

“Fear Won’t Do It”

Promoting Positive Engagement With Climate Change Through Visual and Iconic Representations

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Fear-inducing representations of climate change are widely employed in the public domain. However, there is a lack of clarity in the literature about the impacts that fearful messages in climate change communications have on people’s senses of engagement with the issue and associated implications for public engagement strategies. Some literature suggests that using fearful representations of climate change may be counterproductive. The authors explore this assertion in the context of two empirical studies that investigated the role of visual, and iconic, representations of climate change for public engagement respectively. Results demonstrate that although such representations have much potential for attracting people’s attention to climate change, fear is generally an ineffective tool for motivating genuine personal engagement. Nonthreatening imagery and icons that link to individuals’ everyday emotions and concerns in the context of this macro-environmental issue tend to be the most engaging. Recommendations for constructively engaging individuals with climate change are given.

Keywords: *public engagement; climate change; visual representations; icons; fear; saliency; efficacy*

Climate Change and Individual Decarbonization

The Intergovernmental Panel on Climate Change (IPCC, 2007) stated in its most recent report that warming of the climate system is “unequivocal.”

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Impacts of climate change are projected to be many and varied, ranging from changes in ecosystems (e.g., Leemans & Eickhout, 2004), to impacts on human systems such as water resources (Arnell, 1999), to potential forced human migrations (e.g., Barnett & Adger, 2003), to widespread acidification of the oceans (e.g., Caldeira & Wickett, 2003), to insurance and reinsurance difficulties (e.g., Munich Re, 2004). These impacts are often forecast as a smooth, linear progression. However, Lenton et al. (2008) highlight that this may not be the case, illustrating the concept that the Earth's system may pass "tipping points" in the Earth system.

Both mitigation and adaptation are needed to appropriately manage the challenge of climate change. Global efforts have so far tended to concentrate on the mitigation of greenhouse gas (GHG) emissions. The first legally binding national commitment to GHG emissions reduction was through the Kyoto Protocol, adopted in 1997 and entered into force in 2005. In this article, we focus on the U.K. context. The United Kingdom is attempting to show leadership on climate change beyond that of these international processes through the formation of the new Department of Energy and Climate Change (DECC) and the drafting of a Climate Change Bill. The bill states a reduction in GHG emissions target of at least 80% by 2050 against a 1990 baseline (DECC, 2008). Lorenzoni, Nicholson-Cole, and Whitmarsh (2007) note that an assumption underlying the bill's substantial GHG emissions target is a need for widespread social change. This will include significant levels of action in terms of organizational and behavioral change, for example, in industry as well as by individual citizens, highlighting a need for widespread public engagement with climate change.

In this article, we adopt the definition of *engagement* used by Lorenzoni et al. (2007): a state of connection comprising the three codependent spheres of cognition, affect, and behavior. On one hand, individuals can be engaged as citizens responsible both for influencing policy through elections in a democratic society and for driving consumption patterns and trends through their purchasing power. On a more pragmatic note, engaging through individual decarbonization activities and lifestyle changes directly is imperative, as domestic emissions through car use, heating, lighting, and appliance use represent around a third of the total U.K. emissions (Department for Environment, Food and Rural Affairs [DEFRA], 2005). Emissions cuts represent a significant challenge to the present practices and habits of society (e.g., everything from patterns of consumption to established infrastructural arrangements, building regulations, design standards, etc.).

Public Engagement With Climate Change

The U.K. public is increasingly recognizing climate change as a reality. For example, a survey by DEFRA (2007a) found 99% of people surveyed recognized the term *climate change*. DEFRA claims that within the United Kingdom, being “green” is now seen as a social norm rather than an alternative way of life. Thus far, strategies by the government for reducing individuals’ emissions have steered away from regulation and instead focused on encouraging voluntary uptake of decarbonization behaviors and practices. A myriad of U.K. agents beside the government also urge individuals to cut their carbon dioxide emissions and to change their behavior in relation to climate change (e.g., DEFRA, 2007b; Marks and Spencer PLC, 2007; Rising Tide, 2007).

Yet recognition of the language of climate and even recognizing climate change as a risk issue arguably represent a fairly superficial engagement. Risk research indicates that the public rank climate change as lower priority than other risk issues such as genetically modified foods or nuclear power (e.g., Poortinga & Pidgeon, 2003). Without prompting, over a third of the U.K. public state crime, health, economic concerns, and education as issues the government should deal with, with just 1% stating the same about climate change or global warming (DEFRA, 2007a). Other risk issues such as these are more immediate and pressing on a daily basis, with climate change being a much less tangible issue of concern. Lorenzoni et al. (2007) illustrate this and a host of other barriers that are preventing people from engaging with climate change in ways that go beyond the tokenistic.

The most significant channel of information that the general public receives about climate change is the mass media, which arguably has a great influence on people’s perceptions of the issue (Carvalho & Burgess, 2005; Trumbo & Shanahan, 2000). Contemporary forms of mass communication are saturated with images and stories that have the potential to influence people’s perceptions. These help to communicate and simplify information, making messages memorable, condensing complex information, communicating concepts instantly, and providing a basis for personal thoughts and social interactions that contribute to people’s memories, awareness, and opinions about particular issues (e.g., Farr, 1993; Graber, 1990). Examining different approaches to stimulating public engagement can help to inform how future climate change communications can be designed to encourage voluntary domestic decarbonization (in travel, leisure, and household activities) and the policy acceptance needed if society is to substantially reduce its GHG emissions.

