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WORKING PAPER

Symbolic transport choice across national cultures: theoretical considerations for research design

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Abstract

A recently empirically isolated latent variable in transport choice is symbolism, which examines what people believe their transport choices say to others about them and how they are judged in a social context. Whilst it is well established that symbolism differs vertically across different socio-economic groups within a country, very little work has been done on how symbolism in transport may differ between similar individuals across nations as a function of national cultural values, and how this may manifest itself in transport choices. If significant differences were to be found then this could have impacts for transport policy formulation and transfer. This paper explores and discusses these issues and concludes that the initial goal of any research into symbolic transport choices across cultures is theoretical fertility, and this is best achieved by adopting the research philosophy of Imre Lakatos, using theory-driven thematic analysis to develop theoretical models for testing.

Keywords: latent choice motivation, transport symbolism, national culture, Lakatosian research programmes, mixed methods research, thematic analysis

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'The first step is to measure whatever can be easily measured. This is okay as far as it goes. The second step is to disregard that which can't be easily measured or to give it an arbitrary quantitative value. This is artificial and misleading. The third step is to presume that what can't be measured easily really isn't important. This is blindness. The fourth step is to say that what can't be easily measured really doesn't exist. This is suicide.'
(Yankelovich, 1972)

1. Introduction

In recent decades, commentators such as Verlinghieri (2014) and Tapio and Hietanen, (2002) have expressed the view that transport studies has drifted away from its traditional positivist position to draw upon varied research techniques and epistemologies so as to understand the hidden motivators behind peoples' transport choices and enable the development of more effective transport policies. The latest iteration of transport studies - 'mobilities' - is according to Shaw and Hesse (2010) very much in keeping with this trend, examining not only what movement is, its empirical reality, but also what it 'means', in terms of its socio-cultural, economic and political aspect. One example of an empirically derived, latent transport choice motivator, is symbolism (Steg, 2005; Heffner et al, 2007). Symbolism concerns itself with what individuals or groups feel their choices say about them to others in terms of social placement; according to Steg (2005) symbolism is a key influencer of modal choice. Furthermore, it has been shown that the symbols deployed by different groups to present a certain image to others differs across social groups within a society (Bourdieu, 1984). The research question developed in this paper is to what extent might national culture influence the symbolic aspects of transport choice between similar groups and individuals across national and regional cultural boundaries, and what the implications for transport policy formulation and transfer, especially within the context of encouraging environmentally sustainable transport, might be. This is an important question as a policy or model developed and implemented in one culture may be unsuitable, and thus unsuccessful in another, not merely for practical reasons (e.g. fiscal, governance, technology, and urban layout), but also due to cultural, embedded values which are psychological in their expression (Shukla, 2010; Shukla, 2011).

This paper is structured as follows: section two introduces the concept latent motivation in transport choice; section three introduces symbolism as a latent transport choice motivator; section four asks if symbolic transport choices might be expected to differ across different groups and national cultures; section five highlights the transport policy formulation and transfer implications of such a possible divergence and offers a selection of purely hypothetical examples to illustrate the key points; section six describes how the initial objective of the research would be theoretical fertility – the development of innovative and original theories for testing - and that a highly productive way of achieving this would be to adopt the research methods espoused by the philosopher of science Imre Lakatos, who saw theories as structures not discrete entities for falsification; section seven offers the

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view that mixed methods research would be the most suitable way of ensuring such fertility; section eight suggests that qualitative methods are the first logical step in a mixed methods programme to generate innovative and progressive theories; section nine justifies why theory driven thematic analysis would be the most suitable initial qualitative method; section ten highlights the need for sampling considerations in cross cultural research of this nature; section eleven offers conclusions and suggests the next steps in the research programme.

2. Latent motivation in transport choice

Understanding how people make transport choices (such as what mode to choose to travel to work, what car to buy etc) is important as it allows governments to formulate policies that facilitate mobility and economic activity, while minimising health problems and congestion, and achieving pollution and carbon emissions targets. Given this, the analysis and forecasting of how people make transport choices has evolved considerably over preceding decades.

The first four decades of transport choice modelling, the 1950s to the 1990s almost exclusively resided within the realms of positivism, and were dominated by engineers, econometricians and mathematicians (Kane and Behrens, 2002; Powell, 2001; Shaw and Hesse, 2010; Guess, 2004). From its inception the central premise behind the analysis of transport choice was that travel was merely a derived demand where an individual's intention was to minimise the overall negative 'cost' they endured (however 'cost' may be defined) to travel from A to B to perform a more worthwhile activity (Banister, 2008). Describing the early years of the discipline, Wind et al. (2012) makes reference to a period of the 'instrumental transport rationale' which seems to be in line with the 'McNamara fallacy' - only things that are measureable and quantifiable drive behaviour (Fischer, 1970). The forecasting models developed during this period primarily relied (and arguably still rely) upon tangible costs incurred to individuals such as money or time. Hidden biases were accounted for (and typically are still accounted for) by applying unitless quanta to each mode that controlled for these unexplainable attributes, but it did not explain them (Klaiber and von Haefen, 2008).

By the late 1980s and 1990s it was becoming increasingly clear, however, that car dependency was proving hard to dislodge, as it was something not only motivated by manifest attributes of choice, but also hidden psychological factors which could not be easily manipulated. Such a realisation drew behaviouralists and social scientists into transport studies tasked with examining the psychological, emotive, aspects of transport choice (Kane and Behrens, 2002; Anable, 2005; Miller, 2001; Urry, 2004; Heffner et al, 2007; Steg, 2005; Choo and Mokhtarian, 2004; Guiver, 2007; Beirão and Sarsfield Cabral 2007; Cairns et al, 2014). This trend continues today within the latest iteration of transport studies, 'mobilities', a broad field distinct from traditional approaches in that it examines not only what movement is - its empirical reality - but also what it 'means' in terms

of its socio-cultural, economic and political aspects (Sheller and Urry, 2006; Shaw and Hesse, 2010). 'Mobilities' studies can be seen as transport studies which have evolved away from a staunchly positivist position, to embrace non-traditional interpretivist epistemologies, in this instance symbolic interactionism, a field that deals with meaning, interpretation, interaction, symbols, self-definition, feelings, emotions, and hidden motivation; such hidden aspects of choice lend themselves to lines of inquiry that are sociological and philosophical in nature (Gingrich, 2006). Being hidden, latent, however, does not render such motivating factors as 'unreal' (Bollen, 2002; Borsboom et al, 2003) or of no practical predictive use. In recent years the field of transport modelling has been exploring the use of proxy variables for latent motivation, to develop stronger forecasting methods that reflect emerging transport paradigms (Dirk Temme et al 2008; Hess and Hensher, 2013; Wind et al, 2012).

