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Jim Curtis
Monash University

Betty Weiler
Monash University

Sam H. Ham
University of Idaho

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Identifying Beliefs Underlying Visitor Behaviour: A comparative elicitation study based on the theory of planned behaviour

***Jim Curtis**, Monash University Tourism Research Unit, Berwick, Victoria, Australia*

***Sam H. Ham**, Department of Conservation Social Sciences, University of Idaho, Moscow, ID, USA*

***Betty Weiler**, Monash University Tourism Research Unit, Berwick, Victoria, Australia*

ABSTRACT

Applying Ajzen's (1991) theory of planned behaviour to inform a persuasive communication intervention involves a number of phases of field research. While the initial belief elicitation phase is theoretically necessary to inform all subsequent phases, it is often undervalued due to its formative nature. To assess the importance of the elicitation phase, research was undertaken at two national parks to identify the beliefs underlying visitor use of alternative transportations systems (ATS) that have been introduced to reduce the pressures created by growing vehicle numbers. Results indicate that although visitors at the two parks share some beliefs, others are site-specific. Persuasive communication aimed at encouraging visitor use of ATS at the two parks would therefore need to potentially target different beliefs. The research demonstrates that the elicitation phase was a critical first step in the context of this study, as beliefs cannot be intuited or assumed to be transferable among different populations and behavioural domains. The paper adds to a growing body of literature informing the use of theory-driven approaches to influence the leisure behaviour of national park visitors.

KEY WORDS: alternative transportation systems, theory of planned behaviour, persuasive communication, national parks

Introduction

Growing vehicle numbers in national parks represent a difficult challenge for natural resource managers, as they try to balance the objective of environmental protection with that of visitor access. In response, a number of park authorities have implemented alternative transportation systems (ATS) with the aim of providing visitors with a more sustainable mode of transport to access locations in and around national parks. In the United States, the National Park Service has introduced a range of ATS, incorporating travel modes such as shuttle buses, ferries, trains, trams and bicycle networks. Some of these are free while others are fee-paying services, and although a few parks have made the use of ATS mandatory for visitors, most remain voluntary (Clarke, 2001; National Park Service, 2003). Convincing visitors to use ATS is therefore a management priority in parks where voluntary ATS exist or are being considered.

One approach to encourage voluntary visitor use of ATS is to use persuasive communication. In contrast to regulations, parking restrictions, road closures, and tolls that seek to coerce behaviour, persuasive communication aims to influence people's decision-making processes, thereby allowing them more volitional control over their own behaviour (Cullinane, 1997; Holding & Kreutner, 1998; Steiner & Bristow, 2000). According to a number of researchers (e.g. Ham et al., 2008; Marion & Reid, 2007; McCool & Christensen, 1996; Vander Stoep & Roggenbuck, 1996), this is a key advantage of persuasive communication, as allowing visitors greater experiential freedom is more compatible with the notion of leisure typically associated with national parks. In their research on public transport alternatives in British national parks, Eaton and Holding (1996) explain that while closing a road, banning private car usage and forcing people onto a bus may produce a certain 'efficiency', it was reasonable to suspect that because of the element of compulsion, users of such a public transport option would not be 'greatly enamoured' with it and might actually deter them from making future visits.

Understanding the factors that impact upon national park visitors' preferred travel mode is essential if a persuasive communication intervention is going to be effective in influencing their decision-making processes. However, according to studies by Daigle and Zimmerman (2004), Lumsdon (2006), and White (2007), such factors remain under-researched, as little is known of visitors' motivation and perspectives towards the use of ATS in national parks. Furthermore, in a review of the efficacy of educational programs in US national parks, Marion and Reid (2007) conclude that an improved theoretical basis for persuasive efforts is important for developing message content that is more effective. In this context, park authorities are increasingly recognising the value of behaviour change frameworks from the social sciences to provide this theoretical foundation.

The theory of planned behaviour

One of the most influential and widely applied theoretical frameworks for informing the development of persuasive communication interventions is Ajzen's (1991) theory of planned behaviour (TPB). According to the theory, human behaviour is primarily guided by three categories of beliefs: 'behavioural beliefs' about the likely outcomes of the behaviour and a person's evaluations of these outcomes; 'normative beliefs' about the opinions of important

social referents (e.g., partners, friends, specific organisations) regarding the behaviour and a person's motivation to comply with these opinions; and 'control beliefs' about the presence and control of factors that may facilitate or impede the performance of the behaviour. These three categories of beliefs in turn inform the three cognitive determinants underlying behavioural intention: a person's attitude toward the behaviour, his/her sense of social pressure to perform the behaviour (subjective norm), and whether the person feels a sufficient level of control over performing the behaviour (perceived behavioural control). As a general rule, the more favourable the attitude and subjective norm, and the greater perceived behavioural control, the stronger the person's intention should be to perform the behaviour. Finally, given a sufficient degree of actual control over the behaviour, a person is expected to carry out their intentions when the opportunity arises to engage in the behaviour (Ajzen, 1991; Ajzen & Manstead, 2007).