Why Fear Appeals?

Fear appeals in climate change are prevalent in the public domain, with the language of alarmism appearing in many guises. For example, the U.K. government talks of “dangerous climate change” (e.g., the Conference on Dangerous Climate Change, Exeter, United Kingdom, February 2005), the media of a “climate of fear” (e.g., Bonnici, 2007), and NGOs of “climate chaos” (Stop Climate Chaos, a U.K. coalition for action on climate change). Even children’s storybooks have appeared with climate disaster narratives (e.g., Sedgwick, 2001). Fear also is strongly apparent in the kinds of imagery used in association with climate change more broadly. The U.K. Green Party (Wootton, 2005) used an image of a catastrophically flooded and drowned “British Isle [*sic*]” to campaign in the 2005 national elections. Images of polar bears stranded on ice floes have become iconic of climate change (O’Neill, 2008), and those depicting human struggle are evident in the famine and water shortages depicted in the climate campaign literature of charity Christian Aid (2008). Ereaud and Segnit (2006) state that the alarmist climate repertoire is characterized by an inflated or extreme lexicon, with an urgent tone: It is a terrible, immense, and apocalyptic problem, beyond human control. They find alarmist climate messages employ narratives of doom, death, judgment, and heaven and hell.

But why is fear so prevalent in climate change communications? It does not often stem from the science of climate change. The mediation of fear messages is illustrated in Hulme (2007). Hulme conducted a study into the coverage of the IPCC Working Group I report in 10 major U.K. national newspapers. Only one newspaper did not run a story on the IPCC report. The other nine all ran articles introducing the adjectives *catastrophic*, *shocking*, *terrifying*, or *devastating*. Yet none of these words were present in the original IPCC document.

Weingart, Engels, and Pansegray (2000) offer some explanation that newsworthiness increases if identifiable events can be linked to a threat to human life, and in order to do this levels of alarm are often magnified (Joffe, 1999). Accordingly, some authors report that climate change is most commonly communicated in the media in the context of dramatic climate-related events (e.g., Carvalho & Burgess, 2005). Much other literature also cites that characteristics including interestingness, unexpectedness, credibility, personal relevance, exaggeration, realism, sensationalism, and shock are particularly successful for attracting attention (Deacon, Pickering, Golding, & Murdock, 1999; Emsley, 2001; Trumbo & Shanahan, 2000).

It certainly appears that fear is employed as a communications tool that will break through the routine of everyday life and catch the viewer's attention. Whether this is an effective method for communicating climate change, however, is discussed forthwith.

There is little literature dedicated to the impact of fear-inducing representations of climate change on people's senses of engagement with the issue. The literature that does exist suggests that using fearful representations of climate change may be counterproductive (e.g., Moser & Dilling, 2004), but this has not been tested empirically. In this article we aim to explore and clarify this assertion in the context of visual and iconic representations of climate change and their impacts on public engagement. Icons are used in this context to refer to tangible *entities* that will be affected by climate change. They are more than simply an image, narrative, or probability describing the entity that is being represented (e.g., an image of a swimming polar bear is not an icon; it is the polar bear entity itself that is the icon). We present a synthesis of the results from two empirical pieces of research investigating the role of different types of visual and iconic representations in engaging individuals with climate change, specifically extracting the results pertaining to the use and role of fear in climate communication approaches. Although both projects were carried out in the United Kingdom, the key messages and policy recommendations have relevance for all with an interest in engaging individuals with the issue of climate change.

Background and Theoretical Rationale

Here, we introduce some of the literature that specifically examines the use of fear appeals both in the context of climate change and more broadly. We start by giving a definition of the components of a "fear appeal" in answer to the call from Witte (1992) for a literature that better defines such phenomena.

Defining a *Fear Appeal*

Witte (1992) states that there are three parts to a fear appeal. The first is the existence of a threat. A threat is an external stimulus variable that exists, whether the individual knows it or not. Within threat recognition, there are a further two variables: the severity of that threat to the individual ("this risk is very dangerous") and the individual's susceptibility to the threat ("this

danger will affect you because . . .”). The second part of the appeal is the emotion of fear itself: a recognition of the sense of impending danger posed and the consequent emotion of pain or uneasiness caused. It is noted that the threat appeal needs to be recognized by the individual if this fear emotion is to be invoked. The last part of the appeal involves the perceived efficacy in response to the fear felt by the individual. Again, two different variables exist: the perceived response efficacy (“Does the response to the threat adequately prevent it?”) and the perceived self-efficacy of the individual (“Can I carry out that response?”). In common with much of the risk and communications literature, we use the term *fear appeal* here to refer to the threat stimulus and whole cognitive and affective risk processing response: the persuasive communication attempt designed to arouse fear in order to promote precautionary motivation and self-protective action (Ruiter, Abraham, & Kok, 2001).

