UN Committee on the Elimination of Racial Discrimination to the divisive tactics of political figures who 'created and entrenched prejudices' in society (Butler, 2016). Similar effects were observed following the US presidential election (Miller & Werner-Winslow, 2016), and even in nations where right-wing populism has not (yet) shifted the balance of power (e.g. the Netherlands, France), there is a clear sense of turbulence within and between social, ethnic and political communities. Given the established correlation between economic crisis and surging far-right support (Funke et al., 2016) some have even drawn dark parallels between the still unfolding aftermath of the 2008 financial crash and the events that followed the Great Depression a century prior. The blooming of right wing extremism in the West, combined with the more widespread – albeit less directly treacherous – allure of populism thus provides an important backdrop to public engagement on almost any issue in contemporary society. This is perhaps particularly relevant to environmental and sustainability science, support for which is strongest on the left of the political spectrum.

Many environmental science topics have implications for economic and industrial activity, posing a threat to what one Swedish analysis described as the 'masculinity of industrial modernity' (Anshelm & Hultman, 2013), and events such as the March for Science and much of the work of other advocacy groups are closely linked with positively communicating about these politically contentious issues. There has been a successful campaign in the US to discredit scientific evidence which demands government regulation of industry.

Conservative think tanks have funded a countermovement against growing state intervention in economic activities from the 1960's onwards (Dunlap & McCright, 2015), with climate change as the *bête noire* of the movement (Antonio & Brulle, 2011). The conservative/liberal polarisation on environmental science is most pronounced in the US, but is also apparent in other countries with strong commitments to neoliberalism and a powerful fossil fuels industry, such as the UK, Canada and Australia (Dunlap & Jacques, 2013; Hornsey et al., 2016). The election of Donald Trump signals a wholesale shift away from environmental action in US policies, including sweeping funding cuts to the various agencies and departments – such as the Environmental Protection Agency – that comprise the US Government's environmental wing. President Trump has also promised to eliminate as much as $100 million in "wasteful climate change spending," and has begun the process of withdrawing the United States' from the United Nations' historic Paris Agreement.

To spell out why greater polarisation is a challenge for communicating effectively about environmental and sustainability science, consider the recent 'disappearance' of the climate change pages from the website of the US Environmental Protection Agency (e.g. Davenport, 2017). Because climate change is a polarised political issue, an incoming Trump administration felt able – or even obliged – to demonstrate their ideological position on climate change by literally removing references to it from official government media. As a barrier to communication, the removal of references to a topic of environmental science is hard to surpass. And the more polarised a society becomes, the more likely that expressions of ideology like this – using science as a proxy for political views – will take place. Given the important role political leadership plays in shaping public opinion on issues such as climate change (Brulle et al., 2012), these policy announcements have profound implications for the communication of scientific evidence.

## The role of scientific advocacy in a 'post-truth' era

The March for Science is a vivid illustration of the shift in dynamics that President Trump's election has triggered. Although responding to the US policy context, there were nonetheless 'satellite' marches in dozens of other nations, and hundreds of cities around the world, including four in Sweden alone. Positioned as 'the first step of a global movement to defend the vital role science plays in our health, safety, economies, and governments' (Nature supports the March for Science, 2017), the fact the demonstrations were held at all (and at the scale achieved) says something important about the anxiety felt by scientists and supporters of science. As one of the experts interviewed for this report emphasised, although the US government has not historically been a major funder of science communication activities *per se*, the clear signal sent by the Trump administration – that environmental science is not worthy of public funding – is an incredibly powerful science-communication message in itself.

*"The case for science needs to be made as part of an ambitious and strategic vision for Western democracies, which includes taking on issues such as widening social and economic inequality."*

The marches took place within the context of a long standing debate about what is an acceptable and effective level of political engagement for scientists and what is an appropriate agenda for such activities. It has been argued scientists may harm their credibility with some audiences if they align with specific policy outcomes or one political group over another (Nisbet and Markowitz, 2016, p. 4), though some research suggests climate scientists may be able to engage in certain forms of advocacy without damaging their credibility (Kotcher et al., 2017). Surveys indicate that opinion about the March for Science is polarised between Democrats and Republicans: 61% of Democrats believe the marches will increase public support for science, while only 22% of Republicans say the same (Funk & Rainie,

2017). There are also challenges in promoting overly simplistic messages about the ability of science alone to solve society's most pressing problems (Bell, 2017), in the absence of (necessary) social and political debate.

It has also been argued that it is not enough for scientists to campaign for a return to the pre-Trump status quo. Rather, events such as the March for Science must be part of a broader movement for social change (Nisbet, 2017). This will require a profound change in what it means to be a scientist – the case for science needs to be made as part of an ambitious and strategic vision for Western democracies, which includes taking on issues such as widening social and economic inequality. Addressing issues of inequality in society will mean addressing the inequalities within science, such as race and class (Bell, 2017). Environmental scientists are predominantly white (National Science Foundation, 2017) and tend to come from middle class families where high educational attainment is the norm (e.g. Department of Education and Professional Studies, 2014).


