

A Quasi-experimental Method for Testing the Effectiveness of Ecolabel Promotion

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Despite the existence of tourism ecolabels for more than 10 years, tourists' decision making is still only marginally influenced by such labels and it appears that sustainability does not feature much in tourists' general consumption behaviour. However, two recent studies found that tourists' attitudes towards the Green Globe 21 (GG21) ecolabel in New Zealand were positive and the surveyed tourists appeared to have a high awareness of sustainability issues. Based on these findings, a quasi-experiment was conducted in the Christchurch Visitor Information Centre (CVIC) (main tourist hub of South Island) to investigate whether tourists' positive attitudes towards ecolabels would result in increased observable interest of GG21 ecolabelled products. The purpose of this paper is to describe the complex quasi-experimental methodology that has been developed in an attempt to get further insight into tourist behaviour related to ecolabelled tourist products. During May and June 2003 the impact of a promotional campaign on tourists' information search behaviour in the CVIC was tested. Observations of tourists and measurement of brochure up-take showed no increased interest in the ecolabel promotion campaign or the GG21 labelled products in the CVIC. The experimental methodology demonstrated that positive attitudes towards ecolabels are an unreliable predictor of responsible environmental tourist behaviour.

Keywords: quasi-experiment, environmental attitudes, ecolabel, Green Globe 21, responsible environmental behaviour

Introduction

Despite the existence of tourism ecolabels for more than 10 years (the first tourism ecolabel was introduced in 1987 – the Blue Flag Campaign), tourists' decision making is still only marginally influenced by such labels and it appears that sustainability does not feature much in tourists' general consumption behaviour. The Blue Flag Campaign certified the environmental quality of beaches and marinas around the Mediterranean Sea in Southern Europe. Since then about 54 labels have been developed worldwide across all tourism sectors (World Tourism Organisation, 2002). To understand better whether ecolabels have an influence on behaviour and whether this can be related to tourists' environmental concerns, this study investigated tourists' reactions to an experimental promotion of ecolabelled products in a large tourism visitor centre. The research was conducted in New Zealand and builds on two earlier studies undertaken on tourists' attitudes towards ecolabels (Barnett & Cheyne, 2003; Fairweather *et al.*, 2005). Based on these studies, it was assumed that promotion of an ecolabel could stimulate 'responsible environmental tourist behaviour' and

consequently interest in labelled products. The purpose of this paper is to describe the complex quasi-experimental methodology¹ that has been developed in an attempt to get further insight into tourist behaviour related to ecolabelled tourist products. The paper grounds the quasi-experimental study design in theoretical concepts explaining holiday trip planning, decision making and consumer (tourist) behaviour. Some preliminary results will be presented to illustrate the methodology and to discuss problems encountered while preparing and conducting the quasi-experiment.

Recently, ecolabelling, certification and accreditation of tourism products have sparked much research interest (Font & Buckley, 2001; Weaver, 2001; WTO, 2002). The last decade has seen various tourism industry initiatives to establish standards and labels for sustainable tourism (Spittler & Haak, 2001; WTO, 2002). Implementation of ecolabels, however, remains marginal (EEA, 2002; WTO, 2002) and their influence on consumer behaviour is a poorly researched area in tourism (Fairweather *et al.*, 2005; Miller, 2003). In Europe, despite the promotion of tourism ecolabels for about 10 years, most certified tourism product providers have not yet managed to gain consumer recognition. Accordingly, academic and industry experts alike agree that tourists' decision making is only marginally influenced by such labels (Sharples, 2001; STSC, 2002), nor does sustainability seem to feature in tourists' general decision making (Wood & Halpenny, 2001), although exceptions may exist for niche markets, such as the ecotourism sector (Bergin & Jargo, 1999; Higham *et al.*, 2001; Nielson *et al.*, 1995).

Low customer recognition may be due to the fact that ecolabelling and certification of tourism products, on the one hand, are still in their infancy and small in scale, while on the other hand portray a confusing variety. Academic reviews of ecolabel history have pointed out repeatedly that the high number of competing regional and national labels leave the consumer confused and without trust in them (Miller, 2003). Consequently, it has been argued that international labels, applicable across all tourism sectors, are more likely to succeed in influencing tourists' purchase behaviour (Font, 2001; Kahlenborn & Dominé, 2001).

It is noticeable that most previous studies on ecolabels investigated tourists' attitudes rather than their actual behaviour. In tourism, it has been argued repeatedly that there is a link between environmental attitudes and behaviour (Miller, 2003), although only little evidence of its nature is provided. Other studies on responsible environmental behaviour report strong predictive links between various attitudes and specific environmentally responsible action (Axelrod & Lehman, 1993; Grob, 1995; Nilsson & Küller, 2000). Research in environmental psychology suggests that such links may be rather indirect in nature, and strongly influenced by situational factors, psychological variables, perception of personal responsibility, and knowledge of 'green' products (Bamberg, 2003; Barr, 2003; Hammitt *et al.*, 1995) resulting in an 'intention to act'. In a supportive environment, the intention may then be realised resulting in an environmentally motivated behaviour. There is, however, scant information available on what exactly constitutes a 'supportive' environment in the tourism context. Most studies exploring the predictors of responsible environmental behaviour focus on traditional 'green' behaviours such as recycling (Barr, 2003) or private car use (Grob, 1995; Nilsson & Küller, 2000).

Generally, consumption behaviour (in rich countries) appears to be 'locked-in by historic and societal circumstances' preventing reduced and pro-environmentally consumption patterns (Sanne, 2002: 273). In a tourism context, the experience of leading companies, such as British Airways Holidays or TUI, suggests that consumer choice is influenced by a 'wide range of complex travel motives', with the environmental quality of a destination being an important one. The environmental performance of the tourism product is, however, only important to a very small minority of tourists (WWF-UK, 2000: 55).

