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Climate change – psychology's contribution

Alexa Spence, Nick Pidgeon and David Uzzell consider psychology's role in debating, combating and adapting to climate change.

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Abstract

Climate change is a word on everybody's lips at the moment. But, what role can we, as psychologists, both individually and within our sub-disciplinary groups play in reducing and adapting to the impacts of society's 'carbon footprint'? This article argues that the issue of climate change raises an important set of research and public policy questions which psychologists are well placed to help address. In particular, we focus on the issues of sustainable behaviour change and nuclear power.

Key Questions:

What does climate change mean for your current research and research practices?

Do you know how your own energy supply is generated? Is it sustainable? And do you care?

The Intergovernmental Panel on Climate Change (IPCC, 2007), a group of leading international climate and policy scientists, has recently concluded that climate change is happening and human actions are making a significant contribution to this change. We probably have less than 15 years to make major changes in our greenhouse gas emissions worldwide if dangerous impacts later this century are to be forestalled. The influential Stern Report (2006), commissioned by the UK Treasury, concluded that the future costs of inaction with regards to climate change will actually be far greater than the costs of taking immediate action. Climate change is no longer a contested issue. What is contested is what we do about it. Governments now recognise that climate change and its consequences need to be addressed by changing peoples' behaviour and everyday practices; technological fixes alone will not be enough. When one appreciates the extent of the causes and consequences of climate change it is clear that psychology should be playing a key role.

Mitigation and adaptation

Climate change is a global phenomenon, a complex product of our energy use, unsustainable consumption, population growth and ecological changes such as deforestation: no one will remain unaffected. So, what can we do? Well, as individual citizens, we can look for ways to limit our use of private transport, turn off unnecessary gadgets, and generally use less energy. But such actions are not necessarily as straightforward as government energy-saving messages would suggest. Much of our wellbeing is tied up with what we consume, and this may have personal as well as environmental effects. Wellbeing and positive psychology is currently making an important contribution to the climate change debate as part of a wider set of critiques of consumerism in today's society. If we consume less, we may end up

being happier people. *Affluenza*, as Oliver James (2007) refers to it, describes the constant struggle for wealth and goods which people currently aspire to, even though beyond a certain (quite low) point, there is no corresponding increase in psychological wellbeing (although evidence here is mixed, see also Deaton, 2008). Quite appealing cries are now being heard for us to slow down, to stop both spending and working so hard, and actually to *do less* for the good of the planet and for ourselves. But consumption operates at a more subtle psychological level in terms of serving to define who we are. Bauman (2007) argues that while formerly people developed their identity in the workplace, now people gain their identity mainly through consumption. And much of this identity-forming consumption requires energy.

One important way in which psychologists are currently contributing to climate change research is through the design of mitigation strategies. This is taking the form of finding ways of understanding what people currently believe and know about climate change (Lorenzoni & Pidgeon, 2006) against the backdrop of changing the behaviour of people and society away from environmentally harmful activities and towards a reduction in our collective and personal carbon emissions. Aspects of this include identifying the barriers which prevent people from changing their behaviour, communicating the why and the how of actions that need to be taken, and aiding the facilitation of debate over what can be done. Psychology also has a role in adaptation measures that will be required for the levels of climate change which are already projected to be inevitable. These will pose challenges within such areas as transnational migration, health, psychological wellbeing, and in resolving so called 'environmental conflicts' where groups and states compete (possibly even go to war) over increasingly scarce resources, or where political conflicts are aggravated by environmental conditions.

Two of the most obvious contributions for psychology will be to advise on behaviour change at the personal level, and on the discourses, engagement, and resolution strategies required for society to debate the profound economic and structural changes required to tackle climate change. With regards to the latter, moving to renewal of nuclear power as part of the future electricity supply ‘mix’ is one of the most controversial current examples.

