Reassessing emotion in climate change communication

Debate over effective climate change communication must be grounded in rigorous affective science. Rather than treating emotions as simple levers to be pulled to promote desired outcomes, emotions should be viewed as one integral component of a cognitive feedback system guiding responses to challenging decision-making problems.

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David Wallace-Wells' *New York Magazine* article describing the possible devastating impacts of climate change has reignited an increasingly heated debate among researchers, advocates, and commentators over the pros and cons of 'doom and gloom' messaging in climate change communications[1]. Some prominent scientists have pushed back against the article in part arguing that such pessimistic coverage depresses and demoralizes the public into further inaction[2]. Others have praised the piece for its honest portrayal of the challenges we face while highlighting the potential for such writing to induce strong emotional responses in readers, such as fear, anger and resolve[3].

Both camps in this debate refer to affective science to support their conclusions and recommendations. Yet, both positions reflect misuse and misunderstanding of what the evidence does and does not tell us about the effects of targeting specific emotions — especially fear and hope — in motivating or inhibiting public engagement with climate change. The bifurcation between 'go positive' and 'go negative' simultaneously oversimplifies the rich base of research on emotion while overcomplicating the very real communications challenge advocates face by demanding that each message have the right 'emotional recipe' to maximize effectiveness.

Rather than treat emotion as a lever or switch to be directly calibrated and pulled for a desired effect, the climate change communication community should adopt a more nuanced, evidence-based understanding of the multiple and sometimes counterintuitive ways that emotion, communication and issue engagement are intertwined. Emotions should be viewed as one element of a broader, authentic communication strategy rather than as a magic bullet designed to trigger one response or another.

Emotions are not simple levers

In the on-going debate over the effectiveness of emotional climate change appeals, emotions have largely been treated as simple levers communicators can pull to obtain specific goals. For example, some argue that making people feel afraid will cause avoidance and reductions in personal efficacy, whereas making people feel hopeful will cause increased efficacy and engagement[4]. Although this model of emotion is simple and intuitively appealing, treating emotions as distinct and easily separable mechanisms operating as direct causes of singular responses is almost certainly leading climate change communicators astray.

Anger, for example, is often considered a destructive emotion causing aggression, but in fact anger only rarely leads to aggression toward others. These links certainly exist, but operate in complex ways moderated by the context in which the emotional experience unfolds. Contrary to a simplistic view of anger as destructive, research shows that anger is typically the emotion most strongly associated with motivating individuals to rectify social injustices[5]. These findings are emblematic of a large body of scholarship from affective science showing that, aside from some highly consistent reflexive responses, such as certain automatic fear or threat responses, even 'basic' human emotions such as anger do not generally operate as simple mechanisms that reflexively turn specific responses on or off.

Current affective science stresses the multidimensional qualities of emotional experience and argues against simplistic reification of everyday 'folk' understandings of emotion. Feldman Barrett's influential review of the literature[6] reveals that people's everyday conception of specific emotions as clearly distinct natural kinds is not well supported by evidence of clear distinctions at neurological, physiological, or behavioural levels. Conscious emotional experience, particularly in response to concepts as complex as climate change, is a combination of rudimentary feeling-states combined with a range of cognitive appraisals of context, the self, and others, as well as (multiple) potential motivational impetuses. These elements of emotional experience are certainly important for understanding human behaviour, but generally not as unitary switches that induce specific behavioural responses.

Emotions may be more effectively considered part of an interpretive and self-regulatory feedback system allowing people to track, update, and modify their understanding of themselves and the world[7]. For example, an emotional reaction to an event might sometimes include an immediate behavioural response but is more likely to influence important cognitive responses such as mentally tagging knowledge with emotional tone, motivating further information search, and prompting further self-directed thought such as reappraisal and rumination. These emotion-elicited processes could, over time, have a very strong effect on people's behaviour, particularly as emotionally evocative events on a specific issue such as climate change reoccur over time. This perspective on emotions as indirect drivers that modify — and are modified by — other influences necessitates a re-evaluation of the assumption that appeals to specific emotions will be associated with specific outcomes. Moving toward a perspective in which emotions play a role in a more complex and integrated interpretive and learning system should promote a fundamental rethinking of emotion's role in climate change communication.

Evolving impacts over time

In response to criticism of Wallace-Wells' article, journalist David Roberts highlights a critical issue[3]: researchers know little to nothing about how emotional responses to climate change evolve over time or how those changes prospectively predict

shifts in beliefs, attitudes, and behaviour. When considering emotions as part of a feedback system rather than as direct drivers of behaviour, it becomes clear that the immediate responses and longer-term consequences of an emotionally evocative event may or may not be aligned, and may even differ dramatically.

Take, for example, the question of whether fear appeals lead to more or less engagement. Whereas some mixed qualitative–quantitative research suggests that fear appeals reduce personal efficacy to take action on climate change[4], a recent experimental study found that threat-induced feelings of fear led to more information-seeking about personal health threats, which was subsequently associated with a greater sense of response efficacy[8]. While these cases differ in context (global environmental problem versus personal health risk) and tested outcomes, they both rely on inferences from cross-sectional data. These studies cannot speak to the long-term impacts of fear (or other emotionally arousing) appeals, such as the potential for public desensitization, emotional down-regulation, or information avoidance. Cross-sectional and longitudinal investigations of the same appeals may therefore vary considerably in the outcomes observed.

Thus, communicators and researchers cannot assume that the short-term affective impacts of particular messages are indicative of meaningful behavioural responses, nor can they assume that an immediate emotional response will persist or have consistent effects over time. These unknown downstream effects reinforce the problems associated with treating emotional responses as simple levers for behaviour change and highlight a critical area in need of research. Under-examined temporal dynamics in the processing of and response to different communication appeals necessitates considerable caution in attempting to generalize responses from laboratory studies to applied communication settings.