Fear in Theory

There is much literature examining the impact of fear appeals, especially from the health- and marketing-related disciplines. However, there is little that concentrates on fear appeals in relation to environmental issues. This is an important distinction. Macro-environmental issues such as climate change are “wicked issues”—defined by Lorenzoni, Jones, and Turnpenny (2006) as “virtually intractable matters characterized by uncertainty over consequences, diverse and multiple engaged interests, conflicting knowledge claims, and high stakes” (p. 65). Unlike marketing or health-based approaches that connect on a personal, tangible level, climate change represents a greater communications challenge as it is temporally and spatially remote from the individual.

Evidence on the effectiveness of fear appeals in the literature appears inconclusive, with relationships observed from a simple linear association between fear and effectiveness to more involved models and theories such as the curvilinear model, parallel processing model, extended parallel processing model, expectancy value model, and protection motivation theory (for a full review, see Hastings, Stead, & Webb, 2004; Ruiter et al., 2001; Witte, 1992). The quantity and somewhat contradictory nature of these theoretical models demonstrate the disparity in research findings investigating the effectiveness of fear appeals. Hastings et al. (2004) question the value of these models based on laboratory experiments where much of the data are obtained using psychology or marketing students as participants when related to a real world, sophisticated, and cluttered communications environment. Only a few

studies have evaluated fear-based communications in real-world interventions. These few studies have shown that fear-arousing approaches usually have both weaker effects and unintended reactions when used in a real-world setting (Hastings et al., 2004). A consistent message that does arise from the fear appeals literature appears to be that both an individual's perceived sense of action effectiveness and the individual's perceived sense of self-efficacy are imperative for a fear appeal to be successful. This theme is discussed further in the results and discussion sections of this article.

Difficulties of Sustaining Fear in the Long Term

The laboratory studies reviewed by Hastings et al. (2004) often tell nothing of the long-term effectiveness of fear campaigns or about exposure to repeated fearful messages. There is also little literature examining longitudinal attitudes toward climate change and decarbonization-oriented behavior change. For example, Lowe et al. (2006) report that fear-inducing appeals are unlikely to have long-lasting impacts. Lowe et al. carried out a pre/post-test survey before and after watching the climate change disaster movie *The Day After Tomorrow* (Emmerich, 2004), with survey themes followed up a month later with focus groups. They found that although the majority of participants (67%) in the post-test agreed that "everybody has to do something" about climate change, this sense of urgency had substantially diminished by the time the focus groups took place.

The "wicked" nature of climate change (Lorenzoni et al., 2006) makes it, for many people, an impersonal and distant issue. This factor makes climate-related fear appeals very difficult to sustain in the long term. For example, research indicates that individuals are likely to feel that dangerous climate change will not affect them for some considerable years, if at all (Lowe et al., 2006; O'Neill, 2008). This presents certain communication difficulties where engagement is concerned because of the perception that climate change is an issue for the far future. Research shows that individuals have difficulty visualizing future periods; Tonn, Hemrick, and Conrad (2006), for example, found that individuals had difficulty imagining beyond 15 to 20 years into the future. Drottz-Sjöberg (2006) also found that individuals find it difficult to imagine the future, with an imagination limit generally of around 50 years. Similarly, Lorenzoni et al. (2007) found individuals considered scenarios describing the 2050s to be so far into the future as to be almost completely hypothetical.

Many individuals also exhibit unrealistic optimism (Weinstein, 1980) in their ability to avoid climate risks compared to others, with Leiserowitz

(2007), Lowe et al. (2006), and O'Neill (2008) finding that individuals generally considered climate change “less serious” and “less dangerous” to themselves than to other people. An additional difficulty posed by climate change is that it is not possible, in a deterministic sense, to attribute particular events to anthropogenic climatic change. Attributing increasing anthropogenic GHG emissions to particular weather events is unusual and limited to risk statements of statistical likelihood (e.g., see the case of the 2003 European summer heat wave event in Stott, Stone, & Allen, 2004). Therefore, the constant use of fear appeals may act to decrease issue salience and increase individual feelings of invulnerability, if the narratives of disaster and destruction do not ring true or are not “proven” within an imaginable period.

Individuals May Become Desensitized to Fear Appeals

A further consequence of long-term reliance on fear appeals, as stated by Hastings et al. (2004), is that it is possible that a law of diminishing returns may exist. If this exists, fear approaches need to be made more intense as time goes by because of repeated exposure to threatening information in order to produce the same impact on individuals.

Linville and Fischer's (1991) “finite pool of worry” effect is also worthy of note here. This theory states that increased concern for one risk may decrease concern for other risks, as if individuals only have a certain capacity for worry. So it could be posited that communicating particularly fearful messages about certain climatic phenomena (e.g., dramatically rising sea levels because of ice sheet melt) might desensitize individuals to be concerned about other potentially more salient concerns (e.g., the consideration of local impacts such as city heat waves), impacts that they could act on constructively.

