

Chapter 9 : Is Emphasising Consensus In Climate Science Helpful For Policymaking?

Summary of the debate

This debate concerns the public and policy value of communicating the clear scientific consensus about the human role in causing climate change. **John Cook** argues for the importance of frequent and repeated public communication of the overwhelming scientific consensus that human activities cause climate change. Public understanding of the extent of this consensus would seem to act as an important 'gateway belief', a necessary precursor belief for people to recognise the need for climate policies. **Warren Pearce** challenges the significance for policymaking of the gateway belief model, arguing that a pre-occupation with consensus-messaging plays into the hands of climate change critics by keeping the focus of public discussion on climate science rather than on human values and policy preferences.

YES : Failure to communicate consensus leaves the public vulnerable to misinformation

John Cook (ORCID ID: [0000-0001-8488-6766](https://orcid.org/0000-0001-8488-6766))

Abstract

In their campaign to delay policies that mitigate climate change, lobbyists and industry advocates--especially in the United States and some other Anglophone countries--have prioritized casting doubt on the scientific consensus that humans cause global warming. The efficacy of this ongoing misinformation campaign is evident by the fact that public perception of scientific consensus is currently low--only 13% of Americans recognise that the consensus is over 90%. This strategy was informed by lobbyists' market research in the 1990s, subsequently replicated by a growing body of research confirming the Gateway Belief Model. This Model finds that communicating the scientific consensus on climate change increased public beliefs about climate change and the need for policy. To fail to address misinformation about this consensus is to leave the public vulnerable to harmful misinformation. While consensus messaging is not a magic bullet that will single-handedly solve policy gridlock, public misconceptions about the scientific consensus on climate change are a roadblock delaying policy progress.

NO : Because consensus is narrow and human values are important

Warren Pearce (ORCID ID : 0000-0001-6884-3854)

Abstract

This essay challenges the established view that emphasising the scientific consensus on human-caused climate change is a necessary precursor to effective policymaking. I argue that three underlying assumptions of this established view are fundamentally flawed. The first is that the content of the scientific consensus—i.e., that humans cause global warming—is important. Second, is that public awareness of the scientific consensus is consequential. The third false assumption is that acceptance of the consensus provides a necessary precursor for policy progress on climate change. I conclude by reflecting on the need to move away from consensus messaging through localising climate change engagement and by developing a broader understanding of the relationship between climate science and climate politics.

YES : Failure to communicate consensus leaves the public vulnerable to misinformation

John Cook

Introduction

The first message that the American public heard about the scientific consensus on climate change was that there was no consensus. In the early 1990s, Western Fuels Association spent over half a million dollars on a marketing campaign with the purpose to 'reposition global warming as theory (not fact)'. The aim of this campaign was to convince the American public that scientists had yet to form a consensus on whether global warming was happening and human-caused (Oreskes & Conway, 2010).

In 1995, 79 scientists published the Leipzig Declaration, claiming that "[i]t has become increasingly clear that... there does not exist today a general scientific consensus about the importance of greenhouse warming from rising levels of carbon dioxide" (Powell, 2011:63). Two years later, in 1997, the Competitive Enterprise Institute created the 'Cooler Heads Coalition', a group of spokespeople disseminating talking points such as "Many scientists are sceptical of climate change theory" (Powell, 2011:104). And in 1998, the Oregon Institute of Science and Medicine distributed a petition of tens of thousands of dissenting scientists (titled 'the Global Warming Petition Project') with the purpose of casting doubt on the scientific consensus (Readfearn, 2013).

Over a decade after such industry groups and conservative think-tanks had begun misinformation campaigns against the consensus, scientists began to quantify and communicate the degree of scientific agreement that human activities cause global warming

(hereafter referred to as ‘the consensus’). The first study found no dissenting papers in ‘global climate change’ research published from 1993 to 2003 (Oreskes, 2004). Subsequent studies have found 97% agreement about anthropogenic global warming (AGW) among published climate scientists (Doran & Zimmerman, 2009) and relevant climate papers (Cook et al., 2013). A synthesis of consensus studies found that among published climate scientists, the level of agreement on human-caused global warming ranged from 90 to 100% with multiple studies converging around 97% (Cook et al., 2016).

Despite the robust body of research establishing overwhelming consensus, misinformation that emphasises scientific *disagreement* about climate change continues to be prolific and persistent (Figure 9.1). An analysis of syndicated conservative columns about climate change from 2007 to 2010 found that the most common argument was ‘there is no scientific consensus’ (Elsasser & Dunlap, 2013). The most shared climate change-related article during the 2016 USA election was a conspiratorial article promoting the Global Warming Petition Project (Readfearn, 2016). In 2017, the Heartland Institute mailed copies of the book *‘Why Scientists Disagree About Global Warming’* to 25,000 science teachers across the USA (Worth, 2017). In late 2018, President Trump argued that on climate change “... you have scientists on both sides of the issue” (Associated Press, 2018). Why has so much money and effort gone into undermining the scientific consensus on climate change?