As Rutter and Quine (2002) explain, only since the mid-1990s have applications of the TPB, and its various extensions, gone beyond its well-documented value as an explanatory-predictive model of human behaviour (see meta-analyses by Ajzen, 1991; Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002; Hausenblas, Carron, & Mack, 1997; Sheeran & Orbell, 1998; Sheeran & Taylor, 1999) to informing behavioural interventions. Such studies are based on the assumption that the TPB depicts a causal process, wherein an intervention must contain messages that target 'behavioral, normative, and/or control beliefs in an effort to produce positive intentions among participants who, prior to the intervention, either did not contemplate performing the behaviour or were disinclined to do so' (Fishbein & Ajzen, 2005: 28). Examples of such studies have involved using the TPB to inform interventions to increase physical activity participation (Chatzisarantis & Hagger, 2005), reduce speeding among car drivers (Stead, Tagg, MacKintosh, & Eadie, 2005), encourage school-age cyclists to use helmets (Quine, Rutter, & Arnold, 2001), reduce fat intake among a population of hospital workers (Armitage & Conner, 2002), as well as a host of national park behaviours such as discouraging bird feeding (Ballantyne & Hughes, 2006; Ham et al., 2008), staying on designated walking tracks (Beeton, Weiler, & Ham, 2005), proper food storage (Lackey & Ham, 2003), and picking up litter (Ham et al., 2008).

While the TPB, as well as its predecessor the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), have been leading theories in social psychology over the last three decades, they have also been the subject of a number of conceptually and empirically based critical commentaries. These include the sufficiency of the theories in terms of being able to predict intentions and behaviours based on their initial formulations, (mis)perceptions of rationality and deliberation, inconsistent measurement items and operational definitions, challenges to underlying assumptions of causality, and debates about the theories not being falsifiable (e.g., Conner & Armitage, 1998; Greve, 2001; Hardeman, et al., 2002; Ogden, 2003; Schwenk & Möser, 2009; Smith, 1999; Sniehotta, 2009; Sutton, 2002; Webb & Sheeran, 2006). Some of these criticisms have in turn garnered their own critical commentaries (e.g., Ajzen & Fishbein, 2004; Fishbein & Ajzen, 2010; Trafimow, 2009). While it is not the desire of this article to engage directly in these debates, it is nevertheless worth acknowledging that they have required the TPB and its predecessor to be continually clarified, defended, and tested over a 30-year period, resulting in over a thousand

published articles (Fishbein & Ajzen, 2010). During this time, empirical support for the models has largely remained strong across a diverse range of behaviour domains. Importantly in the context of the current study, this has included the fields of transportation, leisure, and national parks (e.g., Ajzen & Driver, 1992; Bamberg, Ajzen, & Schmidt, 2003; Bamberg & Schmidt, 2003; Brown, 1999; Daigle, Hrubes, & Ajzen, 2002; Ham, et al., 2008; Lackey & Ham, 2003; Sparks, Hedderley, & Shepherd, 1991).

The process for developing and evaluating an intervention based on the TPB has been well documented by a number of authors (e.g., Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Manfredo, 1992; Fishbein & Yzer, 2003; Ham et al., 2008; Sutton, 2002; van den Putte & Dhondt, 2005). After carefully defining the target behaviour, the first step involves an elicitation study to identify a pool of salient beliefs from a sample of the target population, typically through a series of open-ended questions. The next step is a belief measurement phase that involves measuring the strength and importance of the most frequently mentioned salient beliefs through a fixed-item questionnaire and identifying the beliefs that distinguish performers from non-performers of the target behaviour. This includes assessing whether these discriminating beliefs have potential for persuasion in an intervention. The final phase of research involves experimentally testing the effectiveness of persuasive message treatments that target this subset of amenable beliefs. Measures from the TPB are used to determine to what extent the beliefs targeted by the treatments are replaced, altered or maintained, in conjunction with evidence of actual behaviour change.

Based on this logic, the application of the TPB in persuasive communication research begins by identifying a pool of salient beliefs underlying the behavioural decisions of the target audience. The premise of this first phase of research is that the more that is understood about these beliefs, the more likely an effective communication intervention can be developed to influence behaviour (Fishbein et al., 2001). The value of subsequent phases of research and their potential to inform the design of effective communication thus depends on a rigorous approach to the formative elicitation phase, as the pool of beliefs it identifies becomes the basis for all further decisions regarding the development of a persuasive communication intervention.

Formative belief elicitation research

According to Fishbein and Manfredo (1992), beliefs will vary from behaviour to behaviour and, perhaps more importantly, from population to population. For this reason, formative elicitation research needs to be conducted whenever the TPB is applied in a different behavioural setting. However, as Fishbein and Middlestadt (1995) observed, researchers often do not do this, with many simply designing communication interventions to target beliefs based on their own intuition, or importing beliefs from previous studies that are assumed to target similar behaviours or populations.

The elicitation phase serves a number of purposes. First, it identifies a pool of salient beliefs underlying the target behaviour, which are then used to develop a fixed-item belief measurement instrument for quantifying these beliefs. Second, the responses to the open-ended questions provide researchers with terminology and wording in the language of the target population for later use in communication interventions. Finally, if it is possible to distinguish between performers and non-performers of the behaviour, preliminary analyses

can be conducted to identify discriminating beliefs. Although this examination is best left to the belief measurement phase where a larger sample and a fixed-item instrument are used, Middlestadt, Bhattacharyya, Rosenbaum, Fishbein and Shepherd (1996: 19) explain that by knowing in the elicitation phase who does and does not perform a behaviour, 'it is possible to conduct preliminary analyses to identify the differentiating determinants to be addressed by an intervention'.

