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# *What Makes You Move? Reducing visitor car use through segmentation*

Davina Stanford

## **Abstract**

This research looks at how to reduce the transport related environmental burden of visitors while maintaining economic benefit using a market segmentation approach. There were three main aims of the research. Firstly to understand what might best predict a desired behaviour change (i.e. reduced visitor car use). Secondly to develop and test different marketing messages intended to influence a reduction in car use. Thirdly, to identify market segments which demonstrate both a high propensity towards a positive behavioural change and which have the highest contribution to the destination in economic terms. The theoretical basis of this work is Ajzen's Theory of Planned Behaviour (Ajzen, 1988) which underpins the conceptual framework used to predict behaviour and the second is a synthesis of persuasive communication theory, based significantly on the work of Cialdini (2007). The paper emphasises the importance of context in successful communication to influence behaviour. The paper also concludes that a market segmentation approach allows for specific target audiences who are most amenable to behavioural change and who have greatest economic impact to be identified. The approach was tested in the Lake District National Park (UK).

**Keywords:** visitor car use; market segmentation; sustainable visitor behaviour; sustainable transport; persuasive marketing; National Parks

## Introduction

The environmental imperative to reduce carbon emissions in all areas of human activity is well understood. In economic terms, the Stern Review (Stern, 2007) suggests that the cost of action to ensure that the worst impacts of climate change are avoided might be around 1% of global GDP, compared to a cost associated with inaction equivalent to losing at least 5% of global GDP each year, now and forever. In 2009 transport, including transport premises, accounted for 39% of total energy consumption in the UK and 97% of the energy consumed by transport was the direct use of petroleum products (Department for Transport, 2010). Leisure travel accounted for 40% of the person distance travelled in the UK and 27% of person trips with 70% of the person trips taken by car or van (Department for Transport, 2010).

Visitors to rural areas are typically car based and in the UK 90% of visits to National Parks are undertaken by private car (Dickinson and Dickinson 2006; Kendal, Ison et al 2011). In Cumbria, in particular, 85% of visitors use a motorised vehicle (car, van, motorbike or motor-home) to arrive, and 80% of tourists use cars and other types of motorised vehicles to travel around the destination (Cumbria Tourism, 2006). Yet in rural areas that are reliant on tourism, cars can be a threat to the resources on which this tourism depends on. Visitor car traffic generates visual, aural and atmospheric pollution - the last of which can negatively affect flora and fauna - and increases traffic congestion, necessitating the construction of new or wider roads and leading to issues regarding car parking including concentrated parking sites which lead to greater erosion on nearby footpaths (Sharpley and Sharpley 1997; Beunen, Regnerus et al 2008; Connell and Page 2008; Kendal, Ison et al 2011). Visitor surveys undertaken by the English National Park Authorities (NPAs) and tourism bodies demonstrate that traffic and congestion are considered a threat to the special qualities of National Parks in general and damage the visitor experience (English National Parks Authorities Association, 2007). More significantly, the communities that host visitors are also affected, with tourism transport cited as one of the biggest impacts on local communities (Jurowski, Uysal et al 1997; Lindberg and Johnson 1997).

This paper is based on research commissioned by Natural England, in conjunction with Friends of the Lake District and Cumbria Tourism, to explore ways of reducing the transport related environmental burden of visitors to Cumbria (in which the Lake District National Park is situated) by identifying market segments which are both more amenable to environmental behavioural change and which have greatest economic benefit and to identify propositions which appeal to these segments. In this context the term 'environmental burden' includes issues such as air quality, visual and noise impact as well as the broader issues of carbon emissions (TEAM Tourism, 2009). The project deliberately limited the scope of study to visitor transport. While it is recognised that the visitor has other impacts in addition to transport choices (e.g. energy use from accommodation and activities, food miles etc.) to explore every environmental impact of visitors was beyond the scope and objectives of the study.

# Literature Review

## *Travel and transport behaviour*

Fundamental to the research is to gain a greater understanding of how to encourage pro-environmental behaviour. However, there are certain challenges to influencing pro-environmental behaviour, not least the resistance by consumers themselves. For many, leisure is seen as an entitlement and an area of life where consumers are less willing to make compromises for environmental reasons, even if their publicly-stated intentions are somewhat different and it is well documented that claims of concern for the environment do not always result in behaviour which demonstrates this concern. (Carrigan and Attalla 2001; Mihalic 2001; Sharpley 2001; Doane 2005; Weeden 2005).

With specific regard to tourism motivation, this may also lead to pro-environmental issues being overlooked. One of the primary reasons for holidaying is pleasure (Fodness 1994) and in this pursuit of pleasure the tourist may seek to satisfy the self rather than social norms (Gnoth 1997). Swarbrooke comments “Perhaps, tourists who may take sustainable development seriously in their everyday lives, believe that their annual vacation is the only time when they can behave hedonistically, without the need to be responsible” (Swarbrooke 1999: 11). While Müller (1997: 32) blames the difficulties of achieving sustainable tourism on an increasingly hedonistic philosophy stating that despite “...more environmental consciousness, the trend towards indulging in pleasure and enjoyment and living life to the full continues virtually undiminished”.