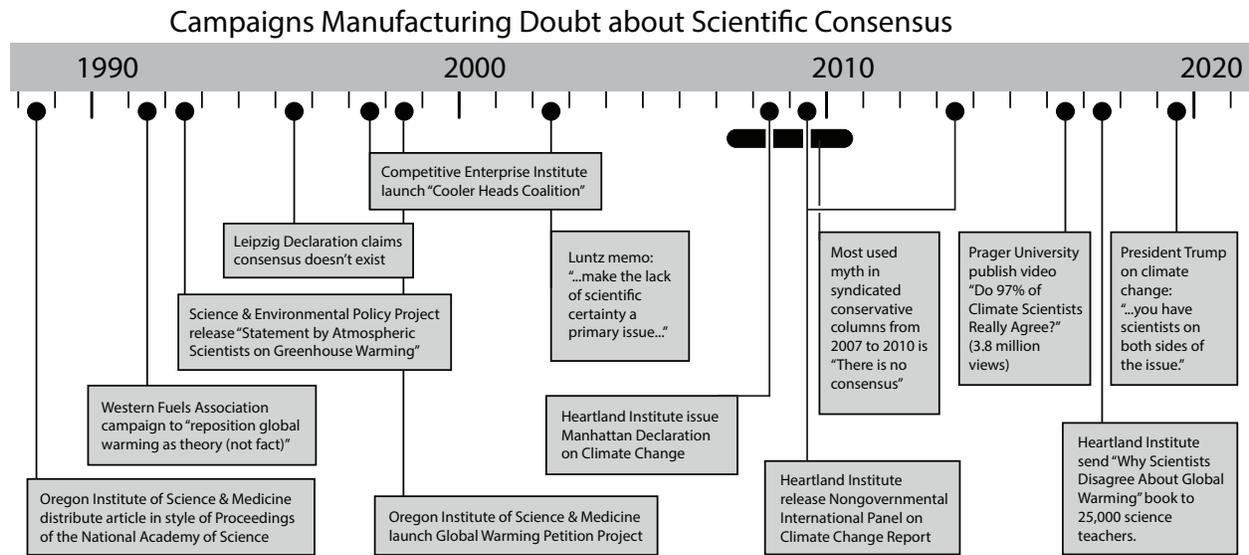


Figure 9.1: Timeline of selected misinformation campaigns targeting the scientific consensus on climate change

The Empirical Consensus on Consensus Messaging

Opponents of climate action have shown such an intense focus on discrediting the consensus because this form of misinformation is effective in delaying climate policy. Early industry and political market research found that anti-consensus messaging decreased public support for climate policy. A 1998 report by the American Petroleum Institute concluded that informing people that some scientists did not believe humans were causing global warming made them more likely to oppose the 1997 Kyoto Protocol. Similarly, a strategy memo in 2002 by political strategist Frank Luntz offered the following advice to Republican politicians engaged in public debate about climate policy:

Voters believe that there is no consensus about global warming in the scientific community. Should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly. Therefore, you need to

continue to make the lack of scientific certainty a primary issue in the debate (Luntz, 2002).

Market research from political strategists and by industry bodies into the influence of consensus misinformation have been subsequently confirmed by social science research. Misinformation citing the Global Warming Petition Project has been shown in the United States to lower perceived consensus and climate policy support amongst the public, as well as confound belief in accurate climate information (Cook et al., 2017; van der Linden et al., 2017a). Testing of a range of misinforming statements about climate change found that an attack on scientific consensus was the most effective in reducing public acceptance of climate change (van der Linden et al., 2017a). Communicating even modest amounts of dissent amongst experts has been shown to be effective in reducing policy support for environmental policy (Aklin & Urpelainen, 2014).

Why is misinformation targeting the scientific consensus on climate change so potent? When it comes to complicated scientific topics such as climate change, people tend to rely on heuristics such as expert opinion. When people think experts disagree about human-caused global warming, they are less likely to think global warming is happening or that it is human-caused. Conversely, when people become aware of the scientific consensus, they also become more accepting of human-caused global warming. This dynamic has been captured by the Gateway Belief Model (GBM), which proposes that a shift in perceived extent of scientific consensus causes a shift in attitudes and that this subsequently changes support for public action.

The importance of perceived consensus and the efficacy of consensus messaging has been demonstrated in a large and growing number of correlational and experimental studies. Table 9.1 summarizes research into consensus messaging or associations between public perception of consensus and other climate attitudes. While there are many different beliefs and attitudes about climate change, survey analysis has shown that the five most important beliefs are that global warming is happening, it’s human-caused, the impacts are serious, the experts agree on these first three points and that the problem can be solved. Public perception about expert consensus has been found in multiple studies to be a ‘gateway belief’ influencing the other four key climate beliefs. The studies listed in Table 9.1 have been categorized as either correlational, using survey data to demonstrate associations between perceived consensus and other climate attitudes, or else experimental, employing randomized experiments to establish causal links between consensus messaging and beliefs about climate change or support for climate policy.