In their study of the effects of question wording on elicited beliefs, Sutton et al. (2003) reported surprise that so little attention has been paid to the elicitation phase. This sentiment was echoed by Downs and Hausenblas (2005) in their systematic review of elicitation studies involving the TPB and exercise behaviour. They found that the majority of studies did not report sufficient information to illustrate participant characteristics and the measures and procedures used to elicit beliefs. Indeed, a number of studies applying the TPB 'import' beliefs from previous studies (sometimes by the same researchers, but not always) as the basis for the belief measurement phase (Quine et al., 2001; Stead et al., 2005; Sutton, McVey, & Glanz, 1999). While the reasons for doing this are often associated with time and resource constraints, a danger of relying on imported beliefs is that they are possibly irrelevant to the population or behaviour under study. Furthermore, the time interval between the initially elicited beliefs and the subsequent study may be long enough to justify questioning whether those beliefs would still be relevant due to intervening events that may have since occurred.

Given the lack of attention paid to the belief elicitation phase, the aim of the present study was to conduct comparative elicitation research at two Australian national parks: Cradle Mountain in the state of Tasmania and the Grampians in the state of Victoria. Authorities at both parks introduced voluntary shuttle bus services in 2003 in an attempt to relieve the pressures created by growing vehicle numbers and were interested in developing persuasive communication strategies to encourage greater use of their respective services. By using a common research design so that equivalent data could be collected, analysed, and interpreted, beliefs could be identified that were either common or different at the two sites. This approach would highlight possible consequences to subsequent communication interventions if beliefs were assumed to be transferable between the two behavioural settings.

Study Context

As one of Victoria's largest and most visited parks, the Grampians is renowned for its rugged escarpments and stunning wildflower displays, as well as luxuriant fern gullies, diverse forests and woodlands, cascading waterfalls, tranquil lakes, and abundant wildlife. The park also contains the majority of the surviving Aboriginal rock art in south-east Australia (Parks Victoria, 2003).

One of the most visited locations within the park is an area known as the Wonderland Range. Popular for its scenic driving and walking opportunities, visitors can access the range by car via a number of mountainous and winding access roads. However, during peak holiday periods, these narrow roads and surrounding car parks become congested due to high-volume traffic and the limitations of the existing road and parking infrastructure (Parks Victoria, 2003).

In response, Parks Victoria entered into a partnership with the local community and began operating a voluntary shuttle bus service in 2003 during busy holiday times. It was a

fee-paying service involving a single bus running at one-hour intervals along a circular route within the Wonderland Range (see Figure 1). The hour-long journey traversed various access roads, stopping at a number of locations. By offering this service, authorities hoped that it would alleviate vehicle congestion on the roads and in the car parks during peak holiday times, and provide visitors with an improved and safer experience in the park.

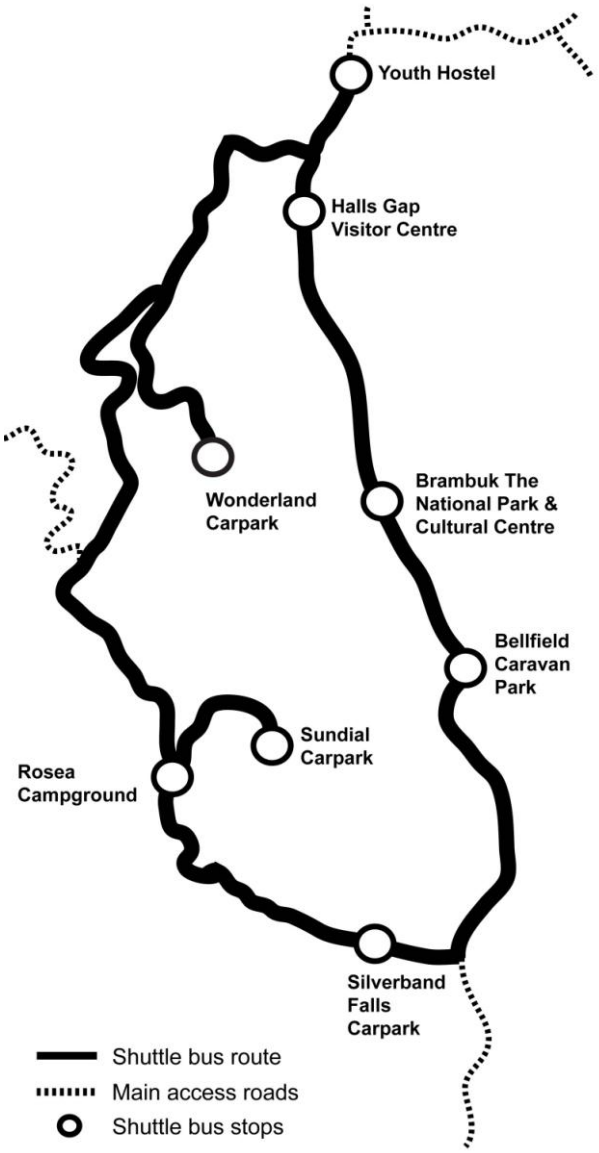

Figure 1. The Grampians shuttle bus route

Similar traffic congestion issues have occurred at Cradle Mountain. With its distinctive contours, Cradle Mountain is one of Tasmania's most recognisable and popular natural attractions, and is part of the Tasmanian Wilderness World Heritage Area. It contains examples of ancient rainforest and pine, buttongrass, alpine heathland, stands of colourful deciduous beech trees, icy streams, glacial lakes, and abundant wildlife. Of particular interest to most visitors are the walking opportunities and scenic views at Dove Lake. Historically,

