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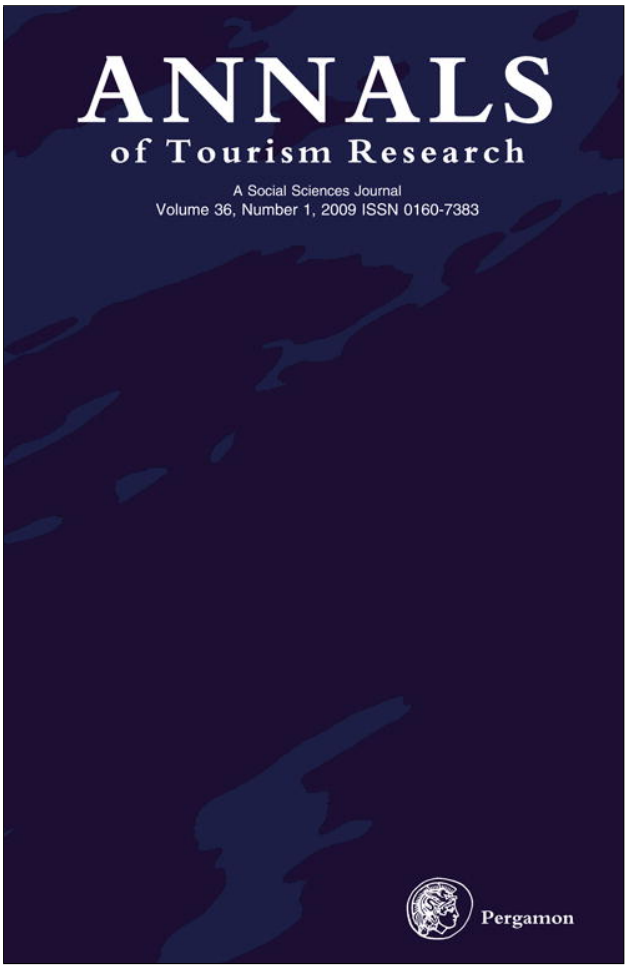

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REPRESENTATION OF TRANSPORT
A Rural Destination Analysis

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Abstract: Moscovici's social representations perspective is applied to a study of transport in a rural destination. The principles are demonstrated using empirical data from a questionnaire survey, developed following in-depth qualitative research. The data analysis strategy was founded on inductive reasoning, by employing cluster analysis and correspondence analysis. A social representations analysis demonstrates how individuals draw on socially accepted explanations of transport where they have little or no direct knowledge or experience of the actual transport modes (notably the alternatives to the car). By so doing, ideas are further perpetuated. Importantly there is ambiguity surrounding responsibility to take positive action yet a key to addressing transport issues is acknowledgement of responsibility. **Keywords:** social representations, transport, rural destinations. © 2008 Elsevier Ltd. All rights reserved.

INTRODUCTION

Travel is an essential component of the tourism and the leisure experience. Travel is also recognized as being a contributor to a variety of global and local problems. As such there has been much research on modal switch, especially in relation to land based transport and a move from car dependence to less polluting alternatives (see for example, Anable 2005; Bamberg, Hunecke and Blöbaum 2007; Stradling, Carreno, Rye and Noble 2007). The focus has been on commuting, rather than tourism and leisure where there has so far been less government pressure to act. However, at a destination level the pressure of tourism and leisure travel is felt through congestion, parking stress and other environmental and community impacts. This is especially true in rural areas with sparse populations out of season and relatively poor vehicle infrastructure. In the UK, numerous initiatives have set out to affect a modal shift in rural destinations (Transport 2000 Trust 2001). To date, while some have supported good levels of use, few have achieved significant modal shift and many have been short-lived,

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falling foul of limited funding and the need to meet revenue and use level criteria (Dickinson and Dickinson 2006; Guiver, Lumsdon, Weston and Ferguson 2007; Lumson 2006). Schemes are rarely subjected to a thorough evaluation in relation to wider social inclusion policy objectives or on the basis of local economic impacts, or reduced carbon footprint of visitation (Guiver et al 2007).

A number of studies have empirically examined transport and tourism in rural areas in the UK although much of this work lacks a theoretical base (see for example Coleman 1997; Cullinane and Cullinane 1999). More theoretically driven work focuses predominantly on the economic perspective (Page 2005; Steiner and Bristor 2000) while Moscardo and Pearce (2004) apply an experiential approach, which focuses on motivational differences for various sub-groups of car based tourists. Prideaux (2000a) has also analyzed tourist travel through his work on the Resort Development Spectrum model and brought some theoretical insights to the topic although his focus was on travel to, rather than within destination areas. However, for a more theoretical analysis of transport behavior decisions, there is a need to look beyond tourism to more generic work on transport behavior which draws on social psychology.

Instrumental factors such as cost and time constraints tend to dominate the general transport and behavior literature (Anable 2005; Bamberg and Schmidt 2003; Guiver 2007; Guiver et al 2007; Stradling et al 2007). There are also a growing number of studies focused on pro-environmental behavior where two theoretical perspectives dominate: behavior motivated by self-interest (using Ajzen and Fishbein's theory of planned behavior); and behavior motivated by pro-social motives (using Schwartz's norm-activation model or Stern's value-belief-norm theory) (Bamberg et al 2007). This has facilitated a number of insights into the understanding of mobility choices in relation to environmental values. However, the path between attitudes and behavior is indirect and muddled and as Ajzen and Fishbein's (1980) model suggests, behavior is only partly influenced by attitudes and is also influenced by judgments of the normative desirability of actions and other variables.