	Author (year)	Study type	Country	Finding	Support
1	Malka et al., (2009)	Correlational	USA	Perceived consensus mediates association of knowledge with climate concern among Democrats and Independents who trust scientists.	Y
2	Ding et al., (2011)	Correlational	USA	Low perceived consensus is associated with lower climate beliefs and lower policy support.	Y
3	Lewandowsky et al., (2013)	Experimental	Australia	Consensus messaging increases acceptance of AGW.	Y
4	Rolfe-Redding et al., (2011)	Correlational	USA	Perceived consensus predicts climate beliefs and attitudes among Republicans.	Y

5	McCright et al., (2013)	Correlational	USA	Perceived consensus affects policy support, mediated by global warming beliefs.	Y
6	Aklin & Urpelainen (2014)	Experimental	USA	Modest amounts of scientific dissent undermine public support for environmental policy.	Y
7	Bolsen et al., (2014)	Experimental	USA	Consensus messaging reduces partisan differences on behavioral intent and belief in AGW.	Y
8	van der Linden et al., (2014)	Experimental	USA	Consensus messaging (in pie-chart form) reduces partisan difference in perceived consensus.	Y
9	Myers et al., (2015)	Experimental	USA	Consensus messaging is equally effective among liberals and conservatives.	Y
10	van der Linden et al., (2015)	Experimental	USA	Increasing perceived consensus is significantly and causally associated with climate beliefs, which predicts increased policy support.	Y
11	Cook & Lewandowsky (2016)	Experimental	Australia USA	Consensus messaging reduces partisan differences on belief in AGW for Australians. It increases partisan differences for Americans but still have an overall positive effect on belief in AGW.	Y
12	Deryugina & Shurchkov (2016)	Experimental	USA	Consensus messaging increases acceptance of climate change and human causation.	Y
13	Hamilton (2016)	Correlational	USA	Acceptance of AGW correlates with perceived consensus.	Y
14	Hornsey et al., (2016)	Correlational	USA, UK, Australia, 30 European countries	Perceived consensus is a strong predictor of belief in climate change (stronger than cultural cognition).	Y
15	Schuldt & Pearson (2016)	Correlational	USA	Perceived consensus is associated with mitigation support for both whites and non-whites.	Y
16	Brewer & McKnight (2017)	Experimental	USA	Comedy segment about consensus has strongest effect on belief in climate change among participants with low interest in the environment.	Y

17	Cook et al., (2017)	Experimental	USA	Consensus messaging neutralizes polarizing influence of misinformation.	Y
18	Dixon et al., (2017)	Experimental	USA	Consensus messaging does not produce significant effects (including no backfire effect among conservatives).	Neutral
19	van der Linden et al., (2017a)	Experimental	USA	Consensus messaging reduces partisan differences on perceived consensus.	Y
20	Bolsen & Druckman (2018a)	Experimental	USA	Consensus messaging backfires with conspiracy theorists, but consensus messaging coupled with belief validation increases acceptance of AGW among conspiracy theorists.	Neutral
21	Bolsen & Druckman (2018b)	Experimental	USA	Consensus message increases perceived consensus with indirect effect on belief in AGW and policy support.	Y
22	Harris et al., (2018)	Experimental	UK	Consensus messaging increases perceived consensus and climate beliefs.	Y
23	Kerr & Wilson (2018a)	Correlational	New Zealand	Perceived consensus does not predict later personal climate beliefs.	N
24	Kerr & Wilson (2018b)	Experimental	New Zealand	Consensus messaging increases perceived consensus with indirect effect on belief in AGW.	Y
25	Kobayashi (2018)	Correlational, Experimental	Japan	Perceived consensus predicts climate beliefs. Consensus messaging increases climate beliefs through perceived consensus.	Y
26	Tom (2018)	Correlational	USA	Misconception about consensus is one of the most important factors in predicting scientifically deviant beliefs.	Y
27	van der Linden et al., (2018b)	Correlational	USA	Perceived consensus did predict later personal climate beliefs.	Y
28	Zhang et al., (2018)	Experimental	USA	Consensus messaging is most effective in conservative parts of the USA.	Y
29	Goldberg (2019)	Experimental	USA	Consensus messaging reduces partisan differences on perceived consensus.	Y

30	Ma et al., (2019)	Experimental		Consensus messaging produces reactance among conservative dismissives.	N
31	van der Linden et al., (2019)	Experimental	USA	Consensus messaging increased climate beliefs and attitudes, which were associated with increases in support for action. Conservatives showed greater belief updates.	Y