A Stand up for Science event in San Francisco, US. Photo: James Coleman

An overt advocacy role for scientists may not be the break with tradition it first appears. Nisbet and Markowitz cite the work of Donner (2014), who argues there is no single "correct" role for a scientist (Nisbet & Markowitz, 2016, p.5). One expert in science communication interviewed for this report suggested that any scientist who describes themselves as an 'environmental scientist' will be seen by some members of the public as already compromised and partisan by virtue of the work they do; in which case environmental scientists may well have nothing to lose by adopting an advocacy role that society has anyway accorded them. And indeed, high profile advocacy such as the March for Science is only an extension of what many scientists are already doing. For example, scientists are increasingly communicating directly to the public through various social media channels, and these communications invariably involve advocacy for some position, view, or outcome (Pearce et al., 2014). In these situations, rather than pretending to be objective, the scientist should be 'explicit about the combination of values and science that drives their views' (Schmidt, 2015). Other commentators have also questioned whether it is ever possible to communicate an issue such as climate change in an apolitical way (Rapley et al., 2014).

Accepting that scientists are inevitably advocates for their work helps humanise them. Bringing science out of its academic bubble and into the public discourse allows the people in lab coats and behind data sets to be seen and heard directly; a vital step for rebuilding trust and understanding across society (Corner & van Eck, 2014). Indeed, the March for Science website notes that science is primarily a social process, an 'enterprise carried out by people... not an abstract process that happens independent of culture and community.

## 'Fake news' in a changing media landscape

'Fake news' is a term that has gained traction following Donald Trump's election and the UK vote to leave the EU. It refers to a belief amongst some commentators that the growth of internet publications and social media platforms has engendered the spread of unsubstantiated rumours and speculation masquerading as facts. This is seen as a departure from the high standards of traditional mainstream journalism. This characterisation has been questioned – whilst 'fake news' undoubtedly exists it is not new nor is it only to be found on the internet (Thorrington, 2017). MMR (measles, mumps, rubella) scare stories were common in the late 1990s and early 2000s in the UK, before social media platforms such as Facebook and Twitter were being used. Media coverage reporting a link between the MMR vaccine and autism spectrum disorder led to a decline in MMR vaccination coverage in subsequent years, and an increase in measles cases in the UK and many other countries around the world (Thorrington, 2017).

Mainstream media organisations have been cutting back on science and environmental journalism over the last decade, with a consequent decline in the amount of coverage these topics receive (Whibey & Ward, 2016). At the same time, the digital sphere is becoming an increasingly relevant source of science news for the public, though figures vary by country. A 2015 poll conducted by the Associated Press and other organisations found that more than half of American adults identified internet search engines as their top source of information about science and technology, just over 40% cited Facebook, and more than 30% conversations with friends and family (Brossard, 2016). By comparison a 2014 UK survey reported that 59% of people listed television as one of their two most regular sources of information on science (with 42% specifying TV news programmes), 23% newspapers, and 15% online newspapers or news websites. The NASEM report (2017) cites research from Su et al. (2015) that indicates the move towards a reliance on online sources is especially pronounced among younger and scientifically literate audiences.

*"The old model of science communication - facts and the 'truth' delivered by scientists in lab coats through the medium of large news organisations, and echoed uncritically by mainstream political parties - has come to an end."*

The 2016 Digital News Report survey (Newman et al., 2016) surveyed digital news consumption across 26 countries and found 46% of all respondents were either very or extremely interested in environment news. This compares to 45% interested or very interested in politics and and 48% interested or very interested in science and technology. Topics such as sports and arts had figures of 33% and 32% respectively (Painter et al., 2016). Out of the 26 countries surveyed interest in environment news is lowest in the UK and Scandinavian countries. Another interesting statistic to emerge from the survey was that well over half (58%) of those who identified themselves as either "very left-wing" or "fairly left-wing" are highly interested in news about the environment,

compared to just 37% of those who identify as either "very right-wing" or "fairly right-wing" (Painter et al., 2016). This polarization is particularly acute in the UK and US – in the US, less than one in five (18%) of those on the right are highly interested in environment news, compared to nearly two thirds (64%) of those on the left (Painter et al., 2016).

It has been argued that anti-science ideology is endemic on-line (Ladyman & Lewandowsky, 2017) and there are surveys revealing public mistrust in the media's science coverage. In one survey only 28% of respondents thought that the statement 'Journalists check the reliability of scientific research findings before they write about them' was always or mostly true, and 71% believed that the media sensationalises science (IPSOS MORI, 2014). Given the emerging evidence that people communicate about issues such as climate change on Twitter within bubbles of like minded people (Williams et al., 2015), it seems likely social media platforms have a very real potential for deepening polarisation on environmental science issues. However, this does not necessarily mean the balanced coverage associated with legacy media is always to be welcomed. In the case of climate change, giving airtime to opposing views in order to provide 'balance' (and thus creating the impression of equally weighted opposing sides in scientific thinking) undermines public understanding of the majority or consensus view (University of Oxford, 2017). This may in part be a reflection of journalists' preferences for covering political conflicts around science, in order to tell a dramatic story (Whibey & Ward, 2016).

In summary, the old model of science communication – facts and the 'truth' delivered by scientists in lab coats through the medium of large news organisations, and echoed uncritically by mainstream political parties – has come to an end. Instead, the boundaries between the social and the scientific, between researcher and the public, are becoming increasingly porous, fuzzy and indeterminate – with all the (positive and negative) implications this has for public engagement on environmental and sustainability science.

## Full report sections



Access the full report at
https://climateoutreach.org/resources/communicating-environmental-sustainability-science

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