Title

Culture versus cognition is a false dilemma

Journal

Nature Climate Change, 7(7)

ISSN

1758-678X

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Publication Date

2017-07-01

DOI

10.1038/nclimate3323

CORRESPONDENCE:

Culture versus cognition is a false dilemma

To the Editor — In service of the Earth's climate, there is an urgent need to evaluate theories about human behaviour, communication, and decision-making in the real world. We fully agree with the sentiment behind Kahan and Carpenter's recent Commentary in *Nature Climate Change*[1] that more field work is needed to test the validity, feasibility, and practicality of climate change communication insights that originate in 'the lab'. Yet, Kahan and Carpenter advocate an overly narrow and inaccurate view of decision science research and mischaracterize the climate change communication literature.

First, Kahan and Carpenter's claim that the 'bounded rationality' view of human decision-making about climate change "turned out to be untrue" is inconsistent with an ever-growing body of evidence about human reliance on heuristics and the roles of cognitive biases in decision-making — as Kahneman and others have extensively demonstrated[2]. Indeed, the challenging psychological characteristics of climate change represent a textbook example of bounded rationality[3]. The work cited by Kahan and Carpenter makes a case for motivated reasoning, but as explained in the latest National Academies of Sciences report[4], motivated cognition is itself a mental shortcut, which therefore strongly exemplifies the prevalence of cognitive biases. In short, we deem it counter-productive to disregard cognitive mechanisms in favour of motivational explanations, as each addresses different pieces of the decision-making puzzle.

Similarly false 'culture versus information' dichotomies are invoked when Kahan and Carpenter fail to consider the contextual role of knowledge in cognitive and motivational processes[5]. For example, descriptive group norms, such as expert consensus, convey both social and factual information. Contrary to what Kahan and Carpenter claim, numerous lab and field studies have demonstrated that highlighting scientific agreement on climate change can help neutralize polarizing worldviews[6–8] and the National Academies report[4] explicitly calls for more such research. Equally, mechanistic explanations and statistical facts can increase public acceptance of human-caused global warming across the ideological spectrum[5] and higher levels of climate knowledge can heighten risk perception, even when controlling for value-orientations[9].

Second, the comment that "more explanations are plausible than true" suggests a narrow view of 'truth'. Human behaviour is complex, contextual, social, and multi-determined. People are motivated to hold accurate perceptions about science and reality, but cognitive and emotional capacity constraints, group identities, and conflicting goals can all get in the way of addressing 'wicked' collective action problems such as climate change. Accordingly, cognitive, emotional, and socio-cultural factors — as well as intuitive heuristics and ideological biases — all affect public perceptions of climate change[10]. Rigorous empirical testing is essential, but in studying human behaviour, many explanations can and are likely to be simultaneously true. A more nuanced perspective that carefully integrates — rather than polarizes — well-established theories to evaluate what works, when, for whom, and in what context will lead to a more accurate and informed view of human responses to climate change.

Finally, the "lab-field shuttle" Kahan and Carpenter present is otherwise known as 'full cycle' behavioural science research[11], and is widely practiced. What is largely missing, however, is more cross-cultural fieldwork[9,10]. Indeed, much of what we know about climate change communication is sourced from western, educated, industrialized, rich, and democratic (WEIRD) populations[10], which has led to narrow views of both human culture and the sorts of communication strategies that are effective in practice.

In short, a more realistic and nuanced integration of multiple social science perspectives — in the context of real-world climate change communication efforts across diverse cultures — will propel the field toward even more productive, inclusive, and scientifically rigorous inquiry. ❐

References

1. Kahan, D. M. & Carpenter, K. *Nat. Clim. Change* **7,** 309–311 (2017).
2. Kahneman, D. *Am. Psychol.* **58,** 697–720 (2003).
3. Weber, E. U. *Nat. Hum. Behav.* **1,** 0013 (2017).
4. *Communicating Science Effectively: A Research Agenda* (National Acadamies Press, 2017).
5. Ranney, M. A. & Clark, D. *Topics Cognit. Sci.* **8,** 49–75 (2016).
6. Lewandowsky, S., Gignac, G. & Vaughan, S. *Nat. Clim. Change* **3,** 339–404 (2013).
7. van der Linden, S., Leiserowitz, A., Feinberg, G. D. & Maibach, E. W. *PLoS ONE* **10,** e0118489 (2015).
8. Cook, J., Lewandowsky, S. & Ecker, U. K. H. *PLoS ONE* **12,** e0175799 (2017).
9. Jing, S., Visschers, V. H. M., Siegrist, M. & Arvai, J. *Nat. Clim. Change* **6,** 759–762 (2016).
10. van der Linden, S. In *Oxford Encyclopedia of Climate Change Communication* (eds Nisbet, M. C. *et al.*) http://doi.org/b7gs (Oxford Univ. Press, 2017).
11. Mortensen, C. R. & Cialdini, R. B. *Soc. Personal. Psychol. Compass* **4,** 53–63 (2009).

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Reply to 'Culture versus cognition is a false dilemma'

Kahan and Carpenter reply — Despite agreeing with our call for more field studies[1], van der Linden *et al.* criticize our account of why such work is needed[2]. We respond in three points.

First, according to the National Academy of Sciences (NAS), one of the most critical advances lab studies have made is the debunking of the so-called "deficit model"[3], which attributes political conflict to the public's ignorance of scientific findings. In its recent report on science communication[3], the NAS describes that theory as just plain "wrong". Nevertheless, remedying the knowledge deficit — by