Table 9.1: Studies into perceived consensus/consensus messaging/GBM with respect to climate change ('Support' column indicates whether or not the study supports GBM or consensus messaging)

Across this substantial and growing body of research, there is diversity in the focus of each analysis. Some studies examine the influence of perceived consensus on beliefs about climate change, while others also look at the influence on policy support. Nevertheless, the consistent picture emerging is that accurate communication of the scientific consensus is effective in increasing public acceptance of human-caused climate change, which positively influences policy support. The overwhelming majority of studies are consistent with GBM. Further, most studies that measure political ideology find that consensus messaging has a depolarizing effect, producing greater belief change among political conservatives. While the studies are heavily skewed towards USA citizens, support for GBM has been replicated in a number of countries (e.g., Australia, Japan, New Zealand, UK, USA), while Hornsey et al. (2016) features a meta-analysis of data from over 30 countries. Figure 9.2 demonstrates that the overwhelming majority of published research studying perceived consensus or consensus messaging is either consistent with the Gateway Belief Model or else supports the efficacy of consensus messaging.

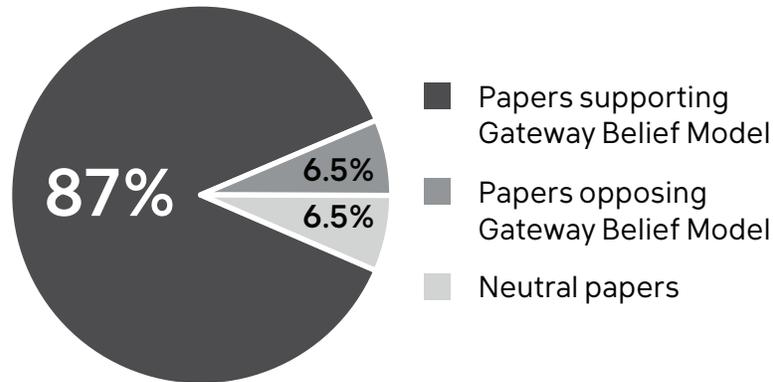


Figure 9.2: Consensus on consensus messaging: the proportions of studies applied to climate change (n=34) supporting or opposing consensus messaging/Gateway Belief Model.

The Gateway Belief Model has also been replicated in other scientific topics such as vaccination (van der Linden et al., 2015), genetically modified food (Kerr & Wilson, 2018b), young-Earth creationism (Tom, 2018) and less politically loaded topics such as water pollution (Dunwoody & Kohl, 2017). The strong evidence supporting consensus messaging on the issue of climate change, plus its generalizability to different countries and other scientific topics, powerfully challenges the assertion that GBM is based on scant empirical evidence (Pearce et al., 2017a).

Addressing Objections to Consensus Messaging

Despite the strengthening empirical basis establishing the efficacy of consensus messaging, and the well-documented campaigns against the consensus waged by opponents of climate policy, some commentators argue that scientists should refrain from emphasising the scientific consensus on climate change. While a variety of arguments have been deployed against

consensus messaging, these arguments show little coherence. For example, some argue that consensus messaging does not work (Kahan, 2015), while also arguing that consensus messaging has been successful and is no longer necessary (Kahan, 2016). Both arguments are refuted by a battery of nationally representative surveys of the USA public, finding that the public perception of the scientific consensus has been steadily increasing over the last decade (see Figure 9.3; Cook et al., 2018). Nevertheless, there is still a significant ‘consensus gap’ between the American public’s perception of how strong the consensus is and the ‘97% consensus’ evident from the studies cited earlier. Recent surveys have found that only 13% of Americans were aware that the actual scientific consensus is over 90%.