accessing this location has involved visitors driving their own vehicles along a single narrow road. Given that the road and surrounding car parks were never designed to cater for large volumes of traffic, they often become congested during periods of peak visitation. Consequently, a report in 2003 to the Cradle Valley Steering Committee identified the growing number of private vehicles using the road as one of the key threats to the park's world heritage values, visual amenity and visitor safety (Hepper, de Gryse, Graham, & Johnstone, 2003).

In response, the Tasmania Parks and Wildlife Service introduced a voluntary shuttle bus service for visitors. In 2003–2004, it operated as a free service and involved multiple buses running at 15- to 20-minute intervals along the road to Dove Lake (see Figure 2). The 20-minute journey began at the Cradle Information Centre and finished at the lake, with the bus stopping at various locations along the way. The return trip followed exactly the same route. Like the Grampians, authorities hoped that the service would help conserve the natural values of the park and provide an improved and safer visitor experience by reducing congestion caused by growing vehicle numbers.

Figure 2. Cradle Mountain shuttle bus route

While the respective designs of the shuttle bus services at Cradle Mountain and the Grampians differed in a number of respects, they shared the common trait of being voluntary. As a result, the success of these services requires visitors to be willing to forgo their cars and embrace the shuttle buses as an alternative and effective means of accessing locations within the parks. Given that both services were viewed as being under-utilised by visitors, both Parks Victoria and the Tasmania Parks and Wildlife Service wanted to explore the merits of using a theory-based persuasive communication intervention to encourage visitor use of the services rather than having to resort to more coercive and restrictive measures that were less desirable in a political, social, economic, and visitor experience context. Using the TPB as a guiding theoretical framework, the first step in this process was to conduct a formative belief elicitation study.

Method

Following the theoretical rationale and measurement procedures of Ajzen (1991), Beeton et al. (2005), Lackey and Ham (2003), and Middlestadt et al. (1996), elicitation research was undertaken at the Grampians and Cradle Mountain during the latter half of 2004. This involved semi-structured interviews that contained the following open-ended questions based on the belief categories of the TPB:

Behavioural Belief Questions:

- What do you see as the advantages or good things that could occur by taking the shuttle bus today (at Cradle Mountain/the Grampians)?
- What do you see as the disadvantages or bad things that could occur by taking the shuttle bus today (at Cradle Mountain/the Grampians)?

Normative Belief Questions:

- Who (individuals or groups) do you think would support or approve of you taking the shuttle bus today (at Cradle Mountain/the Grampians)?
- Who (individuals or groups) do you think would object or disapprove of you taking the shuttle bus today (at Cradle Mountain/the Grampians)?

Control Belief Questions:

- What factors or circumstances enable or make it easy for you to take the shuttle bus today (at Cradle Mountain/the Grampians)?
- What factors or circumstances make it difficult for you to take the shuttle bus today (at Cradle Mountain/the Grampians)?

The wording of the target behaviour in the belief elicitation questions is important. According to studies by Ajzen and Fishbein (e.g., Ajzen & Fishbein, 1980, 2005; Fishbein & Manfredo, 1992), the behaviour of interest and all other variables and constructs of the TPB must be

defined using corresponding measures of target, action, context, and time. As indicated in the wording of the present study's belief questions, the target behaviour was defined as a visitor taking (action) a shuttle bus (target) at the Grampians or Cradle Mountain (context) on the day (time). Any change in one of these elements can essentially redefine the behaviour of interest, and as the behaviour changes, so do the determinants of the behaviour (Fishbein & Manfredo, 1992).

The respective target populations were visitors aged 18 years and over, travelling independently by car to Cradle Mountain or the Grampians. This ensured that the respondents selected had a real choice of travel mode when in the parks. The interview instruments also contained questions pertaining to respondents' socio-demographic characteristics (e.g., gender, age, residence, frequency of visit) in order to provide a check on the constituency of the sample.

For the purpose of the elicitation phase, Ajzen and Fishbein (1980) explain that because of theoretical saturation — the point where additional data collection provides little further information — a small convenience sample within the target population is appropriate, as long as it captures a comprehensive range of salient beliefs. Each respondent who agreed to participate in the interview was given a verbal introduction by the interviewer that emphasised the parameters of the behaviour with respect to target, action, context, and time. To minimise response bias, visitors were assured by the interviewer that their responses would be completely anonymous, that their honest opinions were being sought, and that there were no right or wrong answers. In addition, each respondent was given the option of providing a non-response if they could not think of any relevant beliefs when answering the questions (rather than giving a response just for the sake of providing one).

