

Commentary

Multiple models to inform climate change policy: a pragmatic response to the ‘beyond the ABC’ debate

We have followed with interest the debate in this journal between Shove (2010; 2011) and Whitmarsh and colleagues (2011) on contrasting theoretical approaches and representations of proenvironmental behaviour and social change, and of the potential, rationale, and merit of interdisciplinarity or integration. In this commentary we offer a pragmatic response to the issues being debated from the perspective of policy makers concerned with near-term reductions in greenhouse gas emissions. This response is informed by the recent experience of one of us (Chatterton) during a year-long Research Council UK (RCUK) Energy Programme Fellowship as a social scientist based in the Department of Energy and Climate Change (DECC).

The title of this Fellowship, “Individuals’ and Communities’ Energy Behaviour”, reflects the dominant conceptualisation of behaviour among policy makers as elaborated by Shove (2010), as well as the prevailing interest within government in the potential for behaviour change to contribute towards policy goals. ‘Behaviour change’ policies are being promoted as an attractive alternative to the more established approaches of legislation, regulation, and taxation (Dolan et al, 2010, page 4). The current UK government’s coalition agreement argues for “shunning the bureaucratic levers of the past and finding intelligent ways to encourage, support and enable people to make better choices for themselves” (HMG, 2010, pages 7–8). Supporting institutional developments include the creation of the Cabinet Office’s Behavioural Insights Team in 2010, and the recent House of Lords Science and Technology Select Committee’s inquiry into “the use of behaviour change interventions to achieve policy goals” (House of Lords, 2011, page 88). Here, we are concerned primarily with climate change mitigation as the policy goal, itself often framed within broader sustainability objectives.

Our commentary on the role of social science in informing behaviour change policy is founded on four propositions.

Proposition 1. We use the term ‘behaviours’ to describe observable actions.

We are particularly interested in behaviours linked to greenhouse gas emissions, principally through the conversion of energy to provide useful services such as mobility or space conditioning. However, these ‘emission-related behaviours’ extend to any observable actions that result directly or indirectly in emissions of greenhouse gases, such as the purchase of consumer goods.

Equating behaviours descriptively with observable actions is consistent with government behaviour-change efforts as well as the individualistic models of psychology or economics in which behaviour is an object of enquiry or outcome variable. Although behaviours are not germane to social theories of practice, constituted by materials, meanings, and procedures among communities of practitioners, we draw on notions of “‘practice-as-performance’ (that is, as enacted in specific moments and places)” (Shove, 2010, page 1279) to consider behaviours as physical manifestations of practices. Our proposition is that this is descriptively consistent with behaviours as observable actions. As to the actors of such actions, they may have volition, intention, and identifiable motivations; they may be performers and so reconstituters of social practices;

or they may be statistical artefacts. These actors may also be individuals, groups, diffuse communities, or populations of some type. It is the behaviours or observable actions themselves, and, more specifically, their link to emissions, which are most directly of concern to policy makers.

Proposition 2. Emission-related behaviours vary widely in their characteristics and contexts.

Although conventionally grouped by economic sector of activity (eg, Metz et al, 2007), by investment requirement (eg, Black et al, 1985), or by a principal characteristic such as frequency or outcome (eg, Dietz et al, 2009), it is self-evident that emission-related behaviours—ranging from flying abroad on holiday and commuting by bus, to replacing light bulbs and eating meat—are remarkably varied. This applies as much to their psychosocial antecedents as it does to their performance roles in different, albeit linked, social practices.

Proposition 3. Policy makers will continue trying to change emission-related behaviours as an integral part of their climate change mitigation strategies.

We agree with Shove's argument that narrow behaviour-change objectives are one element of a much wider interest among policy makers in the institutions and infrastructures with which emission-related behaviours are interdependent (Shove, 2010, page 1278). Others have also pointed to the growing awareness within government of the limitations of behaviour-change objectives alone, evident in initiatives like the Big Society which shift agency away from the individual (Fudge and Peters, 2011). Skirting these debates, we argue that emission-related behaviours, whether interpreted as physical manifestations of social practices or as the consequences of interacting personal and contextual influence on individuals, will remain salient to policy makers in the near term, given the imperative and stringency of emission reduction targets, and the capital cost and time delays of replacing energy-supply infrastructure (Anderson and Bows, 2011; CCC, 2008). This is clearly evident in the near-term expectations for behaviour change (particularly technology adoption) in the UK government's decarbonisation pathways (DECC, 2010).

