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What *is* climate change scepticism? Examination of the concept using a mixed methods study of the UK public☆

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ABSTRACT

The holding of doubts about climate change is often referred to as 'scepticism'. However, there has been a lack of clarity in previous work as to what exactly this scepticism comprises. We integrate data obtained from discussion groups and a nationally representative survey, to interrogate and refine the concept of climate change scepticism with respect to the views of members of the public. We argue that two main types should be distinguished: epistemic scepticism, relating to doubts about the status of climate change as a scientific and physical phenomenon; and response scepticism, relating to doubts about the efficacy of action taken to address climate change. Whilst each type is independently associated by people themselves with climate change scepticism, we find that the latter is more strongly associated with a lack of concern about climate change. As such, additional effort should be directed towards addressing and engaging with people's doubts concerning attempts to address climate change.

1. Introduction

1.1. Background

In developed nations, almost half of all greenhouse gas emissions are tied to individual and household energy use, such as space heating and private transportation (IEA, 2007). The fostering of more sustainable lifestyles has therefore been a focus of numerous initiatives and interventions (Abrahamse et al., 2005; Bamberg and Möser, 2007). Another facet of public engagement is political: citizens' support is essential for bringing about progressive energy and other climate policies (Lorenzoni et al., 2008; Höppner and Whitmarsh, 2011), prompting research interest regarding public participation in decision-making about climate change (Backstrand et al., 2010).

Public concern about climate change has risen in many nations for much of the past 20 years, and there has been cross-national, general support for policy responses in this area (Brechin, 2010). Personal action on climate change is also important to a subsection of society (Wolf, 2011) and there is evidence that some pro-environmental behaviours have become increasingly normalised in recent years (Barr et al., 2011). Nevertheless, research has also shown that numerous barriers operate at both the individual and social levels that impede wider engagement (Lorenzoni et al., 2007; Gifford, 2011; Markowitz and Shariff, 2012). Climate change is often seen by people as a temporally distant phenomenon primarily affecting other places, times or peoples (Gifford et al., 2009; Lorenzoni and Pidgeon, 2006). It may have limited salience, being considered a lower priority than other social and even environmental issues (Nisbet and Myers, 2007), failing to evoke strong emotional reactions (Weber, 2010) or even leading to a sense of futility given its apparent immensity (Wolf and Moser, 2011).

The perceived absence of a popular mandate for political action may also have undermined the pursuit of more ambitious climate policies by governments (Compston and Bailey, 2008). Furthermore, recent studies have noted declines in the public's acceptance even of the central tenets of climate science (Spence et al., 2010; Leiserowitz et al., 2010; Pidgeon, 2012). Given the timing of these trends, they have been attributed variously to the global economic downturn (Scruggs and Benegal, 2012), public attention cycles (Ratter et al., 2012), the controversy surrounding hacked emails from the University of East Anglia (Leiserowitz et al., 2010), the influence of partisan advocacy groups (Brulle et al., 2012), and cold weather events (Krosnick, 2010).

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1.2. Conceptualisations and studies of climate change scepticism

The problematic nature of public perceptions has tended increasingly to be talked of in terms of climate change 'scepticism' though it is often unclear exactly what this may comprise, beyond a shorthand for disengagement or disbelief. The idea of scepticism has been used, firstly, to refer to doubts and uncertainty about the physical and scientific aspects of climate change. For example, Poortinga et al. (2011) constrained their use of the construct to the framework of Rahmstorf (2004) who characterised doubts about climate change into *trend*, *attribution* and *impact* scepticism – concerning doubts that warming is taking place at all, doubts about an anthropogenic component, and regarding the harmfulness of the impacts of climate change. However, applications of the notion of scepticism in the literature are for the most part not limited to this narrow framing – more commonly being extended to conceptualise doubts about a wider range of societal, political and personal responses to climate change.

