CARBON CAPABILITY

understanding, ability and motivation for reducing carbon emissions

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Introduction

The UK government's recent Climate Change Bill set an ambitious target of an 80% reduction in emissions by 2050. This level of response to climate change has profound implications for individual choices and behaviour, as well as for the social structures in which these operate. With over one third of many nations' carbon emissions coming from private travel and domestic energy use, individuals clearly have a key role to play in any potential shift towards low-carbon societies. An individual can take several roles in promoting a low-carbon society such as a low-carbon citizen (e.g., voting for a 'green' policy), a low-carbon consumer (e.g., buying locally-sourced food) or a low-carbon employee (i.e., an employee with a commitment to a low carbon future who acts as a change agent in the workplace). At the moment, however, public engagement with climate change in the UK is limited and energy demand for both domestic uses and transport is rising. Although a large majority of the public recognises terms such as 'climate change', understanding and emotional buy-in are far lower. One problem is that there is a general lack of knowledge about the urgency of the situation, the scale of social changes necessary to reduce carbon emissions by 80%, and about the emissions impacts of different actions - the UK public is not yet 'carbon capable'. In this chapter, we introduce the concept of 'carbon capability' before suggesting ways that education can help learners to become more carbon capable.

Why 'carbon capability'?

We define 'carbon capability' as follows (adapted from Seyfang et al. 2007):

> 'Carbon capability' captures the *contextual meanings* associated with carbon, whilst also referring to an individual's *ability* and *motivation* to reduce emissions within the broader institutional and social context.

Importantly, carbon capability is not defined simply as knowledge, skills and motivations (although these are important components); rather, if people are genuinely carbon capable they will understand the limits of individual action and the need for collective action and other governance solutions. Also, a genuinely carbon capable individual appreciates that there are barriers in current systems of provision which limit the ability of an individual to act, and that much consumption (and hence carbon emissions) is inconspicuous, habitual and routine, rather than the result of conscious decision-making (van Vliet *et al.* 2005). Many studies show people face considerable obstacles to low-carbon lifestyles. These range from insufficient knowledge about effective actions, through perceived social inaction and the 'free rider effect', to inadequate or unattractive alternatives to energy intensive activities such as driving (Lorenzoni et al. 2007).

Carbon capability is similar to financial capability and involves managing budgets, planning ahead, staying informed, and making choices (Seyfang *et al.*, 2007). Indeed, there are similar driving forces, and comparable consumer issues with both types of capability, necessitating a

holistic approach to sustainable consumption in both financial and resource terms. Carbon and finance are inextricably linked since excessive material consumption in developed countries is widely acknowledged as a principal driver of economic growth and unsustainability.

Given the state's reliance upon economic growth as a measure of development, the response of governments has been to to promote 'financial capability' as an important basic skill and emphasise individuals' responsibility to successfully navigate financial markets for themselves using this skill. This implies a deregulated economy governed not by government, but rather by individual producers and consumers' self-restraint (Binkley 2006). The credit crunch, however, has show the manifest failure of this approach. If government is relying on individuals to manage their behaviour in this way, then people need to be skilled, motivated and capable of doing so, but more than that, they need sufficient understanding of the limits of voluntary self-restraint in order to demand appropriate regulation.

Managing finance and managing carbon are also similar in the way that they have intangible aspects. Perhaps partly because of credit finance's innate intangibility compared to cash transactions, debt has become widespread. Similarly, the negative impacts of increasing carbon emissions are easily ignored because of their intangibility. One of the challenges therefore for promoting carbon capability is to increase the visibility of carbon and re-materialise energy use in day-to-day activities and choices. Carbon capability is about transforming understandings of carbon from an inevitable waste product of modern lifestyles, to a scarce and potent resource to be carefully managed.

Being carbon capable implies knowledge of:

- the causes and consequences of carbon emissions;
- the role individuals - and particular activities - play in producing carbon emissions;
- the scope for (and benefits of) adopting a low-carbon lifestyle;
- what is possible through individual action;
- carbon-reduction activities which require collective action and infrastructural change;
- managing a carbon budget;
- information sources - and the reliability (bias, agenda, uncertainty, etc.) of different information sources; and
- the broader structural limits to and opportunities for sustainable consumption.

In light of these multiple dimensions, carbon capability can be seen as intimately linked with other aspects of sustainability, for example issues of well-being, community, food, transport, housing, social justice, climate adaptation, and governance.