Fear May Damage Trust in the Communicating Organization

Every day, most individuals are faced with a barrage of multimedia messages about all types of issues and are often sophisticated in their interpretation of those; receivers do not blindly trust every piece of information they receive. Individuals are increasingly aware of the power of the media and often skeptical or questioning of communications approaches (Hastings et al., 2004). In an age of marketing and spin, issues of trust have come to the fore in the arena of climate change communication, and thus the repeated use of fear approaches may be damaging for the source organization. Trust in a

communication source is a prerequisite for effective risk communication (Poortinga & Pidgeon, 2003). Organizations and individuals have to work hard to maintain public trust: Poortinga and Pidgeon (2003) found U.K. individuals more likely to trust environmental organizations and scientists working for environmental groups or universities to tell the truth about climate change, but participants were somewhat ambivalent about trusting local authorities, the national government, or the European Union. However, even NGOs (which have relied heavily on fear appeals in the past for communicating climate change) should not assume they have *carte blanche* for launching fear appeals (Ballinger, cited in BBC News Online, 2000). An ill-considered fear approach may damage (or further damage) the reputation of the communicating organization and the ability of that organization to attempt further engagement approaches. This is key when considering the need for sustained and consistent messages to communicate climate risks (Futerra, 2005).

Fear Messages May Produce Unintended Reactions

The continued use of fear messages can lead to one of two psychological functions. The first is to control the external danger, the second to control the internal fear (Moser & Dilling, 2004). If the external danger—in this case, the impacts of climate change—cannot be controlled (or is not perceived to be controllable), then individuals will attempt to control the internal fear. These internal fear controls, such as issue denial and apathy, can represent barriers to meaningful engagement. Lorenzoni et al. (2007) divide the barriers to engagement with climate change, into two types, individual-level and social-level barriers. Of particular consequence for this discussion of fear appeals are the barriers acting individually to inhibit engagement with climate change. These include uncertainty and skepticism, an externalization of responsibility and blame or stating other issues as more immediate and pressing, and fatalism or a “drop in the ocean” feeling. All are maladaptations; that is, they lead to an individual controlling his or her internal fear by no longer interacting with the climate change issue, but the action does not decrease the individual’s exposure to climate risk.

Repeated exposure to fearful representations of climate change may indeed even provoke a counterintuitive reaction, for example, causing the message to become laughable. Ereaut and Segnit (2006, pp. 14-15) recognized this in their report investigating public climate discourses in the United Kingdom. They named one of the apparent public discourses as “settlerdom.” The settlerdom discourse rejects and mocks an alarmist discourse.

Those invoking the settlerdom discourse do so by invoking a feeling of common sense in their audience, not through expert discourse or debate. The authors find the discourse is constructed in terms of the “sane majority” against the “doom mongers” or the “global warming brigade.” Also mentioned by Ereaut and Segnit is a small but potentially important discourse defined as “British comic nihilism,” or “bugger it and open another bottle.” The discourse was characterized by a whimsical and unserious nature and a happy refusal to engage in the debate. Both of these discourses may represent unintended consequences of repeated exposure to communications approaches depending on threat and fear.

Fear Is a Good Communicator—For Other People

A further limitation of laboratory studies is that in such a laboratory situation, an individual may state that a particular fear approach should be very motivating to the target audience. On closer inspection however, it transpires that the individuals involved understand with some sophistication what the approach is trying to achieve but are not themselves personally moved (Hastings et al., 2004). This again demonstrates the barriers, at both individual and social levels (Lorenzoni et al., 2007), individuals perceive when they are confronted with climate fear appeals.

We consider here, paraphrasing Monahan (1995; in Hastings et al., 2004), that the question of whether fear appeals should be used when communicating climate change should be posed differently. Instead of “should fear be used?” would it be more useful to ask, “is a fear appeal the most appropriate and effective method for engaging individuals with climate change?” We now examine this proposition.

Method

This article presents the integrated findings from two empirical, multi-method studies, both carried out by researchers at the University of East Anglia. Both studies underwent ethical scrutiny by senior colleagues before participant recruitment. The studies explored the influence of visual and iconic representations of climate change on people’s senses of engagement with the issue. As Lorenzoni et al. (2007) note, the use of largely qualitative methods in both studies reported here complements recent large-scale quantitative U.K. survey research by allowing participants the space to freely articulate their personal interpretations of climate change, leading to a rich and

Table 1
The Methods Used in the Two Studies

Study	Method			
	Focus Groups	Q-Method	Semistructured Interviews	Survey
Imagery study (VisionS)	X	X	X	
Icon study (IconS)	X			X

exploratory data source. It was not the central aim of either study to investigate the use of fear as a climate change communications tool. This article arose from a realization of the synergies that existed in the studies investigating public engagement with climate change and the critical role that fear messaging may play in engaging (or not) the public with climate change. When viewed together, results from both studies provide key evidence of the impact of using fear as a communication technique on people's perceptions of climate change. Table 1 displays the methods used in the two studies.

