

## PSYCHOLOGY

# Fear and hope in climate messages

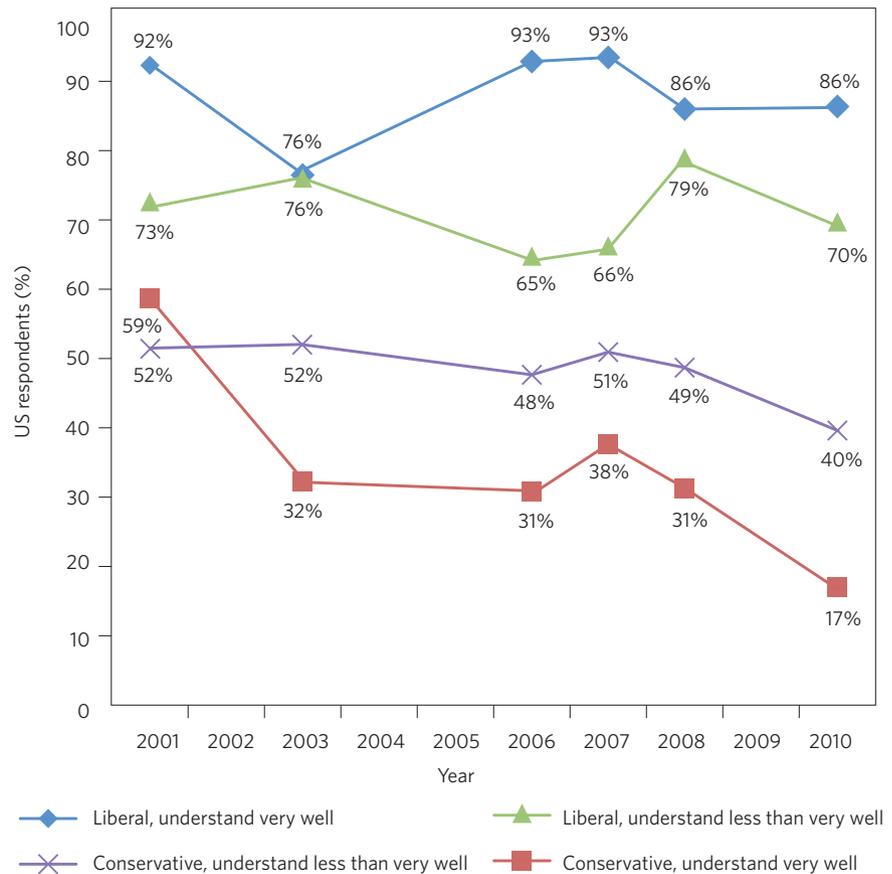
Scientists often expect fear of climate change and its impacts to motivate public support of climate policies. A study suggests that climate change deniers don't respond to this, but that positive appeals can change their views.

Paul C. Stern

Policy action on climate change is at an impasse in some countries where the very existence of anthropogenic climate change as a phenomenon is a matter of intense political controversy<sup>1</sup>. Many climate scientists consider this situation to reflect a failure to communicate, apparently believing that more effective education on climate phenomena can move the policy debate forward. But important as such understanding is to finding effective solutions, and difficult as the phenomena are to understand<sup>2</sup>, lack of understanding at the individual level is not the problem. In the United States, for example, it is the people who claim to know the most about climate who are most, and increasingly, polarized (Fig. 1)<sup>1</sup>. Moreover, believing that public opinion reflects a knowledge deficit is naive about how people form opinions and are moved to act on environmental policy issues<sup>3,4</sup>. Writing in *Nature Climate Change*, Paul Bain and colleagues<sup>5</sup> suggest a different approach to public opinion and action on climate policy.

Bain *et al.* identify, in a laboratory setting, how climate change deniers can come to change their views to support pro-environmental policies. Contrary to the idea that scientific knowledge is central to such change, they show that informing these people about the expected impacts of climate change had no effect on their positions. What did change the positions was thinking about how limiting greenhouse-gas emissions might promote interpersonal warmth and scientific and technological progress.

The new findings may displease people on both sides of the climate policy debates. Climate scientists may see the approach as intellectually dishonest because it promotes action to limit climate change without making the audience more knowledgeable about the relevant science. Opponents of such action may consider the approach sneaky and manipulative. Yet there is nothing inappropriate about asking people to think about the non-climate implications of climate policies. Choices about climate-related policies are not only about the



**Figure 1** | Belief in human cause of global warming, by political ideology and self-reported understanding of global warming over the years 2001–2010. Percentage of US respondents choosing the first option in answering the question, “From what you have heard or read, do you believe increases in the Earth’s temperature over the last century are due more to — the effects of pollution from human activities OR natural changes in the environment that are not due to human activities?”. Figure courtesy of Aaron McCright and Riley Dunlap, based on data reported in ref. 1.

physical Earth system: many other things are at stake, and appeals to values and even to emotions are fully in keeping with the political process.