Much of the transport and behavior research is underpinned by mathematical models which privilege certain numeric factors which are easily collated, input and manipulated at the expense of other variables (Davies, Halliday, Mayes and Pocock 1997; Guiver 2007). The models ''often presume that individuals, or groups of people, have consistent values and preferences underlying their choices, which can be deduced through their actions or responses to questions'' (Guiver 2007:234) and Davies et al (1997) question the rationality of transport decisions as views of transport are often complex and varied. Other strands of social psychology show that people's views are often much more contradictory and contain dilemmas (Billig 1996; Billig, Condor, Edwards, Gane, Middleton and Radley 1988). People's views can vary according to the context or social situation in which they find themselves, can be modified to suit an individual's stance at any one

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time and are therefore not necessarily stable (Clark, Darrall, Grove-White, Macnaghten and Urry 1994; Macnaghten 1995).

This paper takes the view that our attitudes towards travel within a destination are messy, complex and far from easy to predict from individual variables. The study also starts from the perspective that people's views of transport modes and travel are, to a large extent, socially derived; especially since, in the 21st century, many people have little experience of transport modes other than the car. Thus, a perspective was sought which might shed light onto the ideas that circulate in society and into which people tap, when considering transport options. Moscovici's (1981) social representations theory was selected and is applied to an analysis of the transport behavior of visitors at a rural tourism destination (Purbeck, Dorset, UK).

Social representations theory acknowledges that people draw on a body of shared social knowledge to interpret situations and to plan and account for their subsequent actions. This body of knowledge is rich and varied, enabling people to select an appropriate perspective to support their chosen action. Thus, the theory can shed some light on the contradictions between attitudes and behavior found in many transport studies (Dallen 2007; Dickinson and Dickinson 2006). The social representations perspective on transport and tourism has been explained elsewhere (Dickinson and Dickinson 2006; Pearce, Moscardo and Ross 1996), the purpose of this paper is to develop and demonstrate these principles using empirical data from a questionnaire survey, developed following in-depth qualitative research. The paper presents an analysis of quantitative data that highlight the contradictions apparent in people's views and actions. The social representations used by various stakeholders to conceptualize transport and tourism in a rural setting are presented. Contextual effects are explored and consequent implications for tackling transport problems in rural destination areas are examined.

SOCIAL REPRESENTATION OF TOURISM AND TRANSPORT

Within the extensive body of literature on social representation, de Rosa (1994) suggests the notion can be considered at three levels: as a phenomenon, as a theory of social representation, and as a metatheory of social representation. Indeed, there has been much debate in the psychology and sociology literature as to the contribution brought by social representation, compared to other theoretical models (Dickinson and Robbins 2008). In terms of understanding the representation of transport in a destination area, it is social representation as a phenomenon that is of interest here. That is ''ways of knowing characteristics of social reality, which emerge in everyday life during interpersonal communications and are directed toward comprehension and control of the physical-social environment'' (de Rosa 1994: 273). In society different groups draw on, or emphasize, different dimensions of social representations and people do not necessarily hold a singular view, drawing on aspects of a social representation most relevant

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to their context at a given point in time (Pearce et al 1996), thus, exhibiting contradictions and dilemmas. An approach was needed to capture this information.

Study Methods

Social representations can be captured by a variety of means and the perspective has been criticized for being empirically ambiguous (Potter and Wetherell 1987) and methodologically loose (de Rosa 1994). When Moscovici set out his ideas on social representations he left methodological considerations vague, arguing there are many different ways of capturing social representations. Thus, social representations theory does not automatically situate research within a particular paradigm. This study adopted an inductive approach and purposefully started with a qualitative exploratory phase, followed by a quantitative survey, as is common elsewhere in social representations studies (Breakwell and Canter 1993; Cvetkovich and Winter 2003).

Work on social representations is well suited to mixed approaches (Breakwell and Canter 1993) where qualitative work provides a platform for further quantitative work to explore particular representations with a wider population. In this study, in depth interviews with the resident population revealed strong social representations, but deeper analyses revealed these were also questioned (Dickinson 2004a, 2004b). Tourist travel diaries were then used to explore the transport and mobility patterns of tourists in relation to the evolving social representations framework (Dickinson and Robbins 2007). The findings from interviews and travel diaries then informed the design of a questionnaire survey undertaken at various sites in the Purbeck area, which enabled data to be captured from a large sample of residents, day visitors and tourists. Ultimately, a survey constrains answers, because people can only respond to the specific questions asked and a survey may inadvertently present a representation regardless of whether this is a reflection of reality (Doise, Clemence and Lorenzi-Cioldi 1993). To minimize these issues dimensions employed in the questionnaire survey were derived from the findings of resident interviews and tourist travel diaries, although these findings are clearly guided by the researcher. In addition, the philosophy of the data analyses strategy was founded on inductive reasoning, by employing correspondence analysis (Greenacre 1989) and cluster analysis.

An attribute checklist approach was devised to examine the representation of transport within the destination area (Fife-Schaw 1993). Respondents were asked to tick statements according to whether they felt they applied to each of the four main modes of transport available throughout Purbeck (car, bus, cycle, walk) or none of these modes. Each statement could apply to more than one mode of transport, which goes some way to avoiding the direct labeling of a mode ascribed by statements in scales, although this is still a limitation.