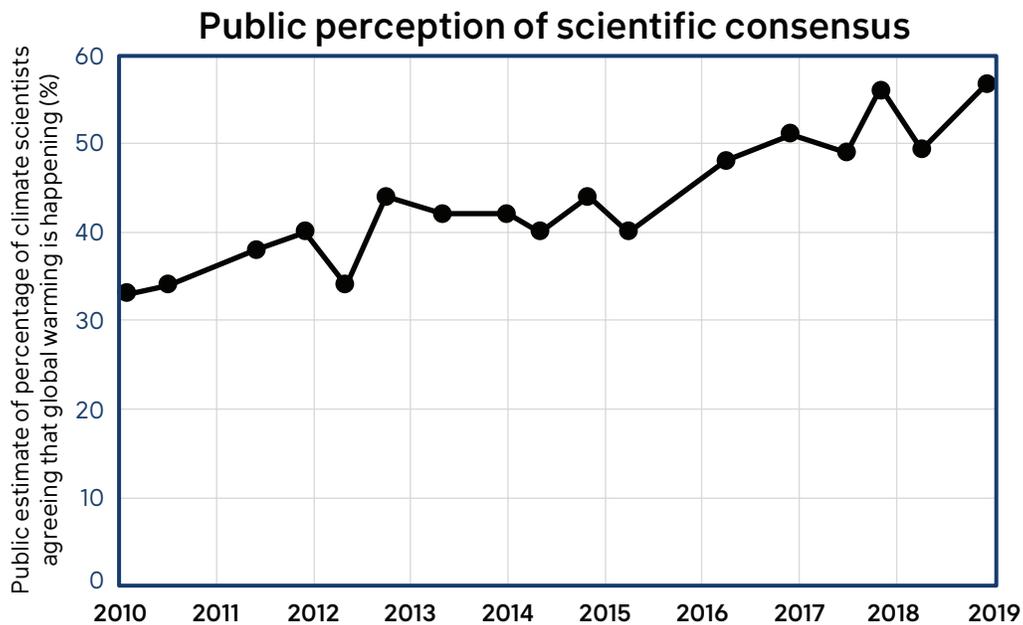


Figure 9.3: Public estimate of the percentage of climate scientists agreeing that humans are causing global warming, derived from USA national representative surveys (Cook et al., 2018)

Another argument against consensus messaging is that it detracts from policy discussion (Pearce et al., 2015; Pearce et al., 2017a). However, constructing a choice between consensus messaging and political deliberations is a false dichotomy. Consensus messaging *complements* rather than competes with policy discussion (Cook, 2017; Cook et al., 2018). Further, Pearce et al. (2017a) assert that consensus messaging is not a magic bullet to policy progress. However, this argues against a straw man—no one asserts that an accurate perception of consensus or indeed knowledge of any single scientific fact is a turnkey for policy progress. On the contrary, communication experts are in full agreement that consensus messaging is not a magic bullet (Maibach & van der Linden, 2016). The purpose of consensus messaging is not to resolve policy questions. Communicating scientific consensus on climate change simply establishes humanity's role in causing warming—with the implication that we need to mitigate our actions, as demonstrated in the empirical results listed in Table 9.1. Closing the consensus gap removes a roadblock to policy progress.

Pearce et al. (2015) argue that consensus messaging places scientists in the line of fire from opponents of climate action. As Figure 9.1 demonstrates, the status of the scientific consensus has been under attack from political adversaries since the early 1990s, over a decade before the first study quantifying the consensus. Consensus messaging did not precipitate attacks on consensus. Self-censorship will not deter opponents of climate action from attacking the scientific consensus and attempting to undermine public trust in climate science. Indeed, the idea that self-censoring will protect scientists from denialist attacks is symptomatic of a broader malaise afflicting the scientific community—a reluctance to properly engage with the issue of science denial and misinformation. Refusing to address the pernicious impacts of

misinformation is dangerous and harmful. Misinformation fosters misconceptions (Ranney & Clark, 2016), reduces policy support (van der Linden et al., 2017a), cancels out accurate information (McCright et al., 2016) and polarizes the public (Cook, Lewandowsky, & Ecker, 2017). Misinformation also has a chilling effect on the scientific community, influencing how they report their scientific results (Lewandowsky et al., 2015).

Conclusion

In order to recognise why it is important to communicate the scientific consensus that humans cause global warming, and why it is dangerous to not do so, one needs to consider the purpose of the misinformation that is targeting the consensus. Opponents of climate action target the consensus because this strategy is successful in inhibiting policy discussion—through fostering misconceptions about expert opinion and thereby decreasing public support for climate action because the public believes that there is still a scientific debate. The consensus gap is a roadblock that is delaying climate policy development and implementation, or a so-called ‘lever for inaction’ (Cook et al., 2018). Consensus messaging removes this roadblock. Rather than detract from deliberations about climate policy, consensus messaging in fact enables such discussion.

Consequently, a clear-eyed, evidence-based response to misinformation is required. Science denial is a complex phenomenon that requires multidisciplinary solutions. Scientific messages (including consensus information) can be safely communicated without fear of being neutralized or politicized by misinformation if recipients are inoculated with explanations of the misleading techniques employed by denialists (Cook et al., 2017; van der Linden et al., 2017a).

To remain silent about the extent of the scientific consensus and leave consensus misinformation unopposed will result in deepening public confusion about climate change, thereby eroding public support for climate action.

More broadly, it is unfortunate that simplistic false dichotomies abound in discussions of science communication. One such example, tangentially related to this issue, is the 'debate' between the information deficit model (which proposes that public scepticism about climate change is due to a lack of information) and cultural cognition (which proposes that risk perceptions are informed by peoples' values; Kahan & Carpenter, 2017). Both theories contribute useful insights into how to effectively communicate climate change. A constructive approach integrates elements from both models across a variety of social and cognitive contexts (van der Linden et al., 2017b). Similarly, the array of communication strategies available to scientists and communicators should not be reduced to a single approach. Effectively reaching a diverse audience requires a holistic, nuanced strategy incorporating multiple, complementary frames. Climate communication is not a zero-sum game.