Sustainable Behaviour Change

The biggest contributors to greenhouse gas emissions in Britain come from transport, heating, and from electricity generation (DEFRA, 2007). Everything that makes use of energy generated through burning fossil fuels is a cause of climate change. Changing our sources and use of electricity, heat, and transport fuel to low-carbon sources (e.g. renewables), increasing the energy efficiency of products, decreasing heat wastage in the home, and making more sustainable transport choices should be a priority. In relation to mitigation efforts, DEFRA (2008) has outlined 12 specific headline behaviours (Table 1). Importantly, psychology has significant scope and potential to both understand and facilitate change in these behaviours. Simply providing information about potential energy saving measures is not sufficient – householders need to know which actions are likely to be most beneficial so they can make priority judgements in terms of effectiveness. Interestingly Stern and Gardner (2008) note that whilst most campaigns and messages have promoted energy conservation, in reality efficiency-improving actions generally save more energy. So the current focus on conservation strategies may actually be misguided and a more considered, and individually tailored, analysis of sustainable actions is required.

Insert Table 1 about here

The application of psychological theory and empirical research is well advanced in respect of environmental behaviour change and sustainable lifestyles (see Jackson, 2005, for a review). Theoretical frameworks such as the theory of planned behaviour (Ajzen, 1991) have been used frequently in this field to examine behaviours such as the use of public transport. For example, Heath and Gifford (2002) identified descriptive norms (i.e. beliefs about typical behaviour) alongside beliefs about control as an important factor in relation to the use of buses. This framework is also often used to direct and evaluate behavioural interventions. Heath and Gifford (2002) note that a behavioural intervention in the form of free bus passes increased bus use and whilst the intervention did not change which factors were considered important, the perceived likelihood of positive outcomes associated with these factors (e.g. convenience) increased.

There are also extensive psychological literatures on particular sustainable behaviours such as recycling. Research at Surrey indicates that identity is an important factor in recycling. People who recycle, for example, are viewed as likeable and energetic and as individuals who have strong environmental beliefs (Nigbur et al., 2005). However, those who recycle are also often seen as ‘do-gooders’ and as left wing, green voting, hippy types. It is therefore important to be aware of the self-presentational implications of environmental behaviours in order that stereotypes held regarding these may be built on, combated, or incorporated into behavioural communications and interventions undertaken. There is also evidence that as these behaviours become the norm, so negative identities may be reduced.

Further research has employed a diverse range of psychology theories including those relating to implicit associations, intergroup behaviour, social capital, social cohesion, and social and place identity theories. While various studies within different fields make significant contributions to our understanding of sustainable behaviour, it is now a particularly important aim to assimilate and integrate this research across theoretical and empirical domains in order that gaps can be systematically identified.

Crucially, it is clear from work in both health and environmental psychology that communication strategies aimed at changing attitudes alone, sometimes referred to as *downstream interventions*, may not be sufficient to generate sustained behaviour change. It is also necessary to engage in *upstream interventions*, i.e. structural changes, in order to generate, support, and reinforce effective behaviour change across groups. This parallels discussions of the need to integrate psychological theory regarding internal constraints on the individual, and economic theory regarding external constraints (Stern and Oskamp, 1987). Structural changes to initiate and facilitate changes in behaviour may refer to social organisation (e.g. community groups), the political and economic environment (e.g. policy tools such as legislation and taxes), and the available physical infrastructure (e.g. new bus routes or protected cycle routes). Bamberg (2007) provides an innovative example of a combined approach to promoting behaviour change by providing information about buses and a free bus pass to individuals who had recently relocated, an approach that was particularly effective in increasing public transport usage. Incentives must be appropriate for the behaviour though and Gardner and Stern (2002) discuss principles for selecting these. Incentives must be large enough to be effective (although beyond a certain point these may have little effect), credible, politically acceptable, evasion-

proof, and noticed (so people are aware of them). These must also be appropriate to the particular barriers for action and to the target audience.