Correspondence analysis was applied to map out the shared representation(s). This reveals the structure of the complex attribute check-

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list data matrix by replacing the raw data with a more simple data matrix without losing essential information. It was used to see if certain variables occupy common regions of two dimensional space in a correspondence map which facilitates interpretation (Clausen 1998). The technique is useful where the number of categories is large, thereby making it difficult to examine patterns from the contingency table (Dunteman 1994). Correspondence maps can be produced for any cluster or any a priori group (Hammond 1993) and enable the main sources of difference to be examined for sub-groups. Correspondence analysis was carried out for a number of pre-defined groups in this study. Thus, descriptive data on modal choice, group membership and other respondent characteristics were compiled to relate to the social representation material.

Few studies examine the visitors' perspective of impacts and, where they do, the focus is usually on environmental impacts (see for example Puczko and Ratz 2000). Here the focus was on transport and where the responsibility for problems was seen to lie. A scale was employed as is common in social representations studies. Twelve statements were developed specifically for this study, based on the findings of resident interviews and informed by a review of the scales used in a number of tourism impacts studies (Andereck and Vogt 2000; Ap 1990; Davis, Allen and Cosenza 1988; Faulkner and Tideswell 1997; Hall and Page 1999; Jafari, Pizam and Przeclawski 1990; Johnson, Snepenger and Akis 1994; Ryan and Montgomery 1994). Respondents were asked to indicate on a five-point Likert-type rating scale the extent to which they agree or disagree with statements when applied to the Purbeck area.

Scale items have been treated in various ways in social representations studies where the interest is in similarities between respondents rather than differences (Fredline and Faulkner 2000). Cluster analysis and factor analysis are commonly employed to explore the structure of belief systems (see for example, Castro and Lima 2001; Fredline and Faulkner 2000). In this study, cluster analysis was used as a heuristic technique to explore the respondents' shared experiences of tourism. It enables groups of respondents to be identified *post-hoc* from the data. Following other tourism studies (Dallen 2007; Fredline and Faulkner 2000) a hierarchical cluster analysis was undertaken on the original variables. Ward's method and squared Euclidean distance were used on the basis of Fredline and Faulkner's (2000) work. The decision on the number of clusters can be made on the basis of prior work but, as this study was inductive, had a specific transport and responsibility focus and examined tourists as well as residents, there was no previous work to draw on. To calculate an appropriate number of clusters, cluster membership was explored using subjective interpretation of the dendrogram related to *a priori* ideas. The chosen cluster solution was then profiled against the original statements using the percentage agreeing and strongly agreeing together with mean. The findings of this cluster analysis are not intended as a typology of tourists, but serve as a heuristic for further discussion.

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Factor analysis can be used to summarize the variations in a representational field for a given population (Doise et al 1993) and was employed to reduce the number of variables and identify salient dimensions of the representations (Fredline and Faulkner 2000). The aim was to see if there was an underlying structure that reflected both the representations and responsibility aspects identified in earlier work (Dickinson 2004a, 2004b; Dickinson and Dickinson 2006; Dickinson and Robbins 2007). There is some debate surrounding the validity of factor analysis in the social representations field (Hammond 1993). The main critique stems from the use of unidimensional ratings on scales with items being derived *a priori* with little or no input from respondents. These items constrain respondents, may limit their ability to describe salient attributes and generate responses which might not otherwise exist (Purkhardt and Stockdale 1993). Fredline and Faulkner (2000) use the distinction between etic and emic paradigms (Pearce et al 1996). In etic studies, the researcher's assumptions and existing theory drive the research and typically inform measurement scales. The emic approach is more appropriate for social representations theory as it ''recognizes the complexities of community representations of phenomena and the role of social networks in their development, and thus relies more on the community itself to spontaneously generate its own constructs'' (Fredline and Faulkner 2000: 778). Here factor analysis was used as an exploratory technique and it is acknowledged that the scale items constrain respondents as they are not given the opportunity to express their own perspective although, items were derived from local perspectives. Factor analysis was used descriptively to summarize the relationships between the variables so assumptions of normality were not in force (Tabachnick and Fidell 2001). Normality is only important if there is a need to generalize results beyond the sample. The data met the other assumptions of factor analysis, in that there were no uncorrelated variables, nor were there variables that were very highly correlated.

The Study Area. The study took place in Purbeck, Dorset, UK, an area on the south west coast close to the Bournemouth and Poole conurbation. Purbeck is an Area of Outstanding Natural Beauty (a designation similar to a UK National Park) and the coastline was awarded World Heritage status in 2001. Thus, the area has a range of natural attractions and a spectacular coastline. It is a popular UK holiday destination for families and outdoor recreation enthusiasts. The area attracts an estimated 2,330,000 day visitors and 490,000 tourists each year (Purbeck Heritage Committee 2002), while the resident population numbers 44,000 (Buro Happold 2004). Car use is high in Purbeck relative to the national average, 84% of Purbeck households own cars compared to a national average of 72%, (Buro Happold 2004) though this is not untypical of rural destination areas. Exploratory research identified traffic issues typical of rural destinations: congestion; parking stress; and a perception of poor alternatives to the car although bus services are relatively good for a rural area (Buro Happold

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2004). The local planning authority recognizes there are transport issues in Purbeck and there is ongoing action locally to tackle some of the problems. Initiatives have tended to focus on public transport and this is typical elsewhere in the UK (Dickinson and Dickinson 2006).