Arguments that discourage scientists and social scientists from communicating the consensus play into the hands of lobbyists and politicians who seek to delay climate policy. Failure to communicate the scientific consensus leaves the public vulnerable to harmful misinformation, not only eroding public support for climate policy, but also decreasing public levels of climate literacy (Maibach & van der Linden, 2016). By ignoring the growing body of empirical research supporting the efficacy of consensus messaging about human caused global warming and reducing climate communication issues to simplistic false dichotomies, opponents

of consensus messaging inadvertently contribute to the very outcome they seek to avoid—
reduced public support for climate policies.

NO : Because consensus is narrow and human values are important

Warren Pearce

Introduction

There is a scientific consensus that human activity is responsible for most of the observed rise in global temperature since pre-industrial times--hereafter referred to as the climate consensus. Successive studies have attempted to quantify this consensus, typically finding agreement in over 90% of academic papers or scientists surveyed, with the figure of '97%' being the most widely-quoted (Pearce et al., 2017a). Some science communication researchers argue that public knowledge of these findings, particularly in the USA, has been suppressed by the actions of climate policy opponents who have criticised and cast doubt upon climate science. By countering such misinformation, science communicators seek to increase public awareness of the climate consensus and thereby increase public support for climate policy. Notable efforts in this regard include *'The Consensus Project'*, which places great focus on the 97% figure and has successfully inculcated the idea of climate consensus in popular culture--for example, in TV programmes such as *The John Oliver Show* and in politics with its inclusion in the Obama Administration's climate change communicationⁱ. Some climate change communication campaigns, again notably in the USA, also seek to 'call out' politicians who cast doubt on the consensus--for example, through Climate Nexus's daily *'Denier Roundup'* newsletter section.

In short, the maintenance and defence of the climate consensus is an important concept running through the heart of how climate change has been framed in the last three decades. This framing rests on three assumptions: the content of the climate consensus is important;

public awareness of the climate consensus is consequential; acceptance of the climate consensus provides a necessary precursor for political progress.

I argue here that contrary to this established framing of climate change, all three of these assumptions are fundamentally flawed:

1. The content of the climate consensus is remarkably narrow and is insignificant relative to the most crucial issues within climate change;
2. Knowledge of the climate consensus is a poor way to measure public attitudes towards climate change;
3. Convergence of interests, rather than agreement over technical knowledge, is the most important pre-requisite for political co-operation.

I summarise the evidence against emphasising climate consensus in each of these three domains, before offering some concluding reflections on the relationship between science and politics, and options for deeper democratic engagement with climate change.

The Climate Consensus is Strong, But Narrow

There is little or no crossover in climate change between the issues where scientific consensus exists and the issues that matter most for informing societal responses. The widely messaged climate consensus does not denote agreement about matters of importance, only that the subject of the consensus—that humans cause global warming—is narrow enough to gain agreement upon. The truth is that the climate consensus relates to only a small subset of the broad sweep of issues assessed and reported on by the IPCC. The consensus tells us nothing about the future of climate change, such as human and non-human impacts, policy options or

the range of human values and cultures which interact with local climates. In matters such as these, there is little sign of scientific (or broader public, sometimes called social) consensus. For example, there is ongoing disagreement regarding the volume of greenhouse gases that can be emitted before the Paris Agreement target of 1.5°C or 2°C of warming is breached, about the economic value that is attributed to future climate-related losses and about the contribution of Antarctic ice melt to sea level rise. The important issue is not about 'which knowledge are we the most certain about', but rather 'which knowledge matters the most'.

This point is important for three reasons. First, by focusing on those areas of knowledge that matter most, we can better discuss and delineate societal responses to climate change. These responses necessarily entwine scientific knowledge with normative views about the kind of world in which we want to live in the future. One long-standing example has its origins in climate economics, where debates have raged over the appropriate discount rates to be applied to future impacts (see **Chapter 5**). While operating primarily at a technical level within economics, this debate has opened up important normative issues over how we imagine future uncertainties about climate change and the value we ascribe to the world of our grandchildren compared to the world of today. The question of discount rates also highlights a key dynamic within climate change debates: the vast timescales involved do not sit easily with our 'common-sense' horizons of understanding (Jasanoff, 2010). Exploring these issues is crucial to advancing public engagement with climate change and determining political responses. Yet it is crucial to note that with the question of discount rates, as in other key climate debates, *no objective answer exists and no scientific consensus is likely, or even possible*. This makes such value-based questions no less important to discuss. In fact, it makes them more important to be

exposed to debate.

Second, keeping the spotlight trained on one narrow part of physical science encourages further public debate regarding the science, rather than about how to respond to climate change. Starting with science provides a barrier to public deliberation on climate change. It grounds debates in technical details rather than beginning from a values-based discussion about the different kinds of futures we can imagine for our societies, both utopian and dystopian. Presenting climate policy as a *fait accompli* flowing from a scientific consensus encourages critics to engage in relatively inconsequential technical exchanges, rather than focus on questions of values and politics. Not only does this restrict broader public engagement, it also places science in the line of political fire. This exposes scientific knowledge to political attacks that it is ill-equipped to resist (Pearce et al., 2017a,b).