We know that targeting and tailoring intervention campaigns are more effective than a shotgun approach. In the case of recycling, there are some communities where recycling levels are high already, some where they are very low to non-existent and then some in between. So where and how should targeting and tailoring be applied to ensure it is most effective? A study investigating the barriers that people mentioned in changing from disposable to modern reusable cloth nappies, found that different groups of parents emerged as having different constraints and needs (Uzzell and Leach, 2003). One way of conceptualising the different barriers was to define the different groups in terms of ‘would’, ‘could’, ‘can’t’, ‘don’t’ and ‘won’t,’ change their nappy types (see Box 1). While some local authorities recognise that finance may be an issue and put in place incentive schemes, many just rely on information and assume that behaviour change messages are suitable and effective for all publics. For example, the *Could* parents may not be impeded by a practical or external barrier but have attitudinal and lifestyle considerations to be overcome; for them, it is more a question of choice. The *Could but won’t* parents may think recycling doesn’t communicate the right image, e.g., a van coming to collect nappies. On the other hand, the *Could but don’t* parents have the ability, knowledge and means, but they just can’t be bothered or they oppose it as a matter of principle e.g., “I pay my city tax – they should collect my waste”. The various group categories and their social, material and psychological profiles will help to inform and identify the most appropriate and useful strategies and resource requirements. What is the ratio of *Effort* to *Effect* for each of these groups? Is the same amount and kind of effort required in order to raise the recycling rate of low recyclers by 10% as is needed for

high recyclers? Of course, behavioural maintenance is crucial, and it is suggested that any long-term environmental behaviour strategy should be situated in the relationships between people, both individually and collectively, and their environment (Uzzell *et al.*, 2002).

At the level of community interventions social capital, defined as the characteristics of social organization, such as norms of reciprocity which facilitate cooperation for mutual benefit, is seen as particularly important. Within health research, social capital is noted to have important supportive impacts on positive health behaviours and on social control over negative health behaviours (Poortinga, 2006). It is also likely to be a key aspect in promoting sustainable behaviours. For example, some people are much more willing to act if they believe that other people are also taking action. Therefore, if you see your neighbours recycling, or composting, or cycling instead of driving, for example, you are more likely to undertake these behaviours yourself (Nigbur *et al.*, 2005).

Controversy and Public Policy

Extensive economic and structural changes will be essential in order to mitigate climate change and these are likely to fuel political and public controversies. A second important role for psychology, therefore, is in understanding the dynamics of these controversies, and research at Cardiff has particularly focussed on this. Current and future changes within society will include amongst other things the development of new energy solutions, e.g. wind farms, and economic changes, e.g. carbon credit trading. Probably the most controversial issue at present is the further development of nuclear energy. The UK government has now given the go-ahead for new nuclear power stations in Britain and has taken various steps towards modifying

planning legislation and identifying likely sites to encourage the development of new stations by private companies. Proponents argue that nuclear power, as a low carbon electricity source, is needed to meet rising electricity demand and that there is no viable alternative (if greenhouse gas emissions targets are to be met) for replacing Britain's current ageing nuclear and coal-fired stations when they reach the end of their operational lives. Opponents, on the other hand, argue that current nuclear stations only represent a small fraction of our total energy use (3-4%) and that the costs of new nuclear power stations and related decommissioning may be vastly underestimated. Not only, it is argued, will further investment in nuclear power detract from much needed exploitation of alternative and renewable technologies, but it may even, by suggesting that a simple technological solution exists, deflect attention from the behaviour changes that are needed for society to tackle climate change on a broader front. Past links with nuclear weapons manufacture have also been the focus of high profile civil opposition campaigns from influential activist groups, e.g. the Campaign for Nuclear Disarmament (CND) and Greenpeace. While these issues may on the surface appear to be simply about the characteristics of competing technologies, underlying the public debates are controversies which range from attitudes towards consumption and more sustainable lifestyles, equity and developing world issues, through to concerns over nuclear weapons proliferation. Mapping such underlying dynamics is an important part of understanding why controversy exists in the first place.

