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Analysing cycling as a social practice: An empirical grounding for behaviour change

Fiona Spotswood [a,*], Tim Chatterton [b], Alan Tapp [a], David Williams [b]

[a] Bristol Social Marketing Centre, University of the West of England, Bristol, UK
[b] Department of Geography and Environmental Management, University of the West of England, Bristol, UK

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ABSTRACT

Despite significant national and local efforts over the last decade to stimulate uptake of cycling in the UK, levels of cycling (particularly utility cycling) remain at around 2% of journeys. Understanding of cycling behaviour and subsequent development of interventions has typically been undertaken using an individualist approach, often relying on psychologically based models of behaviour. This paper argues that Social Practice Theory (SPT) may be a valuable addition to practitioner's toolboxes by providing an alternative means of understanding the complex dynamics between the elements that constitute the practice of utility cycling, allowing it to be considered as a social issue, rather than focusing solely on individual behaviour. This is demonstrated within the paper by the use of SPT to reanalyse quantitative and qualitative datasets that explore views and experiences of both cyclists and non-cyclists. Therein, the practice of utility cycling is described according to its three elements; materials, meaning and competences and the potential benefits of this approach are discussed; particularly its ideological shift away from 'victim blaming' and its natural support of interdisciplinary intervention design.

1. Introduction

Changing the behaviour of a population has been described as the challenge of our time (Johnson, 2013). These sentiments are particularly appropriate when applied to western car-dependence, particularly when it is considered that overuse of the car has led to increased pollution, congestion, environmental damage, and serious health problems associated with lack of exercise (Dora, 1999; Dora et al., 2000; Gärling & Schuitema, 2007; Jain & Guiver, 2001; Jones & Hervik, 1992; Wootton, 1999). Shifting travel away from the car and towards more sustainable modes such as cycling has proven to be a particular challenge. For example, engineering-led solutions to transport problems from the 1960s to the 1990s (Dudley & Richardson, 2000) actually marginalised cycling to the point that utility trips dropped from 13% in 1952 to around 1% by 1972 (Watson, 2012). Now the UK has a stubbornly unshifting 2% rate of cycling for total trips made (DfT, 2005-11), compared to 27% and 18% of trips in the Netherlands and Denmark respectively (Pucher & Buehler, 2008). Thus exploring how the UK might catch up with these European cycling nations has become the subject of considerable debate and research (e.g. Anable, 2005; Anable & Wright, 2013).

Historically, the UK government has attempted to tackle the country's car-dominance through economic instruments (Avineri, 2012), urban compaction, infrastructure development (Boarnet, 2010) and technology development (Marsden,

* Corresponding author at: Bristol Business School, University of the West of England, Coldharbour Lane, Bristol BS161QY, UK. Tel.: +44 07876380762.
E-mail address: fiona2.spotswood@uwe.ac.uk (F. Spotswood).

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Mullen, Bache, Bartle, & Flinders, 2014). For example, congestion charging has measurably reduced traffic flows in central London (Beevers & Carslaw, 2005), and the £14.5 billion investment in the Crossrail project in London (DfT, 2012) is designed to further reduce inner city car traffic in the capital. Specifically around cycling, a project of funding has been invested in cycling infrastructure since 2005, e.g. through programmes like Cycling City and the Local Sustainable Travel Fund (DfT, 2010, 2011a). However, with cycling levels remaining low in the UK (DfT, 2014), for the past ten years 'soft' policy measures have attracted increased attention (Bamberg et al., 2011; Cairns et al., 2008). These measures are primarily based on the UK Department for Transport DfT, 2005 Smarter Choices report, which recommends applying measures which *"seek to give better information and opportunities, aimed at helping people to choose to reduce their car use while enhancing the attractiveness of alternatives"*. The report's recommendations include workplace and school travel plans, personalised travel planning, public transport information and marketing and travel awareness campaigns. In addition to continued investment in infrastructure, these 'soft' interventions have now become commonplace in the UK transport planning sector as methods designed to encourage individuals to use sustainable modes of transport, and were predicted to be able to lead to an 11% decrease in national car traffic levels in ten years (Cairns et al., 2004).

Difficulties with evaluation and monitoring of 'soft' measures notwithstanding (Bonsall, 2009; Brög et al., 2009; Chatterjee, 2009; Cohen, 2009; Graham-Rowe et al., 2011), the lack of growth of cycling in the UK implies that they have yet to make an impact. Indeed various researchers have argued that there is considerable doubt about the effectiveness of measures which assume that people lack information or motivation, or that they need help, and that once one or more of these is supplied they will be more inclined to change (Bonsall, 2009). For example, Melia (2013) concludes that levels of travel to work by car have not reduced through the Sustainable Travel Towns Project, and Seethaler and Rose (2009) found that even though people signed up for a Personalised Travel Plan scheme this did not translate to a decrease in distance travelled by car. Similarly, Arnott et al. (2014) have found no evidence of a link between 'soft' behavioural interventions designed to address information deficit and the proportion of active travel modes such as cycling in a systematic review of transport behaviour interventions. Overall, UK Government statistics on levels of cycling in the UK in 2012/13 show that more local authority regions are seeing a decline than those seeing an increase, which suggests that 'soft' approaches have not been successful in improving the nation's level of cycling to date (DfT, 2014).