3. Symbolism as a latent motivator in transport decision making

Symbolism is an important hidden driver of transport choice (Steg, 2005; Heffner et al, 2007). Symbolic meaning is concerned with how people believe others perceive and judge them as a consequence of the 'signifiers' they display (Saussure et al, 1974), and this assists individuals and groups to develop 'their self-identities' relative to others (Elliott and Wattanasuwan, 1998) in socially stratified societies (Lindemann, 2007). Symbolic meaning has been investigated at length in disciplines such as sociology, semiotics, sociolinguistics and psychology (Bourdieu, 1984; Festinger, 1954; Ajzen, 1991; Cialdini et al, 1990; Belk, 1988; Masters and Smith, 1987; Leigh and Gabel, 1992; Dubois and Duquesne, 1993; Engel et al, 1993; Marcoux et al, 1997). Barthes (1967) describes what something signifies as being either a denotation or a connotation, the connotation being a deeper meaning of that which is denoted by the signifying symbol. Denotations tend to be universally accepted by all, but connotations often vary by group. For example whilst owning a hybrid car should denote an overt statement of environmental concern to most members of society, the associating connotation may vary between groups (e.g. 'educated and caring' versus 'pious and moralising').

Whilst symbolism as an explicit, empirical latent variable is relatively new in transport studies, transport researchers, especially in the last twenty years, have described in general terms how individuals possess personal biases regarding transport choice, including a strong focus on their outward appearance. For example: Cairns et al. (2014) postulated one reason for the increasing popularity of communal transport modes such as car sharing is the formulation of 'novel identities' to display to others; Snowdon and Grimmer (2009) showed how people used cars for purposes of social categorisation and esteem enhancement; Heffner et al (2007), examined the motives behind people's adoption of 'green' car technologies and concluded that outward presentation of being seen to care about the environment to fit in with a particular peer group was critical for many (see also Idris et al

2015; Mokhtarian and Salomon 2001; Noppers et al 2014; Chua et al 2010; Guiver 2007; Beirão and Sarsfield Cabral 2007; Maynard 2014; and Metz 2014, for further examples.)

Arguably the seminal and most cited publication in the area of symbolism in transport is that of Steg (2005) who did not merely allude to symbolism, but utilised Dittmar's (1992) theoretical model of motivation, to identify it as a specific latent variable among a group of Dutch car commuters around Groningen and Rotterdam. After loading measurement scores from an attitudinal survey onto a single latent factor representing symbolism she concluded:

Car use is not only popular because of its instrumental functions....the way people talk about their cars, and the ways cars are advertised make perfectly clear that the car fulfils many....symbolic....functions. In advertisements, appeals are made to people's ...social status the car seems to be a status symbol...the results from these studies....provide solid empirical evidence for the significance of non-instrumental motives for car use.....symbolic.....motives...affect ... mode choice....and other transport motives.' Steg (2005).

4. Symbolic transport motivation across different groups and cultures

The empirical isolation of symbolism as a latent transport choice variable by Steg (2005) opened up the possibility of further research into how it may vary in its influence between different groups. It is well established that the symbols used by different social-demographic groups to demonstrate status differ within clusters of countries sharing similar cultural attributes (Hofstede et al. 2010). It is also well documented that these symbols are dynamic and ever changing (Bourdieu, 1984; Ivanic et al, 2011; Linssen et al, 2011; Bloch et al, 2004). Leaving practical constraints and factors aside, there are several potential explanations for this. One could be that differing values are driven by varying socio-demographic and locational pressures: for example a middle-aged suburban male car driver, with no tertiary education, working in a sales profession, may place much greater symbolic value on owning a luxury sedan, than a young, highly educated, graphic designer living in a small apartment in the centre of Amsterdam. Another factor could be age: both Shah (2009) and Durvasula and Lysonski (2010) make reference to generational differences when overtly expressing wealth in India and China. Steg (2005) interviewed suburban car drivers commuting into Groningen and Rotterdam segmenting them on the basis of annual kilometres driven, their attitudes towards the car, age, and income; the symbolic aspect of modal choice were seen as strongest in those with a positive outlook towards the car, people who drove long distances, high earners, and those under twenty five years old.

Migrant status could also be influential: Sheel (2005) examined the purchasing habits of the Indian migrant community living in Canada and observed that there is often extreme family pressure on younger people to drive a 'good car' to show relatives back in India that they have been successful in the 'new country' (see also Ivanic et al, 2011; Kaus, 2013). Finally, gender, and mate attraction,

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could also be motivating factors - Dunn and Searle (2010) describe how males are generally rated as more attractive by females when driving a luxury car than a small old vehicle, regardless of the social status of the female participants in the survey; they also note how many car adverts use mate attraction as a motivator.

Leaving these potential in-country variations aside (which are expanded upon in Section ten when discussing sampling), a novel line of inquiry would be to ascertain how transport symbolism differs between highly similar groups or individuals, in highly similar circumstances, across different nations, as a function of embedded national cultural values. In undertaking such research, the researcher would be extending the traditional concept of horizontal separation, as defined by Ohnmacht et al, 2009 (cited in Brand and Dávila, 2011) as ‘something that goes beyond the usual vertical stratification of society according to wealth, income, education and status, and examines dimensions such as age, gender, ethnicity and lifestyle’, a further stage by examining symbolic mobility choices across national boundaries and how they may vary due to cultural reasons.