Sample and Implementation. The questionnaire was self-completed and implemented on site with the researcher nearby. The survey took place at four sites (Studland beach, Lulworth Cove, Durlston Country Park, Swanage beach and seafront) during July and August 2005. A total of 776 questionnaires were returned. In addition, a further 16 bus users were surveyed at Swanage bus station and 38 cyclists at the Sandbanks' Ferry who returned the questionnaire by post. Most of the findings presented here are for the main sample (n = 776), excluding the additional cyclists and bus users. The additional bus and cyclist samples were incorporated into the correspondence analyses for these groups, as bus and cycle numbers were low in the main sample as such groups make up a small proportion by modal choice (bus 2%, cycling 1%). Given a sample frame does not exist for sites with multiple entry and exit points, a quasi-random approach was employed using a systematic traverse on three sites and a next to pass basis at a strategic point on one site. The refusal rate for the survey was 13%, which is low, with a good postal return rate from bus and cycle users of 57%.

Study Findings

The car dominates modal choice in Purbeck (82%) as in comparable destinations in Europe. There is, however, some variation by location, with lower car use and more walking to Durlston Country Park and Swanage (28% and 23% respectively compared to 14% overall). This can be explained by the relative proximity of accommodation to these two sites, together with some visitors to Durlston engaging in long distance walks as a leisure activity.

Representation of Transport and Mobility. From the previous research (Dickinson 2004a; Dickinson and Robbins 2007) resident interviews identified a social representation of transport and mobility consisting of five dimensions: the car cannot be restricted; if public transport was improved people would use it more; alternatives to the car are for 'other' people; cycling and walking are for leisure; and tourism causes the traffic problem, therefore tourists should change their travel behavior not residents (visitor's responsibility). These were used to develop the attribute checklist describing features of modes of transport available in Purbeck.

Correspondence analysis was used to explore the relationships between the modes and attributes (Greenacre 1989; Phillips 1995). The first analysis step is to compute a chi-square test for total inertia. A probability level of $\leqslant .05$ is the conventional cut-off (Garson 2005). Here $p < .001$ therefore it was concluded that the dimensions

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computed were associated with the values of the variables in the original correspondence table (Garson 2005) and the analysis was deemed viable. With the small additional samples for cyclists and bus users in this study the exact probability association was tested using the Monte Carlo approach as there were low cell values. Both recorded $p<0.001$.

The scaling of coordinates was standardized using symmetrical normalization which standardizes on both row (attribute) and column (mode) profiles to facilitate a comparison of the two variables, although it is only possible to precisely interpret the distance between attribute points or mode points (Clausen 1998). In respect to the joint interpretation of attribute and mode points only general statements can be made, for instance, observing where attribute and mode points occupy the same quadrant (Dunteman 1994; Fife-Schaw 1993) and relative distance along each dimension from the origin (Clausen 1998), which indicate correspondence. It is important to realize that two points close together in two dimensions may be far apart in high dimensionality.

Within the attribute checklist 'none' was used frequently for some statements. This suggests ambiguity or concerns in answering some statements, particularly those related to cost implications (68% ticked none), or respondents have had other issues that are not easily classified into the given categories. As a result 'none' had a strong influence on the correspondence analysis making the dimensions difficult to interpret with 'none' plotting as an outlying point. Due to its influence 'none' was treated as a supplementary point (Clausen 1998) which was plotted after the analysis had been undertaken on the other categories. This made it possible to undertake a more detailed and precise interpretation of the structure seen in relation to the rest of the points.

The meaning and hence naming of a dimension can be deduced by looking at the proportion of variance of a particular dimension explained by each point (here modes and attributes). Points with relatively large contributions are most significant to the dimension concerned (Clausen 1998; Garson 2005). The proportion of inertia accounted for by a dimension gives an indication of its importance. The total inertia measures the dispersion of the row and column points in their respective spaces (Greenacre 1998).

Correspondence analysis of the main sample produced a two dimensional solution which accounted for 96% of the inertia explained by the model (Figure 1). Dimension 1 (66% of inertia) labeled 'use factor': has a high contribution by the points 'car', 'bus', 'needs improving', 'use regularly', 'never use' and 'would use more'. Dimension 2 (31% of inertia) labeled 'cost implications': has a high contribution by the points 'walk', 'cheap', 'restricted' and 'charged for entry'.

Use, followed by cost, stand out as salient aspects of the social representation of transport. A number of observations can be made from the correspondence map bearing in mind that dimension 1 has most interpretative power (Figure 1). Bus corresponds with 'needs improving', 'would use more if it was improved' and 'never use'. Cycle corresponds