The lack of success of 'soft' measures has prompted a new wave of research into alternative theoretical approaches which might improve understanding about cycling behaviour and about potential travel mode shift interventions (e.g. Marsden et al., 2014; Schwanen et al., 2012). A key debate therein is around the appropriateness and effectiveness of individualist behaviour change approaches; i.e. those which target individual decision making as the point of change. Individualist approaches are politically popular since they are in line with the neo-liberal direction of UK policy which supports individuals to manage their own behaviour change rather than forcing change through the regulation of individual freedoms and/or industry or other societal structures (Disney et al., 2013; Marsden et al., 2014). As Schwanen et al. (2012) note, *"UK policy now holds that citizens must take their responsibility and modify behaviours voluntarily for substantial change to materialise"* (p. 2). Behaviour change policy recommendation reports such as *Mindspace* (Dolan, Hallsworth, Halpern, King, & Vlaev, 2010) and Defra, 2008, for example, firmly position the responsibility for behaviour change with the individual, as does most social marketing (Raftopoulou & Hogg, 2010), on which Personalised Travel Planning is based (Bonsall, 2009). Indeed, as Marsden et al. (2014) note, most of the popular travel behaviour change approaches, like those described in *Smarter Choices*, focus on the individual and their decisions.

Individualist approaches to behaviour change are largely based on social psychological research which uses theories such as the Theory of Planned Behaviour (TPB) (Ajzen, 1991), the Theory of Interpersonal Behaviour (Triandis, 1977) and the Norm-Activation Model (Schwartz, 1977). Such theories share the premise that *"social change is thought to depend upon values and attitudes... which are believed to drive the kinds of behaviour that individuals choose to adopt"* (Shove, 2010, p. 1274). Thus change interventions based on these models focus predominantly on changing attitudes or values and only in some limited cases on altering the range of options available (Marsden et al., 2014). In all cases, individual choice is the object of research and intervention.

The individualist foundation of much contemporary transport-related research (e.g. Anable, 2005; Bamberg & Schmidt, 2003; Bamberg et al., 2011; Gardner, 2009) has been criticised firstly for the limited effectiveness of measures based thereon (see critique of 'soft measures' above). Secondly, there is criticism of the assumption that individuals, rather than societal structures are primarily responsible for the transport problems being addressed. Shove (2010, p. 1280) argues that those 'doing behaviour change' need to consider how institutions structure action by *"making some [actions] very much more likely than others"*, and has advocated Social Practice Theory as an approach to help conceptualise this. The view that individualist approaches fail to *"challenge the systems and processes giving rise to social practices of (perhaps increasingly) unsustainable travel"* (Marsden et al., 2014, p. 73) is also shared by those using socio-technical transition theory (e.g. Geels, 2012) and those exploring innovative urban planning strategies as a means to reduce the need for travel by motor vehicle (e.g. Barbour & Deakin, 2012; Deakin, 2011). In line with these perspectives, Schwanen et al. (2012) consider the concept of 'habit' and unpack it to find individual decision-making as relatively insignificant compared with the automated sets of meanings and connotations (for example of cars with freedom) which are embedded in society.

Despite these valuable contributions, the literature providing alternatives to individualist 'Smarter Choices' type approaches for the promotion of utility cycling is sparse. In this paper, we contribute to this literature by undertaking an analysis based on the recently reinvigorated Social Practice Theory (SPT) (Reckwitz, 2002; SPRG, 2012). Although some analysis of car driving has been published using SPT (Shove, Pantzar, & Watson, 2012), to date neither general or cycling-specific

transport research has focused on social practice approaches (Cairns, Harmer, Hopkin, & Skippon, 2014), which have been the preserve of the consumption literature (e.g. Martens et al., 2004; Munasinghe et al., 2009; Røpke, 2009; Shove & Pantzar, 2005; Warde, 2005). Indeed, SPT has barely begun to become entangled in general government debate over the best behaviour change approaches (although see Chatterton & Anderson, 2011), despite showing considerable promise as an alternative approach for underpinning population-level social change, or at least explaining the failure to achieve it to date (Hargreaves, 2011; Shove et al., 2012). This paper therefore seeks to initiate a research stream which uses SPT as a way of garnering insights into the practice of sustainable forms of transport which might reinvigorate 'behaviour' change approaches at a policy level.

1.1. Understanding Social Practice Theory (SPT)

A key way of understanding the differences between theories of practice and traditional individualist models of human behaviour is by analysing the theories' different objects of analysis. For those ascribing psychology-based individualist models, it is the individual's intentions and subjective interests that are studied. In contrast, within theories of practice, it is not the *"experience of the individual actor, nor the existence of any form of societal totality"* (Giddens, 1984, p. 2) which is studied, but a dissection of the practice itself as 'carried' by its performers. For example, when someone uses a football, they are not simply 'playing football', *"they are actively involved in reproducing the game itself"* (ibid, p. 45, emphasis added); and so a social practices approach would explore the game and consider its rules rather than target the players individually.