Hofstede (1984) defines culture as ‘the collective programming of the mind which distinguishes the members of one human group from another’. National culture has been described as ‘intangible, fuzzy’ (Soares et al, 2007) and therefore it lacks consensus as to how it should be measured (Blumenberg, 2009), or what causes it. Some see it as being attributable to genetics (Newson et al, 2007); others to shared heritage (Matthew and Busemeyer, 2011); and others to social conditioning (Varnum et al, 2010; Rau et al, 2009; Savani et al, 2012). Yet despite this lack of consensus a country’s culture has long been identified as a key characteristic underlying systematic differences in behaviour at a general level (Malhotra and McCort, 2001). Different cultural conditions do seem to lead to different choice evaluations (Koçak et al., 2007) because of varying ‘value associations’ (Belk, 1999).

Globalisation has led to culture becoming a comprehensively studied topic especially in social science and commerce (Strohschneider, 2002; Markus and Kitayama, 1991; Steenkamp, 2001; Swaidan, 2012). Several models that contrast different cultures through empirically derived proxy variables, have been developed in recent decades, the most commonly cited being Hofstede (1984), Schwartz (1999), Trompenaars and Hampden-Turner (1997), House et al (2004) and Inglehart (1997). These models are not without contention mainly because they seek to generalise or stereotype national behavioural at a collective level at the expense of the individual (McSweeney, 2002; Jones, 2007; de Mooij and Hofstede, 2002; Osland and Bird, 2000). Moreover even the proponents of cross cultural studies commonly disagree with each other as to how culture should be captured via proxy indices. But despite these issues the usefulness of the models is evident in their frequent use in the fields of governance, business studies and policy formulation and implementation.

Transport researchers are seemingly becoming more mindful of the role of culture in travel behaviour: Kuhnimhof and Wulfhorst (2013) described 'perceptions and lifestyle orientations' (one of their four critical aspects of urban mobility culture) as being heavily influenced by cultural background. Scherer and Dziekan (2012) state that any psychological biases in favour of rail over bus will be influenced by local conditions so cannot be generalised and applied to different regions. Ger et al. (1999) touched on the symbolic values of both the car and the bicycle in different cultures; Miller (2001) suggests an overemphasis on the 'consequences' of transport rather than an account of its importance in different cultural contexts; and recent research by Syam (2014) examined the role of culture in modal choice for different migrant groups within Auckland and concluded that national culture was a strong motivator of how public transport is perceived differently by different national groups within a city (see also Oliver and Lee, 2010; Syam et al, 2011; Syam et al, 2013).

5. Transport policy implications

Research into symbolic differences in transport choice between cultures is likely to have wide ranging implications for transport policy development and transfer between nations. Whilst governments in developed nations have been grappling with the problems associated with high levels of traffic, and their related effects for decades, this is not the case for their contemporaries in developing nations. There, rapidly rising incomes and the mass local manufacture of vehicles has led to an exponential rise in car acquisition within recent years that, over a relatively short period of time, has made car related issues such as urban air pollution and congestion acute yet relatively new problems for these governments to address (Chen et al, 2009; Siddique et al, 2011; Kan and Chen, 2004; Zhou et al, 2010).

This problem seems likely to manifest itself most acutely in what the United Nations (2014) term, 'mega nations' such as India and China, who they predict will account for 37 per cent of the projected growth of the world's urban population between 2014 and 2050 (The United Nations predicts India will have 404 million new urban dwellers and China 292 million). Unless addressed, such a population explosion is likely to have hugely negative impacts upon environmental sustainability. According to the World Health Organisation (World Health Organisation, 2014) Delhi is already the world's most polluted city with just under 300 micrograms per cubic meter of PM10 (fine particulate matter of 10 microns or less) in the air; Beijing registers 120 micrograms per cubic meter of PM10 (Iyengar and Lipton, 2015). For comparison purposes London, in 2011 scored an annual average of 22 PM10 (Press Association, 2014) whilst still being deemed as having the 'filthiest air' of any European capital (Hansard, 2012); the European Community allowable level for PM10 is 10 micrograms per cubic metre (European Commission, 2015).

With the bulk of future global transport pollution expected to be produced in cities such as Delhi and Shanghai, it may be surmised that governments in these nations will be looking to develop their own tailored transport policies that cater to their own circumstances (Pucher et al, 2007; Chen et al, 2009; Siddique et al, 2011; Dargay et al, 2007; Kan and Chen, 2004; Zhou et al, 2010; Harris, 2006; Jakovcevic and Steg, 2013). Yet it is currently common practice for transport policies and forecasting tools to be exported from one country to another often at the behest of 'experts' from different cultures (Wang, 2010; Marsden and Stead, 2011). This might not be an optimal way of approaching the problem: a policy or model developed and implemented in one culture may be unsuccessful in another, not merely for practical reasons (such as fiscal, governance, technology, and urban layout), but also seemingly irrational (at least to people of other cultures) cultural reasons, embedded values, psychological in their expression (Shukla, 2010; Shukla, 2011). If, Steg (2005) is correct in stating that 'policy makers should not exclusively focus on instrumental motives for car use, but be mindful of the symbolic and affective motives as well', and if transport related symbols convey different social messages across different cultures, then clearly there would be implications for transport policy development and transference.

A hypothetical examples will illustrate this point. If one were to use a commonly used cultural differentiator, for example Hofstede's (1984) 'individualism/collectivism' dimension (the extent to which an individual's primary allegiance is to their own immediate family as opposed to their extended family/'in-group') it might be that sustainable transport polices with proven success in amongst wealthy, urban educated people in individualistic nations are unlikely to be successfully transferable to their equivalent peers in a collectivist nation, for cultural not practical reasons.

