What should be the focus of 'behaviour change': Individuals or society?

Tim Chatterton, *University of the West of England, UK*

ABSTRACT

Purpose

This article discusses the contemporary notion of 'behaviour change' and how   it is causing divisions between those disciplines and practitioners who use approaches that are grounded in individualist worldviews, and those who are led by approaches that emphasise the importance of social realms.

Design/methodology/approach

By likening this dichotomy to the problem in physics of wave-particle duality with respect to light, it is argued that both views may hold some truth, and that neither approach is likely to be adequate for fully addressing the problems at hand.

Findings

Given the choice of two alternate means of understanding behaviour and trying to bring about change in the world, it is necessary to consider which approach is best suited to achieving results on the scale demanded by the environmental and public health challenges we face, and whether the individualistic approaches, that currently seem hegemonic, pose undue risks to achieving society's desired aims regarding challenges such as climate change, air pollution and obesity.

Keywords: Individualism, Behaviour, Behaviour change, Social, Practices, Environment, Public health

INTRODUCTION

But what is light really? Is it a wave or a shower of photons? There seems no likelihood for forming a consistent description of the phenomena of light by a choice of only one of the two languages. It seems as though we must use sometimes the one theory and sometimes the other, while at times we may use either. We are faced with a new kind of difficulty. We have two contradictory pictures of reality; separately neither of them fully explains the phenomena of light, but together they do. Albert Einstein & Leopold Infeld (1938), pp. 262-263.

Over the last decade or more, the term 'behaviour change' has become a much contested term at the interface of policy and academia, particularly within areas such as health, environment and transport. These issues tend to have significant social and structural influences, and it is often argued that the focus on 'behaviour change' ignores the importance of these factors and instead ends up placing responsibility on individual citizens, in what the health community has for several decades considered 'victim blaming' (e.g., Crawford, 1977). The individualisation of problems is in line with many aspects of neo-liberalism which, through its fundamental grounding in classical economic theory, has been argued to have an "*unwavering commitment to methodological individualism,* [reducing] *humanity, in all its diversity, historicity, and complexity to a singular and abstract formulation of individual utility maximisation*" (Brodie, 2007, p. 101).

However, like it or not, the terms 'behaviour' and 'behaviour change' exist and have relevance - not least in the policy realm. A common argument, particularly between different disciplines in academia, is whether we should be looking at 'behaviour' (i.e., taking a psychological/economic perspective) or 'practices' (i.e., taking a particular sociological view - see for example Blue, Shove, Carmona, & Kelly, 2016). From the perspective of those more concerned with creating positive change in the world, these disciplinary distinctions over what perspective is 'right' are, arguably, not

the most important distinctions. What is important is whether we consider 'individuals' or 'society' the most appropriate locus at which attempts to make changes should be focussed. To date, the policy area around 'behaviour change' has been dominated by individualistic models and theories of behaviour. The aim of this paper is not to argue against these viewpoints, but to indicate that, in many cases, these approaches are unlikely to be sufficient to achieve high ambitions, and potentially in some cases be inappropriate, or at least inefficient, methods. In the context of 'sustainable' behaviours, whether focussing *specifically* on carbon reduction or not, a long-term timeframe out to 2050 and beyond now needs to be considered to align with both predicted environmental changes as well as current policy timelines. Therefore, the notion of 'individual behaviour change' becomes considerably less relevant for these issues than it *might* be for personal health issues. Although there is still a substantial role for social and environmental context in health-related behaviour (see for example, Blue et al., 2016; Kelly & Barker, 2016), the link between actors and impacts is far more immediate than for environmental impacts.

There is, and has been, significant debate about the extent to which individualistic and social approaches may or may not be 'compatible' (Shove, 2010, 2011; Whitmarsh, O'Neill, & Lorenzoni, 2011). From a practitioner perspective, it has been argued that they do not have to be compatible, but they can be complementary (Chatterton & Wilson, 2014; Wilson & Chatterton, 2011). Indeed the use of multiple models (in particular, ones that consider internal psychological processes and ones that emphasise the role of societal structures) is important because, as stated by Abraham Maslow *"It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail"* (Maslow, 1966, p. 15). But what are the significant differences between individual and social perspectives? In the following article, we will consider some of these.