Proposition 4. There are a multiplicity of theories and associated representations of emission-related behaviour which in turn generate a multiplicity of insights for behaviour-change policy making.

We focus here on the representations or 'models' of behaviour as they are more tractable, applicable, and immediately useful to policy makers (whose perspective this commentary adopts), and as such have been the subject of various recent comparative reviews (Chatterton, 2011; Darnton, 2008; Jackson, 2005; Wilson and Dowlatabadi, 2007). We recognise that this pragmatic emphasis on models is complicit with a narrowly instrumental demand for social science to meet the needs of policy makers concerned with efficiency, effectiveness, and evaluation rather than theoretical debates or paradigmatic ferment within the social sciences.

We return to this later after the substance of our commentary which is that the coexistence, competition, and contradiction of 'multiple models' of behaviour are perfectly possible precisely *because* these multiple models represent different things, define different problems, and answer different questions.

Each model is internally consistent (eg, in terms of how it represents the relationships between elements of theory) and contextually meaningful (eg, in representing a given behaviour in its real-world context). As an example, social psychology models are useful for explaining kerbside recycling behaviour as a function of ease and

convenience (availability/proximity to recycling infrastructure) and opportunities for social comparison (McKenzie-Mohr and Smith, 1999; Schultz, 1999). The same models are not as useful for examining the household-consumption patterns which generate the disposable materials in the first place. Here, the scale of enquiry widens dramatically, and richer explanations are found in (and have long been a concern of) sociological theories of consumption (Røpke, 2009).

On the face of it, this is captured in the oft-invoked metaphor of blind men feeling different parts of an elephant.⁽¹⁾ But this falls short, as ultimately all the men are blind, all the men share a common objective, and all the men are confronted with the same elephant. Multiple models of emissions-related behaviour are more akin to blind, deaf, and dumb men roaming all over a zoo, each with their own particular purpose in mind, with one feeling an elephant's leg, another happening on some piece of tusk mounted on a microscope slide, and another studying the bird's-eye view of an aerial photograph.

The pragmatic challenge for policy makers concerned with behaviour change is to identify which insights are offered by which models about which emissions-related behaviour in which context. This will depend on behaviour change objectives, distinguishing ends from means [Keeney (1992); and for an example applied to climate policy, see Wilson and McDaniels (2007)]. The ends or ultimate objective will be to reduce greenhouse gas emissions, typically by reducing or decarbonising the use of energy. The means or proximate objectives towards these ends will vary widely according to how policy makers expect or envisage behaviours to change following implementation of the policy. As noted earlier, policies' means objectives are typically to support, encourage, incentivise, or otherwise facilitate behaviour change. The political vogue for 'nudges' which alter the context in which people make choices (House of Lords, 2011, page 5) clearly highlights the potential importance of means as well as ends objectives among behaviour-change policy makers.

With this in mind, we suggest four key criteria to guide policy makers' selection and use of multiple models. These criteria relate to the actors, scopes, durabilities, and domains of emission-related behaviour relevant to, and so embodied in, the policy's means objectives.

The *actors* of the relevant behaviour (observable action) range from volitional individuals, to the interpersonal network, to communities of practitioners performing shared scripts, and so on, up to groups or populations defined by power, interests, or societal roles. For example, do the means towards emission-reduction ends entail microgeneration deployment in households, among transition town networks, by newly emergent energy citizens, or within groups whose interests vested in a centralised energy system are swayed by a shifting profit landscape?

The *scopes* of relevant behaviour range from isolated behaviours, to behaviours which structure or circumscribe subsequent behaviours, to interrelated or codependent behaviours, and so on, up to lifestyles as regularised patterns of behaviour. Do the means towards emission-reduction ends entail meat-free Fridays, vegetarianism, low-impact living, or complete self-sufficiency?

The *durabilities* of relevant behaviour range from one-off behaviours, to repeated behaviours sustained by policy intervention, to behaviours with successively less required reinforcement, and so on, up to enduring behaviours. Do the means towards emission-reduction ends entail one-off insulation retrofits, autumnal draft-proofing, insulation testing as part of annual boiler servicing, or the routine closing of windows when the heating comes on?