To elaborate: collectivist nations have been described as 'face' and 'shame' cultures (Hofstede et al, 2010; Shavitt et al, 2010; Schwartz and Bardi, 2001; Savani et al., 2011; de Mooij and Hofstede, 2010; Shukla, 2011; Anolli and Pascucci, 2005; Bierbrauer, 1992; Creighton, 1990; Ho et al, 2004; Johnson et al, 1987; Gilbert and Andrews, 1998). In such cultures face is lost when an individual does not meet the mandatory requirements placed upon them as a consequence of the social position they occupy (Ho, 1976). De Mooij and Hofstede (2010) describe how 'face', in nations such as China, is related to economic capacity; the maintenance of 'face' ('mianzi' in Mandarin) is achieved when one's social position is reinforced through gestures and symbols. In collectivist nations, loss of face, through a depiction of lesser economic capacity, is a potentially damaging social event that can threaten familial wealth and position (Ho et al., 2004). Marriage partners will be harder to arrange as marriage is based upon unions between families of similar (or at least perceived) similar economic status (Sheel, 2005). Business unions and careers may be threatened as respect within communities is defined by a family's economic social circle, and prosperity, which in turn is based upon the appearance of financial equivalence (Bloch et al., 2004). Upton-McLaughlin (2013) describes how 'face' is important for business deals and maintaining friendships; Drake (2011)

opines that a loss of face can 'unravel the carefully woven fabric of social relationships, essential to a person's success in society.

Therefore, from a policy perspective, there may be little point promoting car free lifestyles in collectivist societies if not owning a car symbolises being unable to afford one, and the presumed financial difficulty impacts negatively on an family's social standing. While walking and cycling can be impractical in some nations due to climate and infrastructure, they are unlikely to prove popular alternative commuter modes if they are considered humiliating for the richer classes. Trying to encourage people to buy smaller cars, sharing cars, or procuring eco-friendly cars may also be difficult in a collectivist society if they symbolise someone being 'cheap' or 'parsimonious' rather than environmentally concerned or wisely frugal. All of these examples, if proven could have ramifications for the formulation of transport policy and its transfer from an individualistic to a collectivist culture.

6. The case for theoretical fertility through a Lakatosian research programme

The overall research question deduced from the above review of existing theory is: *'Does national culture affect the symbolic aspects of transport choice in different countries for those of a similar social level?'*

This is an extremely broad question in a novel area of inquiry. In addition it deals with symbolic motivation and national culture, which as discussed are two complex and latent drivers of behaviour. As such it is unrealistic, at the inception phase of the research, to expect the question to be answered with a definitive 'yes' or 'no'. An attempt to negate every visible causal variable is likely to be impossible and, even if it were not, who could definitively assert that national culture was the only latent variable at play? As discussed in section four, symbolic transport choice is likely to vary between groups and individuals within a country due to a plethora of socio-demographic factors. Even if one compares 'like with like' as much as possible, say for example two highly educated, affluent, urban professional families, it will be impossible to negate every potential variable to leave only culture standing as an explanation for differences in the symbolic aspects of their transport choices. Furthermore even if culture could be isolated as a major explanatory latent variable, when it comes to matters of policy formulation and transfer, who could assert that culture was a static entity? Are cultures homogenising through globalisation (Tomlinson, 2012) or are they permanently evolving but retaining relative distance, never converging (de Mooij, 2010)? Furthermore, as cities develop and grow, how might sheer practical considerations such as the requirement to be at work on time in an increasingly congested environment, override the symbolic aspects of choice even in cultures where symbolism is paramount?

The current nascent status of research into the role of symbolism and transport choice lends itself to an inception task whose aim is to unpick the underlying dynamics of symbolic transport choice across different cultures into smaller sub questions for further work, rather than to expect a definitive falsification or acceptance of the high level research hypothesis. The notion of the scientific progression of a theory, the growth of knowledge consisting of the theory progressing, expanding, whilst initially being protected from premature wholesale acceptance or rejection, is in line with the approach to scientific inquiry as described by the philosopher of science Imre Lakatos. Lakatos's 'research programmes' (Lakatos, 1978) act as a compromise between the competing views of Karl Popper (1934) and Thomas Kuhn (1962) as to how science progresses and knowledge accumulates. Broadly speaking Popper saw theories as discrete entities which survive not by being proven but by not being falsified; it is the postulation of novel theories and the subsequent attempt to falsify them through rigorous testing that constitute scientific progress. Conversely Kuhn was an anti-rationalist who saw the progression of science as being through paradigm shifts, with the prevailing paradigm of the time not merely being overturned by another through a process of reason but also other factors such as social effects or peer pressure.

Lakatos (also a rationalist) mooted a compromise, recognising theories as structures rather than discrete entities where a successful research programme at first shields (via a 'negative heuristic') the core proposition allowing the occasional falsification, whilst the examination of the auxiliary hypotheses generated through the process of examination, guide the further development of the theory ('the positive heuristic') until the evidence is overwhelming that the core theory has to be broadly accepted or refuted, and either modified or dispensed with. This sheltering via the negative heuristic is especially important in the nascent phase of a theory when it is at its most vulnerable due to its novelty and reliance on new assumptions. Within a Lakatosian research programme, fertility, or progression (as opposed to degeneration), is how a theory is deemed to be successful. Fertile theories are theories that allow scope for insightful development by raising further research questions, and thus contain ideas to guide research whose aim is to unearth novel findings that improve and strengthen the theory. To immediately accept or reject a theory too early runs the risk of losing lines of inquiry which may ultimately prove to be extremely fruitful. Theories are seen as dynamic structures that rarely spring into existence fully fleshed out; those that tend to be successful come with associated ideas for development even though the original theory may eventually prove fallible, at least in its original form (Newton-Smith, 1981).

7. A case for mixed methods to develop and test the auxiliary belt

In adopting a Lakatosian approach the researcher must choose a research method that facilitates the generation of novel and progressive hypotheses to populate the auxiliary or protective belt, whilst

protecting the core proposition. The unearthing of hypotheses and their subsequent testing will therefore constitute the initial stages of this research programme to examine symbolic choices in transport across cultures. In the inception phase of the work rich data will be required as latent, symbolic, motivation is complex to unearth - researchers have described how symbolic drivers of behaviour are things people have difficulty understanding or prefer not to acknowledge (Noppers et al, 2014; Heffner et al, 2007). If asked about emotive factors directly, many respondents struggle to explain their symbolic meanings, or may conceal or downplay their importance (Zaltman and Coulter, 1995). This is a tendency which has been observed in prior studies of consumer purchasing and automobile use (Rapaille, 2001). For example Ni (2008) asked Chinese automobile purchasers about the lifestyle connotations associated with their vehicles and concluded it was an extremely difficult exercise as respondents tended to become awkward and offer vague answers. Steg et al. (2001) found that symbolic-effective motives were easier to 'tease out' of respondents when the research task was described in vague terms.