Evidence of a shift towards promoting carbon capability includes the development of 'carbon calculators' and discussion about managing 'carbon footprints' (see *Materials Awareness,* this volume). Yet our research suggests these new concepts and tools are having little impact at the individual or household level (Whitmarsh et al. 2009). People talk about carbon in very abstract and impersonal terms, and others (e.g., industry) are blamed for causing climate change. Carbon emissions are rarely linked to personal actions and lifestyles choices; for example, few people are aware of the significant climate impact of eating meat. Also, very few people have used a carbon calculator or are taking significant steps to lead a low-carbon lifestyle. Importantly, it is rare for citizens to consider political action a valid response to tackling climate change (Whitmarsh et al., forthcoming).

Promoting carbon capability

Carbon capability is a capacity pertaining to individuals, but, as discussed earlier, there are many changes that are necessary at the higher level of economic and social structures in order

to create an enabling environment so that people *can* reduce their carbon emissions if they wish. It is essential then that learners go beyond gaining skills in reducing their own carbon footprint, to skills and understanding which can help them influence social institutions and organisations. Examples of two directions that this influencing could take relate to 'materialising' and 'budgeting' carbon emissions:

> *Materialising carbon emissions* involves using tools and techniques which make carbon emissions more tangible in daily activities. Tools such as smart electricity meters and carbon labelling of consumer products work to make carbon emissions associated with consumption and manufacture visible and accountable, encouraging awareness of carbon costs associated with particular actions and everyday choices. Materialising carbon emissions allows development of enabling contexts in which people are able to act on their knowledge about carbon and its impacts if motivated to do so.
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> *Budgeting carbon emissions* relates to the management of personal carbon quotas, and typically involves community engagement with like-minded people. Through goal-setting and support networks, participants are helped to achieve their goals. Members of the Royal Society of Art's CarbonDAQ, for example, report their personal carbon emissions within a 'personal budget' framework and trade carbon allowances in a virtual market. Similarly, Carbon Reduction Action Groups (CRAGs) are community-based voluntary groups ('craggers') who adopt a 'weight-watchers' approach to cutting carbon footprints: regular meetings provide support for reducing carbon emissions and include a 'weigh-in' to calculate actual emissions against personal carbon allowances (which are reduced each year). While the number of people engaged in such activities is small, particularly in the light of an 80% reduction target, national frameworks such as carbon rationing could make this form of activity inclusive of a far wider range of people.

Learners need to think beyond the simplest energy-conservation measures, however, since interventions are needed at a larger scale than the household level. They could consider small-scale interventions such as car share clubs, sustainable energy projects, the linking of personal emission-reductions with community benefits (Prescott 2008), to larger institutional and corporate transformation, and right up to the level of national carbon rationing or global agreements for emissions trading.

Conclusions

This brief exploration of carbon capability suggests a need for learners to gain skills not only in reducing their own carbon emissions, but in influencing social and economic structures through skills in communication and public education. This needs to go beyond simply providing information, since information provision alone is not enough to encourage lifestyle change or promote public acceptance of policy (e.g., Lorenzoni et al. 2007). Also, it should be acknowledged that scientific knowledge will be interpreted in diverse ways by different individuals according to their prior beliefs, knowledge, emotions, and situational factors (e.g., Whitmarsh et al. 2005). This chapter has argued for the need for learners to explore situated meanings of carbon and energy in everyday life and decisions, within the broader context of structural opportunities for, and barriers to, low-carbon lifestyles. There are far more aspects to carbon capability than could be covered in this short chapter, but a central component of carbon capability must be the ability to resist - and create alternatives to – the social structures that underpin consumerism.

Example Exercise: Cutting Carbon

The purpose of this exercise is to demonstrate that individual action is only one part of the carbon-management picture, and there is a limit to what can be achieved by individuals acting independently. To achieve the necessary cuts in carbon emissions, collective action and action by business and government are essential to shift fundamental infrastructures of society.

(a) Investigate your carbon footprint using the following web sources:

1. www.carbontrust.co.uk/solutions/CarbonFootprinting/
2. wi.footprint.wwf.org.uk
3. actonCO2.direct.gov.uk/index.html

- who is providing these calculators?
- what do you think their aims are in providing the calculator?
- what are your scores for each of the footprint calculators?
- what assumptions are made in each of the footprint calculators?
- how useful do you think calculators like this are for contributing to a low carbon future?

(b) How could you, acting on your own, reduce your carbon footprint?

(c) How could the following people or organisations help to create an environment which would make it easier for you to reduce your footprint?

- your fellow household members
- your community
- businesses
- government
- other organisations?

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