Research Project: Climate Change and Carbon Reduction: Communicating About Climate Change.
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Background: The understanding of climate change amongst citizens and consumers and how they respond in terms of behavioural changes (see also A33), is partly determined by the effectiveness of policymakers, scientists, NGOs and businesses in communicating with their stakeholders on the subject of climate change. This work builds on BRASS work on understandings of climate change (see A48) to inform approach to climate change communication.

Aims & objectives:
- To understand the role that communication plays in determining stakeholders' understanding of, and response to, the risks posed by climate change;
- To explore how framing climate change information differently may influence the audience's response;

About the research: The work on climate change communication involved some work considering the topic at a very broad level, and other more narrowly focussed work on specific communication topics. The broadly based work considers the scale of the challenge faced in communicating about climate change to non-specialist audiences like the public, consumers and investors given the uncertainties about climate change risks and timescales. Much of the work has sought to find ways to apply the most effective, interdisciplinary communications science possible to convey the practical implications of large, complex, uncertain physical, biological and social processes that are key to understanding and responding to climate change. Some of this broad communications work was reflected in BRASS Researcher Dr Lorraine Whitmarsh co-editing a collection of papers on climate change engagement and communication published by Earthscan, and a Wiley Interdisciplinary Review on the subject. The more narrowly focussed project work included the following:

- Role of communication in climate change: Strategies for action on climate change typically favour either top-down regulatory approaches, or bottom-up approaches that rely on grassroots changes and the responses amongst individual stakeholders such as consumers or investors. This work looked at the role played by communication in promoting each of these strategies, and the potential for communication approaches both to facilitate public acceptance of regulation and also to stimulate grass-roots action through affective and rational engagement with climate change.
- Framing climate change: This experimental work sought to explore how framing the same information about climate change in terms of gain or loss outcomes and in terms of local or distant impacts can affect perceptions. Text on potential climate change impacts was adapted from the 2007 *Intergovernmental Panel on Climate Change* report, alongside maps and images of potential flooding impacts. Participants then completed measures of various relevant socio-cognitive factors and questions assessing their responses to the information that they had received. Another element related to framing, came when BRASS Researchers were centrally involved in a Welsh Government project developing and testing particular narratives of climate change with which to communicate with their stakeholders.
- Psychological distance of climate change: Psychological distance is important in determining the extent and urgency of peoples' response to perceived risks, but it remains under-researched in relation to climate change. This work involved a nationally representative British sample in order to systematically explore and characterize each of the four theorized dimensions of psychological distance—temporal, social, and geographical distance, and uncertainty—in relation to climate change. This allowed for an examination into how each of these different

aspects of psychological distance relate to each other, as well as to concerns about climate change and sustainable behavioural intentions.

Results and outputs: The work on the role of communication in promoting climate change responses may be important in terms of stimulating greater societal demand for regulation since this may help to reconcile the different types of top-down/regulatory and bottom-up/grass roots approaches. The work on framing climate change indicated that, gain frames were superior to loss frames in increasing positive attitudes towards climate change mitigation, and also increased the perceived severity of climate change impacts. However the superiority of the gain frame was partially suppressed by lower fear responses and poorer information recall within gain framed information.

The work on psychological distance showed that climate change is perceived as both distant and proximal in relation to different dimensions. Lower psychological distance was generally associated with higher levels of concern, although perceived impacts on developing countries, as an indicator of social distance, was also significantly related to preparedness to act on climate change. The findings point to the utility of risk communication techniques designed to reduce psychological distance. However, highlighting the potentially very serious distant impacts of climate change may also be useful in promoting sustainable behaviour, even among those already concerned.

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Impacts achieved/potential for impact: This work, together with the Understanding of Climate Change project (A48) has produced a series of newspapers articles, including 14 national newspaper articles published by Dr Adam Corner during 2012 alone. Prof Nick Pidgeon edited a '*Special Issue on Climate Risk Perception and Communication*' for the journal *'Risk Analysis'*. This work has also had a very direct impact on policy making within Wales through the work in developing the climate change narratives in particular which is being used to inform external and internal communications strategies for the Welsh Government.