Lorenzoni et al. (2007) for example apply the notion of 'scepticism' together with 'uncertainty' to refer to doubts among the UK public with respect to scientific controversy – but also concerning the perceived necessity and effectiveness of acting on climate change. Smith and Leiserowitz (2012) categorised scepticism according to the affective imagery associated by survey respondents with climate change, identifying elements of scepticism corresponding to doubts about the reliability of climate science and an anthropogenic component – but also in terms of 'associations with conspiracy theories', 'flat denials', and references to 'media hype'. Similarly, in a study of the determinants of scepticism in the UK, Whitmarsh (2011) used a 12-item scale containing items corresponding broadly to trend, attribution, and impact scepticism – but in this same scale also incorporated measures intended to gauge respondents' positions concerning alarmism in media reporting and the view that too much fuss is made about climate change (i.e. that its importance is overstated). Malpass et al. (2007) too refer to 'sceptical citizens' as being those who harbour doubts about the placing of responsibility for action at an individual level; and Tobler et al. (2012) have treated scepticism as a construct encompassing doubts about information sources and media exaggeration, relating to general 'distrust', concerning a lack of perceived personal threat, and concerning the relative importance of climate change compared to other issues.

This lack of clarity about what climate change scepticism actually *is* has important implications. This is not least because the concept is often used synonymously (and pejoratively) with ideas such as contrarianism and denial, as where Nerlich (2010, p. 419) refers to climate scepticism "in the sense of climate denialism or contrarianism". With particular reference to Anderegg et al.'s (2010) study of expert credibility in climate science in which these labels are also used interchangeably, O'Neill and Boykoff (2010, p. E151) caution against the imprecise use of such terminology, arguing that:

> Blanket labelling of heterogeneous views under... these headings has been shown to do little to further considerations of climate science and policy... Continued indiscriminate use of the terms will further polarize views on climate change, reduce media coverage to tit-for-tat finger-pointing, and do little to advance the unsteady relationship among climate science, society, and policy.

We argue in this paper, therefore, for a more rigorous treatment of the construct of scepticism itself, as it pertains to public understanding of climate change.

We contend that, to date, applications of the notion of scepticism have been inconsistent and have often mixed disparate types of perceptions – but that nevertheless their usage has corresponded thematically to two broad treatments. The first of these concerns perceptions about scientific and physical matters, such as regarding scientific consensus and an anthropogenic component to climate change. The second concerns perceptions about social and behavioural matters, including doubts about responding to climate change at the individual and collective scales, and concerning the communication and portrayal of climate change.

Missing from the literature is an attempt to clarify and distinguish between these two main strands of scepticism, both conceptually and in terms of appraising whether these constitute meaningful categories within the public's own perspectives.

1.3. Roots of scepticism

Whilst the meaning of climate scepticism has varied across studies, largely consistent findings have nevertheless been obtained with respect to the socio-cultural and psychological determinants of climate change perceptions. Both Poortinga et al. (2011) and Whitmarsh (2011) found that older, more conservative respondents were more likely to express climate scepticism, and that people's values were also important determinants. In the USA, Smith and Leiserowitz (2012) obtained comparable effects, finding that political and cultural worldviews predict risk perceptions about climate change. Studies by Kahan et al. (2011) and Kahan et al. (2012) have also observed that cultural worldviews are important determinants of climate change perceptions (including doubts about scientific consensus), arguing that this is due to people's tendency to form perceptions of societal risks in line with the values of groups with which they identify. There has however been no previous work that has attempted to ascertain whether different scepticism types have common or divergent underpinnings. As well as developing a conceptual distinction between scepticism types, we therefore seek to examine whether variants of scepticism have common or dissimilar foundations in public perceptions.

1.4. Aims of the study

We seek to understand in detail the nature of scepticism within public understanding of climate change. Our approach is informed by the use of both qualitative data (discussion group transcripts) and quantitative data (survey findings). The study aims to obtain insights about public scepticism through separate analyses of these datasets, and subsequently to integrate the findings from both phases in drawing overall conclusions.

2. Methodology and findings

2.1. Use of mixed methodology to understand public scepticism

The present study employs a mixed methods design utilising two datasets obtained in the UK during 2010 and 2011. We first analyse participant talk ($n = 47$) arising from a series of guided discussions around climate change, to explore the different ways in which scepticism about climate change is expressed by people. The framework developed in the qualitative phase is then extended and refined in a second, quantitative research phase through the analysis of survey data ($n = 500$). In addition, we consider the sociodemographic determinants of scepticism types, and their relationship with levels of concern about climate change.

Finally, we synthesise the findings from the qualitative and quantitative research phases to draw conclusions about the principal characteristics of scepticism within public perspectives. The general procedure used in the present study is illustrated in Fig. 1.