The exploration of these 'fuzzy' latent concepts of symbolism and national culture, fall within the research traditions of symbolic interactionism and ethno science (Crabtree and Miller, 1992) respectively, which reside within the constructionist paradigm (Braun and Clarke, 2006). This paradigm largely relies upon qualitative methods where theory is built through rigorous observation. Karasz and Singelis (2009) describe qualitative methods as especially well-suited to examining cultural differences as descriptive comparison renders culture more 'concrete'. Furthermore Coolican (2009) and Bryman (2012) describe qualitative methods as being highly effective when unearthing symbolic motivation especially in consumer behaviour (McCracken, 1986); participants are freer to express themselves in terms of their psychological and cultural motivations and provide the researcher with rich data, and therefore insight, into latent motivation, and how national culture permeates their psyche (Karasz and Singelis, 2009). Qualitative analysis has been used before in transport studies to explore the more complex, emotive aspects of transport choice and attitudes; examples being Sowden and Grimmer (2009) and Beirão and Sarsfield Cabral (2007).

Yet taking only a qualitative research approach does have limitations. A Lakatosian method remains a positivist methodology. Following the development of hypotheses through qualitative research, it will be necessary to test them, and whilst some authors, such as Guest et al. (2012), are of the view that qualitative analysis can be used not only for the formation of theory and hypotheses but also testing, generally speaking hypothesis testing has tended to draw upon quantitative methods (this is certainly historically the case in transport studies). Furthermore, qualitative work alone does not tend to place a strong emphasis on causation and prediction, but tends to concentrate more on the construction of theory (Guiver, 2007). If the ultimate goal of this research is to assist in developing robust transport policies, tailored for a particular cultural environment, it will be impossible to divert the method completely away from causation, as in policy implementation something is done to affect

an outcome. Cause must precede effect and analysts therefore need to try and predict, from the range of options available to them, the policy that seems most likely to effect changes. It is possibly for this reason that some commentators such as Verlinghieri (2014) see transport studies as being reluctant to move away from its traditionally positivistic home, to embrace other epistemological paradigms.

Therefore, it is advisable, for this research programme, which seeks to examine the potential differences in the symbolic aspects of transport choice across different cultural clusters, to draw upon the benefits of a mixed methods approach - qualitative methods to generate hypotheses and strengthen the core theory, and quantitative methods to test and refine these hypotheses. Then the core proposition can be reappraised and the cycle begin again to ensure growth of theory. Mixed methods (Bryman, 2012; Tashakkori and Teddlie, 2010; Teddlie and Tashakkori, 2012) has been described as flexible, beneficially pragmatic (Minkov and Hofstede, 2011) allowing the analysis of quantitative data as appropriate to the task at hand (Mertens, 2007) whilst facilitating rigorous and insightful qualitative dialogue throughout the research cycle (Howe, 1988; Krathwohl, 1993).

In this instance mixed methods will be used for what Hammersley (1996) describes as facilitation (termed 'sequential triangulation' by Morse, 1991), where one approach acts as the basis for the development of research strategies in the other; this would be in keeping with the method used by Harkness et al (2006) who deployed qualitative research to generate measures to be used in questionnaires in different cultures. This facilitation approach is an example of abductive reasoning, a logical inference that goes from an observation to a hypothesis (Feilzer, 2010). Morgan (2015) summarises such a method as letting the derived themes from the qualitative methods generate hypotheses for testing through quantitative methods, translating concepts from the qualitative themes into quantitative variables. Such an iterative approach dispenses with 'epistemological chauvinism' to enrich an understanding of phenomena (Campbell, 1988; Boyatzis, 1998). Pragmatism is seen to 'brush aside' epistemological and ontological concerns and instead focus on the real task in hand - answering the research question, telling the researchers what they need to know (Feilzer, 2010).

This is not to suggest methodological anarchism as espoused by philosophers such as Feyerabend (1975). The use of Lakatosian method and the insistence on a theory being progressive for it to survive falsification ensures that the examination and development of the research programme is still taking place within a rational framework, although the protection of the core proposition against premature falsification and the use of mixed methods with differing epistemologies and ontologies is undeniably irrational from the perspective of the logical positivist. Lakatos acknowledged this point but was of the view that ultimately excessive rigidity does nothing but hinder the growth of knowledge (Feyerabend, 1987).

Given the above it seems sensible that the first stage of the mixed methods process is to first deploy qualitative methods to examine symbolic transport choices across cultures so as to generate

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rich data. This data will then be analysed thematically (see section nine) to generate hypotheses, that both strengthen the core proposition, and shield it from premature falsification by acting as caveats that will allow the research programme to be guided. The use of a purely hypothetical example to illustrate this point, which ignores the instrumental reasons for transport choice, and concentrates purely on potential cultural and symbolic motivation, may be helpful to illustrate the Lakatosian method, and this is the subject of the next section.

8. Qualitative methods to generate the auxiliary belt of hypotheses – an example

Imagine qualitative interviews are held to discuss symbolic transport choices with two groups from different countries (X and Y), with the participants having extremely similar socio-demographic characteristics (both coming from urban, educated, wealthy, car owning, families, living in a capital city with a full spectrum of modes available to them) but polar opposite scores for a dimension of culture as identified by one of the major cultural theorists; for example, once more using the individualism versus collectivism indices of Hofstede (1984). Furthermore, say, that in the analysis of the qualitative transcripts, a consistent theme emerged that it was highly embarrassing to the participants coming from country X (a collectivist country) if their educated children, employed by prestigious global firms, were seen by others from their peer group, travelling to their place of work on a crowded public bus, because in their culture someone who was supposedly rich being seen using a public bus regularly would symbolise a loss of wealth, failure in their careers, and their family no longer being able to afford to run their car. In addition imagine that such judgements could have subsequent negative social consequences for the family as a whole as discussed above due to loss of 'face' or respect. Then, imagine that the analysis of the qualitative transcripts unearthed in country Y (an individualistic country) showed that when wealthy people were seen on a public bus their peers respected them greatly for caring about the environment as it would be assumed that the switch from the car to the bus had been a real choice, not something forced upon them, affording them social kudos and greater respect.