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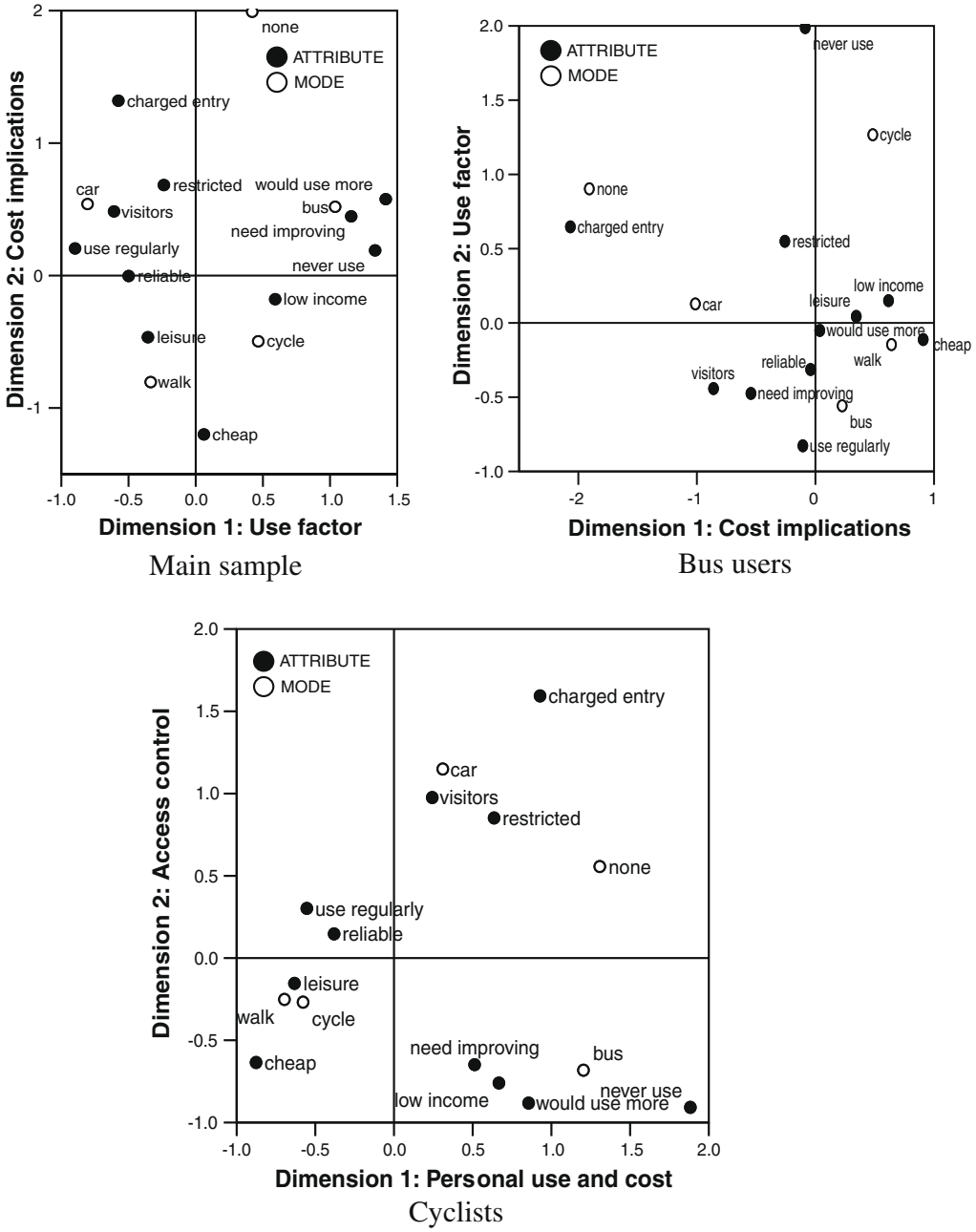

Figure 1. Correspondence Maps of Transport Attributes

with 'a mode used by low income groups' and bus is located in the same direction on the 'use' dimension. The car corresponds with 'use regularly' and 'a mode of transport used primarily by visitors' (in fact, most respondents identified the car as a mode used by visitors). The attribute 'a mode of transport that should be charged for entry to Purbeck' was close to car on the 'use' dimension and in the same quadrant as car albeit relatively isolated on the 'cost implications' dimension. Walk corresponds with 'leisure' especially on the 'use' dimension.

The car corresponds with 'a mode of transport that should be restricted in environmentally sensitive areas of Purbeck', an interesting

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contrast to the previous representation expressed by residents that 'the car cannot be restricted' (Dickinson 2004a; Dickinson and Robbins 2007).

The response to this last statement was examined in more detail for resident status. A smaller proportion of residents compared to other groups indicated that the car as a mode should be restricted, though the chi-square result does not show a significant association ($\chi^2 = 1.860$, df = 3, P = 0.602). However, together with the material from resident interviews, it does suggest residents are less positive about car restrictions. Furthermore, the population as a whole is fairly split on this aspect. Thus, while more of the population considers that cars should be restricted (57% ticked this attribute for car), whether this in practice would be acceptable is debatable particularly as restrictions have proved to be very contentious elsewhere (Charlton 1998; Cullinane and Cullinane 1999; Holding and Kreutner 1998).

Exploratory research suggests social representations might be related to context (where the survey took place and the modal choice) and stakeholders groups (resident status). Correspondence maps were examined for these groupings. The pattern however remained relatively stable with the exception of modal choice where bus users and cyclists had distinct patterns. As numbers of bus users and cyclists were very low in the main sample correspondence maps were produced for bus users and cyclists from the main sample plus the additional samples. However, numbers are still low (28 used a bus for some part of the journey and 48 used a cycle for some part of the journey) and interpretation of the map for bus users in particular should be treated with some caution.

For bus users a two dimensional solution accounts for 89% of the inertia explained by the model (Figure 1). Dimension 1 (46% of inertia) labeled 'cost implications': has a high contribution by the points 'car', 'cheap' and 'charged entry'. Dimension 2 (43% of inertia) labeled 'use factor': has a high contribution by the points 'cycle', 'bus' and 'never user'.

In the bus users' correspondence map the points relating to use are displaced relative to the map for all respondents: 'would use more' lies in the middle and is neutral on both dimensions; 'use regularly' is in the same direction as bus on the 'use' dimension and opposite direction to car; and 'never use' moves away from all modes except cycle. However some of the patterns remain very similar. Use and cost are important to the dimensions and salient aspects of the representation. The attribute 'a mode of transport that should be charged for entry to Purbeck', although in the same quadrant as car, was also relatively isolated and suggests again there are concerns with road user charging.