In order to provide some preliminary insights into the beliefs that differentiate bus users from car users, the sample consisted of both user types. At the Grampians, bus users were approached while waiting to catch the bus at the Halls Gap Visitor Centre. They were selected based on their availability, as there had to be enough time (typically ten minutes) for them to participate in the interview before the bus departed. The same approach was taken when interviewing bus users at the Cradle Mountain Information Centre.

In contrast, car users were systematically selected by approaching every 'nth' person that crossed a particular point, where 'n' varied depending on the number of visitors on-site. At the Grampians, the interviews were conducted at one of the car parks in the Wonderland Range, while at Cradle Mountain, car users were interviewed at Dove Lake.

Responses were recorded as written field notes during the course of each interview, capturing the participants' own words verbatim, and were later transcribed into a table. Following TPB procedures, the responses were reviewed by the three authors of this paper in conjunction with the field data collectors to develop universal categories or 'codes' that reliably collapsed the responses into fewer categories. This involved reviewing the raw data and identifying common themes of meaning inherent to the responses. Three coders then conducted a content analysis of the transcribed responses for the purpose of quantifying the frequency of the coded beliefs (Bryman & Bell, 2003). This procedure required the coders to independently assign each response to one of the universal categories based on their prevailing meaning. Responses that were coded in the same category by at least two of the coders were retained in the pool of beliefs elicited from this phase of the research. Inter-coder

agreement was achieved for 95% of the responses, with the remaining 5% deleted from the pool. This procedure enhanced the reliability of the beliefs that were entered into the analysis.

Results

Theoretical saturation (i.e., the point where no new beliefs were being elicited from respondents) was reached at the Grampians after 54 interviews (29 bus users and 25 car users). Based on the socio-demographic data collected at the end of each interview, the mean age of respondents at the Grampians was 48, with the majority travelling from Victoria (63%) for a repeat visit (67%) and staying more than one night (89%). This respondent profile was consistent with the *Grampians National Park Management Plan* (Parks Victoria, 2003), which describes a typical visitor to the park as being predominately from Victoria, on a repeat visit and staying at least two nights.

At Cradle Mountain, theoretical saturation was reached after 60 interviews (30 bus users and 30 car users), with the mean age of respondents being 45. In contrast to the Grampians, about two-thirds of visitors were from interstate (i.e., Australian states other than Tasmania), with the remainder dominated by international visitors. There were also greater proportions of day and overnight visitors (30% versus 4% for day visitors; 25% versus 7% for overnight stays), and about 80% of interviewees were visiting Cradle Mountain for the first time. This profile was largely consistent with the *Cradle Tourism Development Plan* (Hepper, et al., 2003). For example, based on visitor data collected by the Tasmania Parks and Wildlife service reported in the plan, 71% of respondents were from interstate, and 80% of non-locals were visiting the park for the first time. The one discrepancy was a higher proportion of day visitors, with 65% reported in the plan compared to 30% encountered during this research.

Table 1 presents the most frequently mentioned beliefs cited by respondents at the Grampians and Cradle Mountain within each of the TPB belief categories. Beliefs mentioned by only one or two respondents are not shown in the table.

Table 1. Frequently mentioned beliefs at the Grampians and Cradle Mountain

Grampians (*n* = 54)		**Cradle Mountain (*n* = 60)**	
Behavioural Belief Advantages	**%**	**Behavioural Belief Advantages**	**%**
• Greater flexibility for doing walks	31	• Reduce my impact on the environment	45
• Not have to worry about finding a car park	30	• Reduce traffic congestion on the roads and in the car parks	35
• See more of the park	26	• Not have to worry about finding a car park	27
• Have a rest from driving	22	• Greater flexibility for doing walks	23
• Reduce my impact on the environment	20	• Learn more about the park	20
• Learn more about the park	20	• See more of the park	17
• Save money/fuel	17	• Have a rest from driving	15
• Reduce traffic congestion on the roads and in the car parks	13	• Save money/fuel	12
• Will not get lost	13		
Behavioural Belief Disadvantages		**Behavioural Belief Disadvantages**	
• Not able to stop or leave when I want	70	• Not able to stop or leave when I want	73
• Nothing	22	• Not able to take all my gear/having to take all my gear	15

• Bus route does not go to all the places I want to see	9	• Nothing	15
Normative Belief Approve		**Normative Belief Approve**	
• Nobody	35	• National park staff	52
• National park staff	7	• Family and friends	8
		• Other visitors	8
		• Most people	8
Normative Belief Disapprove		**Normative Belief Disapprove**	
• Nobody	78	• Nobody	63
Control Belief Easy		**Control Belief Easy**	
• Easily accessible bus stop locations	26	• A frequent service	40
• Nothing	17	• Easily accessible bus stop locations	32
• My lack of knowledge of the area	11	• Availability of information about the bus	22
		• The service being free	10
Control Belief Difficult		**Control Belief Difficult**	
• Nothing	57	• Nothing	47
• An infrequent service	28	• Having a disability or medical condition	12
• Travelling with children	7	• Not enough time	12
• Travelling in a large group	7	• A non-frequent service	12

In terms of positive outcomes or advantages of taking the shuttle bus at the Grampians, nine beliefs emerged, with the top three being ‘greater flexibility for doing walks’ (31%), ‘not have to worry about finding a car park’ (30%), and ‘see more of the park’ (26%). The ‘greater flexibility for doing walks’ belief was a response to the ‘hop-on, hop-off’ nature of the service (which was also the case at Cradle Mountain). In terms of negative outcomes from taking the shuttle bus, the most frequently mentioned belief was ‘not able to stop or leave when I want’ (70%).