Firstly, the tendency for academia to look at issues from a singular disciplinary perspective prompts the question as to whether humans are fundamentally individual or social. This is likely to be a false dichotomy and they are probably both and neither. This problem can be seen as similar to the wave-particle duality conundrum associated with light (hence the quote from Einstein at the beginning). Light behaves either as a wave or particle depending on how we look at it. In a similar way, economics and psychology both take a fundamental view of the paramount importance of the individual, either due to utility maximisation decisions (as described in the earlier quote from Brodie, 2007), through the focus on internal processes being central to behaviour (e.g., cognition, personality, memory, emotion, perception and learning) or due to a view that in evolutionary terms individuals are the primary units of selection (Schank, 2001). Because of this, these disciplines have largely undertaken studies based on examining people in such a way (isolated experiments, surveys, etc.) that the subjects are tested as, and end up appearing to behave as, individuals (in the same sort of way that light changes its apparent behaviour depending on the experimental method). Sociology, on the other hand, turns away from individuals and focusses on 'the social', and therefore it tends to find strong explanations in what people do within societal structures and contexts. To claim that either view is completely right would be to try and discount a large amount of good evidence on either side (though it should be noted that the quality of a lot of psychological research has recently been put in doubt, Open Science Collaboration, 2015). However, neither of them may be completely right at all. To quote statistician George E.P. Box *"All models are wrong but some of them are useful"* (Box, 1979, p. 2). Therefore, the task for the practitioner seeking to bring about real, significant change in the world must be to identify which approach is *most* useful in particular situations, and to do so in a manner which is open and honest and that isn't subject to undue disciplinary or political biases, or because it comes up with apparently simple (but not necessarily effective) recommendations for action.

Kelly and Barker (2016) argue that, in the context of health, taking an individualist behavioural approach has found favour in policy for two reasons, because *"it avoids having to think about the complexity of the social, political and economic factors which influence people's health and it sidesteps confronting the powerful vested commercial interests that may not want people to change*

their behaviour to more healthy ways of living" (p. 110). Economic and psychological models of behaviour have also been considered very *useful* within a policy realm that has required quantification, prediction and evaluation for the more pragmatic reason that they have lent themselves to discrete experiments which can be tested and modelled. However, given the scope and timeframe of the challenge posed by climate change, or generational issues in terms of health risks such as obesity, is there any evidence that these tools will be able to deliver what we need in terms of understanding how people will act and react several decades into the future? Or is their strength at the scale of narrowly focussed, reductionist applications exactly the opposite of what we require in understanding how to bring about a future society where the cumulative sum of *everybody's* actions results in a minimal level of carbon being emitted?

REASONS NOT TO FIXATE ON 'INDIVIDUAL BEHAVIOUR CHANGE'

As we look out to 2050, it is vital that we take a long view in order to ensure that efforts to reduce carbon emissions through different patterns of behaviour produce significant results in the long term. Even in the here and now, it is arguable that trying to change the behaviour of an entire country's population on the basis that they are all separate individuals is a wildly inefficient way to go about things. This is particularly the case where strategies are employed that specifically target the points of decision and choice, as with economics (for example by changing pricing - see Allcott & Mullainathan, 2010) and behavioural economics (such as the changing of wording on forms or letters, as in the cases of tax demands and organ donation

- see Cabinet Office, 2011).Other, broader approaches, however, try and change the wider basis on which all (or at least many) decisions are made, as is often done with respect to psychology through attempting to shift peoples' underlying attitudes, beliefs and values (as has been done with kerbside recycling - see Guagnano, Stern, & Dietz, 1995; Werner et al., 1995), or from a more sociological perspective changing the social context within which decisions are made and actions taken (as arguably, done to some extent through the UK ban on smoking in public buildings - see Blue et al., 2016; Kelly & Barker, 2016). However, looking to create substantial change out into the long term, there are two key reasons why it may be much more appropriate to take a social rather than individualistic view:

1 Individuals are changing

Looking out to 2050, in the UK alone, 30 million people will be alive then who haven't been born yet, and 23 million people who are alive now will be dead by then[1]. That is a lot of wasted and reduplicated effort if we treat them all as individuals whose behaviour needs to be changed through interventions which recognise and appropriately address their individuality. By focussing on particular individuals, especially immediately before and after interventions that are being tested, we tend to miss the scope for individuals to change themselves. For example, Goodman, Sahlqvist and Ogilvie (2014) have shown significant increases in physical activity levels in the vicinity of a new off-road cycling infrastructure between one year (the traditional evaluation period) and two years after it was completed. This sort of short-term evaluation that is so often the norm in policy domains overemphasises the importance of the intervention as an action, and not the more passive legacy it leaves behind. By focussing on the short-term changes brought about by interventions, we overemphasise the *creation* of the cycle path as opposed to its simple *existence*. Thus, we miss how the new infrastructure may attract increasing use over time, such as in five years when people might move to the area because of the infrastructure, in ten years when a generation of children have