⁽¹⁾ A parable that has found a place in many religious traditions, but (in the West at least) made most famous by the poet John Godfrey Saxe (1816–87), see: http://www.noogenesis.com/pineapple/blind_men_elephant.html

The *domains* of relevant behaviour range from the psychological, to the physical and technological, to the institutional, infrastructural, and so on, up to the scale of the social, national, or global. Do the means towards emission-reduction ends entail positive attitude formation towards substitutes for air travel, improved infrastructure for long-distance trains, or collective renegotiation of perceived and actual needs for mobility?

Identifying the actors, scopes, durabilities, and domains of emission-related behaviour relevant to behaviour-change policy objectives provides a framework for guiding policy makers' use of the multiple models available to them. All four criteria correspond in some way to different dimensions of scale, from the social and relational, to the temporal, spatial, and structural (Reid et al, 2010). Broader scale objectives may therefore mean behaviour change over larger geographies, longer time frames, more domains, and a wider set of relationships between those domains.

We illustrate the use of these four criteria of emission-related behaviour using the example of tea drinking. We choose this intentionally to avoid invoking existing debates around the relevant models for framing and understanding proenvironmental behaviour. We draw on various sources which explore tea drinking in depth (eg, Ger and Kravets, 2009), as well as more light-hearted but still insightful analyses in (Fox, 2004, pages 311–313; Nicey and Wifey, 2004).

Consider a policy whose end objective is to reduce the use of energy (and resulting emissions) related to tea drinking. Models representing tea drinking in an individualistic behavioural tradition might emphasise tea drinkers' choice of kettle and the energy form used to warm the water, the amount of water with which the kettle is filled, the social context and timing of tea drinking (the Queen's speech), the attributes of the imported tea, and so on. Taking one example, a model such as that derived from the theory of planned behaviour (Ajzen, 1991) would draw policy makers' attention to tea drinkers' attitudes (organic tea?), subjective norms (colleagues' approval of workplace tea breaks?), and perceived behavioural control (who fills the kettle?)

Models representing tea drinking in a sociology-of-consumption tradition might emphasise the pervasive diffusion of the kettle into homes and offices as a coevolving dynamic with the normalisation of tea drinking within daily life, cultural meanings of comfort and refreshment (mad dogs and Englishmen), our colonial heritage and the promotion of tea drinking by the Victorian temperance movement (*A History of the World in 100 Objects*⁽²⁾), and so on. Taking one example, a model such as that derived from social practice theory (Reckwitz, 2002) would draw policy makers' attention to tea drinking as a manifestation of a practice which is constituted by relationships between materials (kettles, teapots, cups, mugs, teabags), meanings (tea breaks, relaxation, revitalisation, work rhythms and other temporalities, cultural traditions, social class), and procedures (gathering, brewing, pouring, refilling, dunking).

In both approaches, different representations of behaviour (as an observable action) are brought to bear on the same behaviour-change objective: reducing the use of energy related to tea drinking. But the different models characterise this problem differently in terms of its actors, scopes, durabilities, and domains, and consequently offer policy makers different insights corresponding to these different dimensions of scale.

In the case of the theory of planned behaviour (used as an example of an individual, behavioural framing of the problem), behaviour-change objectives emphasise the filling and use of a kettle in the kitchen or workplace. The actors are individual, and networks consist of colleagues or household members; the scope is an isolated behaviour; the durabilities are repeated and reinforced; and the domains are psychological and technological.

⁽²⁾ From Episode 2 on Mass Production, Mass Persuasion (1780–1914AD) of the BBC Radio 4 documentary *A History of the World in 100 Objects*, available from <http://www.bbc.co.uk/programmes/b00v71qr>, and also in book form (MacGregor, 2010).

Policy approaches of a commensurate scale might include information supporting energy-aware attitude formation (don't overfill your kettle), normative messaging (others find cold drinks more refreshing), product labelling (embodied carbon), technological substitution (low-energy tea urns), the organisation of groups (tea clubs) to share resources, dramatic hikes in tea taxes (Boston tea party), or outright bans on tea consumption.

In the case of social practice theory (used as an example of a sociological framing of the problem), behaviour-change objectives emphasise the symbolic function of tea drinking and the competences of tea drinkers in social settings normalised through history and embedded in cultures. The actors are a community of practitioners; the scope is a set of interrelated behaviours; the durability is successively reproduced and enduring change; and the domain is social. Policy approaches of a commensurate scale might include forums for deliberative reflection (role and function of tea?), codified working times and workers' rights (frequency and timing of tea breaks), experimentation with alternative routines of comfort and cohesion (substituting 'a-nice-cup-of-tea?'), or public health campaigns (decaffeination, oesophageal cancer), or the regulation of commercial or political interests vested in tea sales and trade.