Almost all of the behavioural beliefs that were cited at the Grampians were cited at Cradle Mountain. The main difference was how often individual beliefs were mentioned. For example, ‘reduce my impact on the environment’ and ‘reduce traffic congestion on the roads and in the car parks’ were cited by 45% and 35% of respondents at Cradle Mountain compared to 20% and 13% of respondents at the Grampians. One possible explanation for this disparity is that visitors to Cradle Mountain may be more sensitive to congestion issues and the risk of environmental impacts from excessive vehicle volumes given that the site is a World Heritage Area (and the Grampians is not). Furthermore, the absence of the positive behavioural belief ‘will not get lost’, which was mentioned at the Grampians, may be a response to the respective complexities of the road networks at the two parks. As the bus routes depicted in Figures 1 and 2 illustrate, the Grampians shuttle bus navigates a more elaborate road network involving multiple access roads and attractions that can be difficult to negotiate. In contrast, the Cradle Mountain shuttle bus travels along the only access road to Dove Lake, making the journey easy to navigate by car. As was the case at the Grampians, the most frequently mentioned behavioural belief regarding negative outcomes of using the shuttle bus at Cradle Mountain was ‘not able to stop or leave when I want’ (73%).

In terms of normative beliefs, 52% of respondents at Cradle Mountain mentioned national park staff as a source of social influence that would approve of them using the shuttle bus service. This is in contrast to only 7% at the Grampians. One of the likely reasons for this was that visitors arriving at Cradle Mountain had to stop at one of the visitor information centres located along the only access road into the park to pay an entrance fee to park personnel, who in turn often took this opportunity to encourage visitors to use the shuttle bus. At the Grampians, there were no such preconditions of entry (entry to the park is free), and combined with the multitude of entry points into the Wonderland Range and the absence of a gateway visitor centre, the influence of national park staff was less apparent. Other sources of social influence that were mentioned were often along the ambiguous lines of 'environmental organisations' or 'conservationists'. However, these were not included in the coding process, and hence not in Table 1, as they are what Lackey and Ham (2003) refer to as 'generalised others' and do not represent an operant social pressure consistent with normative beliefs.

Accessible bus stop locations was the most frequently mentioned control belief (26%) about factors that made it easy to take the shuttle bus at the Grampians. In terms of barriers, 'nothing' was the main response, followed by 'an infrequent service'. This was not surprising given that the Grampians service ran at only one-hour intervals. At Cradle Mountain, the frequency of the service, in addition to accessible bus stop locations, was mentioned as making it easy to use the shuttle bus (40% and 32% respectively). The Cradle Mountain service was also extensively promoted, and so the availability of information about the bus, including the frequency of the service and where it stops, was viewed as an influential facilitator by 22% of respondents. In terms of barriers, 'nothing' was the main response.

The next step in reviewing the belief data was to conduct a preliminary analysis of the beliefs to identify the ones that discriminated users from non-users of the shuttle bus services. These results are presented in Table 2. Ignoring beliefs mentioning 'nothing' or 'nobody' (as these are of little value for an intervention), the most noticeable differences at the Grampians were that bus users more frequently mentioned that they would see and learn more about the park, have greater flexibility for doing walks and have a rest from driving. Bus users also cited more often that accessible bus stops made using the shuttle bus easy. Not surprisingly, nearly all car users at the Grampians (92%) reported that they would not be able to stop or leave when they want compared to just half (52%) of the bus users. However, it was surprising that respondents who believed that taking the bus would reduce environmental impacts were primarily car users (32%) rather than bus users (10%).

Table 2. Comparison of bus and car user belief frequencies at the Grampians and Cradle Mountain

	Grampians			Cradle Mountain		
	% bus *n* = 29	% car *n* = 25	% absolute difference	% bus *n* = 30	% car *n* = 30	% absolute difference
Behavioural Belief Advantages						
• See more of the park	45	4	41	20	13	7
• Reduce my impact on the environment	10	32	22	67	23	44
• Greater flexibility for doing walks	41	20	21	20	26	6

• Learn more about the park	28	8	20	30	10	20
• Have a rest from driving	31	12	19	20	10	10
• Reduce traffic congestion on the roads and in the car parks	7	20	13	27	43	16
• Not have to worry about finding a car park	24	36	12	30	23	7
• Save money/fuel	21	12	9	20	3	17
• Will not get lost	17	8	9	-	-	-
Behavioural Belief Disadvantages						
• Not able to stop or leave when I want	52	92	40	70	77	7
• Nothing	38	4	34	20	10	10
• Bus route not going to all the places I want to see	3	16	13	-	-	-
• Not able to take all my gear/having to take all my gear	-	-	-	7	23	16
Normative Belief Approve						
• Nobody	28	44	16	-	-	-
• National park staff	3	12	9	60	43	17
• Most people	-	-	-	13	3	10
• Other visitors	-	-	-	7	10	3
• Family and friends	-	-	-	10	7	3
Normative Belief Disapprove						
• Nobody	76	80	4	53	73	20
Control Belief Easy						
• Nothing	3	32	29	-	-	-
• Easily accessible bus stop locations	34	16	18	47	17	30
• My lack of knowledge of the area	17	4	13	-	-	-
• A frequent service	-	-	-	47	33	14
• The service being free	-	-	-	17	3	14
• Availability of information about the bus	-	-	-	27	17	10
Control Belief Difficult						
• Nothing	79	32	47	77	17	60
• Travelling with children	3	12	9			
• Travelling in a large group	3	12	9			
• An infrequent service	28	28	0	13	10	3
• Having a disability or medical condition	-	-	-	7	17	10
• Not enough time	-	-	-	7	17	10