---

[1] Based on 2014 population and birth and death rates from http://www.indexmundi.com/

grown up safely cycling there, or further into the future when this generation leaves home and takes its cycling practices elsewhere and goes on to create a new generation of cyclists. There is an increasing emphasis on the importance of 'life-course' events (Darnton, Verplanken, White, & Whitmarsh, 2011), particularly in transport behaviour research (Chatterjee, Sherwin, & Jain, 2013; Lanzendorf, 2003; Prillwitz, Harms, & Lanzendorf, 2006; Scheiner & Holz-Rau, 2013), but also in other areas such as sexual health (Mercer et al., 2013), alcohol consumption (Britton, Ben-Shlomo, Benzeval, Kuh, & Bell, 2015), and energy consumption (Horta, Wilhite, Schmidt, & Bartiaux, 2014). However, the propensity for changes in behaviour over the medium (rather than short) term is still seen as under-recognised (Marsden & Docherty, 2013). From a conventional, individualistic behaviour change perspective, evidence from life-course research tends to result in key moments in the life-course being seen as potential trigger points for targeting individuals when their habits are in a state of flux (see for example Ory, Smith, & Resnick, 2012). However, another conclusion would be that, as these life-course events are clearly identifiable across large numbers of individuals, then there is something fundamentally social and structural occurring that might be more amenable to the languages of sociology. For example, in social practice theory (Hargreaves, 2011; Reckwitz, 2002; Shove, Pantzar, & Watson, 2012; Warde, 2005) particular *meanings* may be attached to different life stages, or access to particular *materials* may change through increases in wealth as people grow older. If we consider the burgeoning work on the mobility patterns of millennials (e.g., Dutzik, Inglis, & Baxandall, 2014; Garikapati, Pendyala, Morris, Mokhtarian, & McDonald, 2016; McDonald, 2015), there are clear expectations being shown of how people of certain ages normally travel, and that the most recent generation of young adults is apparently behaving differently. There are many reasons for these changes, some linked specifically with the perceived phenomenon of 'Peak Car' (Goodwin & Van Dender, 2013) but others less so. What tends to be clear from the research is that a question lingers with regard to whether this generation is going to continue in its avoidance of the car, or whether it is simply deferring the changes to its lifestyle (often for economic reasons) that result in being locked into automobility. What this work highlights is that whilst there may be clear 'life-course' moments that may form points for individual interventions, there is clearly already a fundamental acknowledgement that people do change their behaviour over time, irrespective of interventions. Therefore, rather than trying to catch every individual as they metamorphose between lifestages, we should work on shaping society so that when change happens it happens in the most beneficial way.

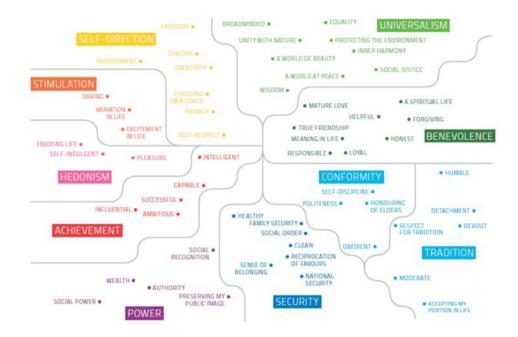## 2 Behaviour is changing because society is changing

There are huge changes going on in behaviour, and society, many of which dwarf anything that has ever been achieved directly through policy or behavioural interventions. Take for example the phenomenon of 'Peak Car' mentioned earlier. Over the last couple of decades, there have been significant drops in both numbers of driving licences held by under-30s, and in per-capita mileages done by cars (Goodwin & van Dender, 2013). Neither can be traced to specific sets of transport policies (and in fact the trend appears to be fairly consistent across many 'developed' Western countries that have considerably different approaches to transport policy, Goodwin & van Dender, 2013). Instead, it may be down to a combination of many changing factors in society including patterns of demographics (especially aging and household size), economics (changes in employment patterns and variations in transport costs), changes in education, land use, and perhaps not least technology (including mobile phones and the Internet). Within this context, individuals' decisions whether to take up car ownership or to drive less are clearly being made within, and as part of, changes that are occurring on a much greater scale. This is just one very clear, and well researched, example of how society, and not just the individuals that comprise it, is changing. In this example, it appears to be changing in a way that is desirable, in terms of many sustainability goals at least. It is unclear to what extent deliberate sustainable transport policies have directly contributed to this effect (though the general opinion seems to be not greatly). However, there is little sign of

policymaking latching on to this social change, recognising these shifts and aligning policy and policy intentions to make the most benefit from the change. In fact, it has been argued that, in the UK at least, the Government is in denial about the changes (Leyendekker, 2016). With the need to achieve the very long-term goals required by sustainability policies, in order to take a credible view of behaviour in the future, we will have to take a social view in order to account for likely changes that are possible or already underway, in order to effectively work either with or against them.