Third, the veneration of climate consensus sets unreasonably high expectations regarding what scientific knowledge can offer to societies, implying that this 'gold standard' of agreement is the benchmark by which scientific inputs into policy should be measured in the future. Achieving durable and robust consensus assessments, such as those undertaken by the IPCC, requires huge investments of resources that have considerable opportunity cost. While consensus statements may please those who value the erasure of ambiguity--such as some climate science communicators--such statements also likely encourage the exclusion of other important, but less certain, scientific findings. It presents science as 'speaking with one voice' rather than a more accurate representation of a diverse community of scientists, with different ideas and disciplinary approaches.

Knowledge of Climate Consensus is a Poor Measure of Public Attitudes

Since the 1970s, surveys have sought to discover people's knowledge of scientific facts. A perceived decline in public trust in science in the 1980s and 1990s brought about a renewed effort to boost the public understanding of science, seeking to fill perceived gaps in knowledge. However, it soon became clear that starting public engagement from an assumption of public ignorance was a failed strategy (Wilsdon & Willis, 2004). This 'deficit model' approach to science communication did nothing to arrest a series of public science controversies including 'mad cow disease' (bovine spongiform encephalopath), the measles mumps rubella vaccine and genetically modified crops. This prompted a shift in public engagement during the 2000s from 'deficit to dialogue' as it became clear that simply increasing or accelerating the flow of scientific information fell way short of addressing the disagreements over values and assumptions that so often underpin scientific controversies (Trench, 2008).

Despite these well-documented trends in public engagement and science communication, climate consensus communicators appear stuck in the 1990s, assuming that the public are ignorant and require education to make them more amenable to climate policy proposals. There is copious literature demonstrating that political values and identities are a key driver of attitudes to climate change, particularly in the USA (for example, Kahan et al., 2011). While there is limited evidence that informing USA conservatives about the scientific consensus may have a small effect in increasing support for climate policy, this evidence comes mostly from lab-based studies in controlled conditions. In the real world, citizens constantly come across messages which could complicate or contradict a bald consensus message, especially if they rely on media sources that are aligned with their own political identity.

Even if one did believe that science communicators should prioritise deficit over dialogue, the evidence from survey data suggests that there is significant public understanding of, and concern about, climate change. There is also evidence of support for a range of policy measures aimed at addressing the issue. Even in the USA, the country where there is perhaps the greatest scepticism about climate science, opinion polling from 2017 suggests a clear majority position that climate change is real, personally important and worrisome (Pearce et al., 2017a). This is despite only 13% of Americans knowing that the scientific consensus on human-caused global warming is endorsed by over 90% of climate scientists. Survey data provides no credible evidence that a deficit of public knowledge regarding scientific consensus holds back public knowledge and concern about climate change.

Social media studies are also starting to contribute to understanding in this area (see **Chapter 15**). One study shows that local temperature anomalies affect the rate of tweets posted about climate change (Kirilenko et al., 2015). This suggests that, whether or not such anomalies can be scientifically linked to human activities, the idea of climate change has become well-embedded in societies and is frequently discussed on the occasion of unusually warm or cold days. In short, there is good evidence that climate change is a widely known and concerning phenomenon amongst the public. Choosing instead to focus on the size of the ‘consensus gap’ as a measure of public understanding is obtuse at best. It is largely irrelevant to the much bigger questions concerning the political responses to climate change.

Convergence of Interests, not Technical Agreement, is the Precursor for Policymaking

To understand why establishing a narrowly drawn climate consensus makes a poor basis for

policymaking, we can turn to the academic literature on evidence-based policymaking. The relationship between the production of scientific knowledge, and its use as evidence for policymaking, is often assumed to be linear. That is, once scientific knowledge is accepted as 'fact' then politicians and policy-makers can move on to the next stage of responding to that fact. This 'linear model' of science into policy has more to do with ideals of how policymaking *should* work, rather than looking at the reality of how policymaking *does* work.

One way to think about this is in terms of politicians' *supply and demand* for scientific knowledge (Cairney, 2016). In the linear model, the focus is on the supply of scientific advice and the desire to develop the strongest, most robust example of that advice possible. For climate change, this has often been expressed through efforts to forge scientific consensus, an ever-present aim of the IPCC since its first report in 1990. Under such a supply-side model, scientific experts such as those shaping the IPCC are granted a primary role in problem definition. While we now take for granted that climate change is a global problem with global solutions, up until the late 1980s environmental problems linked to carbon dioxide emissions were typically framed as *local* in character (Miller, 2004). The shift to considering climate in terms of a *global* system has largely been driven by the scientific community, strongly influenced by the emergence of global climate models. This development also aided the building of the scientific consensus, which rests heavily on the calculation of a single figure for average global temperature change.