Although abstract, SPT has been usefully deconstructed into *"several elements, interconnected to one another"* (Reckwitz, 2002, p. 249) for analysis purposes. Although various configurations exist (Schatzki, 1996; Southerton, 2013; Warde, 2005), the version most helpful for application to behaviour change is Shove et al.'s (2012) three element model, due to its relatively parsimonious approach (see Fig. 1). The three elements model is comprised of *"images (meanings, symbols), skills (forms of competence, procedures) and stuff (materials, technology) that are dynamically integrated by skilled practitioners through regular and repeated performance"* (Hargreaves, 2011, p. 83):

'Materials' are a necessary part of practices. In SPT, 'things' are not just communicators of symbolic meaning (Warde, 2005), status or identity (Shove & Pantzar, 2005), but are often *"directly implicated in the conduct and reproduction of daily life"* (Shove & Pantzar, 2005, p. 44). However, *"products alone have no value. They do so only when integrated into practice and allied to requisite forms of competence and meaning"* (Shove & Pantzar, 2005, p. 57). All three elements must exist for the performance of the practice.

'Meanings' are heavily reliant on Bourdieu, 1984 concept of habitus, which suggests that understandings about significance are shared amongst a group, and thus bring the group together. Meanings are specifically directed towards a behaviour or thing. As Shove et al. (2012) explain, *"theories of practice emphasize tacit and unconscious forms of knowledge and experience through which shared ways of understanding and being in the world are established"* (p. 12). This embedded meaning takes the form of an in-built and unreflective sense of what behaviours are 'right' or 'fitting' (Rettie, Burchell, & Riley, 2012). Strongly related to this sense that a practice can be considered 'right' is the significance of the number of practitioners routinely performing the practice. If people do not engage with a practice and do not see others engaging with it, they come to understand the world as a place where the practice does not 'fit'.

'Competences' refer to 'embodied knowledge', which finds its roots in Bourdieu (1986) and Shilling (1991). Shove et al. describe competences as "multiple forms of understanding and knowledgeability" (p. 23) and use the shorthand of 'skills' to denote that this type of knowledge is required for the carrier to 'succeed' at the performance of the practice.

So far, the discussion has dealt with the elements of social practice as separate entities, but in fact practices constitute a 'block' *"whose existence necessarily depends on the existence and specific interconnectedness of these elements and which cannot be reduced to any one of these single elements"* (Reckwitz, 2002, p. 250). Notably, interconnectedness in SPT also stretches

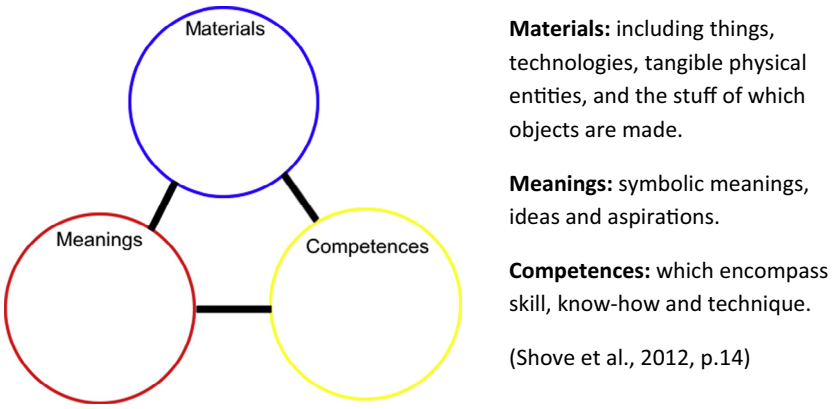

Fig. 1. Shove et al.'s three-element Social Practice Framework.

beyond the three elements in the practice of main concern, to elements in 'neighbouring' practices which can be intertwined in tight 'complexes' or looser 'bundles' (Shove et al., 2012). The individual is the 'crossing point' of all these practices (Reckwitz, 2002).

In conclusion, practices are carried as a *"nexus of doings and sayings"* (Schatzki, 1996, pp. 89–90) and as *"ways of understanding, knowing how and desiring"* (Reckwitz, 2002, p. 250). They are reproduced as 'performances' by individuals, but their value as a tool of analysis lies most strongly in their ability to consider activity in the abstract, away from the focus on individuals' actions and decisions. The practice itself is the smallest unit of analysis, which allows for an alternative way of considering 'problem' behaviours like the low numbers of utility cycling in the UK and potentially a new framework for offering whole-system solutions.

2. Methodology

In this paper we re-examine data from two studies of cycling undertaken by the authors in 2010 and 2011 (presented in detail in Leonard, Spotswood, & Tapp, 2012). The objective of this reanalysis was to consider how SPT could add value to behaviour change considerations of the low utility cycling in the UK; both in terms of understanding and insight, and as a framework for intervention planning.

Study One was a large scale online survey (n = 3885) of 16–64 year old British people. The sample was selected by stratified random sampling so as to be nationally representative in terms of gender, age, socio-economic grade, working status and standard GB geographic/political regions. Selection was made from a commercially sourced panel of approximately 275,000 people.

The survey was in six parts. Three 'cultural markers' of cycling were measured using Likert scales:

(1) The role of cycling within wider society (e.g. 'cycling would be a major help in reducing congestion in Britain').
(2) The normalisation of cycling (e.g. 'It's quite normal to cycle to work these days').
(3) Attitudes and beliefs about cycling within a car dominant society (e.g. 'roads are for cars not bicycles').