An analysis of the belief differences between bus and car users at Cradle Mountain presents a slightly different story. This time it is the bus users who more frequently cited that they would reduce their impacts on the environment by taking the shuttle bus (67% compared to 23% of car users), as well as having the opportunity to learn more about the park and save money and fuel. Car users, on the other hand, appeared to be still more aware of reducing traffic congestion on the roads and in the car parks, in addition to the gear limitations

associated with taking the shuttle bus. There were comparatively minor differences between bus and car users in relation to the other behavioural beliefs. In the context of the normative influence of 'national park staff', a greater proportion of bus users cited this belief compared to car users (60% versus 43%), and as was the case at the Grampians, bus users more frequently mentioned that accessible bus stops made using the shuttle bus easy.

To summarise, while the belief data revealed a number of beliefs underlying visitors' decisions to use or not use the shuttle bus service, not all the TPB belief categories were equally represented. Specifically, normative beliefs at the Grampians did not appear to play a prominent role in the decision-making processes of visitors. Furthermore, the fact that Cradle Mountain is part of a world heritage area, has a more straightforward road network, offers a frequent shuttle bus service and requires visitors to stop and pay a park entry fee appears to result in differences in the elicited beliefs when compared to the Grampians. Finally, a comparison of the beliefs of bus users and car users provided some preliminary insights into the beliefs that potentially discriminate between the two user groups. Bus users at the Grampians appear to base their travel mode choice more on perceived personal gains rather than a sense of environmental responsibility. In contrast, Cradle Mountain bus users appear to base their travel mode choices more on the environmental benefits of using the service.

Discussion and conclusion

Individual beliefs are influenced by many factors, both personal and environmental, and cannot be assumed to transcend time and behavioural domains. While the behaviour of using a shuttle bus at Cradle Mountain or the Grampians is ostensibly similar (a fact reflected in many of the common beliefs), specific qualities of the respective sites and target populations appear to influence visitors' underlying beliefs. These factors resulted in some noticeable differences in the beliefs at the parks, illustrating that visitors to Cradle Mountain and the Grampians are not homogenous in their belief structures with respect to using a shuttle bus. For example, the fact that national park staff emerged as a salient normative belief at Cradle Mountain suggests that issues of social pressure may need to be considered in a persuasive communication intervention at the park. Indeed, studies by Cialdini (1996, 2001), Cialdini, Reno, & Kallgren (1990), and Winter, Cialdini, Bator, Rhoads, and Sagarin (1998) have highlighted the significant influence social norms can exert on behavioural choices. However, making similar assumptions about the normative pressure of national park staff at the Grampians would be ill-informed, especially when visitors tend to have little contact with national park staff as compared to Cradle Mountain.

Furthermore, the differences in the underlying belief structures could also be influenced by the respective visitor profiles. For example, the dominance of local and repeat visitors at the Grampians suggests that many respondents have an enduring relationship with the park, and perhaps view it more as a favourite holiday destination rather than a park under any particular threat. This is potentially reinforced by the small-scale, 'token' nature of the shuttle bus service offered to visitors. In contrast, the dominance of non-local first-time visitors at Cradle Mountain, who may be influenced by the park's world heritage status once on-site, could mean they might be more sensitive to potential threats to the park, especially when they are confronted with a shuttle bus service that has a more visible presence (possibly suggesting a greater sense of urgency regarding the problem of growing visitor and vehicle numbers).

While we can only speculate about the causes without more information, the differences between the two groups does reinforce that importing beliefs from one park to the other as a basis for informing a persuasive communication intervention would be unsound, as it would be based on inaccurate assumptions about the transferability of the beliefs and thus potentially affect the success of any communication effort.

The opportunity to identify beliefs that distinguish between users and non-users of the shuttle bus services provided some further insights into the elicited beliefs. For example, in the context of behavioural beliefs, bus users at the Grampians more frequently mentioned the personal benefits of using the service compared to car users. In contrast, car users more frequently mentioned the belief related to reduced environmental impacts. Based on these preliminary insights and the underlying logic of the TPB, an intervention would potentially communicate beliefs related to the personal benefits of using the service rather than the environmental benefits, as the latter beliefs were already salient among car users and yet were not sufficient to engender a travel mode switch. In other words, targeting beliefs in a persuasive communication intervention that are already salient and in the right direction (in terms of being positive towards the desired behaviour) will yield little improvement over the status quo (Armitage & Conner, 2002; Fishbein & Cappella, 2006; Fishbein & Yzer, 2003; Hornik & Woolf, 1999; Lackey & Ham, 2003).