For cycle users a two dimensional solution accounts for 98% of the inertia explained by the model (Figure 1). Dimension 1 (57% of inertia) labeled 'personal use and cost': has a high contribution by the points 'bus', 'never use' and 'cheap'. Dimension 2 (41% of inertia) labeled 'access control': has a high contribution by the points 'car', 'restricted', 'charged entry' and 'visitors'.

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With the cycle group the dimensions take on a different meaning with use and cost playing a role on one dimension, demonstrating they are still salient categories, and access control on the second. 'Use regularly' lies away from car and in the same direction as cycle on the 'personal use and cost' dimension. The attribute 'a mode of transport that should be charged for entry to Purbeck', while still relatively isolated corresponds more closely with car particularly given that dimension 2 is about access control. This suggests a stronger view than the rest of the population with respect to this attribute. Cycle corresponds with 'leisure'. However, there are some similar patterns to the main sample. Bus corresponds with 'needs improving', 'would use more if it was improved' and 'never use'. The car corresponds with 'a mode of transport that should be restricted in environmentally sensitive areas of Purbeck' though this correspondence appears stronger than in maps for other mode users. 'A mode of transport used primarily by visitors' corresponds to car. Walk corresponds with 'leisure'.

The findings support those of the exploratory qualitative research and suggest that there are key organizing principles at work. Personal usage and cost consideration are clearly important (see for example, Prideaux 2000b). Guiver's (2007) discourse analysis of how people talk about bus and car use illustrates how people's position relative to modal choice helps explain inconsistencies between the way people talk about travel issues and their actions. The correspondence maps for bus users and cyclists demonstrate that, while modal choice is a moderating factor, particularly apparent in relation to use attributes, much of the representational field remains similar. 'A mode of transport used primarily by visitors' corresponds to car (with the exception of bus users). This relates well to the residents' representation that 'tourism causes traffic problems therefore tourist should change behavior'. 'A mode of transport that should be charged for entry' was relatively isolated and suggests concerns about road user charging, with the possible exception of cyclists. Bus corresponds with 'needs improving' and 'would use more' (with the exception of existing bus users) which relates to the social representation 'if public transport was improved people would use it more'. However, an examination of existing services tends to dispute this point. In many situations services are relatively good for a rural area, yet few bus users were encountered and bus corresponded with 'never use' (with the exception of bus users). Cycle corresponds with 'a mode used by low income groups' which reflects the representation that 'alternatives are for other people'. Walk corresponds with 'leisure' which reflects the view of walking as a leisure pursuit rather than a mode of transport.

Representation of Tourism in Purbeck. Resident interviews (Dickinson 2004a) identified a conflict scenario, a balance between positive and negative impacts that is typical of many tourism impact studies (Andereck, Valentine, Knopf and Vogt 2005). Using the conflict scenario residents presented two perspectives: tourism is vitally important to the area but has some negative impacts (tourism in balance); and tourism

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brings very little to the area, the benefits are over rated and negative impacts severe (tourism has negative effects). Interviews also revealed issues of responsibility with visitors being blamed for problems. The scale developed to address this aspect in the questionnaire included three items related to the 'tourism in balance' perspective, three items related to the 'tourism has negative effects' perspective and six items which addressed where the responsibility for problems were seen to lie (Table 1).

The mean scores for tourism statements (Table 1) indicate respondents tend to accord with the tourism in balance perspective rather than tourism being a negative force. This is not surprising as it would be difficult for a visitor to justify their presence if they felt the impacts were severe and also relates to other tourism impact studies (Andereck et al 2005). A large proportion of respondents (26%) failed to answer one or more of the tourism statements which suggests they had difficulty conceptualizing impacts and responsibility and that these aspects were not salient to them. A number indicated a lack of knowledge and thus inability to answer the question. There was some recognition of responsibility for impacts by visitors and support for visitor use of alternatives to the car, although existing use levels of alternatives are low. However, additional charges for car use and parking were largely rejected, which makes it difficult to see how visitors were prepared to support preservation of the environment which is clearly important to many. Additional comments at the end of the questionnaire further demonstrated cost issues with many commenting on excessive car park charges, for example:

> ''The £7 parking fee in the National Trust car park – luckily we are National Trust members but the high price of parking in this area is off putting for us coming here.''

> ''All parking should cost less. Resorts make their money and prosper from visitors!''

> ''Car park at Lulworth Cove extremely expensive compared to all other areas we have visited throughout the country.''

> ''We find the cost of parking too high – especially compared to Europe.''

At three of the sites surveyed car parking income was used to maintain the quality of environment and for conservation projects, providing the main income for the two of them.

Cluster analysis of tourism statements produced a four cluster solution. Each cluster was profiled against attitude statements (% who agreed and strongly agreed) (Table 1).

Cluster 1 (n = 96) 17%—High agreement with items for benefits and need for government provided facilities. Low agreement that negative impacts are severe and with preservation of the environment being a priority.

Cluster 2 (n = 163) 28%—High agreement with items for community benefits, low agreement with visitor responsibility items. No agreement that negative impacts are severe.