Fourthly, also using Likert scales, personal dispositions to cycling were examined. Statements included 'I associate cycling with greater mental well-being' and 'cyclists should be taken seriously'. Fifthly, cyclists' self-identities were explored to assess the (lack of) fit between perceived self and cyclist. This was done by asking for associations between self and a set of descriptors (adventurous, money conscious, odd, conventional, etc.), and then testing associations of the same descriptors for cyclists. Finally, claimed behaviour and cycle ownership data were collected and measured with respect to levels of cycling, frequencies, reasons for journeys and types of riding style. Analysis of the quantitative findings was conducted using SPSS to build a picture of the image of cycling across the UK. Univariate and bivariate analysis enabled the researchers to understand the population proportions that held various pro- and anti-cycling attitudes and beliefs.

For Study Two, ten depth interviews and nine focus groups (n = 60) were undertaken in Bristol and South Gloucestershire. Study Two took insights from the first study as its base and sought to explore respondents' relationship with cycling in more depth through qualitative techniques. Questions were asked around respondents' experience of cycling, their perception of 'cyclists'; and associations with cycling. Extensive projective and enabling techniques were employed to explore deeply held beliefs and attitudes around cycling. These included a 'psycho-drawing' exercise, where respondents were asked to draw 'the way cycling feels' and an exercise where respondents were verbally taken to 'Planet Cycle' and asked to describe how it looked, smelt, sounded and felt. Purposive sampling was based on quotas of socio-economic group, gender, ages (16–39 and 40–65), and cycling behaviour. Hence, groups were recruited according to levels of cycling: non-cyclists, lapsed cyclists, occasional cyclists (a few times per annum), and frequent cyclists (weekly or more). Table 1 describes the make-up of these groups.

Thematic analysis of the qualitative data was conducted using NVIVO for coding passages into umbrella and sub-themes (Braun & Clarke, 2006). This analysis was used to build a richer picture of the image of cycling in the UK; by probing respondents further on findings from Study One. The probing and enabling techniques in particular were useful for gaining insight

Table 1
Group descriptions.

Non-cyclists	Generally male, pro-car, somewhat anti-cycling
Lapsed cyclists	May have cycled as children or more recently but do not cycle now. Can see benefits of cycling but no plans to take it up. Low level contemplation but nothing serious. No leisure cycling to speak of
Occasional cyclists	Occasional leisure cyclists (e.g. once a month, once every two months, summer only on holiday, etc.) No utility cycling but are contemplating more cycling but just an aspiration at this stage
Regular sports cyclists	Regular leisure/sport cyclists, possibly weekend club riders, or regular family outings, or similar but little or no regular utility cycling
Utility cyclists	Utility cyclists, (i.e. those who cycle to work and for daily errands), who are contemplating utility cycling more/using their cars less

into the embedded perceptions and understandings that respondents had towards cycling. Given the small sample, the limitations with regards to the external validity of such findings are acknowledged, however gaining suitable depth of insight into understandings, perceptions and beliefs was not possible through quantitative analysis alone.

The data were not initially gathered for a social practice analysis of cycling, but it is common to rely mainly or even entirely on secondary data for analysis of practices (e.g. Hargreaves, 2011; Shove & Pantzar, 2005; Shove et al., 2007; Watson & Shove, 2008). However, the limitations of using secondary data are acknowledged, firstly in that given the original purpose of the research, which was to collect data on the 'image of cycling in the UK', the data collection tools were strongly biased towards collecting data on shared meanings held towards cycling. Secondly, it is acknowledged that asking questions of the carriers of a practice will only generate limited insights into the structure of the practice itself. Nonetheless using interviews (particularly qualitative ones) has been recommended for practice-based research on the grounds that the *"discursive interaction between researchers and research participants"* (Martens, 2012, p. 1) presents an appropriate way of exploring the structure of linkages between the elements of a practice. Taking the view that respondents are important gatekeepers for insights on practices, an analysis of their talk on the subject of cycling in addition to broad scale analysis of their views was considered an appropriate way of exploring the structure of linkages between the elements of a practice.

3. Research findings

Data from studies one and two have been used to illustrate how insights into the practice of cycling might be generated. Findings are structured according to the three elements of SPT; materials, meaning and competences. These findings are then used to illustrate a discussion in the context of how a behaviour change strategy might benefit from a social practices approach.

3.1. Materials

Data from Study One indicates that only 25% of British lapsed cyclists still own a bicycle, with about half the overall sample not owning one. Thus, the first important 'material' consideration exposed by the data is access to bicycles themselves. However, materials other than the bicycle itself are also important, including cycle paths, which were cited in Study Two as important for cyclists to feel safe and segregated from dangerous car traffic. Study one had identified that 55% of the sample reported having cycle paths 'near where they live', but that of this group, only 21% are very likely and 28% likely to use them. Some female non-cyclist respondents from Study Two identified a lack of showering and vanity facilities at their workplace as a reason for not cycling, indicating the importance of these 'materials' in the practice of utility cycling for some segments.

3.2. Meanings

The first group of meanings identified in the research were associated with the practical benefits of cycling. For some respondents, cycling neatly matched their requirements for a fast, efficient and cost-effective mode of transport:

I mean I only ride my bike to try and save money, really. Otherwise I wouldn't bother (male utility cyclist).