Climate change has always been, in part, an emotional issue. For example, scientists often present their results to the non-scientist public in terms of potential ‘impacts’ — what will happen to things that people value if climate

change proceeds unrestrained. They may consider these messages to be dispassionate descriptions of model results, but viewed in psychological terms, they evoke fear to motivate action. Decades of research show that appeals to fear can be effective under specific conditions, but that they can also easily backfire. Recipients of fear appeals may act to reduce the danger, for example, by supporting policies to stabilize the

climate, as majorities do in almost every country surveyed<sup>6</sup>. Danger reduction is most likely if a message suggests practical actions that the recipients can take, actions that they believe would actually help to prevent the feared outcomes. When no such actions seem available, recipients typically reduce the fear without reducing the danger, perhaps by denying that there is anything to fear or concluding that the fear appeal was a manipulation attempt by an untrustworthy source<sup>7</sup>.

Opponents of policies to limit climate change have been promoting fear reduction over danger reduction in many ways: by claiming that climate change isn't happening, by highlighting scientific uncertainties or minor disagreements as justification for inaction, by claiming that policy action would have serious negative consequences (for example, for the economy and jobs) and by labelling climate scientists as venal or unscrupulous<sup>8</sup>. Such appeals also tend to undermine a moral justification for action that rests on the beliefs that inaction would harm innocent others and that an individual's actions can help to prevent such harm<sup>9</sup>. Climate change deniers are people who have avoided or reduced fear by rejecting the message of climate change impacts. In the struggle to 'frame' the climate change issue so as to

influence thoughts, feelings and actions<sup>2</sup>, focusing on undesirable impacts does not affect these people.

Bain and colleagues<sup>5</sup> investigated a different framing tactic, based more on hopes than fears. They linked policy choices to a subset of the many human values that may be affected by them<sup>10</sup>, which their preliminary tests indicated were important to the 'denier' population — values of community good feeling and of scientific and technological progress. Although what worked in the laboratory might not work outside it, there is good reason to expect that such framing might have the desired outcome. Support for pro-environmental action is consistently linked to individuals' fundamental values<sup>9</sup>, and because it is difficult for anyone to consider multiple values at once, appeals focused on particular values can be effective. The tactic is commonly used by advocates on all sides of policy debates.

The Bain study is a useful reminder that climate policy discussions are not only about climate, nor only about fears. Public debates need to consider how environmental policy choices may affect the full range of individual and societal values. Societies should be debating whether particular policies to reduce carbon emissions would spur innovation and improve

relationships in communities — as Bain's experiment proposes — stifle job growth and community well-being (as opponents will surely claim) or have yet other intended and unintended effects. After all, these are choices about everyone's future. □

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## References

1. McCright, A. M. & Dunlap, R. E. *Sociol. Q.* **52**, 155–194 (2011).
2. Weber, E. U. & Stern, P. C. *Am. Psychol.* **66**, 315–328 (2011).
3. Gardner, G. T. & Stern, P. C. *Environmental Problems and Human Behavior* (Allyn & Bacon, 1996).
4. National Research Council Committee on the Human Dimensions of Global Change *New Tools for Environmental Protection: Education, Information, and Voluntary Measures* (Nat'l Acad. Press, 2002).
5. Bain, P. G., Hornsey, M. J., Bongiorno, R. & Jeffries, C. *Nature Clim. Change* <http://dx.doi.org/10.1038/nclimate1532> (2012).
6. Brechin, S. R. in *Routledge Handbook of Climate Change and Society* (ed. Lever-Tracy, C.) 179–209 (Routledge, 2010).
7. Witte, K. & Allen, M. *Health Educ. Behav.* **27**, 591–615 (2000).
8. Dunlap, R. E. & McCright, A. M. in *Routledge Handbook of Climate Change and Society* (ed. Lever-Tracy, C.) 240–260 (Routledge, 2010).
9. Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A. & Kalof, L. *Human Ecol. Rev.* **6**, 81–97 (1999).
10. Dietz, T., Fitzgerald, A. & Shwom, R. *Annu. Rev. Environ. Resources* **30**, 335–372 (2005).

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