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Behaviour change:
Energy Consumption

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Key recommendations

- Ensure your 'change' programme makes sense and works with the 'grain' of people's lives.
- Use tailored interventions to meet the needs and interests of different audiences in different situations and at different points in time.
- Understanding and acting upon the conditions which affect people's lives may be more effective than directly targeting their energy or environmental behaviours.
- Recognise that one barrier may impact on another – positively as well as negatively. Try to achieve compatibility and synergy across interventions.
- Involve people in energy reduction programmes from the outset. They will then formulate realistic goals, act as ambassadors, acquire a sense of achievement and self-esteem, develop their competences, skills and personal powers, and acquire a sense of ownership.
- Provide people with feedback on people's efforts as this is not only rewarding but also reinforcing.
- Focus on environmentally significant actions rather than environmentally convenient ones.

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Background

This paper addresses the topic of climate change, an issue considered by many to be the major threat the world faces. A major contributor to climate change is energy consumption. Climate scientists agree that the principal manifestation of climate change is global warming which results when the atmosphere traps heat radiating from Earth. Greenhouse gas emissions from domestic, industrial and transport consumption are the principal contributors. The Intergovernmental Panel on Climate Change (IPCC), however, is uncompromising: *'Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia'*[1].

As Figure 1 shows,[2] the domestic sector overtook industry in energy consumption in 1984 and now consumes 29 per cent of energy in the UK. To this one needs to add the energy used by the transport sector (40 per cent) of which a significant part is accounted for by increasing individual mobility and growing car ownership. While reduced energy consumption, and thus carbon emissions[3] from industrial production looks as if we are moving in the right direction, there are two important reasons for this which should lead us to be cautious in assuming the effectiveness of our current efforts and achievements. First, this is in part due to a global recession, and the decline of heavy and energy-intensive industries in the UK with the consequential impact on jobs and the regions. Second, it fails to take into account carbon emissions embedded in *imported* consumer goods and services regardless of the origins of the emissions (i.e., goods made in China for the UK market); these are continuing to rise[4]. In short, we offshore much of our carbon emissions to the Far East.

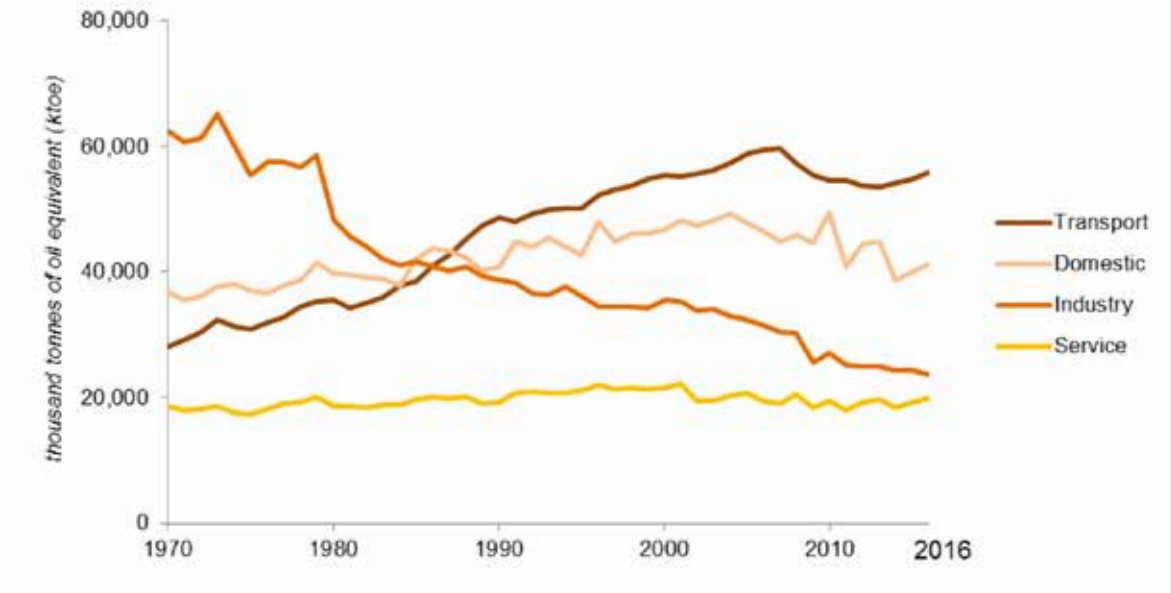

Figure 1: Energy consumption by sector, UK (1970 to 2016)[3].