At Cradle Mountain, a different story emerged, as bus users more frequently mentioned the environmental benefits of using the service compared to car users, suggesting this belief may potentially have more room for persuasion among car users. While it is not possible to draw any definitive conclusions based on these differences between the separate user groups at the two parks given the small sample sizes, they do touch on a debate in the broader literature about the types of beliefs that potentially have greater potential for persuasion in interventions designed to influence travel mode choice. In research by Cullinane and Cullinane (1999), Cullinane, Cullinane, Fewings, and Southwell (1996), Dilworth (2003), and White (2007), the environmental benefits of using ATS in national parks, including reducing traffic congestion, are recommended as potentially persuasive arguments in getting more people to use these services. As Cullinane et al. (1996: 223) advocate, ‘If the environmental benefits of park and ride can be positively promoted while private car use is discouraged using appropriate methods, some degree of cultural shift might be achieved.’ Similarly, White (2007: 60) concludes that ‘park managers wishing to encourage alternative transportation in national parks should seek to activate or make salient visitors’ pro-environmental values’.

However, research by Brown, Werner, and Kim (2003), Corbett (2005), De Groot and Steg (2007), and Kaplan (2000) takes a different stance, suggesting that personal benefits have a better chance of encouraging people to use a public transport option, namely because beliefs related to the environment and altruistic outcomes are often synonymous with notions of self-sacrifice. While the results from the present study reveal that both types of beliefs underlie visitors’ decisions to use or not use ATS, their persuasion potential can only be assessed through a follow-up belief measurement phase based on the TPB. This involves selecting a modal set of salient beliefs from each park, using selection criteria outlined in Ajzen and Fishbein (1980), and measuring the strength and importance of each of these modal beliefs using a fixed-item instrument to determine those that statistically discriminate users from non-users of the shuttle bus services.

While the insights offered by this study are potentially relevant to applications of the TPB across a range of behaviour domains, it is worth pointing out their particular relevance to leisure settings such as national parks. Charged with the responsibility of achieving outcomes such as minimising risk to visitors, avoiding recreational conflict and reducing environmental degradation caused by increasing visitation, park managers are invariably required to influence the behaviour of the public (Ajzen, 1992). Combined with a general desire to achieve such outcomes through less intrusive measures (e.g., communication strategies) to maintain the freedom of choice values inherent to outdoor leisure experiences, the potential of theories such as the TPB to help inform persuasive message content holds considerable promise (Marion & Reid, 2007). However, as a number of researchers have noted, this promise remains somewhat unrealised, with persuasion attempts often informed by the intuition and experience of others (e.g., park managers) rather than the beliefs relevant to the target audience (Ballantyne & Hughes, 2006; Ham & Krumpe, 1996; Ham, et al., 2008). As long as these practices continue, managers run the risk of delivering behaviour change attempts that focus on arbitrary determinants that lack sufficient persuasive impact.

Indeed, leisure settings potentially amplify this risk. Away from the demands and responsibilities of their everyday routines, visitors to leisure settings are potentially freer to respond to the particular attributes of a leisure behaviour context, as well as being more receptive to new information and experiences (Mayo & Jarvis, 1981). As the data in this study indicated, the national park setting did influence the nature of some of the beliefs, meaning that transferring the beliefs from one context to another would potentially compromise any persuasive efforts. By applying a model such as the TPB, these nuances in the beliefs can be identified through a structured and objective approach to belief identification. While it is not known whether a more ‘generic’ behaviour than the one investigated in this study would be less susceptible to geographical and spatial influences, it is important that, in the absence of this knowledge, a theory-driven approach informs formative research when seeking to influence behaviour.

The present study is subject to some limitations. Given that Ajzen and Fishbein (1980) explain that the use of a small convenience sample is appropriate for the belief elicitation phase, this can raise concerns about how representative the beliefs are of the broader population. However, these concerns are alleviated by reaching points of theoretical saturation during data collection as well as collecting data on the socio-demographic profile of respondents and comparing this to profiles reported in other documents. Indeed, a strength of the sampling procedures reported in this study is that the data collected were from a real-world sample of the target population in the immediate timeframe of a real-world decision-making context relevant to the target behaviour. In other words, the research was not compromised by using self-report data collected at a time or in a setting that was more removed from the decision-making context. Finally, given that the beliefs identified at Cradle Mountain and the Grampians were specific to those parks and target audiences, it cannot be assumed that these beliefs would apply in other national park settings with ATS. Original belief elicitation and measurement research would still be required to identify the relevant target beliefs that stand the best chance of influencing visitor use of ATS in those parks. However, what can be generalised to other contexts, behaviours, and populations are the theoretical principles and procedures adopted in this study.

The results from this research bring attention to the often overlooked and undervalued elicitation phase in behaviour modification studies based on the TPB. In this study, formative elicitation research was found to be an essential first step in identifying the salient beliefs relevant to the target behaviour and population, and provide the foundations for the subsequent phases of research. While there has been a tendency in some studies to intuit the underlying beliefs, or to import beliefs from related but not necessarily directly corresponding studies, this research has raised concerns about the merits of such practices and corroborates the emphasis placed on conducting a rigorous elicitation as a first and necessary step. Failure to appreciate and address the issue that target behaviours and populations differ according to the behavioural setting will risk interventions becoming generic attempts at behaviour change, lacking relevance to the behaviour and population of interest.

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