Coulter et al (2007) identify a number of barriers to changing behaviour. They suggest that changing travel behaviour is perceived as substantial and difficult compared to other lifestyle changes and that car travel in particular is viewed as essential and necessary. Habitual behaviour such as car use limits people’s propensity to consider other forms of transport and there are perceived disincentives for switching to alternative forms of transport. It is a reasonable assumption therefore that any attempt to influence positive behavioural changes in people’s holiday habits or transport options will require careful management even to achieve a relatively modest impact.

In National Parks a number of management approaches have been put into place in order to address the problematic issue of visitor arrival to and within the parks by private vehicle. These management approaches can be considered in terms of their impact from highly effective measures such as road closures and road pricing to low impact measures which include public transport publicity campaigns, cycling improvements, parking control, route hierarchies, traffic calming and signposting (Steiner and Bristow 2000). These different approaches are often described in terms of soft management incentives (carrots) and hard management disincentives (sticks) (Cullinane 1997, Steiner and Bristow 2000). The harder management controls are seen in the USA in Yosemite National Park, for example, car entry to the park is restricted with out-of-park car parks with a shuttle bus service during peak periods (Page 2009). In the USA more generally, traffic in National Parks is managed through a gateway approach which restricts access points to the parks (Beunen, Regnerus et al 2008).

Despite their perceived high impact, harder management approaches are not popular in the UK. For example Kendal, Ison et al (2011) have explored approaches such as road-pricing and have identified that despite the clear negative environmental impacts of private car use in National Parks, these levels have not reached such a point where the use of road-pricing would be considered acceptable. Furthermore, environmental concerns need to be balanced with economic considerations, however reducing the number of cars while continuing to attract more visitors to improve economic opportunities appear to be conflicting objectives (Beunen, Regnerus et al 2008). Too often being environmentally friendly is associated with sacrifice, specifically in terms of economic benefit (Moeller, Dolnicar and Leisch 2011) and in National Parks local businesses show concern that transport management may affect them adversely (Coleman (1997). The 'sticks', it seems, are considered to be much less acceptable to both visitors and residents (Guiver et al, 2008) and initiatives which restrict car movement in tourist areas are often opposed by both residents and visitors (Dickinson and Dickinson, 2006) with residents fearing that there will be negative economic consequences (Guiver et al, 2008).

Cullinane and Cullinane (1999) suggest that the most successful approach to private vehicle reduction in UK National Parks is to ensure that there is a management approach which both encourages a shift towards public transport and which simultaneously deters car use. There is evidence to suggest that softer measures, which includes initiatives that address psychological motivations for travel, can be very effective (Cairns et al, 2008) and it is these softer measures which are the focus for this study.

### *Market segmentation*

Market segmentation offers a possible solution to identify those visitors who may have preferable environmental and economic impacts and by identifying the highest spending segments (with lowest environmental impact) economic benefits can be maintained without necessarily increasing visitor numbers. This approach has been explored by, for example, Gössling et al, 2005; Becken & Simmons, 2008; and Moeller, Dolnicar and Leisch 2011.

A body of work is developing which seeks to understand visitor transport behaviour through segmenting the market. For example, Dallen (2007) uses market segmentation to understand the attitudes of tourists and the local community towards using the Looe Valley Branch Railway Line in South West England. Also of note is Anable's research (2005) which uses multi-dimensional attitude statements to segment a population of day trip travellers into potential mode switchers using cluster analysis. Six distinct psychographic groups were extracted each with varying degrees of mode switching potential. In both examples the importance of the segmentation approach is emphasised to highlight the unique combination of preferences and attitudes and the complexities and diversity of different groups which need to be understood in order to optimise the chance of influencing travel behaviour.

In a more practical context the DEFRA (2008) report, *A Framework for Pro-Environmental Behaviours* argues the need to segment audiences and to tailor messages accordingly. Interventions need to start from an understanding of current

lifestyles (and life-stages) for different population groups, even if the longer-term aspiration is to bring about a fundamental shift in that lifestyle or a particular behaviour. The Department for Transport (2011) has also used a market segmentation approach to provide a framework for local authorities and other planning organisations to help develop effective, targeted sustainable transport initiatives which take account of the nature of their local population.

### *Applying theory to transport behavioural change*

Theoretical frameworks specifically aimed at behavioural change and persuasive communication inform the research for this work. The first of these is Ajzen's Theory of Planned Behaviour (Ajzen (1988) which underpins the conceptual framework for content of the survey intended to predict behaviour and the second is a synthesis of persuasive communication theory based primarily on the work of Cialdini (2007).

Ajzen's Theory of Planned Behaviour (1988) is a social-psychological framework which is often used in social science to predict behaviour. The theory is one of the most frequently cited and influential models for predicting human behaviour with 4550 citations in 2010 alone (Ajzen, 2011). The theory proposes that the immediate determinant of an individual's behaviour is largely influenced by their intentions to perform, or not, that behaviour and their perceived control over that behaviour. Intentions are the product of three constructs, summarised as follows:

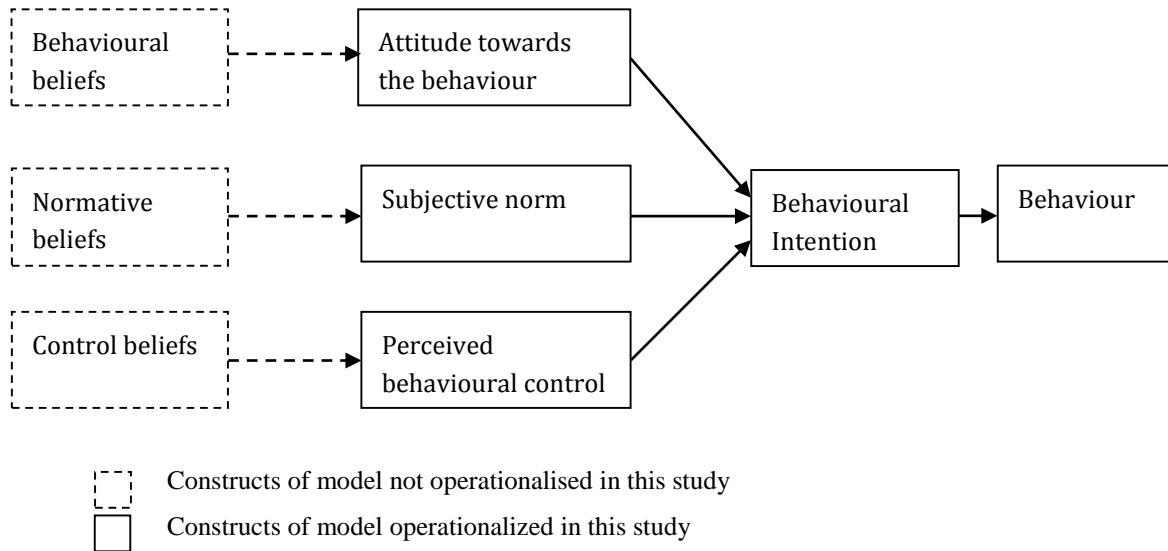
- Personal attitudes towards performing the behaviour – the individual's beliefs that a given action will produce positive or negative outcomes.
- Subjective norms – the individual's belief that specific people or groups think he or she should or should not perform the behaviour (e.g. parents, spouse, children, friends and managers).
- Perceived behavioural control – the individual's belief regarding the difficulty of performing the behaviour reflecting both past experience and anticipated obstacles.

The three constructs themselves are linked to underlying beliefs: behavioural beliefs for attitudes; normative beliefs for subjective norms and control beliefs for perceived behavioural control.

The theory has been applied in a tourism context to expose a range of insights into the social influences predisposing visitors to engage in specified behaviours in socio-cultural contexts (Brown 1999; Goh, 2010) and also to engage in specified behaviours in an environmental context (Stanford, 2006; Powell and Ham, 2008; Ham et al, 2009; Lawson and Reigner, 2009; Ong and Musa, 2011; Serenari, et al, 2012). It has also been used to identify travel behaviour segments (Anable 2005). In some of these examples, the theory has been adapted and simplified. For example Lawson and Reigner (2009) adapt the construct measurements to fit more appropriately with the behaviour of interest in their study and to more directly address the management interests of the National Park in which the study took place. Similarly, other studies (for example Sparks and Shepherd (1992) and Cheung et al (1999) both cited in Ong and Musa, 2011) have found that measuring attitudes, subjective norms and perceived behavioural control are reliable predictors of

intention and behaviour. Ong and Musa (2011) also adapt the theory based primarily on measuring the constructs of attitudes, subjective norms and perceived behavioural control. Based on a need to simplify the theory for the context of the National Park in the UK and following the example of these previous examples, Figure 1 shows how the theory was operationalised for this study.

**Figure 1 The Theory of Planned Behaviour**



Source: Adapted from Ajzen (1988)

Table 1 below shows how this theory was translated into questions for use in the survey.

**Table 1: Application of Ajzen’s Theory of Planned Behaviour**

Ajzen’s Theory	Respondent to agree or disagree with statement...
Attitude	I think I should use my car less when I visit the Lake District
Subjective norm	People who are important to me think I should use my car less when I visit the Lake District
Perceived behavioural control	It would be very difficult for me to use my car less when I next visit the Lake District
Intention	I intend to use my car less when I next visit the Lake District

Possibly key to influencing attitudes which inform and steer visitor behaviour are information and the dissemination of knowledge (Krippendorf 1984; Gunn 1988; Eber 1992; Prosser 1992; Forsyth 1996; France 1997; Reisinger 1997; Luzar, Diagne et al 1998; Boniface 1999; Broadhurst 2001). In the context of transport behaviour in National Parks, information is also considered to be an important factor in changing behaviour. A recent report provides guidance to encourage the wider application of measures which promote integration between transport modes and other services (Department for Transport, 2012). The report identifies a number of key factors for success including effective promotion. However, the report finds that in some

instances potentially good schemes were not being promoted in the right places or reaching the right audiences. Understanding successful routes to communication is a complex area, dependent on a number of factors such as the characteristics and circumstances of the message, the recreational setting and the visitors themselves (Lawson and Reigner, 2009). Though it is beyond the scope of this paper to explore all these nuances some of the key routes to communication relevant to this work are discussed in the following sections, along with a discussion of the limitations within which these communications may work.