The car...we spend £40/£50 a week on petrol. It's an extortionate amount of money to spend on petrol so yeah I would cycle (male regular/sports cyclist).

Respondents also described cycling as a way of avoiding the frustration of getting stuck in traffic. The associated environmental benefits of cycling were not strongly identified in Study Two, despite data from Study One confirming that 90% of regular cyclists and 88% of those who cycle often agreed with the statement that 'the environment would be much better if more people cycled'.

Data from Study Two suggest that both cyclists and non-cyclists considered roads to be the preserve of motorists, suggesting that cycling is believed to be non-mainstream:

It annoys me when cyclists are on the roads. It really bugs me. They're in the way and you have to overtake them (female occasional cyclist).

Others respondents also believed that cycling should be restricted to cycle paths. One respondent claimed his reason for not cycling was because he found cyclists annoying and did not want to annoy other motorists. Others cited safety as the reason for wanting more cycle paths, and others that cars had more right on the roads:

I'm not very keen on going out on the road with the bikes because I'd be worried about my safety. Especially when you're a young mother. I think to myself 'God what if something happens to me?' (female occasional cyclist).

Other qualitative findings probed this sense of danger, and it was felt by some that to cycle in Britain, the cyclist had to be a special or different kind of person; fitter, stronger and possibly more principled. Cycling was not viewed as normal, and therefore to 'brave' the streets a cyclist needed to be adventurous, perhaps aggressive, and above all dedicated. Cycling for some of our respondents was not simply a leisure activity or a mode of transport, it was a lifestyle commitment:

I think you have to really like cycling to go and do it. It's a particular type of person who does it... (female leisure cyclist).

Building on the sense that commuter cyclists need to be brave and 'different', it is unsurprising that an enjoyment of cycling was mostly associated with cycling for leisure purposes rather than as a mode of transport. Study One found that 50% of all trips were made for occasional, holiday or leisure purposes compared with 28% of trips made for commuting purposes. This finding was explored further in the qualitative research, which suggested that there is a strong perceived disconnect between cycling seen as fun and therefore an end in itself (e.g. a social bike ride on a warm Sunday afternoon) and cycling seen as a necessary mode of transport (e.g. battling against the wind, rain and traffic in a bid to get to work on time). The qualitative research drawing exercise (see methodology) repeatedly identified an association between fun, relaxation and playfulness with leisure cycling, particularly on cycle paths and on holidays abroad:

That's me with the wind in my hair. I'm happy. I feel I own the road. The sun's shining. The country beauty. The holiday, the fun element of it (female occasional cyclist).

In contrast, cycling for 'utility' purposes (i.e. to work or on errands) was often associated with a sense of danger and stress. This quote by a female leisure cyclist in a focus group illustrates this conceptual divide:

There are different types of cycling aren't there. We're all talking about cycling on cycle paths. Social cycling. That's the kind I love doing. But then you've got commuter cycling which is almost the opposite (female leisure cyclist).

In Study Two respondents' tendency to view leisure and utility cycling as completely separate was clearly identified in the starkly contrasting descriptions offered of a stereotypical leisure cyclist and a stereotypical 'sporty commuter cyclist'. The 'leisure cyclist', who goes out for a gentle ride with the dogs or children on holidays and weekends, would remain on cycle paths where possible, wear normal clothes and smile or wave at people they came across. This was a relaxing picture of sunshine and peace. In contrast the 'sporty commuter cyclist' who would race into work on an expensive bicycle, wearing lycra, clip-in cycling shoes and carrying a rucksack. He would jump red lights in an attempt to 'beat his time' and maybe compare times with other colleagues to see who had 'won':

When he gets to work he's got this smug look on his face that he rode in and the others got the tube and he's the fittest (male regular cyclist).

Although some thought he looked 'cool' in his gear, many of the women and the particularly car-oriented men were more disapproving, describing such cyclists as cheeky, arrogant, dangerous and disrespectful.

There was also a perception held by many of the (particularly middle class, professional) respondents that they were 'too busy' and 'too important' to cycle to work and that cycle commuting was only appropriate for lower ranked workers. In contrast, cars (and particularly fast, expensive ones) were associated with career success. The respondents were shown photographs of different careers (e.g. teacher, writer, company director, bank manager, musician). Respondents commented that cycling to work carries the association of having less focus on your career and perhaps with being less 'driven' for success:

The company director would have a Merc' or BMW which he'd get out every day. The Bank Manager would be stressed and not want any faffing about. She's in her suit and wouldn't want to get sweaty or hot and bothered. Like the company director really they're too busy. Too important (male leisure cyclist).

The meanings of cycling as being 'fun', 'only for leisure' and 'not appropriate for career professionals' were supported by other data. Study One showed that respondents perceived 'cyclists' to be more adventurous and more 'free spirited' than they perceived themselves to be. Corroborating this, Study Two responses suggested that cycling for fun has associations of playfulness, reminding respondents of the freedom of childhood when travel was under your own steam and journeys were about adventure and discovery, and not about responsibility. Indeed, some respondents in the qualitative phase were attracted to cycling because it is a release from the stresses of their grown up, adult lives:

Going back to that freedom thing. It's just me and I've got this half an hour and its mine to make the most of. Perhaps. Yeah (female cyclist).