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Table 1. Descriptive Statistics for Tourism Statements

	Mean	SD	Cluster membership % agreement				
			1	2	3	4	Total
Statements generally accepted (ie mean score less than 3)							
The overall benefits of tourism in Purbeck outweigh the negative impacts (tourism in balance)	1.98	.988	78	84	63	61	71
The use of public funds for tourism promotion and infrastructure development is justified by the benefits this brings to the community (tourism in balance)	2.40	1.036	66	80	52	20	56
Preservation of the natural environment should take priority over tourism development in Purbeck (tourism has negative effects)	2.33	1.176	23	60	64	72	58
There would be few traffic problems in Purbeck if it were not for the tourists (visitors cause the problem)	2.58	1.253	58	37	59	62	53
As tourism causes traffic problems in Purbeck, visitors should be prepared to use alternatives to the car (visitor responsibility)	2.87	1.303	42	31	60	27	42
Statements generally rejected (i.e. mean score more than 3)							
Tourism brings very little to the area, the benefits are over rated and negative impacts severe (tourism has negative effects)	4.00	1.090	3	0	14	23	10
The environment of Purbeck is being negatively effected by the presence of too many visitors (tourism has negative effects)	3.22	1.023	20	12	31	23	22
Visitors should be required to pay more for the car parking they use (visitor responsibility)	3.93	1.250	8	0	35	3	15
The Purbeck road system needs to be upgraded to accommodate the growing demand from visitors (government responsibility)	3.16	1.264	78	20	30	8	31
As tourism causes traffic problems in Purbeck, visitors should be prepared to pay a reasonable fee for car use in the area to help with maintenance and environmental preservation (visitor responsibility)	3.27	1.328	29	16	60	6	32
Statements neither accepted nor rejected (mean of 3 or close to 3)							
Further tourism development would be beneficial to Purbeck and should be encouraged (tourism in balance)	2.99	1.331	60	58	26	3	36
The main problem in Purbeck is that there are not enough facilities to cope with the number of tourists (government responsibility)	3.06	1.163	79	9	34	13	30

SD: standard derivation.

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Cluster 3 (n = 207) 36%—High agreement with visitor responsibility items

Cluster 4 (n = 107) 19%—Low agreement with items suggesting further tourism development and high agreement with preservation of natural environment item.

All groups perceive benefits, two more strongly (Cluster 1 and 2), the largest of these groups focusing on community benefits (Cluster 2). Two groups are more ambivalent about benefits, the first focusing on visitors taking responsibility (Cluster 3) and the second on environmental protection and maintaining the status quo (Cluster 4). The cluster groups were examined against classifying variables such as demographics. As in the study by Davis et al (1988) most were not significant. Davis et al (1988) found a relationship with natives to area and knowledge of tourism impacts. This study did not focus on residents alone thus there is no data on natives to the area however, resident status exhibited a significant association with cluster membership ($p = 0.006$). The largest group (cluster 3) is prominent for the view that visitors should take some responsibility for their impacts. Residents were associated with this group and also associated with cluster 1, focusing on benefits and the need for government provided infrastructure provision.

The statements were subject to a principal components analysis with an orthogonal, varimax rotation. This forces the underlying factors to be uncorrelated with each other. However, it was possible that there was some correlation between factors as psychological constructs are rarely unrelated to each other (Hammond 2000; Giles 2002). In order to be convinced that the underlying factors were independent an oblique rotation was applied and the correlations among the factors found were examined. There were no correlations of 0.30 and above thus an oblique rotation was not warranted (Tabachnick and Fidell 2001). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was adequate at 0.666 and Bartlett's Test of Sphericity was significant ($p < 0.001$) which indicates there were some relationships between the variables and factor analysis was appropriate. A four factor solution made most sense from an interpretability perspective, on the basis of the Kaiser criterion (eigen values greater than 1 are retained) and scree plot.

The first four factors accounted for 62% of the total variance. The factors generated were named to convey the underlying dimensions of the data based on the loading on statements (Table 2). Doise et al (1993) recommend the consideration of loadings of $+/-0.30$ when interpreting dimensions. Factor loadings >0.6 are regarded as high and moderately high if >0.3 (Kline 1994). As the items in the statement scale were based on specific categories it was expected that the dimensions found with factor analysis would be consistent with these. One statement 'further tourism development would be beneficial to Purbeck and should be encouraged' was 'complex' at it loaded onto 2 factors (Tabachnick and Fidell 2001). This variable was therefore excluded from the analysis. In retrospect it is clear this item is ambiguous as it could encompass infrastructure and community benefits.

The factors generated were labeled as:

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Table 2. Principal Components Factor Analysis of Tourism Statements

	Factor 1 Visitor responsibility	Factor 2 Tourism benefits the area's community	Factor 3 Government responsibility	Factor 4 Environment damaged by visitors
The overall benefits of tourism in Purbeck outweigh the negative impacts		.763		
The use of public funds for tourism promotion and infrastructure development is justified by the benefits this brings to the community		.728		
Tourism brings very little to the area, the benefits are over rated and negative impacts severe		-.739		
Preservation of the natural environment should take priority over tourism development in Purbeck				.592
The environment of Purbeck is being negatively effected by the presence of too many visitors				.620
There would be few traffic problems in Purbeck if it were not for the tourists				.792
Visitors should be required to pay more for the car parking they use	.759			
The main problem in Purbeck is that there are not enough facilities to cope with the number of tourists			.820	
The Purbeck road system needs to be upgraded to accommodate the growing demand from visitors			.823	
As tourism causes traffic problems in Purbeck, visitors should be prepared to pay a reasonable fee for car use in the area to help with maintenance and environmental preservation	.833			
As tourism causes traffic problems in Purbeck, visitors should be prepared to use alternatives to the car	.675			

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Factor 1: visitor responsibility (17% of variability)—has high loading on items related to visitors taking action.