If these two differing scenarios emerged from the data, then it would be reasonable to hypothesise that in collectivist cultures when travelling it was important for people to demonstrate their social level and affluence to enable them to be appropriately and clearly ranked and treated; and that this was not the case for individualistic cultures. If this hypothesis, when tested, was seen to have merit, then there could be significant implications for transport policy development and transfer from country Y to X if the proposed policy involved encouraging car users to opt for a bus based mode. It would also reinforce the research question, protected via the negative heuristic, that transport symbolic choice differs across cultures (as defined in a certain way).

But it is unlikely that the testing of this hypothesis would yield a straightforward and uniform 'true' or 'false'. There would probably be complications, caveats and exceptions within each of the cultures. For example, it may be found that in country X any negative symbolism associated with a wealthy family using the bus was seemingly lessening amongst younger people, especially those who are highly educated. It may also be found that some families in country X were softening their position on such issues if bus based solutions incurred real time savings over the car, provided that the type of bus was seen as exclusive and differentiating - brand new, state of the art, priced considerably higher than that of a normal bus, and offered features such as Wi-Fi and air conditioning. It may also be found that whilst the bus incurred stigma in country X, travelling by metro didn't, as it was seen as a progressive mode for the middle classes; in country Y it may be that people didn't symbolically differentiate between the modes of public transport anyway.

So purely, for this example, Lakatosian method would still see the theory as progressive through the generation of protective hypotheses and a conclusion into this initial hypothetical exercise may take the form:

'.....Initial qualitative research shows that symbolic transport choice can be seen to differ across cultural groups, one example being that in collectivist countries it seems as if not owning a car and using public transport symbolises that the family as a unit cannot afford a car and this will have negative social consequences (this is exactly the opposite in individualistic societies) so this would have ramifications in encouraging car free lifestyles in collectivist countries. But further investigative research is needed, as it would appear this is less the case for highly educated young people, for those who use the metro rather than the bus, and for luxury buses.....'(these are three examples of auxiliary protective hypotheses that ensure, presumably along with a host of other caveats, that the theory remains progressive).

This is a single example, and there are likely to be a plethora of others, but it does serve to illustrate the Lakatosian method at work. A theory is seen as progressive, fertile, because innovative hypotheses are being generated, tested, and refined, to guide research, whilst the core proposition is not only examined, and developed, but also prevented from falsification at the first hurdle.

The remainder of this paper will describe the proposed method for the initial qualitative work focusing on the specific qualitative technique to be deployed to generate theory (thematic analysis) as well as sampling considerations (both vertical and horizontal). Subsequent quantitative work, and the form it is likely to take, will be discussed in future papers.

9. A justification of the use of theory driven thematic analysis

Of the range of qualitative techniques available to the researcher, thematic analysis (Guest et al. 2012; Boyatzis, 1998; Braun and Clarke, 2006; Vaismoradi et al., 2013; DeCuir-Gunby et al, 2011; Fereday and Muir-Cochrane, 2008) would appear ideal for exploring symbolic transport choices across different cultural clusters. This is because the research question, although focussing on transport choices, is multi-disciplinary in nature, and Denzin and Lincoln (2005) and Miller and Crabtree (1992) see thematic analysis as an ideal bridge between research of varying orientation and fields. Boyatzis (1998) describes how thematic analysis assists communication between positivistic science and interpretative science, between ‘testers’ and developers’ ideas, and is therefore an excellent way of both dissecting manifest and latent content, and of performing comparative analysis of groups that may vary on some explicit criterion. Braun and Clarke (2006) describe thematic analysis as the core method of analysis that researchers should initially become familiar with, as it provides foundation skills useful for conducting other forms of qualitative analysis.

Thematic analysis is a rigorous way of encoding qualitative information through the allocation of ‘codes’ to text, where a ‘good code’ captures the richness of the phenomenon being investigated (Braun and Clarke, 2006; Boyatzis, 1998). Post coding, allocated codes and quotes are then consolidated into patterns and themes which in turn become the categories for analysis and the construction of theory (Fereday and Muir-Cochrane, 2008; Guest et al., 2012). Vaismoradi et al. (2013) describes how, unlike its ‘sister’ methodology, content analysis, thematic analysis does not use the frequency with which a theme is coded as a proxy for relevance, and this makes it especially useful for the positive heuristic aspects of a Lakatosian research programme; an innovative theory or hypothesis can stem from one single bold assertion.

There are three types of thematic analysis. Firstly, theory-driven, that applies developed or pre-developed ‘code books’ derived from existing theory (DeCuir-Gunby et al., 2011). Secondly, data driven as described by Boyatzis (1998) where codes are drawn inductively from the data itself. Thirdly, a hybrid approach of theory and data driven methods that draw upon prior theory whilst still allowing new codes to emerge. In this instance, which of the three methods to use, is highly dependent upon the degree to which the researcher has engaged with the cultural theory prior to coding, and this is a function of the sampling method.

As significant work has been undertaken in cross cultural research over preceding decades there seems little reason not to use a well-established cultural model to divide groups into cultural clusters for comparative analysis. As to which cultural model is most suitable, cultural theorists seem to concur with Ng et al. (2007) that there is ‘no perfect model’ and researchers should be free to choose one that suits their purpose.