Finally, the research also indicated other positive meanings associated with cycling, such as that 'bicycle technology is much sexier nowadays' (Study One – 38%); that 'cycling is associated with greater mental wellbeing' (Study One – 50%); that cycling tended to be positively associated with 'me time' and 'stress busting' (Study Two); that cycling 'has become cool nowadays' (Study One – 42%). This latter point was also emphasised in Study Two, for example by a male lapsed cyclist who noted *"I would say it was trendy now, really. People say it is..."*

This data indicates that there are a range of meanings that people associate with cycling: that it can be a practical transport solution; that cars should take precedence on the roads; that leisure cycling is fun and commuter cycling a struggle; that it seems inappropriate for career-driven people to cycle to work and that there is something 'cool' about cycling. However, there was another meaning identified in the data analysis that is perhaps more significant for our exploration of the potential of SPT as an analysis tool; that cycling is considered culturally incongruous. The first piece of evidence supporting this is the low numbers of participants, illustrated in Table 2 below:

For a practice to continue, it must be performed (Shove et al., 2012), because it cannot exist outside its performance. The low numbers of 'carriers' (Reckwitz, 2002), however, do not simply re-emphasise the problem of poor uptake of cycling. The

Table 2
Low levels of cycling in Great Britain.

	Total GB n = 3885%
I am unable to cycle because of a disability	8
I am unable to cycle and I'm not interested in learning	5
I am unable to cycle but interested in learning	3
I cycled a long time ago but not nowadays (lapsed)	46
I cycle sometimes/occasionally nowadays	28
I cycle quite often	5
I cycle very often (i.e. every week)	6

non-mainstream nature of cycling will influence its associated meanings, re-presenting it as unusual or niche. This sense of the cultural incongruity of cycling is supported by quantitative findings, which identified a gap between the perceptions people have of themselves and the perception they have of cyclists; 44% 'just don't see themselves as a cyclist'. There was also an overall sense from the qualitative work that although talked about in a positive light, regular performance of cycling was out of reach and done by 'other people':

If someone in an office block started cycling then others would say 'oh right fair play' and 'I wish I did that'; 'I wish I had the guts to do that' (male lapsed cyclist).

The sense that cycling is unattainable may be associated with the previously mentioned concept that cyclists are perceived as being 'different'. As Table 3 below illustrates, cyclists are perceived as being more environmentally aware, confident and adventurous than non-cyclists, but also less hard working and less happy. Hence the conclusion that there is a population level gap between the aggregated average *self-image* of the GB population, and the aggregated *image* of a cyclist. Table 3 indicates the comparative rankings of self- and cyclist-image statements.

The collective understanding of cycling as unattainable and culturally incongruous provides an example of the workings of the social practice. Although some respondents made positive comments about cycling, interpretation of their language suggests that understandings about the more latent meanings of cycling are not the result of conscious thought but rather are embedded in the practice of cycling itself. As Shove et al. (2012) explain, *"theories of practice emphasize tacit and unconscious forms of knowledge and experience through which shared ways of understanding and being in the world are established, through which purposes emerge as desirable, and norms as legitimate"* (p. 12). For example, understandings about utility cyclists being 'brave', 'committed' or 'adventurous', combined with the low numbers performing the practice, creates a shared and implicit understanding that cycling is 'not normal'. The automatic nature of these understandings can be seen in the emotional language used by the respondents. They talk of being 'bugged' and 'annoyed' by cyclists and about 'getting a car head on' when they drive and get irritated by cyclists on the road; language which suggests an automatic and emotional response rather than rational and cognitive one. Some also talked about feeling embarrassed to cycle, suggesting the practice 'feels wrong'; an automated reaction resulting from the participant having acted against the consensus of group:

...there's something about it. You think 'that doesn't look good, riding a bike'. . . It's not cool or appealing... I think 'I hope no-one's driving past that I know'. I find it really embarrassing (female utility cyclist).

3.3. Competences

Data indicated that some competences required for the performance of the practice of cycling were lacking in the British population. For example, 46% of the sample cycled 'a long time ago but not nowadays' with only 5% cycling regularly at the

Table 3
Differences between the image of 'self' and the image of 'cyclists'.

Total GB sample (n = 3855)			
Perceptions of cyclists: 'Cyclists are...' (%)		Perceptions of self: 'I am...' (%)	
Fitness conscious	74	Hard working	64
Environmentally aware	61	Independent	60
Independent	38	Money conscious	58
Confident	35	Happy	52
Adventurous	32	Environmentally aware	47
A free spirit	27	Happy in childhood	41
Money conscious	25	Confident	37
Happy	22	Shy	33
Hard working	21	Adventurous	27

moment, suggesting that there is a common failure for adults to re-establish childhood cycling practices once they have lapsed and that competences required for regular cycling are lacking or dormant in the non-cycling population. For example, 46% of the sample agreed that they are not confident enough to consider cycling. The precise nature or composition of such 'confidence' was further explored in Study Two. Some respondents expressed a positive intention to start cycling but felt they lacked the skill or knowledge to take the next step:

> *I haven't cycled for a long time. I keep thinking I'd like to cycle to and from work. Then I think 'how safe is it'? I drive past cyclists and wonder how close I am to knocking them off. Not that I want to. Then I think what do you do with all your stuff, and how do you shower and that sort of thing. I'd like to but I need to get a bike and where do you start with a bike? I don't know where to start really. All the clothes. There is a shower at work. The whole thing about going into work and having a shower there. It's different isn't it* (female lapsed cyclist).