The Elaboration Likelihood Model is often used as a way of conceptualising persuasive communication (Petty and Cacioppo 1986, cited in Petty et al, 1992) and has been applied in a tourism context (for example Brown et al 2010). The model suggests two distinct routes to persuasion: central and peripheral. The central route is through the delivery of substantive messages (i.e. reasoned messages). Such communication encourages the recipients of the message to mindfully consider the arguments and meaning of the message and to realign their beliefs and attitudes accordingly with these new or modified beliefs, leading to desired changes in behaviour. Alternatively, for the peripheral route, attitudes are not influenced so much by an in-depth evaluation of the core subject matter of the message but more from the message source or medium of the message. The credibility of the source has greater effect than the content and hence sources considered by visitors to be authoritative or powerful may influence attitude (and in turn behaviour). Where there is high attention to the message the central route outlined above is more appropriate and attitude change via this route is relatively persistent (Petty, McMichael et al 1992). Where there is little attention to the message the peripheral route is more appropriate. However, the peripheral route does not have long-lasting effect on attitudes (Petty, McMichael et al 1992).

In order to develop the marketing propositions tested in the empirical stages of the research two further bodies of work which aim to influence behaviour through persuasive communication were studied. These are Cialdini (2007) who identified several fields of influence that drive people to comply with requests in the world of business, public communications and other contexts, and secondly, motivators as identified by DEFRA(2008) in their report entitled A Framework for Pro-Environmental Behaviours. From these two sources are drawn a number of key concepts that can be applied to influence behaviour change. These concepts are outlined and summarised in Table 2 below. The different concepts of persuasive communication reflect, to some extent, the constructs of Ajzen's theory which influence intention: attitudes to the action (including altruistic outcomes and benefits to self); subjective norm (the influence of others including peer groups, authority and celebrity); and perceived behavioural control (how difficult or easy something is). The third column suggests a broader categorisation which reflects the factors of influence based on Ajzen's theory.



**Table 2: Developing proposition from marketing concepts**

Concept	Proposition tested in survey	Broader categorisation
<p>Reciprocity (Cialdini, 2007). Communication links to the assumption that people return a favour, hence the commonplace marketing technique of offering free samples</p>	<p>Cost. Your accommodation provider is offering you a discount, in return they would like you to leave your car behind for one day during your visit.</p>	<p>Attitudes to the action (benefits to self)</p>
<p>Benefits (1)* (DEFRA, 2008). Communication articulates the benefits to the individual.</p>	<p>Health benefits. The benefits to your health and wellbeing are emphasised. (For example, you can be more active and link a bus or train journey with a circular walk or a cycle ride).</p>	<p>Attitudes to the action (benefits to self)</p>
<p>Benefits (2)* - enjoyment of the experience (DEFRA, 2008). Communication articulates the benefits to the individual.</p>	<p>Give the driver a break. This highlights the benefits for the driver. (For example you can reduce the stress and hassle of driving and not worry about parking and you can sit back and enjoy the view or a glass of local ale).</p>	<p>Attitudes to the action (benefits to self)</p>
<p>‘Feelgood factor’ (DEFRA, 2008). Communication offers a ‘feelgood’ factor from a sense of altruism and having ‘done the right thing.’</p>	<p>Protecting the Lakes. This appeals to your conscience and emphasises the environmental benefits for the Lake District – you know that you will feel good about choosing the bus or train rather than the car because it’s the environmentally friendly thing to do.</p>	<p>Attitudes to the action (benefits to self and altruistic outcomes)</p>
<p>Scarcity (Cialdini, 2007). Communication emphasises the unique or limited nature of the experience.</p>	<p>Catching the bus or train is a unique experience. You’ll see more of the lakes if you get out of your car and use different forms of transport. For example it might add to your experience by taking you somewhere you wouldn’t have visited by car, or you could meet and talk to people that you wouldn’t have met if you had stayed in your car.</p>	<p>Attitudes to the action (benefits to self)</p>
<p>Collaborative endeavour. (DEFRA, 2008). Communication is based on the assumption that recipients of the message will not act if they do not believe that others are also already doing so.</p>	<p>Making a small contribution towards a larger aim. Your choice to take the bus or train is part of a collective effort which, along with the efforts of thousands of others like you, will make a real difference.</p>	<p>Subjective norm (influence of peers)</p>
<p>Social currency (DEFRA, 2008).</p>	<p>Showing others you are environmentally responsible. This message will emphasise that</p>	<p>Subjective norm (influence of peers)</p>

Communication reflects actions which fit with the recipients' of the message current lifestyle.	taking a bus or train in preference to the car shows to others how 'green' you are. This could add to your enjoyment during your stay and be something to tell your friends about once you are back.	Attitudes to the action (benefits to self and altruistic outcomes)
Liking (Cialdini, 2007). Communication is based on the assumption that recipients of the message are influenced by people that they like and admire (e.g. celebrity endorsement).	Celebrity endorsement. The idea of catching the bus or train as an alternative to the car is promoted by a famous person who you like and respect.	Subjective norm (influence of celebrity figure)
Social proof (Cialdini, 2007). Communication is based on the assumption that recipients of the message will do things that they see other people are also doing.	Lots of people, just like you, are choosing to use their car less. You are told that lots of other people just like you have made the choice of catching the bus or train. Their testimonial telling you about their experience on the bus or train is given.	Subjective norm (influence of peers)
Authority (Cialdini, 2007). Communication is based on the assumption that recipients of the message are influenced by authority figures or trusted opinion leaders.	Authority. Leading climate change scientists have calculated the exact benefits of a promoted train or bus journey, compared with the impacts of the same journey by car. The science is endorsed by the Lake District National Park.	Subjective norm (influence of authority figures)
Ease & simplicity (DEFRA, 2008). Communication is based on the premise that the desired behaviour needs to be considered easy.	Ease and simplicity. The train or bus ride is described in a way which reassures you that it is easy and simple.	Perceived behavioural control (ease of undertaking action)

\* This concept has been used twice, the first to test 'health benefits' which were considered important to certain market segments and the second to test 'Give the Driver a Break' - an existing marketing campaign.