This change in problem definition from local to global has been *supplied* by scientists, but was not necessarily *demand*ed by politicians. The latter have unsurprisingly found it challenging to reach international, implementable agreements to reduce greenhouse gas

emissions when their political influence remains focused on nation-states (see **Chapter 12**). A more realistic view of policymaking is through the 'demand-side'. Politicians have multiple issues that they want to consider and address based on the policy preferences and underlying values upon which they were elected to office (see **Chapter 1**). These are the issues that politicians will seek evidence for, not those issues about which there happens to be the greatest scientific consensus.

This does not mean that political progress in climate change is impossible. It just means that it does not need to be rooted in the climate consensus. For example, in late 2018 the Sunrise Movement were very successful in raising climate change up the political agenda in the United States, leading many Democrat presidential candidates to back the 'Green New Deal' policy programme. A key narrative underpinning the Movement was that only 12 years remained to address climate change, originating from a media report of the IPCC Special Report on 1.5°C (Watts, 2018). Despite its scientific origins, the '12 years narrative' has attracted a lot of criticism from climate scientists, who have described it as a misleading representation of the IPCC report and an unhelpful framing. Yet despite this overt *dissensus* about the technical nature of the claim, it has proved extraordinarily effective at provoking new political conversations about climate change between a broad array of actors in American civil society.

Contrast this with the communication efforts made by the Obama Administration, who placed the climate consensus message at the heart of their communication campaign. They used it as a means to denounce Republican politicians who had dismissed the reality of the climate consensus. Such dismissals of science may be frustrating, but should not be assigned unwarranted importance by climate policy advocates. Consensus over particular facts is *not* a

requirement for political co-operation; rather it is the *convergence of interests* that is essential (Rescher, 1995). Such interests can converge from unlikely places. For example, Republican Governor of Texas Rick Perry (later Secretary of State for Energy) has never accepted the climate consensus and yet heavily promoted wind power generation while in office. In the UK, researchers have shown how reframing climate change around nature conservation or national pride can build conservative support for climate policy (Pearce et al., 2017a; Whitmarsh & Corner, 2017).

Conclusion

Writing in 1979, the influential scholar of knowledge and society Carol Weiss noted that much research that gains wide currency is oversimplified or inadequate. This leads not to the enlightenment of societies, but to their 'endarkenment' (Weiss, 1979). Four decades on, the promulgation of the climate consensus is a prime example of this enduring malaise. Not because the scientific consensus about the human causes of climate change is wrong, but because it splits the issue of climate change asunder from its local, human context. New, localized forms of public policy dialogue are emerging, particularly around issues such as air pollution. This is a local environmental issue which represents an important policy area where interests can converge with the emissions reduction aims of climate policy. The UK's My2050 engagement projectⁱⁱ invited citizens to explore the trade-offs inherent in climate policy and to submit their own ideas for the future mix of energy generation. The ability to reflect on such trade-offs moves beyond the technical question of different energy technologies' carbon emissions to include fundamental questions about the values that underpin public energy choices and what people do and do not value about the world they live in.

For anyone talking about climate change in the public sphere, the choice is this: is your priority the lionisation of scientific knowledge as the basis for political action; or is it nurturing fertile ground for political co-operation? In an ideal world, one might wish these to be one and the same thing. Sadly, we do not live in such a world. If one thinks the most important challenge is to force all unwilling politicians and resistant publics to accept the framing and content of scientific assessment reports, then that is one choice. I suggest a different path: setting aside science-based purity tests in favour of finding common ground for policy co-operation. For some, relegating climate science to the background of political discussion may appear a retrograde step. However, if we are *really* trying to make policy progress then it is nothing less than essential. Continuing the political focus on the strength of a narrowly drawn climate consensus only plays into the hands of climate change critics. It allows them to indulge in arcane technical issues about the true strength of the consensus rather than engaging our publics in the messy, unsatisfying and ultimately unavoidable business of policy progress through political dialogue and compromise.

Further Reading

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Discussion questions for use in classes

1. Should politicians who hold fringe views about scientific issues be ostracised by other politicians and the media?
2. Should more be done to ensure that only correct scientific information is ever published in the media? Why? And how?
3. Under what different circumstances might societies wish to 'open up' or 'close down' political questions about responding to climate change?
4. Why have opponents of climate action focused on casting doubt on the scientific consensus? Is this a potentially effective strategy in delaying climate policy?
5. What strategies might be employed to neutralize the influence of misinformation?

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ⁱ For a full list of media coverage see:

<https://web.archive.org/web/20190122175039/https://www.skepticalscience.com/republishers.php?a=tcpmedia>

ⁱⁱ See: <http://2050-calculator-tool.decc.gov.uk/#/home>