This quote summarises some of the range of competences perceived as necessary for cycling to work; including negotiating the 'dangerous' roads, managing and storing cycling gear when at work, managing personal hygiene and knowing what to wear.

Another competence that Study One identified as lacking was that of sufficient fitness to complete the commute by bicycle. 29% of the sample deemed cycling 'too much like hard work', indicating a (perceived) lack of required fitness. The qualitative research explored this further, indicating that some respondents felt that cycling was out of their reach for fitness reasons:

> *They've [cyclists] got so much energy. I wish I could have the energy to get up and do that* (male lapsed cyclist).

In line with the meanings discussed above, the language in this quote also imparts a sense that the respondent considers cycling to be unattainable.

4. Discussion

Fig. 2 is an overview of the three elements of the practice of cycling as identified through our reanalysis of the data.

The disaggregation of our research analysis into SPT's three elements demonstrates how SPT can allow for an enhanced vision of the practice of cycling. Rather than focus solely on individuals' motivations or barriers to participation, this approach examines the practice as the phenomenon of enquiry and as such provides a fuller set of footholds for influence. For example, our analysis suggests that interventions might seek to tackle perceptions that cycling is dangerous or is inappropriate for professionals; the negative attitude of car drivers towards cyclists; the lack of showering and storage facilities at the workplace and the low confidence preventing lapsed cyclists from restarting. However, although findings presented in this disaggregated way can still lead to a range of insights for change, the enhanced value of SPT lies in the links and

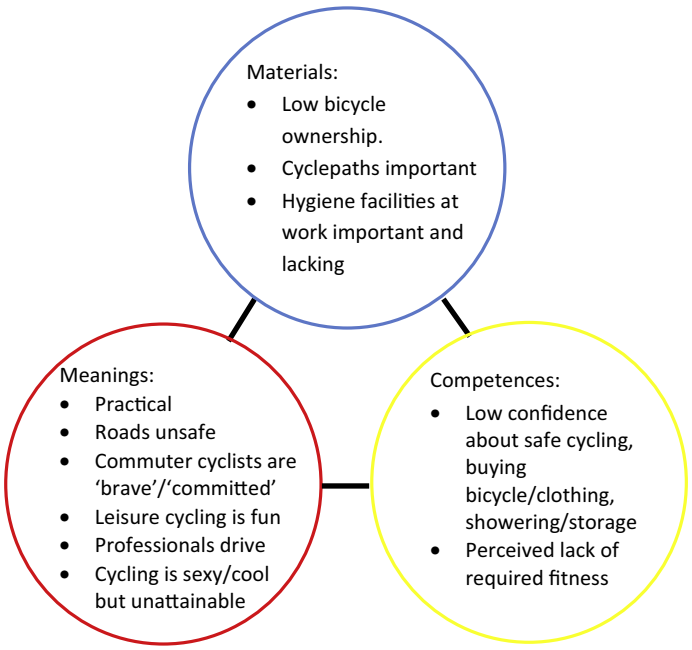

Fig. 2. Summary of findings.

interactions it also helps identify *between* elements. Examples from our findings might include the potential link between the desire for cycle paths and the perception that roads are 'for cars'; the link between the perception of cycling as inappropriate for professionals and a lack of quality of storage, locking and showering facilities in the workplace; the potential link between a perceived lack of fitness and the sense that enjoyable cycling is the reserve of leisure holidays. Thus analysis can enable intervention managers to produce a complex but rigorous web of interrelating factors which can form the basis for a multi-layered behaviour change strategy.

The clarity of vision provided by SPT can also move beyond the single practice to the interrelationships between bundles of practices that co-exist in particular domains of everyday life (Warde, 2005). Individuals are simply *"unique crossing points"* (Reckwitz, 2002, p. 256) of a range of practices, which are interlinked with one another very closely (in the case of 'complexes') or more loosely in bundles. We can see, for example, how closely related the practice of cycling is to car driving. Any change in the links between elements of either practice is likely to affect the other. From our data, for example, we can see that travelling by car is considered normal whereas cyclists are viewed as 'special' and 'committed' and as such cycling is perceived as somewhat out of reach. Further research might explore the interplay between a reduction in urban driving speed limits (which provides meaning for car drivers) and the change to competences required by cyclists to safely cycle through a city. Similarly, an increase in workplace parking costs might be explored for their interplay with views about cycling to work being perceived as inappropriate for professionals. Such an approach, which explores the connection between the societal structures (such as policy and legislation) and human behaviour, may offer an alternative to transport research which underpins 'soft measures'; based on a psychological understanding of intention, action and their antecedent forces (e.g. Gatersleben & Appleton, 2007; Lorenc et al., 2008). This alternative may help reverse the limited success of such soft measures (Bonsall, 2009; Chatterjee, 2009; Graham-Rowe et al., 2011). The evidence that cycling habits are automated and ingrained; the result of meanings embedded within and reproduced by the structure of the practice and its performance implies that simple persuasive tactics targeting the individual are unlikely to substantially overcome such understandings, which find their root outside individual psychology.