THE SOCIAL CREATION OF INDIVIDUALS

It is not just research experiments that have the ability to make people appear to behave either individually or socially, but also policy. Since the 1980s, there have been fundamental shifts in how society is organised that push people into behaving, or appearing to behave, as individuals. In the UK, Margaret Thatcher is famous for claiming "*There is no such thing as society … . There are individual men and women and there are families*" (Keay, 1987). It has been recognised that "*the neoliberal model does not purport so much to describe the world as it is, but the world as it should be*" (Clarke, 2005, p. 59). The framing of many UK policies instituted, or accelerated by, the Conservative governments of the 1980s, as well as subsequent governments of varying political persuasions, can be seen to actively drive people into behaving as individuals (in a similar way as psychology experiments discussed earlier). Perhaps the highest profile example of policies pushing towards greater individualism can be seen in the attacks on working class communities. It has been said that "*Thatcher swept like a wrecking ball through the mines, the steel industry, the car factories, shipbuilding   and engineering and oversaw the demise of the communities which had built their livelihoods around them*" (Brown, 2013). These communities were characterised by the dominance of a single industry with relatively undifferentiated work hierarchies, a virtual absence of other class groupings in the localities, and a cohesiveness born of strong communal, informal associations and leisure activities (Rees, 1985). The destruction of these communities, and with them the shared day-to-day identities of the families and people who lived there, was also accompanied by "*broader shifts towards an increasingly consumerist and privatised pattern of social relations amongst working people*" (Rees, 1985, p. 396). These broader shifts can be seen to be pushed across many different areas with policies that repeatedly diminished the importance of collective or societal scale action and forced the privatisation of activities into the corporate and or individual realm. Examples of these include the deregulation, privatisation and consequent diminishment of public transport (see Docherty, Shaw, & Gather, 2004) and consequent increased dependence on the private, isolated, individualised space of the car; the privatisation and fragmentation of public utilities, leaving people with the 'freedom' to make their own individual choices as to how they fulfil their requirements for energy, water, sewerage and telecommunications; the increasing privatisation of healthcare and pensions, forcing individuals to make decisions about their own welfare at the individual level; reforms in education that place the responsibility on people to choose the school that their child will go to, or to take responsibility for paying their way through university; the reduction of social housing and an increased expectation of home ownership, pushing people to take responsibility for their own property, often also leading to the breakdown and fragmentation of traditional communities, as incomers price out local people; and the reduction in the power of trade unions, leaving employees to negotiate individually (often ineffectively) the terms of their labour. The point here is not to argue that all these policies are bad all the way through (though many might argue that), but instead to illustrate how, across this wide range of areas, policies have forced people into making choices and acting as individualised rational economic actors - thus bringing into reality the neo-liberal view of the individual, even where it might not have existed in the first place.

FIGURE 1 The values circumplex

Source: Holmes et al., 2011, based on Schwartz, 1992. Licenced under a Creative Common Attribution ShareAlike 3.0 Unported Licence by the Public Interest Research Centre.

Note: Self-transcending values are in the top right, self-enhancing values in the bottom left.

Although this changing of the social terrain to force people into the role of individualised economic actors is in and of itself a concern with regard to addressing societal scale problems, the impacts of these sorts of policies do not stop within each policy arena. Work by Crompton and others (under the titles *Common Cause,* Crompton, 2010; Common Cause Foundation, 2012) is particularly significant in demonstrating how these policy shifts that force people into acting as individuals are likely to have a much wider effect. This work marks a significant shift in terms of seeing values as not being just an internal psychological issue, but as things that are linked strongly with the wider social realm. Their work (Crompton, 2010; Holmes, Blackmore, Hawkins, & Wakeford, 2011) is based on research describing the universalism of values by Schwartz (1992). This establishes a 'map' of values known as the 'values circumplex' (see Figure 1) that has on one side of it 'self- transcending' values, relating to universalism and benevolence, and on the other side 'self-enhancing' values, such as power, achievement and hedonism. All people are motivated by each of the values in differing degrees, but they can be triggered to actively 'engage' by particular communications or experiences. When values are engaged, it has been found that a) neighbouring values and associated behaviours will be strengthened ('bleedover'); and b) values on the opposite side of the circumplex will be suppressed ('the see-saw effect').