Lack of domain-specific evidence

Opposition to pieces like Wallace-Wells' often rely on limited, correlational evidence. For example, an op-ed in *The Washington Post*[2] states that "The most motivating emotions are worry, interest and hope. Importantly, fear does not motivate, and appealing to it is often counter-productive as it tends to distance people from the problem, leading them to disengage, doubt and even dismiss it." Although well-intentioned (and perhaps partially true), making this claim so ardently is problematic: it rests largely on correlational evidence[9]. Like much of the work on this topic, this evidence is suggestive but not conclusive, as it cannot tell us about the nature or direction of the relationship between different emotions and different forms of climate change engagement.

There is a fundamental point underscored by these claims: a correlation between some emotional state and a behaviour of interest may not provide useful insight into how explicitly targeting particular emotional responses through communication, if even possible, will affect that same behaviour. Statements such as "fear is bad" or "hope is good" are controversial, with conflicting positions even in meta-analytic tests of experimental research in domains with large research bases, such as public health[10,11]. There is far less experimental evidence to rely on in the context of climate change communications. The two most widely referenced peer-reviewed articles in these debates suggesting the utility of appealing to positive emotions as opposed to fear come from small (N<100) mixed qualitative–quantitative studies[4] and a large cross-sectional survey that correlated an array of emotions with policy attitudes[9], both of which were carried out nearly a decade ago. More recent experimental work suggests that messages designed to induce feelings of hope and optimism about climate change may actually lower motivations to engage in mitigation efforts[12].

Our goal is not to make strong claims about the efficacy of targeting specific emotions, but instead to highlight how the current evidence base and dominant approaches to studying emotion in climate change communication do not support definitive, simplistic, and overly broad assertions about the effect of specific emotions on climate change responses. Researchers have a critical role to play in clearly distinguishing between the correlates of existing emotional states, such as the correlation between policy attitudes and how one 'feels' about climate change, versus the possible and at present largely unknown effects of attempting to induce particular emotional states.

Multiple responses to one message

At a practical level, targeting specific emotional reactions in an effort to promote productive engagement with climate change is unlikely to produce consistent and predictable effects because few if any messages can be designed to produce the same emotional response in all people. Emotional responses to messages about societal risks are influenced by the beliefs, worldviews, and existing emotions each individual brings to the table; these moderating effects are very likely amplified in the case of climate change due to a unique combination of extreme public polarization and features of the issue itself known to affect engagement, such as abstractness and long time horizons[13]. Indeed, ideological and group commitments have repeatedly been shown to moderate individuals' responses to information about climate change[14]. Surprisingly, little research has examined how these commitments influence the effectiveness of emotionally arousing appeals for action on climate change. What's more, the evidence that does exist suggests that a message designed to induce hope and resolve in one individual may incite feelings of anger and resentment in another while leaving a third person emotionally untouched altogether[15].

Our limited knowledge about the impact of emotionally arousing appeals on individuals with different identities, depths of knowledge, or pre-existing concerns about climate change should lead us to exercise caution when attempting to prescribe emotion-based communication strategies. For example, the use of emotion-based appeals involving fear may have very different, even opposite, impacts on individuals who are deeply concerned about climate change versus those with little interest in or knowledge of the issue. Thus, attempts to make broad claims about the role of emotion-based appeals in promoting engagement with climate change may overlook important differences in how different segments of the population respond to these appeals. While this is perhaps an obvious point, the current research and discussion around these appeals largely lacks this important nuance.

Rethinking the role of emotion

So, how can policymakers, researchers, writers, advocates and others more productively incorporate solid affective science into their work? First, it is important to develop authentic, honest communications strategies that meet intended audiences where they are rather than attempting to socially engineer emotional appeals; the latter approach is not only pragmatically and theoretically problematic in the ways described above, but also suffers from being ethically questionable. An audience-focused approach views the mix of emotions evoked in climate change communication as a factor to be understood rather than something that simplistically defines a particular communications strategy or piece of climate change communication as 'good' or 'bad'.

If communicators seek to harness the power of emotions to promote engagement, one concrete strategy that follows from a more nuanced approach is message tailoring (a strategy often advocated for in climate change[16], public health[17], and other domains), in which a better understanding of people's natural responses (that is, dispositional affective reactions) to climate change can be used to design messages that best meet different individuals' particular emotional, informational and decision-making needs. While challenging to accomplish on a large scale, strategies harnessing emotional responses in this manner are likely to be more effective than those attempting to dictate a one-size-fits-all approach to public messaging. However, there is limited empirical evidence regarding the effectiveness of message tailoring in the climate change domain more broadly, and some research in other domains suggests that tailoring may have mixed effects or even backfire if not properly designed or implemented[18]. Therefore, following the spirit of our critique of existing work, we'd stress this idea as a hypothesis worth testing rather than as a strategy to implement indiscriminately.

Emotion is a powerful force in human behaviour, and this is undoubtedly true with responses to climate change. Researchers and practitioners should attend to and clarify the roles of emotions and emotion-based messages for different forms of short-term and long-term climate change engagement. Getting the affective science right may have significant benefits, but getting it wrong also has the potential for producing significant harm. Just as it is vital for climate scientists and communicators to base messages about climate change on rigorous empirical evidence from the physical sciences, statements on the use of emotion in communication strategies must also be firmly grounded in evidence from affective science. ❐

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Competing interests

The authors declare no competing financial interests.