The use of SPT for the analysis of cycling practice also provides a significant contribution to behaviour change because it is a natural gateway for interdisciplinary thinking; required when behavioural problems have large scale and complex roots (Marsden et al., 2014). SPT can provide an analysis of 'the problem' (i.e. the low numbers of utility cyclists) comprehensive enough to offer *"a broad range of opportunities for change"* (Rettie et al., 2012, p. 425).This broad range of opportunities is based on the principle that changing a practice requires breaking or challenging the links between its many interrelated elements (Shove & Pantzar, 2005). From this brief illustrative discussion, it has been possible to see that a panoply of links between interrelated materials, competences and meanings would need to be tackled to achieve change. Thus a range of co-ordinated legislation, infrastructure, policy and marketing interventions may be required for reconfiguration of utility cycling practice; an interdisciplinary response. Interdisciplinarity in behaviour change has been recommended in numerous policy contexts (Butland et al., 2007; DfT, 2011b; HoL, 2011; Jebb, 2007; Teasley & Wolinksky, 2001) and in the academic literature (Abraham & Michie, 2008; Michie, Johnston, Hardeman, & Eccles, 2008; Nash et al., 2003; West, 2006) on the basis that such an approach would help us become *"more adept at reassembling the unity of knowledge and coping with problems that are too large for any discipline to tackle alone"* (Robertson, Martin, & Singer, 2003, p. 24). However, an interdisciplinary response to complex problems like sustainable transports is difficult to manage (Gratton & Erickson, 2007; Kanter Moss, 1989; Kanter Moss, 2002), and so the use of SPT may provide a valuable framework for its conceptualisation.

A final contribution of SPT analysis for behaviour change is its capacity to enable researchers, practitioners and policy makers to avoid criticisms of political individualism or 'victim blaming'. It enables this by conceptualising practice in the abstract (Hargreaves, 2011; Shove et al., 2012; Wilson & Chatterton, 2011) and not by treating behaviour as something for which individuals are 'responsible'. This encourages intervention responses which avoid focusing on individualist tactics such as 'Smarter Choices' and rather examine whole system responses which emphasise institutional responsibility.

4.1. Limitations of this work

The limitations of secondary research are acknowledged. Secondary data cannot provide as comprehensive a range of findings as might be expected by data collected for the express purposes of the project. Indeed, given that the purpose of the original research was to explore images of cycling (see Leonard et al., 2012), and the research methodology was designed specifically to elicit such data, it is unsurprising that data on the 'meanings' element was the most extensive. It is also acknowledged that for effective SPT research, a combination of direct questioning and more objective techniques, such as field observation would be recommended for triangulation (see Martens, 2012).

5. Conclusion

Our analysis has shown that SPT has considerable potential strengths as a tool for the conceptualisation of an activity such as utility cycling in the context of 'behaviour change'. It enables the researcher to take an abstract view of the 'problem' behaviour, removing the individual from focus, and considering instead the practice itself as the principal unit of enquiry. This opens up a way of thinking about practices as combinations of elements and the links and dynamics between these elements, each of which will need to be broken or reconfigured if the practice is to substantially change.

Importantly, SPT suggests that an apparently simple act such as cycling is in fact embedded as a system within other systems. Creating change in such an environment is complex. However, SPT may help provide an initial logic for coordinating such diverse measures. At the moment urban planners, educators, social marketers, and many other practitioners will typically deploy their activities in isolation from one another – thereby severely limiting their potential effectiveness. Interdisciplinarity is still unusual in behaviour change, not least because of the obstacles to diverse group collaboration (Gratton & Erickson, 2007; Kanter Moss, 2002), but interdisciplinarity has been called for as the future of the field (HoL, 2011; Jebb, 2007; Robertson et al., 2003). Because SPT emphasises the dynamics between a practice's different constituent elements, it thus emphasises the importance of undertaking co-ordinated efforts to tackle all (or at least a number) of them.

Finally, it is acknowledged that beyond Shove's 'three element' representation of SPT (Shove, 2011; Shove et al. 2012), which was an attempt to simplify the theory down from previous more complex versions (Reckwitz, 2002; Schatzki, 1996) for policy consumption, the theory has not (yet) been developed as an applied set of tools for managing behaviour change. The abstract nature of practice theory may therefore explain in part the slow uptake of the approach at a policy level; that it is less 'accessible' or applicable compared to well-tested psychological approaches (Cairns et al., 2014). However, its slow diffusion within government may also be explained by its opposition to the dominant culture of individualism (Shove et al., 2012), on which so much behaviour change policy is based (Hargreaves, 2011). Either way, this paper seeks to contribute to the behaviour change and travel mode shift literature by exploring the potential for SPT in gaining insight into the practice of utility cycling. Although this paper briefly considers the potential and nature of an interdisciplinary response, it is noted that this would be better conceptualised through the future development of a set of tools based on SPT. Thus, although merely a starting point towards a new way of thinking about behaviour as practice, it is hoped this paper will lead to a rich new seam of research which can illuminate the problem of the low numbers of British utility cyclists, enabling the development of effective, interdisciplinary approaches to utility cycling behaviour change.

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