## Methodology

To recap, the research sought to understand how best to reduce the transport related environmental burden of visitors while maintaining economic benefit. There were three overall aims for the research. First to explore visitor transport related behaviour using Ajzen's Theory of Planned Behaviour and to test the constructs of this model (attitude, subjective norm, perceived behavioural control and intention) in order to understand what might best predict a desired behaviour change. Secondly to develop

and test different types of marketing messages intended to influence a reduction of car use based on persuasive communication theory and to establish marketing propositions appropriate to different visitor types and market segments. Thirdly, to identify market segments which demonstrate both a high propensity towards a positive behavioural change and which had the highest contribution to the destination in economic terms. The hypothesis being, that if market segmentation is not a useful approach in achieving this, that there will be little difference in the preferences and behaviours of the identified market segments.

A survey was developed in two sections. The first section was based on Ajzen's framework and asked respondents to consider their next trip to Cumbria. Respondents were asked to agree / disagree with statements relating to reduced car use (see Table 1 for further detail). The second section tested the marketing propositions which were informed by persuasive communication theory. Respondents were shown the 11 propositions as outlined in Table 2 and were asked which of these would be most likely to change their car related visitor behaviour. It was explained to respondents that the propositions would be developed as messages to be used in promotional material such as a leaflet or a poster, intended to encourage visitors to use their car less. Respondents were asked to choose the two overall propositions which would be the most likely to influence them. The propositions were presented in random order. A final section gathered information on visitor demographics and other details such as type of accommodation used.

A final element of the research was to understand the market segments in terms of their propensity for environmentally responsible travel behaviour combined with high economic contribution. A similar approach was taken by Moeller, Dolnicar and Leisch (2011) who sought to identify market segments that are both environmentally friendly and which have high expenditures by asking about general travel behaviour, specific travel behaviour on the last trip (including spend), general attitudes towards the environment (using the New Ecological Paradigm scale as proposed by Dunlap, Van Liere, Mertig and Jones, 2000) and socio-demographic information about the respondents. In that study total expenditure per day of respondents was used as the indicator of economic contribution. For this study we identified average daily spend of each market segment from the existing Cumbria Tourism visitor survey (2006) thus allowing for the highest spending segments to be identified.

The survey was conducted face to face through Ipsos MORI's Capibus omnibus survey, a nationally and regionally representative sample of 2000 adults in Great Britain (Ipsos MORI n.d.). The Ipsos MORI surveys are undertaken on a range of research topics with those commissioning the research (in this instance the author of the paper) 'buying' an agreed number of questions to be included in the weekly survey. This was funded by Cumbria Tourism, Natural England and Friends of the Lake District. This method gives a representative national sample and, as the survey is held face to face, does not exclude respondents without access to the Internet. Respondents were filtered for those who had visited Cumbria in the previous 2-3 years and this resulted in a sample of 390 completed questionnaires. Eighty-one per cent of the sample had access to a car in their household and respondents without a car were excluded from the analysis of questions related specifically to car use (though not to questions which recorded attitudes).

The Ipsos MORI survey uses the MOSAIC segmentation which classifies UK households into 11 groups, 61 types and 243 segments. Cumbria Tourism has cross-referenced these MOSAIC segments with their own market segmentation, though it should be understood that this was not a scientific process (see Table 3). This means that it was possible to understand how the sample of survey respondents in the Ipsos MORI survey related to Cumbria Tourism's market segments (Cumbria Tourism, 2006). This study is based on staying visitors only, as these are the only Cumbria Tourism segments which can be cross-referenced with the MOSAIC segmentation used by Ipsos MORI.

Looking specifically at the sample, by gender there was a roughly equal split of the sample, 53% were male and 47% were female. By age, 23% of the sample was aged 18-34, 42% of the sample was aged 35-54 and 35% was aged 55+. Of staying visitors, 42% stayed in serviced accommodation, 40% stayed in non-serviced accommodation and 19% gave other / can't remember answers<sup>1</sup>. The majority travelled as a family (36%), while 33% travelled as a couple, 25% with friends, 5% alone and 3% other / can't remember. This was compared with similar questions asked in the Cumbria Visitor survey (Cumbria Tourism, 2006) and the sample was found to be comparable (see Table 3). Overall frequencies of responses were identified and then these cross-tabulated by market segment. The results of this cross-tabulation were then analysed to identify those market segments that demonstrated a higher or lower response than that of the average population.