Visual Representations Study (VisionS)

This study was carried out in Norwich, United Kingdom, between 2000 and 2004. It investigated the relationship between visual representations of climate change and people's perceptions of the issue, paying particular attention to their senses of climate change being a personally important issue (its salience) and their senses of being able to do something about it (efficacy). In this research, visual representations are taken to include two dimensions: (a) "external" images of climate change that circulate in the public domain and (b) individuals' mental imagery of climate change, in other words their imaginations of climate change (often linked to the visual representations to which they are exposed). The study involved the same participants ($n = 30$) throughout three stages of research. The study began with semistructured interviews, which informed a Q-methodology study, and concluded with three focus groups. The sample comprised 10 people from three diverse groups: young mothers from a deprived area, young professionals between the ages of 26 and 35, and high school students. The sample was not intended to be representative of the wider population because of the small-scale nature of the study. The intention was to avoid selecting a wholly middle-class sample and to present a range of sociodemographic backgrounds, lifestyle choices, social groupings, ages, life stages, and outlooks on the future (e.g., Mason, 1996).

The semistructured interviews explored participants' perceptions of climate change in relation to the mental imagery that they associated with the issue and their engagement with climate change in terms of their senses of personal salience and efficacy. The questions were based on an exploration of the three key themes of the imagery study: climate change imagery, personal salience, and personal efficacy. Initially, participants were asked to explore how they conceptualized the future, before considering the role climate change may play in this future. Questions were then introduced to elicit the imagery that people have in their minds about climate change. This was followed by questions exploring participants' opinions on the causes and impacts of climate change, including investigating individual behavioral and emotional responses to the issue. Further methodological details are available in Nicholson-Cole (2004).

Q-methodology is a technique for eliciting, evaluating, and comparing human subjectivity; it offers the means to identify shared attitude structures and perspectives among individuals regarding a certain problem. The Q-method part of this research was based on two image sorting tasks aimed to elicit shared attitude structures concerning (a) the perceived salience and (b) the personal efficacy dimensions of climate change (for more information about Q-methodology, see McKeown & Thomas, 1988; Robbins & Krueger, 2000). Q-methodology is typically carried out using attitude statements, but some research has employed visual images, as in this study (e.g., Fairweather & Swaffield, 2001). Thirty-two full color postcard-sized images were used in the Q-sorting tasks (see Box 1 for a descriptive list).

The task asked participants to twice sort the images into a grid with two extremes; first according to how personally important or unimportant the images made climate change seem; and second according to how able or unable the images made them feel to do anything about climate change. In both cases, participants were asked to place the pictures that they felt least strongly about or pictures that they did not find relevant to the question in the middle of the grid. The pictures were selected from the public domain based on a selection system to generate a good representation of different aspects of the climate change issue, or the full "concourse" on climate change (e.g., different kinds of impacts and responses at different scales and in the United Kingdom and abroad). This drew on four key sources: the types of imagery revealed in the interview data, six expert interviews, an international review of the climate change scientific literature (IPCC, 2001), and the imagery employed in environmental NGO campaign material online.

Box 1

The 32 Climate Change Images Used in the Q Investigation

Industrial smoke stacks	House with solar panels
Crowded street café	Crops being irrigated
Cartoon 'No ice this winter'	Starving children in a famine
Airplane in flight	Tram in urban setting
Turning down a domestic thermostat	Dried-up riverbed with dead fish
George Bush making a speech	People on rainy high street
Petrol station	Cyclist
Crowded beach	Biting mosquito
Coal fired power station and pylon	Women at a standpipe in the 1950's
Dead tree in a desert	Breaking ice sheet
Environmental refugees	Field of sunflowers in UK
Flooded suburban house	Building sea defenses
Fitting a low-energy light bulb	Polar bear jumping across gap in ice
Wind turbines	Stormy coastal scene at a quay with crashing waves
Forest fire	Flooded houses and people in Bangladesh
House falling off a cliff	Graph of recorded and projected temperature rise to 2100

Finally, three focus groups built on the prior findings and enabled participants to discuss and elaborate on them in a social context. The focus groups consolidated the previous results, enabling further interpretation of the qualitative data as well as building on the findings to develop recommendations for the most effective ways of using visual representations to stimulate public engagement (both the importance of climate change and people's feelings of being able to do something about it).

Iconic Representations Study (IconS)

This study was designed to explore issues of climate change representation in such a way that it allowed individuals to engage with the issue through their personal perceptions and values. The study was developed through the concept of climate icons, defined as "tangible entities which will be impacted by climate change, which the viewer considers worthy of respect, and to which the viewer can relate to and feel empathy for." The research reported here was the first part of a larger mixed qualitative-quantitative study (the subsequent stages of the research analyzed climate impacts on the selected icons and then evaluated individuals' cognitive and affective engagement; see O'Neill, 2008). Here, we concentrate on results from the

initial icon investigation stage. This investigation was undertaken between 2005 and 2006.

Because the icon study sought to investigate commonalities and differences in icon selection, a culturally and spatially diverse audience was selected, which featured participants from a range of sociodemographic backgrounds, social groupings, ages, and nationalities. Two different methodologies helped to reach these diverse participant groups. Focus groups ($n = 27$) were carried out with local parents of high school-age children and with fellows from the Leadership for Environment and Development network. An online survey ($n = 63$) followed the same question protocol as the focus groups with members of the www.ClimatePrediction.net forum, an online community. Both the focus group and online survey protocols explored how climate change was communicated and how this affected participants' feelings, understanding, and behavior. Participants were then introduced to the concept of climate icons as defined above. Participants were asked what they thought would make an engaging icon, before naming their own personal climate icon and explaining their reasoning for selecting that icon.

