



30 SEPTEMBER 2019

## HOW TO AVOID A CLIMATE CATASTROPHE

PROFESSOR GEOFFREY BEATTIE

We need nothing short of a 'green revolution' to avoid a climate catastrophe, and a global green revolution at that. A green revolution in terms of political focus and infrastructure (transport, energy, architectural design, engineering etc.) but also a green revolution in terms of our everyday behaviour as consumers and the choices we make in our everyday lives. We, the public, are the key (at all levels - national level, cities/towns, communities, groups, families, individuals) and we must be the catalyst for change. For this reason, I would suggest, psychology must be central to the whole climate change issue.

It is worth reminding ourselves at the outset, when it comes to climate change, that the scientific evidence is overwhelming. There is indeed a remarkable scientific consensus on climate change – 'remarkable' because it is rare to see this degree of scientific agreement on anything. The science tells us that 'Climate change threatens the basic elements of life for people around the world' and, in addition, that 'Human activities are a major driver of this rapid change in our climate...particularly patterns of consumption and energy use, driven by consumer demand for higher standards of living.'

But there is little evidence of widespread change in these aspects of our behaviour, in the light of the unambiguous scientific evidence. Consider, for example, Unilever's 'Sustainable Living Plan', launched in 2010, which read 'We are living in a world where temperatures are rising, water is scarce, energy expensive, food supplies uncertain and the gap between rich and poor increasing...Business must be part of the solution. Sustainable, equitable growth is the only acceptable business model...to live within the natural limits of the planet we will have to decouple growth from environmental impact.' Unilever announced their sustainability KPI: 'Halve the greenhouse gas impact of our products across the lifecycle by 2020.' Unilever then reduced greenhouse gas emissions from their manufacturing chain; they reduced deforestation; they introduced more environmentally friendly sourcing of raw materials; they doubled their use of renewable energy; they produced concentrated liquids and powders; they reduced greenhouse gas emissions from transport; they reduced greenhouse gas emissions from refrigeration and they reduced employee travel, and the result of all this activity was that their 'greenhouse gas footprint impact per consumer has ...increased by around 5% since 2010.'

The problem, they said, was that 'We have made good progress in those areas under our control but...the big challenges are those areas not under our direct control like...consumer behaviour.' In other words, we are the problem.

So why has this message not got through? Specifically, in terms of our:

1. Understanding
2. Belief
3. Our sense of personal vulnerability
4. Our sense of personal responsibility



## 5. Behaviour and action

### 1. Understanding

I had an experience on a bus in Sheffield a short time ago, which reminded me of some of the issues about understanding. It was snowing. I had a notebook with 'CLIMATE CHANGE' written in bold sitting on my lap. The man beside me said 'Well, that's bloody nonsense for start.' He pointed at the fine dusting of snow on the street 'So that's global warming for you.' I didn't want to argue on the bus, or maybe worse, so I tried to ignore him, as he continued to harangue me relentlessly. Then there's Donald Trump. In December 2017 he tweeted: 'It could be the COLDEST New Year's Eve on record. Perhaps we could use a bit of that good old Global Warming.' He was on vacation in Florida, frozen iguanas were dropping from trees. People were warned to leave them alone until they defrosted. Donald Trump loved it, acting very much like the man on the bus in Sheffield and confusing weather and climate, and therefore able to reassure themselves with any slight cold snap. There is clearly work to be done here.

### 2. Belief

In terms of belief, a survey by Yale University (2010) had reported that only 52% of people in U.S. 'believe that global warming is happening' (this figure fluctuates with economic conditions and other factors). 50% thought that global warming (if it does exist) was attributable to natural causes. So, what differentiates believers and non-believers. There are several factors:

1. Faith in/understanding of science.
2. Understanding of probabilistic terms like 'extremely likely' (IPCC) meaning '95% chance of occurring'.
3. Political and ideological position (2013: only 50% of Republican and 88% of Democrats believed in climate change – the divergence widening after the Kyoto Protocol, 1997).
4. Education/age/social class/media consumption etc.
5. And critically individual psychology, including cognitive biases and underlying unconscious values and attitudes. Human beings are not necessarily rational when it comes to climate change (or anything else).

### 3. Our sense of personal vulnerability

One cognitive bias is potentially particularly relevant here and that is 'optimism bias', where people overestimate the likelihood of positive events happening to them and underestimate the likelihood of negative events. It seems to be very common. We think that our marriages will succeed, our start-up businesses will be successful and that we will have a long and happy life compared to everyone else. Individual smokers think that they will be the ones who won't get cancer. People may think that climate change will affect other places (spatial bias) and future generations (temporal bias) but not they themselves (those particularly high in dispositional optimism are the most extreme in this regard).