**Table 3: Cumbria segments cross matched with MOSAIC groups**

Cumbria segment	Comprises the following MOSAIC groups	% of research sample n = 390	% of Cumbria Tourism market segments**
New Explorers (NE)	Symbols of Success*	9	22
Old Scenery Watchers (OSW)	Welfare Borderline Municipal Dependency Twilight Subsistence Grey Perspectives	22	15
Familiar Families (FF)	Ties of Community Blue Collar Enterprise	23	16
Wilderness Couples (WC)	Suburban Comfort Rural Isolation	24	17
Cultured Families (CF)	Happy Families	16	14
Frequent Adventurous Independents (FAI)	Urban Intelligence*	5	16

\*NB: Note small sample size

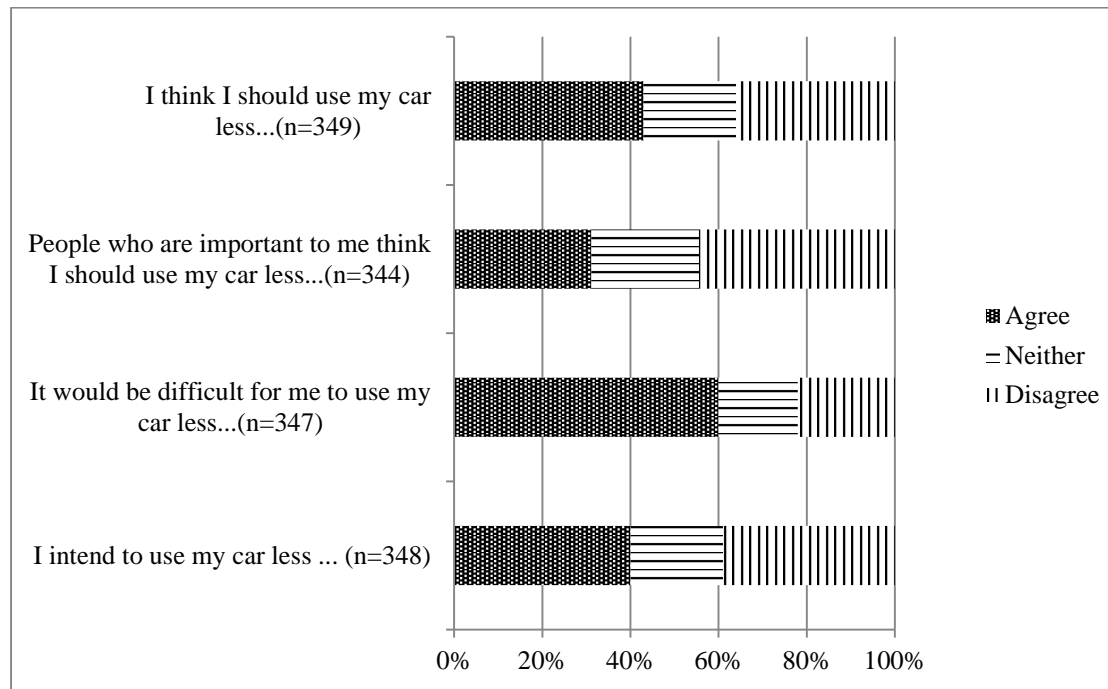
\*\* According to Cumbria Tourism Visitor Survey (2006)

<sup>1</sup> Non-serviced = self-catering / camping / caravanning etc.; serviced = hotel / guesthouse / B&B

## Results

Respondents were asked to state if they agreed or disagreed with a series of questions about willingness to reduce car use. The questions were framed according to the constructs of Ajzen's Theory of Planned Behaviour that were operationalised for this study. Figure 2 below summarises these findings.

**Figure 2: Agreement with Theory of Planned Behaviour statements**



From these results it can be seen on average that 43% of respondents feel they should use their car less, and 40% state that they intend to do so. This intention is a little higher than might be expected as typically, with this questioning framework, there would be a drop between the stated values (i.e. those who think they should) and the intention to perform the behaviour. This could perhaps be as a result of social desirability bias. Most importantly perhaps is the result which shows that the majority of respondents (60%) think it would be difficult for them to reduce their car use on their next visit. The influence of others is of less importance with fewer than 30% of respondents indicating that they agree with this statement.

Table 4 summarises the percentages of respondents who agreed with each of the statements in this question cross-matched with Cumbria's visitor segments.

**Table 4: Willingness to change summary**

	I should...	Other people think I should...	It would be difficult to...	I intend to...
...reduce my car use on my next visit to the Lake District				
<b>Average</b>				
%	43	28	60	40
<b>Cross-matched segments</b>				
	%			
New Explorers (n= 34)	56	31	55	45
Old Scenery Watchers (n = 85)	37	31	63	37
Familiar Families (n= 90)	41	24	55	48
Wilderness Couples (n=94)	37	22	61	30
Cultured Families (n=64)	42	38	58	41
Frequent Adventurous Independents (n=21) *	65	29	74	45

\*NB – Small sample size

From Table 4 it can be seen that New Explorers and Familiar Families are more likely than average to agree that they intend to reduce their car use (45% and 48% respectively) and are less likely to perceive this as difficult (both 55%). Frequent Adventurous Independents demonstrate a similar pattern, but the sample size of this segment should be viewed with some caution. Wilderness Couples show the least agreement than average with the statements regarding attitude, subjective norm and intention (37%, 22% and 30%).

A second set of questions asked respondents to choose from a list of marketing propositions those that would most likely change their behaviour to reduce their car use. These results are summarised in Table 5 cross-matched with Cumbria’s visitor segments.