Past psychometric research on people's perceptions of nuclear power demonstrates a consistent set of highly negative associations for most people (e.g. Slovic, 2000). Following its long history of negative publicity, people associate it with accidents such as Chernobyl and Three Mile Island, but also hazardous waste

and the ‘dread’ of invisible radiation. Commenting retrospectively on the impacts of this work, Baruch Fischhoff (1990) has argued that policy-makers of the past tended to take notice only as a means of last resort, or when the behaviour of the public seemed to threaten existing policy: as when nuclear power was last the focus of intense opposition in the 1970s and 80s. Indeed, a default is often for policymakers – who rarely have direct access to expert psychological advice - to rely upon their own personal assumptions and stereotypes about human behaviour and what various sectors of the public think and want, without taking the trouble to gather direct evidence. Psychological research on perceptions can provide at least some minimal evidence about what people currently know and believe about energy technologies, with the goal of facilitating better communication between all parties and groups in society about the respective risks and benefits of both climate change and the available energy options. For example, in a community sample obtained in 2007 from locations across Britain, participants’ own attitudes towards nuclear power were overall neutral whilst their judgements of the attitudes of others were far more negative (Spence *et al.*, 2008). Systematic psychological research can also illustrate some of the methodological complexities of studying ‘attitudes’ and preferences in the real world - for example, the many contextual factors, and ways of framing current technology choices, which can influence a study’s outcome – hence cautioning against basing policy or risk communications upon the conclusions to be drawn from any single study or one-off opinion poll.

Insert Figure 1 about here

Current evidence from a number of studies does indicate a clear ranking in people's general preferences for different sources of energy: renewables such as solar power or wind farms are the most favoured, fossil fuels less favoured, while nuclear power is perceived most negatively (Figure 1; source Poortinga *et al.*, 2006). What is particularly interesting is that the climate change and energy debates may be leading to a significant change in public perceptions of nuclear energy. Attitudes are currently far more ambivalent than in the past, with nuclear power now linked with benefits such as cleaner air, a reliable supply of electricity independent of other countries and, for some people, a reduction in CO₂ emissions (McGowan & Sauter, 2005). Importantly, perceptions of nuclear power may be significantly different depending on the context in which they are placed, e.g. in relation to rising oil prices, if a new nuclear plant is to be sited in your town, or within the context of climate change. Recent qualitative and quantitative research at Cardiff indicates that a majority of the British public might be prepared to 'reluctantly accept' nuclear power if they believed it could contribute to climate change mitigation (Pidgeon *et al.*, 2008). However, what the research also clearly demonstrates is that people are uncomfortable with any simplistic climate change/nuclear power trade-off. Acceptance of nuclear power is highly conditional, with few people actively preferring it over renewable energy sources given the choice. Pidgeon *et al* also point out that latent concerns over risks remain for most people, and that the apparent levels of support are fragile, and could easily disappear in the face of any major nuclear accident across the globe. Policy makers must therefore take heed of public perceptions and concerns regarding nuclear power in order to understand why controversy and public opposition surrounding this issue might still occur.

Future

The BPS is currently planning a major conference in mid 2009 directed at senior policy-makers from government, civil society organisations and industry focussing on how psychology can make a unique and significant contribution to climate change mitigation strategies and programmes. This provides an exciting challenge and opportunity for psychology. Climate change should not be seen as the preserve of just environmental psychologists. Interestingly, counselling psychologists are already making a contribution to this area (cf. Rust, 2008), but there are opportunities for all psychologists in all areas of the discipline – cognitive, organisational, health psychology to name but three - to demonstrate that their areas of specialism have an important role to play. Yes, change your light bulbs to energy efficient versions, but consider your research, teaching, and professional work as well.