Results and Analysis

The findings of the studies were rich and qualitative in their nature, revealing much information about the nature of people's perceptions of climate change and how these relate to the representations of climate change to which they are exposed. Results presented here are those that specifically relate to the ways in which fear-arousing images interact with people's sense of climate change being personally salient and their senses of personal efficacy. The abbreviations VisionS (Visual representations Study) and IconS (Iconic representations Study) are used to identify the sources of quotes.

Climate Change Can Induce Fearful Emotions

Both studies first investigated individuals' conceptualizations of climate change. Regardless of their factual knowledge, most participants were able to describe a broad range of imaginations and mental visions. Much of this concerned large-scale impacts of climate change; for example, melting glaciers and icebergs, visions of the sea level rising and inundating coastal regions or countries, intense heat and droughts (e.g., extreme heat waves and drought leading to starvation in Africa), landscape changes, impacts on human health (e.g., malaria, water and food shortages), disastrous weather extremes,

human migration, animal extinctions, and so on. The majority of outlooks on future climate were negative and bleak, with many reflecting a degree of uncertainty as to what climate change might mean for the United Kingdom and participants' localities. Only three participants imagined that there might be positive outcomes of climate change (e.g., milder winters with less harsh conditions, more café culture, new and more exotic crops being grown in the United Kingdom). Many specifically talked about feeling fearful, depressed, scared, or distressed at the thought of climate change.

In both studies, some individuals expressed particularly apocalyptic visions of the end of the world (e.g., it will be like Armageddon, chaos, craters, doom, we will not be able cope, it will run away with us), and some described visual imagery that was extremely vivid and fantastical:

Things like the earth crumbling. A white mist and it's all coming down. That's how I think about it. It just keeps crumbling and then it's all hot, very hot. (VisionS)

I reckon it'll be like mass hysteria or something, like Armageddon. (VisionS)

Like . . . humankind collapse. (IconS)

It just seems all kind of out of control. The whole world does. I mean, if you think about it too much, it's rather scary. How's it all going to end up? I don't know if I'll want to be around. (VisionS)

Fear-Inducing Representation Provoke Unintended Reactions

Both sets of results indicated that fearful messages can enhance feelings that climate change is a distant issue in both time and space. Outcomes of both the icon and imagery studies indicate that meaningful engagement approaches must involve some degree of connection with "the everyday," in both spatial and temporal terms:

I think if we use er, some icon more related with our human life, or with mega city life, it could be useful, to, to communicate the problem. Something that everyday affects the, the life of most people in the world. (IconS)

I think of things like icebergs, and glaciers shrinking and snow disappearing and things like that. Big things. Because I can only really think of it in big terms because I don't really know how things are going to change on a smaller scale, or how it will affect people. (VisionS)

And also, I find it's very difficult that it's not us that's gonna be affected, or our children gonna be affected, it's gonna be far in the future. People only think as far ahead as their lifetime—and that's very difficult for us to take action. (IconS)

In the imagery study, while climate change was seen by participants as a generally important issue, it was not something that participants tended to consider *personally* salient. This was apparently for a whole host of reasons, most predominantly the perceived distance and remoteness of climate change from one's everyday experience. The majority of participants noted that if climate change were to begin having adverse local and personal impacts, it would become more personally concerning.

An additional issue in relation to a sense of “otherness” (other people, other places) in relation to climate change arises in the results from the online survey participants in the icon study. Because of the lack of interactivity of the online survey, it was not as successful a methodology as the icon focus groups for obtaining participants' personal climate icons, as some participants distanced themselves from the definition of climate icons as entities that were personally engaging and thus suggested icons for others rather than stating their own personal icons. However, this shortcoming did provide some intriguing results that give weight to the “fear is a good communicator—for other people” literature reviewed earlier. In attempting to provide a good “communications tool” rather than an icon that was personally salient, a number of the online survey participants suggested climate icons that they considered a good communications tool for “other people.” Interestingly, these icons were often fantastical or fear inducing, in contrast to the focus group participants:

Something conveying the full threat, i.e., death of world, human extinction. (IconS)

Participants in the focus groups disagreed strongly with using fear as a communications tool, instead, as previously discussed, citing examples of icons that engaged with people's everyday life as key for inducing a sense of saliency.

In addition to distancing the viewer from the issue, fear-inducing communication approaches were found to enhance a sense of fatalism and thus act to encourage disengagement with climate change rather than positive engagement. Participants in both studies generally felt that humans are largely causing climate change and that something should be done about it

“before it’s too late.” Although the majority noted that there are things that people can do to reduce the causes of climate change however, many tended to note that their conceptions of climate change as a global and to some extent distant and future issue made individual actions akin to “a drop in the ocean,” unlikely to make any significant contribution in relation to the scale of the problem.

Obviously, from a personal point of view you can walk, use the car less and things like that, and recycle stuff. . . . But on a more sort of wider scale then, I don’t think that the individual has got enough power to do a lot. (VisionS)

People feel like they can’t do anything. And to be honest, it’s not going to really have a massive effect anyway. (VisionS)

Although hoping that climate change would not affect them, three participants in the imagery study specifically noted that thinking about climate change made them feel so scared and depressed that they purposefully did not think about it. Fear appeals may act to increase this response, leading to denial of the problem and disengagement with the whole issue in an attempt to avoid the discomfort of contending with it.