The challenge

Globally, no one will remain untouched and unaffected by climate change, either directly or indirectly. It will impact on the environment, the economy and social life. Can there be any greater challenge for society than to reconcile the individual and their everyday lives at the local level with collective needs and responsibilities at the global? And yet it is largely to the individual that governments turn, as policymakers have sought to persuade the public that if enough individuals take action, global warming can be halted and even reversed. It is clear that reducing energy consumption and carbon emissions is a priority, and individual action is a necessary although not sufficient requirement if we are to tackle a potential global catastrophe. This provides many opportunities for psychology to make an impact in respect of changes in behaviours and practices.

The psychology

Psychologists have been engaged in behaviour change research and interventions for over 70 years working on behalf of governments in times of crisis. For example, Kurt Lewin played a key role in the United States during the Second World War undertaking research on how to persuade Americans to change their food purchasing and eating habits and to incorporate protein-rich but unpopular organ meats into their diet[5]. The involvement of psychologists in energy issues goes back to the 1970s[6], albeit when concerns focused on security of supply and energy conservation rather than carbon emissions and global warming. The challenge now is for the involvement of psychologists to provide insights into how people perceive, evaluate and respond to GHG emission climate risks, and to advise on the motivations for and barriers to behaviour change in respect of energy technologies and practices[7].

The way we frame problems has a crucial impact on the way we then try to solve them. Successive governments, as well as civil society, have tended to treat climate change as a problem caused by individuals through their excessive consumption. As a consequence, insufficient attention has been paid to the conditions created and stimulated, for example, by governments and industry which encourage people to consume the way they do. By framing the issue of climate change as a problem caused by individuals, we not only restrict our understanding of the potential causes of the challenges that face us, but also close down many of the options for taking action.

The evidence

Barriers to be overcome

Behaviours are not always the product of a rational, deliberative and individual decision-making. They are as likely to be based on opportunistic or emotional impulses, habits and cultural traditions, and social norms derived from family, friends, neighbours as well as a host of other contextual factors. Many behaviour change campaigns, however, start with the assumption that people make rational choices as a result of weighing up the costs and benefits of particular consumption decisions. Moreover, it is often also assumed that simply informing people of the detrimental consequences of their actions and the beneficial effects of alternative actions will lead to pro-environmental behaviour change. In other words, harmful behaviour is the result of a lack of knowledge. This is known as the 'information deficit' assumption. As we know from other areas of public policy that giving people information which is in their best interests and which has the intention of making them safe and healthy has had limited success (e.g., obesity, smoking, driving too fast). Knowledge and positive attitudes may be necessary but they are not a sufficient condition to encourage behaviour change, even among those who know what to do and would like to do it. Changing attitudes does not automatically lead to behaviour change, and where it does it can take time. Often there are multiple constraints on behaviour change, not just informational and attitudinal.

For example, in the case of environmental decision-making, it may not always be immediately apparent to the individual that the public interest can also be self-interest in the longer term. We know that people have a tendency to loss aversion, i.e., they prefer avoiding a loss to acquiring a gain[8]. Thus, cheaper energy in the shorter term is seen as preferable to more secure and less environmentally damaging energy in the longer term. Too often behaviour change campaigns give the impression that putting the environment 'first' means putting the self 'second'. In other words, environmental benefits at the collective level will necessitate a sacrifice in an individual's living standards, happiness and their idea of the 'good life'. This does not have to be the case, in fact quite the contrary. For the kind of social and environmental changes that are required to truly tackle climate change in the longer term, part of the behaviour change message must be to decouple the

relationship between consumption and life satisfaction, a false siren that has been unmasked at the individual and national levels[9,10].