Very different models thus provide policy makers concerned with reducing the use of energy relating to tea drinking with very different insights. From a pragmatic perspective, therefore, 'multiple models' can and do coexist. Perceived competition and contradiction between models can be an artefact of their emphasis on behaviour change at different scales.

This is neither integrative nor interdisciplinary (Shove, 2011, page 262; Whitmarsh et al, 2011, page 259); we simply argue for appropriateness. In so doing, we clearly duck many of the epistemological and consequential issues considered in the debate between Shove, and Whitmarsh and colleagues. In particular, we fail to challenge the ways in which policy makers define both the objectives of, and problems confronted by, behaviour-change policies. This is identified as a critical issue by Shove, drawing on Kuhn, who argues that "contrasting paradigms are valuable because they generate *different* definitions of the problem" and not because they provide "a more colourful palette of responses to matters of urgent concern" (Shove, 2011, page 264). Again, our response is pragmatic. In the third of the propositions on which this multiple models perspective rests, we uncritically accept the prevailing efforts of policy makers to influence emission-related behaviours according to the problems and potential solutions as currently framed. Our response to Shove's argument is therefore: we're not there yet. Much the same applies to other policy critiques, including the emphasis on reductionist evaluation metrics and methods which privilege policy outputs (eg, number of lofts insulated) over policy outcomes (reductions in greenhouse gas emissions) (DECC, 2009, pages 83–84).

But from a policy standpoint, there remains an urgent need to use social science to improve the design of behaviour-change interventions, objectives, and strategies. Ensuring wide participation in this endeavour requires a framework for selecting which models work best in which contexts, underpinned by a recognition of the validity and applicability of 'multiple models'. The framework we propose encourages policy makers to distinguish the scale of emission-related behaviours along dimensions related to actors, scopes, durabilities, and domains. This should help guide an appropriate and expansive use of different models. For, as Shove (2010) persuasively diagnoses, policy making is currently dominated by behavioural framings of individuals (and communities) as agents of change. In particular, the promotion of behavioural economic insights by the Cabinet Office using the 'MINDSPACE' framework (Dolan et al, 2010) evidences a one-model-fits-all approach to the application of social science. This may be appropriate, and so relatively successful, for some behaviour-change objectives.

An example in the UK reported by *The Independent* is the official tax letter whose simple rewording led to the collection of an extra £200 million in income tax (Hickman, 2011); many more examples are described at length in *Nudge* (Thaler and Sunstein, 2008). But the same framework is less suited to other behaviour-change objectives. An example is a modal shift from cars to public transport, for which relevant issues include inadequate infrastructure, prevailing norms of mobility, powerful vested industrial interests, and the symbolic or social importance of privatised, personalised transportation (Urry, 2008).

The House of Lord's inquiry into behaviour change clearly emphasised the need to move beyond single-model approaches, finding that "usually the most effective means of changing behaviour at a population level is to use a range of policy tools" (House of Lords, 2011, page 35). This range of tools needs to draw on findings from "a number of scientific disciplines, including neuroscience, psychology, sociology and behavioural economics [which] contribute to what is known about human behaviour" (House of Lords, 2011, page 9).

We argue that the crucial next step is to move from single-model approaches to a multiple-model approach. This is an instrumental view, but one designed to open up an awareness on the part of policy makers to the potential contributions of social science research to emission-related behaviour.

Initial experiences of trialling a multiple-model approach with government suggest this works well in practice. One of us (Chatterton) has built on his DECC/RCUK Fellowship by helping run workshops with civil servants using a multiple-models approach to compare and contrast the insights from behavioural economics and social practice theory on a particular 'problem' (eg, how to support flexible home-working practices in government departments and so reduce the demands on London's transport infrastructure during the Olympic Games). Introducing new theories and concepts as practical, *additional* ways of thinking through policy development is a direct and effective way of broadening awareness of the substantive yet valuable differences between contrasting theories. For the theorists this may seem like putting the cart before the horse. But we argue that the introduction into government of new approaches needs to be done at a practical level, alongside currently accepted models, as a necessary prerequisite to the contestation of the dominant theories of behavioural and social change. "If awareness of anomaly plays a role in the emergence of phenomena, it should surprise no one that a similar but more profound awareness is prerequisite to all acceptable changes of theory" (Kuhn, 1962, pages 67–68).

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