**Table 5: Propositions summary**

Proposition	Average	NE	OSW	FF	WC	CF	FAI*
		n= 34	n=85	n=90	n=94	n=64	n=21
%							
Protecting the Lakes	31	36	36	29	24	31	45
Ease and simplicity	26	34	19	20	34	24	34
Health benefits	23	23	26	27	16	29	4
Catching the bus or train is a unique experience	20	13	20	19	26	16	27
Cost	18	5	14	21	23	16	16
Give the driver a break	12	12	9	20	7	10	10
Making a small contribution to a larger aim	8	5	9	11	5	9	-
Showing others you are environmentally responsible	6	2	12	3	4	10	3
Lots of people just like you are choosing to use the car less	4	3	4	3	6	4	-
Authority	4	8	4	6	4	-	8
Celebrity endorsement	-	-	-	1	1	-	-

\*NB small sample size

Total will not equal 100% - multiple choice question

Overall, the proposition based on protecting the lakes is the most popular. Ease and simplicity, health benefits and the proposition promoting the unique nature of the experience are the next most frequently chosen propositions. The Ease and simplicity proposition is unsurprisingly a popular choice, given that most people see the difficulty of reducing their car use as a major impediment to this behavioural change (see Figure 2).

The final analysis cross-tabulated each market segment with data from the Cumbria Visitor (Cumbria Tourism, 2006), indicating which segments are the highest spending. Based on average daily spend per person this is the New Explorers segment (See Table 6).

**Table 6: Market segments of visitors to Cumbria**

Market segment	Average daily spend per person
New Explorers (22% of staying visitors)	£40.43
Wilderness Couples (17% of staying visitors)	£37.85
Frequent Adventurous Independents (16% of staying visitors)	£35.54
Old Scenery Watchers (15% of staying visitors)	£34.14
Cultured Families (14% of staying visitors)	£31.02
Familiar Families (16% of staying visitors)	£30.13

Source: Cumbria Tourist Board, 2006

Table 7 summarises findings from the final research exercise combining economic contribution with statements based on willingness to change and preferred propositions. From this table it can be seen that New Explorers and Frequent Adventurous Independents tick both the boxes for high spending and being easier segments in which to influence a behavioural change. Wilderness Couples are a segment with high economic impact although these segments may be the most resistant to changing their travel behaviour.

**Table 7: Summary of research findings**

Segment	Spend	Ease of influence	Preferred proposition (top 2 answers)	Action for segment
New Explorers	High spend	Easier segment to influence	Protecting the Lakes Ease and simplicity	Encourage segment
Old Scenery Watchers	Low spend	Most resistant to change	Protecting the Lakes Health benefits	Less beneficial segment
Familiar Families	Low spend	Easier segment to influence	Protecting the Lakes Health benefits	Increase economic value of segment
Wilderness Couples	High spend	Most resistant to change	Ease and simplicity Unique experience	Change travel behaviour of segment
Cultured Families	Low spend	Average resistance to change	Protecting the Lakes Health Benefits	Less beneficial segment
Frequent Adventurous Independents	High spend	Easier segment to influence	Protecting the Lakes Ease and simplicity	Encourage segment

## Discussion

Ajzen (1988) suggests determining factors in predicting behaviour. These are personal attitude toward the action (how people feel personally about doing something); subjective norm (the influence of significant others or society); perceived behavioural control (in this case the ease or difficulty of performing a certain action) and intention to perform an action. It is interesting to note that the precursor of the Theory of Planned Behaviour, the Theory of Reasoned, did not include the construct of perceived behaviour control or the belief that an action would be difficult. It is significant in this context then, that though the majority of respondents know they should reduce their car use, they also believe that it will be difficult to do so. In some respects this is encouraging, as at least the underlying beliefs which inform behavioural decision making are aligned, for the majority, with positive action in environmental terms. It does however provide challenges for destination planners to both ensure that alternative transport is both relatively simple and easy to use and that it is perceived as such.

Looking specifically at the messages which were most compelling for respondents, it appears that respondents' relationship with the contextual landscape is crucial, with the protecting the lakes proposition being most frequently identified as the most influential. However, it should also be noted that the protecting the lakes proposition contains an element of altruism with an outcome beneficial to the landscape, the proposition also suggests some self-serving benefits i.e. 'the feelgood factor'; that people will feel good about protecting the landscape in which they are spending their holiday. Returning to the empirical work of Cialdini; Goldstein, Cialdini and Griskevicius (2008), in an experimental approach, tested the effectiveness of different persuasive messages to influence hotel guests to reuse their towels. They found that compliance was higher when the message was contextualised for the specific room in which the guest was staying. There are clear implications here that contextualising messages may be one of the most influential factors in their uptake.

The second most influential message addressed what, in terms of Ajzen's framework, is perceived behavioural control and sought to allay fears that a behavioural change to reduce car use would be difficult. This reflects the high percentage of respondents who agreed with the statement that changing their behaviour was difficult. Again, this has implications for management measures to reduce car dependence, which must ensure that the experience actually is simple and that on-going perceptions of the experience are positive. In the longer term, this may relate to the central route of communication, with recipients of this message processing the information about ease and simplicity to result in a long-lasting change in attitude towards transport behaviour.