Crompton (2010) argues that the widespread engagement of self-transcending values is crucial in order to be able to address what he terms 'bigger-than-self ' problems such as global poverty, climate change and biodiversity loss (but to which we might add any other issue that has a significant social dimension, including public health issues such as obesity). However, the policy shifts towards a more individualised society that have been underway in the UK and many other countries since the 1980s can be seen to not only be forcing people into isolated acts of individualism (e.g., responsibility for planning their own financial futures through privatisation of the

pension system), but also repeatedly forcing the engagement of self-enhancing values. The values being engaged are diametrically opposed to the self-transcending values that we will need both to tackle bigger-than-self problems and to provide a perspective that allows us to recognise and feel part of a wider society that needs to be protected and cared for.

SUMMARY

The huge bias towards individualistic models of behaviour and behaviour change can be seen as one aspect of a political project over the last forty or so years that, either accidentally or intentionally, has emphasised individuality and, ironically, structured society in such a way that the notion of individualism is forced upon people and then spreads through the activation and engagement of a range of self-enhancing values. This individualism can be seen to pervade and even potentially hinder radical activism that seeks to challenge the status quo (Chatterton, 2006), for example the rise of identity politics (Alexander & Eschle, 2016) and intersectionality theory (Rectenwald, 2013), which have been highlighted as creating tensions between opposing an overwhelmingly oppressive socio-economic system that benefits the '1%', and the urgent need to address specific manifestations of this oppression which is affecting particular 'identities'. Reactions to questioning this, now dominant, individualism, and of preferring instead a more social perspective, can often be extreme, as though one had been suggesting a world like that described in Ayn Rand's book *Anthem* (Rand, 1938), where the concept of individuality has been eliminated altogether. Whilst the increasingly prevalent approach of social practice theory was specifically developed in order to tread "*a virtuous middle path between the excesses of methodological individualism - explaining social phenomena as a result of individual actions - and those of its logical opposite, methodological holism - the explanation of phenomena by means of structures or social wholes*" (Postill, 2010, p. 4), there is a recognised tendency to neglect the role of individuals even though they have a precise place as "*the unique crossing point*[s] *of* [multiple, diverse] *practices*" (Reckwitz, 2002, p. 257).

So, whilst even social practice theory should recognise individuals, it is important to fully acknowledge the breadth of approaches to understanding behaviour that are available in order to ensure that we know why we choose the approaches we do. Whilst, to paraphrase Einstein and Leopold (1938) - there seems no likelihood for forming a consistent description of the phenomena of behaviour by a choice of only one of the two languages - we need to be aware that knowledge of both the languages of the individual and of the social are crucially important in understanding how we have got where we have, and where we need to go from here. Most importantly of all, we need to recognise the massive bias that there has been, particularly in the policy realm, towards a predominantly individualist viewpoint, and that this has been self-replicating and self-reinforcing (in both senses of the word self). Here, it is important to note that the aim of this paper is not to dispute the detail of individualist approaches, much of which is salient, or to completely discard overly reductionist approaches (for example, Marteau, 2014; Michie, van Stralen, & West, 2011), but instead to make a case where the social realm is recognised not *only* as a context for individual action, but as a legitimate focus of policies and intervention in and of itself. Returning specifically to the issue of 'behaviour change', it is clear from the earlier discussion that there are many theoretical reasons why we should take a more social approach to this subject, particularly when considering many of the 'big issues' today around the environment and public health. We can also consider less theoretical and more pragmatic risks around an over emphasis of the individual. In a world that requires change on such a large scale, emphasising individuality and the supposed power of the individual can leave people feeling that they should have the ability and capacity to create significant change on their own. This can lead to a risk of unrealistic self-expectations and a perceived need to be "heroic"[2], potentially leading to burnout - something increasingly common in activist circles

---

[2] A wider discussion of issues around the problems of 'hero stories' in the context of energy efficiency can be found in Janda & Topouzi (2015)

(Brown & Pickerill, 2009; Pines, 1994). Or alternatively an emphasis on individuality can lead to people becoming both mentally and physically distanced from others through the breakdown of geographic and community bonds.