While, some of the earliest attempts to change environmental behaviours focused on 'carrots, sticks and sermons'[11] (i.e., incentives, regulations and environmental education and awareness-raising interventions), there is a growing realisation that using social and peer-group pressures can be effective. For example, increasing attention is now being given to community-based approaches where the emphasis is on engaging communities rather than individuals by identifying barriers to sustainable behaviours, testing the application of behaviour change tools on a small segment of the population and then evaluating their effectiveness across the wider community. For example, community-centred efforts that use informal, real-life social networks[12], the display of public commitment[13], and the encouragement of socially shared norms and the visible behaviour of 'adopters'[14] have shown to be powerful drivers for change. The latter has been applied to publicly observable behaviours such as recycling, but there is evidence of the significant impact of social norms on what are often private and not publicly visible energy saving behaviours[15]. While the growth in online social networks have been employed in health behaviour change programmes[16], the use of social media in respect of the environment has largely only focused on environmental activism[17].

Positive action

Providing feedback on the consequences and benefits of action can be reinforcing when it is specific to the individual and has embedded within it suggestions as to how to make further energy savings[18]. We can also look to motivating individuals when they are in group settings such as the workplace. For example, the situational[19] and organisational context of action may be critical such as the presence of social norms[20], organisational socialisation[21], organisational culture[22].

Tailoring too is important, whereby different strategies will be required for different groups depending upon the different barriers they erect[23]. Segmenting users into Monitor Enthusiasts (20 per cent), the Aspiring Energy Savers (60 per cent) and the Energy Non-Engaged (20%) demonstrated that each of these groups were motivated by different drivers[24]. One way of conceptualising the different barriers to action is to define different groups in terms of 'would', 'could', 'can't', 'don't' and 'won't'. The 'Woulds' include people who are likely to have a positive attitude towards reducing their energy consumption, but this is prevented by some practical and probably external barrier. For example, 'would but can't' may have financial constraints, and 'would but don't' may recognise the importance of reducing energy consumption but do nothing, perhaps they don't know what to do, or are confused. On the other hand, for the 'Coulds' it is attitudinal and lifestyle considerations which need to be overcome. For them, it is more a question of choice. The 'could but won't' may have the financial means but prefer to spend their money in different ways, or think that conspicuous energy consumption communicates a positive image and identity. On the other hand, the 'Could but don't' may have the knowledge and means, but can't be bothered or they oppose it as a matter of principle, e.g. 'Why should I be told what to do?'. Understanding the social, material and psychological profiles of each of these groups will help to inform and identify the most appropriate and useful intervention strategies. What is the ratio of *effort* to *effect for* each of these groups? Different degrees and kinds of effort are required for improving energy saving of low savers by 10 per cent as compared with high savers by 10 per cent.

Changing behaviours is not as simple as throwing a switch so that the individual does something different. Doing something different may have implications beyond simply what they do, such as threatening their identity. For example, we know that for many people, their identities are intimately tied to their work and professions. Threatening particular industrial sectors (e.g., transport) with

carbon-reducing legislation, will threaten jobs which in turn may threaten identities[25]. When people's identities are threatened they are likely to resist; this could be a significant barrier to change[26]. Legislative approaches to climate change have to recognise the need for a 'just transition' to a greener economy which not only stimulates new jobs but jobs which facilitate the emergence of positive identities in the context of carbon-reduced production[27]. Encouraging actions that impact positively on self-identity can have a significant effect on both intentions and behaviour[13].

Nudging our way forward

The 1980s saw the promotion of a political philosophy that privileged individual choice and the 'invisible hand' of the market, rather than strategies relying on coercion as a driver for social change, even though compulsion, for example by local authorities in driving up recycling rates[28], had proved to be successful. Choice, however, may not necessarily be self-enhancing and liberating[29]. It is often designed to confuse rather than enlighten (e.g., one study found the consumer was confronted with 109 different gas/electricity tariffs that included 75 different standing charges[30]). Equally, removing choice from people's control through the use of technology and automation can lead to an abdication of responsibility[31]. Of course, people want to choose, but they want to choose wisely and feel that they are making reasonably rational and conscious choices grounded in criteria which are salient and evidence-based.