Fear Appeal Imagery and Its Impact on Issue Salience and Efficacy

The Q-methodology results from the imagery study provide a clear insight into the use of fearful, emotive, or dramatic imagery and its impact on people’s engagement with climate change, specifically their personal senses of issue salience and self-efficacy.

The Q-method output was in the form of sets of factors (e.g., McKeown & Thomas, 1988) that represented the most significant emerging points of view held by participants in relation to the pictures. The interpretation of the Q-sort factors, or viewpoints, was aided by reasoning provided by participants for their image rankings. In addition, the focus groups explored participants’ reasoning behind their Q-sorts. The results were consistent across the whole sample, with no marked differences between groups or even clusters of individuals representing certain viewpoints.

Most strikingly, in the salience Q-sorts, the only two significant viewpoints that appeared in the data indicated that images concerning major impacts of climate change, often involving dramatic visions or human or

Table 2
Strongly Ranked Images for Salience Factors and Viewpoints

Viewpoint or Factor 1		Viewpoint or Factor 2
Images making climate change seem most personally <i>important</i>		
Starving children, famine	+++	Industrial smoke stacks
Dried up lake with dead fish	+++	Starving children, famine
Flood in Bangladesh	++	Wind turbines
Graph showing temperature rise	++	Dried up lake with dead fish
Flooded house	++	Petrol station
Melting ice	++	Power station
Images making climate change seem most personally <i>unimportant</i>		
Rainy high street	--	Tram
Airplane	--	Rainy high street
George Bush	--	Irrigation
Sunflower field UK	--	Sunflower field UK
Tram	---	Beach
Café	---	Café

Note: + and – indicate strength of importance. The bold text indicates images that appear in both viewpoints extracted from the analysis.

animal suffering at both local and global scales, made climate change seem *most important* to them. Participants noted that this was because of the drastic and emotive nature of some of the images, their indication of the possibly catastrophic consequences for some places in the world, the scientific evidence of temperature change being so dramatic, and the immediate resonance of one locally relevant flooding image. In both cases, the images that made participants feel most strongly that climate change was *unimportant* were those depicting aspects of climate change that participants noted as being positive (e.g., sunflower crops, street café), skeptical viewpoints (e.g., George W. Bush), scenes considered ambiguous or unrelated to climate change (e.g., tram), and those thought to be uninspiring to look at (e.g., crop irrigation). Table 2 presents the images ranked as making climate change seem most important and most unimportant for the two viewpoints that emerged from the data.

In terms of efficacy, the results were also very consistent with two emerging attitudinal factors. Both of these had the same top six images which made participants feel most able to do something about climate

Table 3
Strongly Ranked Images for Efficacy Factors and Viewpoints

Viewpoint 1		Viewpoint 2
Images making participants feel <i>most able</i> to do something about climate change		
Thermostat	+++	Fitting low energy light bulb
Fitting low energy light bulb	+++	Thermostat
Cyclist	++	Cyclist
House with solar panels	++	House with solar panels
Wind turbines	++	Wind turbines
Tram	++	Tram
Images making participants feel <i>most unable to do anything</i> about climate change		
George Bush	--	Flooded house
Storm at coast	--	Polar bear
Refugees	--	Dried up lake with dead fish
Starving children, famine	--	Industrial smoke stacks
Industrial smoke stacks	---	Beach
Flood in Bangladesh	---	Graph showing temperature rise

Note: + and - indicate strength of feeling able or unable. The bold text indicates images that appear in both viewpoints extracted from the analysis.

change. These were all indicative of things that individuals could do given various degrees of resources. The images that made participants feel most unable to do anything about climate change tended to be depictions of the most dramatic impacts of climate change, the causes of climate change, political unwillingness to act on climate change, and the scientific evidence (Table 3).

These results demonstrate that the very images that made participants have the greatest sense of climate change being important were also disempowering at a personal level. These images were said to drive feelings of helplessness, remoteness, and lack of control. Equally, the images making participants feel most able to do something about climate change did not hook their interest in the issue and were more likely to make people feel that climate change was unimportant (though not extremely). Table 4 illustrates this key finding.

These results demonstrate that climate change images can evoke powerful feelings of issue salience, but these do not necessarily make participants feel able to do anything about it; in fact, it may do the reverse. When presented with the results of the Q-sorts, the majority of participants were

Table 4
Six Images Making Participants Feel Strongly or Very Strongly
That Climate Change Is Important *and* Unable or Very
Unable to Do Anything About It

Images Making Climate Change Seem <i>Most Important</i>	Images Making Participants Feel <i>Most</i> <i>Unable to Do Anything About Climate Change</i>
Starving children, famine (both factors)	Starving children, famine (F1)
Dried up lake with dead fish (both factors)	Dried up lake with dead fish (F2)
Industrial smoke stacks (F2)	Industrial smoke stacks (both factors)
Flood in Bangladesh (F1)	Flood in Bangladesh (F1)
Graph showing temperature rise (F1)	Graph showing temperature rise (F2)
Flooded house (F1)	Flooded house (F2)
	Dried up lake with dead fish (F2)

Note: The bold text indicates images that appear in both viewpoints extracted from the analysis.

initially surprised at the findings. Nevertheless, they agreed with the results and reiterated that some of the images in the sample did make climate change seem a concerning issue but at the same time made them feel powerless and overwhelmed. They explained that these included images that had a human suffering component, which illustrated massive scale impacts of climate change, and those that made them feel scared, depressed, or emotional. Participants noted that often these images were so remote from their own experience that they were easily forgotten after their initial impact.