For all the reasons given here, it is possible to argue that an *overly* individualist view to behaviour change may do more harm than good, and indeed may be both inefficient and even counterproductive. To attempt to create wide-scale change at the level of individuals, whilst not addressing underlying factors that affect and constrain everybody, is almost certain to result in a struggle to achieve many of our current ambitions with regard to health and the environment. Maybe one notion that could be taken from classical economic theory that goes against its overly individualist approach is that by focussing on social change rather than individual change, we may create 'a rising tide [of social change] that lifts all [individual] boats'.

REFERENCES

Alexander, K., & Eschle, C. (2016). Is identity politics compatible with the pursuit of global justice? In J. Steans & D. Tepe-Belfrage (Eds.), *Handbook on Gender in World Politics* (pp. 103-109). Cheltenham: Edward Elgar.

Allcott, H., & Mullainathan, S. (2010). Behavior and energy policy. *Science*, *327*(5970), 1204- 1205. doi: 10.1126/science.1180775

Blue, S., Shove, E., Carmona, C., & Kelly, M.P. (2016) Theories of practice and public health: Understanding (un)healthy practices. *Critical Public Health, 26*(1), 36-50. doi: 10.1080/09581596.2014.980396

Box, G.E.P. (1979, May). *Robustness in the strategy of scientific model building* [MRC Technical Summary Report No. 1954]. *Mathematics Research Center, University of Wisconsin- Madison, USA*.

Britton, A., Ben-Shlomo, Y., Benzeval, M., Kuh, D., & Bell, S. (2015). Life course trajectories of alcohol consumption in the United Kingdom using longitudinal data from nine cohort studies. *BMC Medicine*, *13*(1), 47. doi: 10.1186/s12916-015-0273-z

Brodie, J.M. (2007). Reforming social justice in neoliberal times. *Studies in Social Justice*, *1*(2), 93-107.

Brown, A. (2013, April 9). Margaret Thatcher's time in power destroyed industries in Scotland and still casts a shadow over the country. *Daily Record*. Retrieved 11/4/2017from http://www. dailyrecord.co.uk/news/scottish-news/margaret-thatchers-time-power-destroyed-1819478

Brown, G., & Pickerill, J. (2009). Space for emotion in the spaces of activism. *Emotion, Space and Society*, *2*(1), 24-35. doi: 10.1016/j.emospa.2009.03.004

Cabinet Office (2011, September). Behavioural Insights Team Annual update 2010-11. UK Government, London.

Chatterjee, K., Sherwin, H., & Jain, J. (2013). Triggers for changes in cycling: The role of life events and modifications to the external environment. *Journal of Transport Geography*, *30*, 183-193. doi: 10.1016/j.jtrangeo.2013.02.007

Chatterton, P. (2006). "Give up activism" and change the world in unknown ways: Or, learning to walk with others on uncommon ground. *Antipode*, *38*(2), 259-281. doi: 10.1111/j.1467-8330.2006.00579.x

Chatterton, T., & Wilson, C. (2014). The 'Four Dimensions of Behaviour' framework: A tool for characterising behaviours to help design better interventions. *Transportation Planning and*

Technology, *37*(1), 38-61. doi: 10.1080/03081060.2013.850257

Clarke, S. (2005). The neoliberal theory of society. In A. Saad-Filho & D. Johnston (Eds.), *Neoliberalism: A Critical Reader* (pp. 50-59). Chicago: University of Chicago Press. Retrieved from http://homepages.warwick.ac.uk/~syrbe/pubs/Neoliberalism.pdf

Common Cause Foundation (2012). Common Cause: The case for working with values and frames. *Common Cause Foundation*. Retrieved from http://valuesandframes.org/

Crawford, R. (1977). You are dangerous to your health: The ideology and politics of victim

blaming. *International Journal of Health Services*, *7*(4), 663-680. doi: 10.2190/YU77- T7B1-EN9X- G0PN

Crompton, T. (2010). *Common Cause: The Case for Working with our Cultural Values* [Report]. UK: Oxfam.

Darnton, A., Verplanken, B., White, P., & Whitmarsh, L. (2011). Habits, Routines and Sustainable Lifestyles: A summary report to the Department for Environment, Food and Rural Affairs. London: AD Research & Analysis for DEFRA.

Docherty, I., Shaw, J., & Gather, M. (2004). State intervention in contemporary transport.