When Thaler and Sunstein[32] proposed 'nudging', it was not surprising that this was seen to be an ideal application of a more subtle psychology to influence environmental (and other) behaviours, within the current political culture. It was eagerly taken up through the establishment of the *Behavioural Insights Team*[33] in the UK Prime Minister's Strategy Unit. The rationale behind behavioural insight is that people are more likely to act in a particular way if the desired action goes with the grain of their everyday behaviours i.e., fitting new behaviours into existing habits. Introducing new behaviours at moments of change when adjustment is happening anyway provides another opportunity[34]. While the bottle may be new, the contents are largely vintage psychology drawing on research from over the past 70 or more years which has identified important mechanisms in the persuasion process[35].

Behavioural insights may work best with low resistance and low-cost behaviour changes. But as Stern[36] argues we should focus on environmentally *significant* behaviours (e.g., by purchasing more energy efficient appliances) and not just environmentally convenient ones (e.g., encouraging people to turn off the lights). In other words, it may be more effective to concentrate on changing purchasing behaviour rather than use behaviour. It was found that by making environmentally significant behaviour decisions, people reduced their energy consumption by almost 30 per cent, or 11 per cent of the total US consumption[37]; this was without the need for new technologies or making major sacrifices.

It is important to monitor the environmental and energy impacts of interventions not only in order to assess whether environmental behaviours, energy consumption and environmental performance have changed[38], but also because feedback can be reinforcing.

Changing the conditions which encourage behaviours

People do not always have control over their environment. If the environment does not permit behaviour change, then no amount of persuasion or education to encourage people to reduce energy consumption will be effective (e.g., office windows are sealed so that air conditioning is necessary; large open-plan offices with a result that some desks are far from a window and lights have to be on all day). Sometimes it may be more effective to change behaviours by working not on the behaviours themselves but the social, economic and environmental conditions that lead to such behaviours and the societal context in which people live.

Environmentally damaging actions may simply be the presenting symptoms of more chronic issues derived from our lifestyles and everyday taken-for-granted practices. Some of these practices are locked into the infrastructure of our lives and how we are often prisoners of the environment in which we live. For example, it does not make much sense to try and persuade people to leave their cars at home and use public transport if there are no, or highly infrequent, bus services. If urban planners approve the development of out of town shopping malls and superstores, which then encourage people to do a 'big shop' (e.g., buy groceries for two or more weeks at a time), requiring people to use their cars because they cannot carry their shopping home, this immediately challenges environmentally progressive policies to reduce carbon emissions and energy consumption, or live more active and healthier lives.

Understanding and influencing the conditions that drive behaviours and create social practices should be as much a priority for psychologists and policy-makers as focusing on the behaviours themselves. If leaving TVs and computers on 'stand-by' is so damaging, then it has to be questioned why do we have 'stand-by' options on electrical goods, and why do manufacturers continue to build it into products? Behaviour change has to be seen as part of a more comprehensive package of instruments that involve the product as well as the user.

Manufacturers not only create products but they also attempt to construct our identities through the products we desire and purchase. For example, the decision to drive a 4x4 vehicle is more often governed by the status, image and identity that such vehicles supposedly confer upon the driver[39], than the capability of the vehicle in meeting the driver's needs. It is important that we understand and address the root causes of these needs: they could be personal, e.g., feelings of alienation or the lack of secure social relations that lead people to think that they can be solved through personal consumption[40]; or they could lie within the societal values that generate such unsustainable desires and practices.

Psychology-driven policy interventions can be designed to address individual and community action. For example, we know that socially cohesive communities, where there is a strong sense of place identity and residents feel they have a stake in their neighbourhood and can act together, can encourage environmentally sustainable actions[41]. Therefore, psychologists' role in informing policy interventions that support social cohesion and place identity will not only lead to environmental, individual and community benefits but will also be more pervasive and long-lasting than just focusing on changing behaviours.

Conclusions

Clearly there is a need for individuals to reduce their energy consumption, and psychologists have strategies and methods based on decades of research in the area of influence, persuasion and behaviour change that can inform and guide policy interventions. But while psychologists may be principally concerned with individuals' behaviour, they also have an interest in and can advise on the conditions that drive people's behaviour.

Behaviour change is in part about helping people to make better decisions that put 'ecological and social functioning at its core' without it being 'a paradigm of sacrifice'[42]. Psychology is well placed to demonstrate how behaviour change can contribute to achieving these goals enabling individuals, communities, and societies not only to endure and survive, but also to flourish[43], albeit not at the expense of destroying our world.

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