In choosing a particular dimension of a cultural model for segmentation, it seems sensible to opt for an aspect of culture which is alluded to in each of the cultural models (albeit using different labels to describe essentially the same phenomenon). This consensus occurs the most, when examining the extent to which people give priority to individual choice needs over the wishes of their collective group (termed an 'in group'). Hofstede (1984) terms this 'individualism versus collectivism', which correlates with his 'power differentiation' dimension; something which describes how important it is to show one's family's place in society to enable people to behave appropriately towards each other and achieve harmony. Trompenaars and Hampden-Turner's (1997) 'communitarianism-individualism' measure is virtually identical to Hofstede's individualism versus collectivism. Inglehart and Oyserman (2004) describe 'individualism/collectivism' in the 'World Values Survey' (WVS) as the 'survival/ self-expression' dimension. Schwartz (1999) in his indices refers to it as 'autonomy versus embeddedness'. The individualism versus collectivism is the most widely cited cultural dimension in existence (Jones, 2007). Furthermore three quarters of the work done in cross cultural research to date has used the Hofstede indices (Ng et al, 2007) and it is one of the few cultural frameworks that has been used extensively across numerous subject disciplines (Williamson, 2002; cited in Mortimer and Grierson, 2010). Taras et al., (2012) describe Hofstede's work as 'elegant' and Magnusson et al (2008) feel the other models only offer limited advancement over Hofstede's. There therefore seems no compelling reason not to begin with the Hofstede (1984) collectivist//individualistic measure for sampling purposes.

In splitting people on the basis of 'individualism'/collectivism, however, the researcher cannot ignore the explanatory power of the cultural model being used, and this has implications for the thematic analysis to be deployed. In collectivist cultures (India and China being examples) the theorists state that it is expected an individual clearly projects their social position, and their family's 'in-group' status, so as to maintain societal harmony. As discussed in the hypothetical example above, if one acts contrary to this a 'shadow may be cast over one's moral integrity and there could be societal sanctions (de Mooij and Hofstede, 2010). Therefore according to Shavitt et al. (2010) in collectivist cultures people focus on complying with rules and on enhancing the cohesion and status of their 'in-groups'. Conformity and collective group decision making are central to this; 'standing out' may put a groups' position in jeopardy and raise the risk of sanctions and shame (Schwartz and Bardi, 2001; Savani et al., 2011). Signalling through symbols play a key role in identifying to which group a person belongs and where that groups sits in a hierarchy so as to ensure they are treated accordingly (de Mooij and Hofstede, 2010) and avoid 'loss of face' or a lessening of respect – a potentially damaging social event (Shukla, 2011; Anolli and Pascucci, 2005; Bierbrauer, 1992; Creighton, 1990; Ho et al, 2004; Johnson et al, 1987; Gilbert and Andrews, 1998). To avoid ambiguity, it has been suggested that in collectivist societies consumers constantly look for normative cues from third parties, including those whose social group they wish to belong to, so as to conform to the

expectations of that group (Trompenaars and Hampden-Turner, 1997; Burnkrant and Cousineau, 1975; Savani et al, 2012).

The use of an existing theoretical model for sampling purposes points towards the use of 'theory driven' analysis. If dividing on the basis of 'individualism versus collectivism' it would be surprising when coding each groups' transcripts, not to see differentiators relating to 'ranking', 'treatment', 'clarity', 'shame', 'sanctions', 'status', and 'collective decision making', amongst others. Such a theory driven exercise would be confirmatory by definition.

The downside to the theory driven approach proposed is that it can lead to a high possibility of projection and bias on the part of the researcher and low interrater reliability (Boyatzis, 1998). Furthermore there may be extremely informative insights and themes in the data which do not emerge from prior engagement with the cultural studies models that have been used for sampling. The authors would suggest, therefore, that if the research is not constrained by either budget or time, then there would be good cause to supplement the theory driven work, with the hybrid thematic analysis approach as described by Fereday and Muir-Cochrane (2008). The hybrid approach would allow inductive data-driven codes (Boyatzis, 1998) to supplement the previously derived, validated, and confirmatory theory-driven codes (DeCuir-Gunby et al, 2011; Crabtree and Miller, 1992), assuming that the theory driven codes hadn't succeeded in capturing all the salient themes. The hybrid approach perhaps suits the Lakatosian research model as it should allow for the generation of larger volumes of auxiliary caveating hypotheses as well as unearth data that supports the initial theory.

Having decided on a model for sampling, and a research method, the next stage is to develop an interview topic guide as the basis for interviewing each of the cultural groups. Given the research is theory driven, this topic guide's aim is to largely unearth textual data and quotes from interviewees that affirm the theory being mooted. The first step in this process therefore will to develop an initial qualitative, theory driven, codebook of key themes from the theory that will in turn form the basis of the topic guide. As the questions in this initial topic guide will be seeking confirmation of theory, they should also aim to strike a balance between open exploratory, and closed confirmatory questions, to allow rich data to emerge. Once completed, the initial draft of the topic guide will be piloted to ensure compatibility with the emerging raw information coming from pilot interviewees and then revised accordingly (Boyatzis, 1998). It is important to note that theory driven codes are validated on the presence or absence of codes in the raw information. Reliability is ensured by allowing other researchers to code the transcripts having familiarised themselves with the codebook.

10. Sampling considerations

Sampling is critical in thematic analysis (Boyatzis, 1998). There are two main sampling issues in cross cultural research – dividing up the cultures or countries to be sampled, and then within them,

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splitting out suitable individuals to be compared (Buil et al., 2012). For this reason random sampling is often of limited utility in cross-cultural research (van de Vijver and Leung, 1997). When simple random sampling is applied it is hard to conclude if observable differences are due to valid cultural differences or to non-controlled differences such as education or demographic characteristics. Given this, when undertaking qualitative analysis across cultures, stronger results are likely when a 'stratified random sampling' technique is used: examining people who are as similar as possible in terms of their own personal circumstances, the choices available to them, and the environments within which they exercise those choices.

As this project has a strong emphasis on the transference of transport policy development in developing cities, India and China, will be two of the sampling clusters (what Inglehart and Oyserman (2004) term 'South Asian' and 'Confucian' clusters). In the Hofstede model both these nations are rated as collectivist (and by association having a high degree of power differential). To explore potential differences in symbolic transport choices it would therefore be necessary to choose two individualistic cultures for the purposes of contrast. If the research is to be undertaken largely using the English language as the medium of communication, it would make great sense to interview similar interviewees in what Inglehart and Oyserman (2004) term the two individualistic 'Anglo' (UK, Australia, USA, New Zealand, Canada), and 'Nordic' (Netherlands, Iceland, Norway, Sweden, Finland and Denmark - where English is spoken fluently among the highly educated) value clusters.