Research in neuroscience suggest that people process information in particular ways which supports an optimism bias. One study measured brain activity as participants estimated their probability of experiencing various negative events. They were then presented with the real information about the probability. People (but particularly dispositional optimists) were more likely to change their estimates only if new information was better than originally anticipated. This bias was reflected in their fMRI data. There was reduced level of neural coding of undesirable information in a critical region of the frontal cortex (the right inferior prefrontal gyrus). Optimism bias, in other words, is characterised by selective information processing.



In our lab, we tested the relationship between optimism and the processing of climate change messages, by asking people to read climate change articles online with adjacent paragraphs arguing either for the scientific consensus ('bad' news) or against it ('good' news) and we used eye-tracking to analyse their individual fixations. Where exactly did people look? We found several significant findings:

1. A significant negative correlation between optimism level and average dwell time. In other words, dispositional optimists spent less time attending to any arguments about climate changes.
2. A significant negative correlation between optimism level and average fixation duration but only to arguments 'for' climate change. Optimists had significantly shorter fixation durations than non-optimists on arguments for climate change.
3. Optimists concentrated more on arguments against climate change.

So, what effect does this attentional bias have? When asked to summarise these articles: 2/3 of non-optimists framed recall in terms of the arguments for climate change ('this article is about global warming and how 95% of it is due to human activity'). 2/3 of optimists framed it as a debate between two opposing positions ('it's about climate change, about trying to understand what's happening with the weather and there are different points of view'). We also found that optimists also had the strongest and most pronounced optimism bias. When we asked our participants 'What is the probability of you personally being affected by climate change?': Optimists reckoned that it was 36.5% (less than half), non-optimists reckoned it was 56.8% (more than half).

So, what are the general implications of this research? We cannot assume that people attend to climate change messages in identical ways. Messages about climate change may not be getting through because of an inherent cognitive bias designed to sustain our mood state. We must pay some regard to this bias in designing our communicational strategies about climate change. A more positive overall frame about possible solutions, interwoven throughout the message, should increase both feelings of self-efficacy and visual attention to the underlying message.

#### **4. Our sense of personal responsibility**

So how do we mobilise the public? Can we just focus on these cognitive biases or do we need a radically, new way of thinking about behaviour change generally? The current approach to behaviour change focusses exclusively on measuring explicit (or self-reported) attitudes as an indicator of propensity for change, and consistently demonstrates a 'value-action' gap between apparent values and behaviour. For example, in 2007 Tesco introduced carbon labelling because (in the words of the CEO of Tesco) 'Customers want to do more in the fight against climate change if only we can make it easier and more affordable', based on self-report surveys of attitudes to climate change. This was meant to be the start of Terry Leahy's 'Green Revolution', to be led by consumer demand to drive the market. It had, after all, worked with health information on food. Tesco now planned to label all their 70,000 own brand products with carbon footprint information. It took several months to calculate the carbon footprint of each individual product. Consumers, the reasoning went, should now choose the low carbon footprint alternatives and lower the overall carbon footprint in consumption.

But how did consumers actually behave? They didn't behave as they should, in terms of buying the low carbon products and our laboratory research demonstrated (again using eye-tracking) that they hardly looked at the carbon labels of products – other features on the products – the brand, price, value, health information, fat content, calories etc. were significantly more important.

#### **5. Behaviour and action**



So, what is going on? Are we just reporting what might be considered socially desirable attitudes to low carbon products and climate change? Do we even know our own attitudes? It is perhaps worth remembering Gordon Allport's definition of an attitude: 'a mental and neural state of readiness organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related.' (Allport, 1935). The mainstream approach is that you simply introspect and report your individual preferences, for example, towards high or low carbon footprint products. But Allport had also said: 'Often an attitude seemed to have no representation in consciousness other than a vague sense of need, or some indefinite or unanalysable feeling of doubt, assent, conviction, effort, or familiarity' (Allport 1935). So how do we measure this 'vague sense of need, or some indefinite or unanalysable feeling of doubt, assent, conviction, effort, or familiarity'?