Journal of Transport Geography, *12*(4), 257-264. doi: 10.1016/j.jtrangeo.2004.08.006 Dutzik, T., Inglis, J., & Baxandall, P. (2014, October). *Millennials in motion: Changing travel*

Habits of young Americans and the implications for public policy [Report]. Washington DC: The National Academies of Sciences, Engineering, and Medicine.

Einstein, A., & Infeld, L. (1938). *The Evolution of Physics*. Cambridge, UK: Cambridge University Press.

Garikapati, V.M., Pendyala, R.M., Morris, E.A., Mokhtarian, P.L., & McDonald, N. (2016). Activity patterns, time use, and travel of millennials: A generation in transition? *Transport Reviews*, *36*(5), 558-584. doi: 10.1080/01441647.2016.1197337

Goodman, A., Sahlqvist, S., & Ogilvie, D. (2014). New walking and cycling routes and increased physical activity: One-and 2-year findings from the UK iConnect Study. *American Journal of Public Health*, *104*(9), e38-e46. doi: 10.2105/AJPH.2014.302059

Goodwin, P., & Van Dender, K. (2013). 'Peak car': Themes and issues. *Transport Reviews*, *33*(3), 243-254. doi: 10.1080/01441647.2013.804133

Guagnano, G.A., Stern, P.C., & Dietz, T. (1995). Influences on attitude-behavior relationships: A natural experiment with curbside recycling. *Environment and Behavior*, *27*(5), 699-718. doi: 10.1177/0013916595275005

Hargreaves, T. (2011). Practice-ing behaviour change: Applying social practice theory to pro-environmental behaviour change. *Journal of Consumer Culture*, *11*(1), 79-99. doi: 10.1177/1469540510390500

Holmes, T., Blackmore, E., Hawkins, R., & Wakeford, T. (2011). *The common cause handbook*. UK: Public Interest Research Centre.

Horta, A., Wilhite, H., Schmidt, L., & Bartiaux, F. (2014). Socio-technical and cultural approaches to energy consumption: An introduction. *Nature and Culture*, *9*(2), 115-121. doi:10.3167/nc.2014.090201

Index Mundi (2014). Reported Population, birth and death rates. *IndexMundi.* Retrieved from Population http://www.indexmundi.com/united_kingdom/population.html; Birth rate http://www.indexmundi.com/g/g.aspx?c=uk&v=25; Death rate http://www.indexmundi. com/g/g.aspx?c=uk&v=26

Janda, K.B., & Topouzi, M. (2015). Telling tales: Using stories to remake energy policy. *Building Research & Information*, *43*(4), 516-533. doi: 10.1080/09613218.2015.1020217 Keay, D. (1987, September 23) Interview for *Woman's Own* magazine. *Margaret Thatcher Foundation website*. Retrieved 11/4/2017 from http://www.margaretthatcher.org/document/106689

Kelly, M.P., & Barker, M. (2016) Why is changing health related behaviour so difficult? *Public Health, 136*, 109-116. doi: 10.1016/j.puhe.2016.03.030

Lanzendorf, M. (2003, August). Mobility biographies. A new perspective for understanding travel behaviour. In *10th International Conference on Travel Behaviour Research* (Vol. 10, p. 15).

Leyendekker, K. (2016). DfT's anti peak-car rhetoric: Narrative analysis of DfT statements. Katsdekker: Spatial Fairness blog. Retrieved 10/4/2017 from https://katsdekker.wordpress.com/2016/09/24/dfts-anti-peak-car-rhetoric-narrative-analysis-of-dft-statements/

Marsden, G., & Docherty, I. (2013). Insights on disruptions as opportunities for transport policy change. *Transportation Research Part A: Policy and Practice*, *51*, 46-55. doi: 10.1016/j.tra.2013.03.004

Marteau, T. (2014). Theresa Marteau: Tackling behaviour change. *BMJ (Clinical Research ed.)*, *348*, g3360. doi: 10.1136/bmj.g3360

Maslow, A.H. (1966). *The Psychology of Science: A Reconnaissance*. Gateway/Henry Regnery.