As cities are the focus of this research those interviewed should be living in or have been raised in a major urban area. The interviewees should possess very similar modal choice sets available to them both in terms of actual supply and affordability. This points towards speaking with individuals who can comfortably afford a car if they choose to own one, living in cities that have a metro system, or at least a well-developed commuter rail, or tram network. Add to this the requirement for internet access and the fact that the interviews will be undertaken in English (the native language of the Anglo cluster, fluently spoken in the Nordic cluster, the business language in India, and only spoken amongst the most highly educated in China) and the sample by definition will have to be drawn from the wealthiest, most educated, segments of Indian and Chinese urban society, and their equivalents in the Anglo and Nordic groups.

There are other sampling considerations such as social group, age, cultural dilution and gender. In terms of social group Bourdieu (1984) highlights how symbolic choices and status symbols differ across social groups within a country. For example Hofstede (1984) describes how some lower income groups in individualistic nations can often show scores for collectivism as high as the inhabitants of collectivist nations. To ensure social equivalence therefore some form of screening measure such as the interviewee and one of their parents being degree educated should be employed.

Age is also likely to be important. In collectivist nations, the younger, and better educated, are more likely to be individualistic (Varma, 1998; Mawdsley, 2004; Chatterjee, 2008), although researchers have found that despite greater individuality among youth in collectivist societies, traditional values still seem to be well embedded (Hamamura, 2012). For these reasons it makes great sense to interview those that are not only degree educated, and within a major urban area, but also below a pre-defined age limit.

Potential cultural dilution is also a consideration; the extent to which interviewees might reflect multiple cultural values as a result of their parents having migrated. Phinney et al.(2001) describe how some migrants often retain their culture of origin and resist becoming part of a new society. Syam et al. (2013) described notable differences in travel attitudes and patterns between different migrant groups within Auckland, New Zealand. Furthermore culture was one of the six factors that affected the travel behaviour of immigrants in the United States as identified by Blumenberg (2009). Therefore only interviewees born in their country of origin to two parents also born in that same country will be considered eligible.

With regard to gender an even balance should be sought in the interviewees although the score for Hofstede's (1984) individualism/collectivism or power differential index, which forms the basis for sampling, does not significantly vary by gender (or religion). Hofstede et al, (2010), do state, however, when describing another cultural index ('masculinity/femininity') that in masculine cultures (e.g. China, India, the Anglo countries) it is probable that males will have a larger car, and more of a say in car purchase decisions, than their female spouses, and that fewer couples will share a car, than in 'feminine' countries (e.g. the Nordic nations). Codes relating to gender therefore will not emerge from the theory driven approach, as this is derived from a review of the individualism/collectivism literature, but, the hybrid approach will allow any gender or religious difference codes to emerge from the data in the inductive, data driven, phase.

As to how many people should be interviewed from each group there is no definitive answer as 'sufficient' is deemed to have occurred when conceptual saturation is reached (Thomas and Harden, 2007). Conceptual saturation is the qualitative equivalent of a high confidence interval in quantitative research and is a function of the emerging codes and themes (Guest et al., 2006). Baker and Edwards (2012), citing Guest et al (2006) offer the view that provided the sample is relatively homogenous, then saturation should be reached at twelve interviews. Nevertheless this is a function of the coding exercise and cannot be stipulated in advance.

Convenience and snowball sampling should be the preferred methods of sourcing interviewees, i.e. the initial and subsequent interviewees will be selected through relationships and associated networks to which the researcher has easy access and who in turn can refer him/her to other suitable candidates willing to assist with the project. This approach allows for interviews to be

completed relatively quickly but it does raise questions and risks of bias and over exploring aspects of the work that may prove to not be that significant, as the theory developed from the qualitative data may not pertain to the population at large (these are natural consequences of the use of stratified sampling). As the goal of this initial research exercise is fertility, i.e. to populate the auxiliary belt via the positive heuristic, and to formulate theories for later quantitative examination, provided these biases are acknowledged then the authors believe the pros of convenience and snowball sampling at this stage outweigh the cons. In fact for the development of further theory it will be highly useful for vertical differences (those attributable to factors such as wealth, location, and age) within a culture to be alluded to by the interviewees.

Similarly there is a further cultural dilution point worth discussing: should people who meet all the relevant criteria but are temporarily living in the location of the researcher be excluded? Again, a pragmatic approach is necessary here. It would be preferable to speak with people residing within their home city, but, should researchers have easy access to insightful people temporarily working in the researcher's own home city, then there is no reason why they should be excluded if they can offer valuable insights about the cities from which they have originated.

11. Conclusions

This paper has reiterated the importance of symbolism as a latent motivator in transport choice and posed the question as to how it may differ between similar individuals across different cultures, and if so what the implications for transport policy and transfer may be? As symbolism and culture are hidden, fuzzy entities, rather than seek to accept or falsify this question in a single exercise, and risk accidentally falsifying a theory in its nascent, vulnerable phase, the authors feel that the first goal of the research should be the expansion of the theory itself to see if it is seemingly fertile and progressive, worthy of deeper investigation, before any subsequent hypothesis testing takes place.

This approach is very much in keeping with the research philosophies of Imre Lakatos (1978) who saw theories as structures where the core proposition is at first protected by means of a protective belt of auxiliary caveating hypotheses. Therefore the first step when investigating the differences in symbolic transport choices across cultures, will be to formulate several cultural groups, comprising of members of as similar socio-demographic status as possible, and use qualitative techniques to obtain rich data which simultaneously strengthens the core proposition whilst generating auxiliary caveating hypotheses for quantitative testing at a later date. In short, a pragmatic mixed-methods approach is being advocated with very strict stratified sampling criteria.

The use of an existing cultural model (such as Hofstede's 1984 dimensions of 'individualism' and 'collectivism') to divide people into cultural groups brings with it, an unavoidable knowledge of cultural theory, i.e. why the groups are supposed to be different. Given this, the use of confirmatory

theory-driven codes and themes within the thematic analysis is unavoidable; the researchers cannot unlearn why two populations are supposedly different and postulate how this is likely to manifest itself in symbolic transport choice. That said, if time and resources permit, further inductive work, which analyses the interviewees' transcripts using inductive methods, and data-driven codes, may add significant incremental value.

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