In terms of the remaining propositions, four of the top six preferred propositions are based on persuasive communication which articulates the benefits to the individual. This reflects, perhaps unsurprisingly, the rhetoric in the literature which defines the tourist as satisfying the self, rather than social norms (Gnoth, 1997) with a tendency to indulge in pleasure and enjoyment rather than heightening our environmental awareness (Müller, 1997). In terms of practical application and visitor management, there is an implication that propositions which appeal to personal benefits may also be successful.



The types of communication which are least likely to appeal are those broadly categorised as containing some type of persuasion based on the influence exerted by others (e.g. peers, celebrity or authority), i.e. the peripheral route. This fits with the testing in the research of statements based on Ajzen's Theory of Planned behaviour which show that the subjective norm statements are the least likely to influence. We can conclude from this that for these respondents the choice to use their car is not readily influenced by others and that any attempts to influence a behavioural change on this basis may be ineffectual. Celebrity endorsement in particular is not identified as influential. However, according to Futerra (Futerra, no date, p.3) "A tabloid snapshot of Gwyneth Paltrow at a bus stop can help change attitudes to public transport." This is a more subliminal peripheral approach than the other messages and is not easily summed up in a survey such as this. Their comment is conjectural rather than evidence based, but celebrity endorsement should, however, not necessarily be dismissed and indeed is frequently used as an advertising tool. That said, as Petty, McMichael et al (1992) suggest, this so called 'peripheral route' does not have long lasting effect.

Also of note, the cost proposition may have more influence at the point of sale, where visitors are actively weighing up their travel decisions in terms of cost. Therefore, the cost element should not be dismissed either and alternative transport still requires realistic pricing to be appealing. It is interesting to note that cost saving is not particularly appealing proposition to the highest spending segment, New Explorers, while Familiar Families (the lowest spending segment) consider this proposition more persuasive than the average.

Thus far then we have looked primarily at the proposition's ranking one against the other, however an important dimension is introduced if we return to the issue of market segmentation. There was a wide variation in the different attitudes and responses according to visitor segments (see Table 5). For example, the proposition which demonstrates environmental responsibility to others is more likely to appeal to Old Scenery Watchers, while the give the driver a break proposition is more appealing to Familiar Families. There is a possible implication here that multi-layered messages need to be specifically tailored depending on which market segment is to be influenced and supports the theory suggested by Ballantyne and Packer et al (1998) that visitors will be receptive to different messages according to their motivations.

Reflecting on Table 7 there are implications for visitor management in National Parks in terms of transport related behaviour, by using a marketing segmentation approach to maintain those segments which have greatest economic contribution coupled with greatest propensity for pro-environmental behaviour. In this study there are clear 'quick wins' which could be achieved by encouraging more of the New Explorers and Frequent Adventurous Independents segments (with whom it may be easier to exert a positive behavioural change). The implications for the management of the Wilderness Couples is to retain their spend while encouraging them to address their actions, possibly through propositions which highlight the ease of alternative transport and the associated health benefits.

There are some limitations to this study which should be acknowledged. The nature of data collection by Ipsos survey can be criticised as being undertaken by

‘professional research’ respondents, rather than by a truly representative sample; some of the questions are based on recall, which may not be accurate and the results have been made on cross-matching the segments, which is also subject to error and interpretation and has not been possible for day visitors. In addition, respondents may have answered the questions in a manner which they think is socially desirable rather than what they really think or do (Phillips 1976, Nachimas and Nachimas 1981, Fisher 1993, Jones 1996, Singleton and Straits 1999, Ballantyne and Hughes 2006). Dickinson and Dickinson (2006) are particularly critical of attitudinal studies and point out their limitations due to social desirability bias, the shifting and conflicting nature of attitudes and the fact that travel decisions are made collectively (based on the party that is travelling) rather than individually. Given these potential limitations, it is crucial that transport management initiatives are evaluated and monitored for success or failure and this is an area of research which is still woefully neglected.

## Conclusions

This research has brought together two different theories, one relating to predicting pro-environmental behaviour, the other to persuasive communication. These have been applied to visitor transport management in National Parks in the UK with the aim of identifying market segments with greatest potential for pro-environmental behaviour coupled with greatest spend. This softer management approach suggests that it is possible to encourage a change in transport related behaviour without sacrificing economic benefits.

The market segmentation approach is considered to have been particularly useful. Rather than just being able to identify, for example, that respondents perceive a reduction in car use as difficult, this research shows that some perceive it to be harder than others. Similarly, rather than simply identifying that some respondents are reluctant to change their behaviours while on holiday, we know that some specific segments are more reluctant than others. In terms of testing theories of persuasive communication, all of which were based on empirical research and are believed to have some merit and success in terms of persuasion, one size does not fit all. Clear preferences among segments are demonstrated making the case for testing appropriate messages with various audiences on a case by case basis. Context of the message is also shown to be an important determinant. We also know that some of these segments spend more than others. Market segmentation, therefore, plays an important role in visitor management and is key to our understanding of ‘what makes people move’.

In the bigger picture identifying visitors who are most easily influenced to behave appropriately and with the highest economic impact should be the first step in visitor transport behaviour management. Combining the attributes of market segments for both environmental and economic benefits has great application in practice to ensure that optimum tourists who tread lightly *and* pay their way are attracted to our fragile and precious environments.

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