We decided to use a computerised classification task (called an Implicit Association Test), which has been used in other domains to measure 'associative connections' in the brain, based on how quickly participants can associate (in this case) 'low' or 'high carbon footprint' with the concepts of 'good' or 'bad'. This test yields a 'D' or difference score in reaction time and is thought to be a measure of implicit attitude. In one of our studies using the traditional self-report measure of explicit attitude, 70% of our participants reported that they preferred low carbon products to high carbon products (26% reported no preference; only 4% reported a preference for high carbon). The implicit measures, however, were much more variable and critically there was no significant correlation between the explicit and implicit measures, suggesting that the explicit and implicit attitudes were dissociated. There were many 'surface greens' in our sample, who reported that they preferred low carbon products, but their implicit attitudes to low carbon were either not that clear or were the reverse of what they had reported. Understanding these conflicted individuals may be critical in the fight against climate change because they have not been identified as a group thus far (and miscategorised by DEFRA and everyone else). After all they report that they prefer low carbon products, are prepared to adapt their behaviour etc.

In general terms, explicit and implicit attitudes (as measured by the IAT) do predict behaviour to some extent but in different domains, and in different circumstances. The IAT is a better predictor of spontaneous behaviours when behaviour is under cognitive, emotional or time pressure (based on various meta-analyses) and a better predictor of behaviour in sensitive domains (including racial discrimination and environmental issues). In our research, we have found that implicit (but not explicit) attitude to carbon footprint predicted choice of low carbon products particularly under time pressure and predicted unconscious eye fixations on climate change images and on carbon labels.

Most importantly, we have also found that implicit attitudes can be experimentally changed (using emotive film) with implications for behaviour change. This may hold significant promise for the future.

This research has led to the rediscovery of the unconscious, ignored by psychologists for a long time - but not, interestingly, by all psychologists. In the smoking industry, Ernest Dichter revolutionised the marketing of cigarettes, and in the forties and fifties he had argued that you need to access the unconscious to cure neuroses... and to sell brands. You cannot ask people directly what they think of brands or what their attitudes are. Cigarette ads at the time, he suggested, were getting it badly wrong. There was too much emphasis on taste (a 'minor' consideration) and poor use of doctors to say that certain brands were 'healthier', which unconsciously associates cigarettes with mortality.

Dichter argued that smoking offers 'an (unconscious) psychological satisfaction sufficient to overcome health fears, to withstand moral censure, ridicule, or even the paradoxical weakness of enslavement to habit.' He also dealt with the conscious, rational arguments head on. He argued that it's the guilt associated with smoking that gives you cancer and set up a fight against the science. Tobacco companies wanted to open a great 'debate' about the effects of smoking on health. and created the Council for Tobacco Research in 1953 to fund research. Hans



Selye the ‘father of stress’ was offered \$1000 to write a memorandum saying that correlations do not prove cause and effect. He argued that it is stress that kills, not smoking, and that smoking could be marketed as a cure for stress. A long and fruitful partnership then developed. By the 1960s, Selye was receiving \$100,000 dollars a year from the tobacco companies. He publicly argued that smoking was a ‘diversion’ to avoid disease-causing stress.

The marketing of smoking was (very unfortunately, as we all know) a very successful behaviour change campaign, and perhaps we should not be too anxious about assessing and changing unconscious implicit attitudes to carbon in the pursuit of similar behavioural effects.

So how do we avoid a climate catastrophe? Here are some suggestions:

- We need to help explain the science better and clear up conceptual confusions.
- Climate change messages must be designed to overcome optimism bias. We cannot just scare people (‘this house is on fire’).
- We need to increase people’s feelings of self-efficacy and response efficacy when it comes to their actions. They are crucial to making a difference.
- Self-reported attitudes to carbon might lull us into a false sense of security. We need to develop and use measures of underlying implicit attitude to carbon products and lifestyles which may be held unconsciously.
- We need to understand that many people have implicit and explicit attitudes to carbon products and lifestyles that are dissociated.
- We need to find new ways of identifying these individuals.
- We need different strategies for different groups and countries (the barriers will be different). What do these individuals see? What do they attend to?
- And critically, we need to work on changing our implicit attitudes to carbon products and lifestyles by influencing our underlying associative networks. The smoking industry has shown that such a change is possible, with enormous implications for behaviour (the one positive legacy of this industry).

© Professor Geoffrey Beattie, 2019

Further Reading:

Beattie, G. (2010) *Why Aren’t We Saving the Planet? A Psychologist’s Perspective*. Routledge: London.

Beattie, G. (2018) *The Conflicted Mind. Why We Say One Thing and Do Another*. Routledge: London.

Beattie, G. and McGuire, L. (2018) *The Psychology of Climate Change*. Routledge: London.

Hoffman, A. J. (2015) *How Culture Shapes the Climate Change Debate*. Stanford University Press: Stanford.

Kahneman, D. (2011) *Thinking, Fast and Slow*. Penguin: London.

Marshall, G. (2015) *Don’t Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*. Bloomsbury: London.



Oreskes, N. & Conway, E. M. (2010) *Merchants of Doubt*. Bloomsbury: London.