Factor 2: tourism benefits the area's community (17% of variability)—has high positive loadings on items related to community benefits and high negative loading on item for tourism being negative.

Factor 3: government responsibility (14 % of variability)—has high loadings on the two items related to the need for government provided infrastructure.

Factor 4: environment damaged by visitors (14% of variability)—has high loadings on two items related to tourism having negative impacts on the environment and on item suggesting tourist cause traffic problems.

Factor analysis suggests that perceived benefits and responsibility aspects are salient dimensions of the representation of tourism. Respondents discriminate between visitor responsibility and aspects of infrastructure provision which are the government's responsibility. Visitor responsibility and community benefits play the most important role while environmental impacts and facilities for which government is responsible proved to have less explanatory power. The visitor responsibility aspect relates well to the representation that 'tourism causes the traffic problem therefore tourists should change their travel behavior not residents'. It is interesting that this has come out as an important organizing principle in a survey which was dominated by visitors.

Further analysis was undertaken to explore the variability of the social representation in respect to context (survey site), resident status and mode of transport using the factors as new variables. As with other leisure travel and tourism studies (Anable 2005; Davis et al 1988) there were few differences in relation to demographic or socio-economic variables, but respondents do draw on aspects of the social representation that fit the context in which they find themselves. Residents, for instance, buy into a particular local perspective and non-car users draw on the representation appropriate to the modal choice decision. It is also suggested that sites attract a certain type of visitor who draw on a particular aspect of the social representation.

CONCLUSION

This analysis demonstrates that social representations theory provides a useful theoretical perspective to examine transport issues in destination areas. People draw on well established representations of transport to justify their position and this effectively reinforces the current situation where the car is viewed as essential by many for leisure and tourism trips, while alternatives are viewed as poor and in need of improvement. While analysis identified some differentiation between groups in relation to modal choice, what is perhaps more striking are the similarities. This suggests people embrace a representation of transport in Purbeck that is fairly stable and draw on this representation with modifications to suit their personal mobility pattern.

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Bus is seen as the main alternative to the car with a representation that improvements are needed to promote use. This is currently the well rehearsed position from a planning and policy perspective. Yet poor use of existing services contradicts this and raises doubts about the viability of improving services and seeing a rapid increase in users. However, potentially the support for use of alternatives is an opportunity to build on. Bus and cycle users' representation appears to be modified in relation to use attributes and they have a more favorable view of alternatives compared to car users. This suggests experience of bus and cycle use is potentially part of the key to change. Few respondents had experience of cycling (1%) or bus use (2%) in the Purbeck area and exploratory research suggested alternatives to the car are seen to be for 'other' people. This lies at the heart of the problem. People draw on pervasive representations of transport to justify their position as car users within a destination whilst lacking experience of alternatives.

It is clear that some people find it hard to conceptualize tourism impacts and some impacts are not salient to certain groups which suggests a level of detachment from the place visited. Lack of knowledge was often cited but it may also have been a reluctance to engage with the probability of impacts. It is suggested that people therefore draw on the overarching representation of tourism as a balance of positive and negative impacts. This poses something of a dilemma in a destination context. Is there a need to make impacts more salient for tourists in order that they are willing to consider their behavioral impacts? Yet this draws attention to problems with which tourists and the tourism industry may not wish to engage.

The natural attributes of the area are widely acknowledged and this is a positive point that destinations could build on. There was some support for car restrictions and some willingness by visitors to use alternatives to the car. However, visitors were clearly unwilling to pay additional costs for car use (especially car parking costs) which limits their ability to redress their impacts. Car park charges provide the most obvious opportunity for site managers to redress the balance and preserve the environment, without requiring a behavioral change of visitors. Thus, while visitor responsibility is seen as an important organizing principle, the reality of implementation is more problematic. Exploratory research suggested residents feel visitors should take more responsibility for transport problems than residents and this is reflected in the residents' responses to the survey. This suggests residents see 'others' taking responsibility.

Car use is high in rural destination areas and the car was identified here as a visitor's mode. Thus there is some justification for residents to blame visitors for traffic problems and expect them to change behavior. Whether visitors are willing or able to make changes is a different matter. Visitors' views of car restriction measures (sticks) and improvements to alternatives (carrots) are ambiguous. This analysis demonstrates concerns with charging for any mode (including the car) yet at the same time the car is shown to be a mode over 50% considered should be restricted in environmentally sensitive areas of Purbeck.

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Thus there is some willingness to accept restrictions, yet restrictions have proved to be very contentions in destination areas, are difficult to implement and are more likely to be rejected by residents. Conversely there is a reluctance to accept costs which might be more easily implemented and provide funds for conservation of the environment.

A social representations perspective helps reveal the ideas about transport choices operating in a destination area. Ultimately, many views on tourism related travel are socially derived and perpetuated. A social representations analysis demonstrates how individuals draw on socially accepted explanations, where they have little or no direct knowledge or experience of the actual transport modes in a destination area (notably the alternatives to the car). By so doing, ideas are further perpetuated and responsibility for any action denied. A key to addressing transport issues is acknowledgement of responsibility. There is clearly some ambiguity surrounding this. There is a need for more research to focus on solutions that tackle people's feelings of responsibility, the tendency to locate blame with other people and the dilemmas people hold in respect to transport and tourism. There is also a need to question the assumption of improving public transport and to rethink the approach based on an analysis of the socially accepted knowledge base. A key may be social learning by engaging people with the use of existing alternatives to the car as use modifies the representation. A

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