Word Count: 3263

Resources

www.understanding-risk.org

http://www.psy.surrey.ac.uk/Research/environmental_psychology/index.htm

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Box 1 – Barriers for different target groups in relation to choosing cloth nappies

Woulds – People who are likely to have a positive attitude towards, say, using cloth nappies but their willingness to make this choice is reduced by some practical and probably external barrier.

- **Would but can't** – those who may have financial constraints on choosing cloth nappies as the initial outlay can be high.
- **Would but don't** – those who recognise the importance of the environment, but do nothing – perhaps they don't know what to do, are confused, do not have the confidence, or feel intimidated by others.

Coulds – those who have fewer practical barriers – it is attitudinal and lifestyle considerations which need to be overcome: for them, it is more a question of choice.

- **Could but won't** – those that have the financial means but prefer to spend their income in a different way, or they don't think recycling communicates the right image.
- **Could but don't** – those who have the ability, knowledge and means, but they just can't be bothered or they oppose it as a matter of principle, e.g. “Why should I be told what to do”.

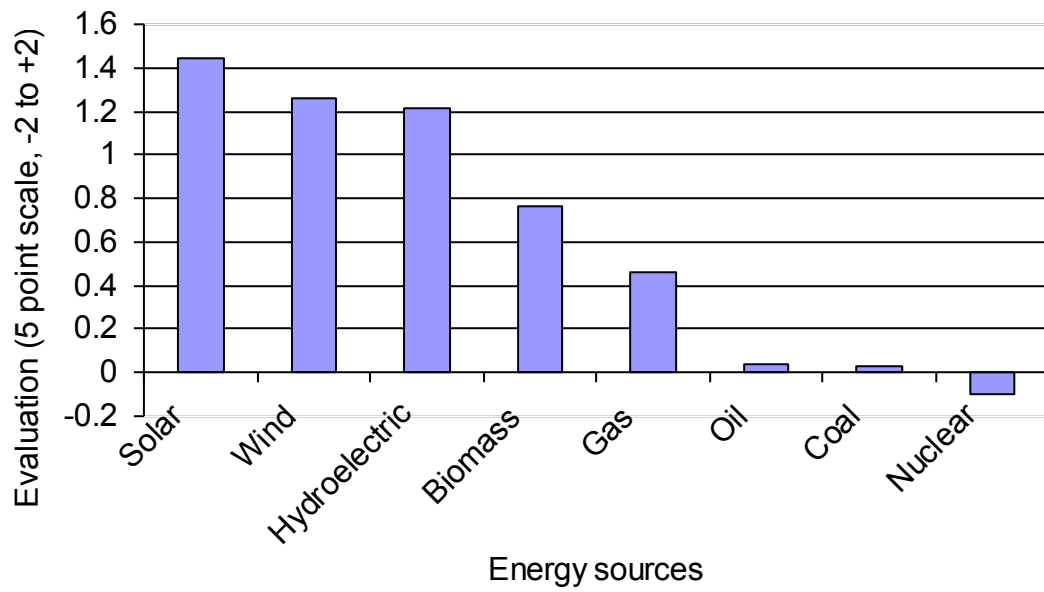
Adapted from Uzzell and Leach (2003)

Table 1 – DEFRA’s 12 headline sustainable behaviours

Fields of Behaviour	Behaviours
Personal Transport	<ul style="list-style-type: none">- Use more efficient vehicles- Use car less for short trips- Avoid unnecessary flights (short haul)
Homes: energy	<ul style="list-style-type: none">- Install insulation- Better energy management- Install microgeneration
Homes: waste	<ul style="list-style-type: none">- Increase recycling- Waste less (food)
Homes: water	<ul style="list-style-type: none">- More responsible water usage
Eco-products	<ul style="list-style-type: none">- Buy energy efficient products- Eat more food that is locally in season- Adopt lower impact diet

(Adapted from DEFRA, 2008)

Figure 1 – Public Evaluations of Energy Sources



(Adapted from Poortinga, Pidgeon, and Lorenzoni, 2006)