Participants in all groups agreed that the images that stimulated the greatest feelings of personal efficacy were those clearly showing what people can do personally. This was because they helped to make specific actions clear and to seem accessible and easy to sustain. All groups made it clear that *local* impact images are necessary in order to communicate a local relevance, and action images were necessary to make people feel empowered to make a difference. They also insisted that a global context should be included, to make the seriousness of the issue resonant, though this should be done carefully so as to avoid making people feel afraid or overwhelmed and totally helpless.

Engaging More Meaningfully

Fearful representations of climate change appear to be memorable and may initially attract individuals' attention. However, they can also act to

distance and disempower individuals in terms of their sense of personal engagement with the issue. These results strongly suggest that the use of fear-inducing or dramatic representations of climate change can be counterproductive when public engagement is a concern. That is not to say that many kinds of visual or iconic representations cannot engage people productively. The results show that there are types of visual imagery, icons, and combinations of messages that can be engaging and can specifically help to make climate change a personally salient issue for people and one that they feel able to do something about.

Discussion

This research has shown that dramatic, sensational, fearful, shocking, and other climate change representations of a similar ilk can successfully capture people's attention to the issue of climate change and drive a general sense of the importance of the issue. However, they are also likely to distance or disengage individuals from climate change, tending to render them feeling helpless and overwhelmed when they try to comprehend their own relationship with the issue. These types of representations have a common presence in the mass media and wider public domain. In light of the results presented in this article, this is a worrying finding, particularly if voluntary reductions in GHG emissions through individual and household behavior change are critical if Western nations are to reach their decarbonization targets.

Although shocking, catastrophic, and large-scale representations of the impacts of climate change may well act as an initial hook for people's attention and concern, they clearly do not motivate a sense of personal engagement with the issue and indeed may act to trigger barriers to engagement such as denial and others described by Lorenzoni et al. (2007). The results demonstrate that communications approaches that take account of individuals' personal points of reference (e.g., based on an understanding and appreciation of their values, attitudes, beliefs, local environment, and experiences) are more likely to meaningfully engage individuals with climate change. This was tested here in relation to nonexpert icons and locally relevant climate change imagery. More broadly, communication strategies must be in touch with the other concerns and pressures on everyday life that people experience. Such approaches can act to decrease barriers to engagement; for example, because the icons selected by nonexperts are often local or regional places that individuals care about and empathize with, such approaches are less likely to induce feelings of invulnerability than, say, a fear appeal

featuring a distant location (for a discussion of the role of affect-influencing engagement with spatially distant icons, see O'Neill, 2008). These are not necessarily new suggestions (e.g., Farr, 1993; Futerra, 2005; Myers & Macnaghten, 1998), but this study provides empirical evidence as to why fear may be an inappropriate tool for climate change communication.

These findings echo those of other researchers (Lorenzoni et al., 2007; Moser & Dilling, 2004) who have touched on this issue of whether the use of fear or shock-provoking messages are likely to engage people with climate change. The results presented here certainly demonstrate that on a stand-alone basis fear, shock, or sensationalism may promote verbal expressions and general feelings of concern but that they overwhelmingly have a “negative” impact on active engagement with climate change. That is, unless they are set in a context within which individuals are situated and to which individuals can relate, they tend to disempower and distance people from climate change. This is akin to the assertion made by Myers and Macnaghten (1998) that depicting crisis does not sit comfortably with the suggestion of individual action. The findings presented suggest that dramatic representations must be partnered with those that enable a person to establish a sense of connection with the causes and consequences of climate change in a positive manner—so that they can see the relevance of climate change for their locality and life and see that there are ways in which they (and others) can positively respond.

This begs the question, should sensational messages and appeals to fear be used to try and engage members of the public with climate change? They certainly have a place, given their power to hook audiences and their attention. However, they must at least be used selectively, with caution, and in combination with other kinds of representations in order to avoid causing denial, apathy, avoidance, and negative associations that may come as a result of coping with any unpleasant feelings evoked (Nicholson-Cole, 2005). DEFRA (2007b) highlights this point in relation to behavioral change, arguing that it is not worth scaring people into taking action, particularly if they do not know that their actions can make a difference. If fear appeals are to be used, the viewers must have feasible coping responses (e.g., high self-efficacy and the ability to respond behaviorally) in order that barriers to engagement are not encountered.

At present, although the objectives and intentions of various communication examples that appear to have the aim of bolstering public engagement with climate change may be genuine, many risk resulting in generating rather tokenistic and general concern that operates at arm's length from the individual. Future research attention in this field must concentrate on how

a much deeper personal concern and lifestyle engagement with climate change can be encouraged through different methods and strategies of communication.

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