McDonald, N.C. (2015). Are millennials really the "go-nowhere" generation? *Journal of the American Planning Association*, *81*(2), 90-103. doi: 10.1080/01944363.2015.1057196 Mercer, C.H., Tanton, C., Prah, P., Erens, B., Sonnenberg, P., Clifton, S., Macdowall, W. &

Lewis, R. (2013). Changes in sexual attitudes and lifestyles in Britain through the life course and over time: Findings from the National Surveys of Sexual Attitudes and Lifestyles (Natsal). *The Lancet*, *382*(9907), 1781-1794. doi: 10.1016/S0140-6736(13)62035-8

Michie, S., van Stralen, M.M., & West, R. (2011). The behaviour change wheel: A new method

for characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 42. doi: 10.1186/1748-5908-6-42

Open Science Collaboration (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251), aac4716. doi: 10.1126/science.aac4716

Ory, M.G., Smith, M.L., & Resnick, B. (2012). Changing behavior throughout the life-course: Translating the success of aging research. *Translational Behavioral Medicine, 2*(2), 159-162. doi: 10.1007/s13142-012-0129-4

Pines, A.M. (1994). Burnout in political activism: An existential perspective. *Journal of Health and Human Resources Administration, 16*(4), 381-394.

Postill, J. (2010). Introduction: Theorising media and practice. In B. Bräuchler & J. Postill (Eds.), *Theorising Media and Practice* (pp. 1-32). Oxford & New York: Berghahn.

Prillwitz, J., Harms, S., & Lanzendorf, M. (2006). Impact of life-course events on car ownership. *Transportation Research Record: Journal of the Transportation Research Board*, (1985), 71-77. doi: 10.3141/1985-08

Rand, A. (1938). *Anthem.* London: Cassell.

Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory*, *5*(2), 243-263. doi: 10.1177/13684310222225432

Rectenwald, M. (2013, December 2). What's wrong with identity politics (and intersectionality theory)? A response to Mark Fisher's 'Exiting the Vampire Castle' (and its critics) [Blog site]. *The*

North Star. Retrieved from http://www.thenorthstar.info/?p=11411

Rees, G. (1985). Regional restructuring, class change, and political action: Preliminary

comments on the 1984-1985 miners' strike in South Wales. *Environment and Planning D: Society and Space*, *3*(4), 389-406. doi: 10.1068/d030389

Schank, J.C. (2001). Beyond reductionism: Refocusing on the individual with individual-based modeling. *Complexity*, *6*(3), 33-40. doi: 10.1002/cplx.1026

Scheiner, J., & Holz-Rau, C. (2013). A comprehensive study of life course, cohort, and period

effects on changes in travel mode use. *Transportation Research Part A: Policy and Practice*, *47*, 167-181. doi: 10.1016/j.tra.2012.10.019

Schwartz, S.H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, *25*, 1-65. doi: 10.1016/S0065-2601(08)60281-6

Shove, E. (2010). Beyond the ABC: Climate change policy and theories of social change. *Environment and Planning A*, *42*(6), 1273-1285. doi: 10.1068/a42282

Shove, E. (2011). On the difference between chalk and cheese: A response to Whitmarsh et al.'s comments on "Beyond the ABC: Climate change policy and theories of social change". *Environment and Planning A*, *43*(2), 262-264. doi: 10.1068/a43484

Shove, E., Pantzar, M., & Watson, M. (2012). *The dynamics of social practice: Everyday life and how it changes*. Sage publications.

Warde, A. (2005). Consumption and theories of practice. *Journal of consumer culture*, *5*(2), 131-153. doi: 10.1177/1469540505053090

Werner, C.M., Turner, J., Shipman, K., Twitchell, F.S., Dickson, B.R., Bruschke, G.V., & von Bismarck, W.B. (1995). Commitment, behavior, and attitude change: An analysis of voluntary recycling. *Journal of Environmental Psychology*, *15*(3), 197-208. doi: 10.1016/0272-4944(95)90003-9

Whitmarsh, L., O'Neill, S., & Lorenzoni, I. (2011). Climate change or social change? Debate within, amongst, and beyond disciplines. *Environment and Planning A*, *43*(2), 258-261. doi: 10.1068/a43359

Wilson, C., & Chatterton, T. (2011). Multiple models to inform climate change policy: A pragmatic response to the 'beyond the ABC' debate. *Environment and Planning A*, *43*(12), 2781-2787. doi: 10.1068/a44404

ABOUT THE AUTHOR AND CORRESPONDENCE

Tim Chatterton is a Senior Research Fellow in the Air Quality Management Resource Centre at the University of the West of England, Bristol. His work combines both social and environmental sciences at the interface of policy and academia.

Tim Chatterton, University of the West of England, Bristol, UK.

E tim.chatterton@uwe.ac.uk

2 A wider discussion of issues around the problems of 'hero stories' in the context of energy efficiency can be found in Janda & Topouzi (2015)