Reflections on 'Responsible Environmental Tourist Behaviour' and 'Information Search Behaviour'

Generally, three classes of planning models are distinguished in the tourism literature (Becken & Wilson, submitted): Choice models (focus is on the outcome of a decision-making process; e.g. Woodside & King, 2001), cognitive planning models (focus is on the decision-making process; e.g. Stewart & Vogt, 1999) and, those focusing more on affection, e.g. consumer behaviour models (decision-making is treated as problem-solving behaviour; e.g. Hyde, 1999). In addition, tourist trip planning and the associated information search behaviour is dependent on internal and external information sources (Snepenger & Snepenger, 1993). Engel *et al.* (1990: 494) define information search as 'the motivated action of knowledge stored in memory or acquisition of information from the environment'. To gain a complete picture of tourists' information search behaviour and decision-making processes during trip planning, Becken and Wilson (submitted) suggested an integration of the above-mentioned theoretical perspectives based on an empirical study conducted in New Zealand. The authors suggest that the planning process can be split into three distinct phases: 'core decisions', 'loose plans' and 'unplanned behaviour'. While the 'core decisions' (travel mode, broad itinerary plans, key attractions) were mainly undertaken pre-trip, the researchers could show that a significant amount of planning and information search was conducted en route (1–3 days prior to an activity). Once in the country, tourists relied heavily on word of mouth, guidebooks and visitor centres as information sources (Becken & Wilson, submitted). Based on the information above, it could be assumed that:

- a significant proportion of visitors to New Zealand would rely on information provided by Visitor Information Centres (VICs) (tourists refining their 'loose plans');
- some of these visitors would have sufficient prior internal knowledge of environmental certification allowing them to cognitively process information on tourism ecolabel in the VIC setting.

Hence, responsible environmental tourist behaviour in the context of this study is defined as showing interest in information on tourism ecolabels and related labelled products. The Theory of Planned Behavior (TPB) (Ajzen, 2002) offers a suitable theoretical framework to analyse the link between specific attitudes towards tourism ecolabels and tourists' recognition of the labels. Ajzen (1991; cited in Bamberg, 2003: 22) found that people with positive, specific attitudes towards ecolabels are likely to act in environmentally responsible ways

when they believe there is a normative expectation of others to do so and when they perceive having the means to exercise the action (control or self-efficacy). This research assumes that intention of showing interest in ecolabelled products is based on reasoned action (Bamberg *et al.*, 2003), rather than on intuitive and affective reactions to cues embodied in the ecolabel. However, previous research indicates that, when an information search is conducted under time pressure and in situations of information overload, people screen out irrelevant information (Gross, 1987). In this context, Sharpley (2001) argues that ecolabels in the current tourism marketplace could fall under the category of irrelevant information, as they are not essential to the touristic experience. Moreover, places where tourism information is disseminated, such as VICs, are often overloaded with information sources and foster selective information search behaviour.

The application of dual processing models, such as the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1981, 1986), is now widely accepted as a theoretical basis for the study of consumer persuasion in advertising research (Shimp, 2002). In such a framework, a consumer (tourist) undergoes an 'enduring attitude change' towards a product, if they are persuaded by an advertising message that led them to evaluate the content of the message. That is, the consumer makes a conscious decision whether to accept or reject the message based on an assessment of the message arguments (Petty *et al.*, 1983). This process, called the 'central route processing', tends to result in attitudes predictive of subsequent behaviour, whereas attitudes acquired through 'peripheral route processing' appear to be less likely to predict future consumer behaviour (Petty *et al.*, 1981: 848). The peripheral processing route refers to a process where consumers neglect message arguments, but are persuaded by the 'advertising source, the presenter, music, the number of arguments, colours or any such element of the advertisement ("persuasive cues")' (Robinson, 2002: 21). The information processing route to be used is determined by the 'elaboration likelihood' – the consumer's ability and motivation to elaborate on the message, and by time constraints on the consumer (Giner-Sorella & Chaiken, 1997). If consumers have only a short time to examine the message (Wright, 1981, cited in Petty & Cacioppo, 1981), are not repeatedly exposed to the message (Petty & Cacioppo, 1981) and if there are many distractions (e.g. cluttered advertising) from the message (Heesacker *et al.*, 1984) 'peripheral' route processing is likely. All of the above are present in most New Zealand VICs and it is, therefore, concluded that the VIC-setting supports 'peripheral' information processing which means a reliance on cues and an absence of examination of new attributes of the existing tourism products on offer. Literature suggests that tourists' previous visits to VICs (in various countries) may not have resulted in positive, specific attitudes of tourists towards the inclusion of ecolabels in trip planning and decision-making, hence the 'label' of most tourism ecolabels does not act as a cue.² For that reason ecolabels are not yet sufficient to trigger a sustained attitude change in tourists' consumption behaviour (Mihalic, 2001; Sharpley, 2001; STSC, 2002).

The above discussion argues that consumer decisions based on ecolabel-information are most likely dependent on 'central route' processing (cognitive process) and message 'elaboration' (scrutinising, thinking, etc.). An advertising campaign attempting attitude changes (persuasion) towards the inclusion of

ecolabel-information in tourists' trip planning may, therefore, have only little immediately observable success with the exception of those tourists who are strongly motivated to act in environmentally responsible ways. One such motivation could be 'involvement', a marketing concept which refers to the personal relevance of a product (in this case the ecolabel assuring environmental compatibility) to the consumer (Shimp, 2002). Another motivation could be a perception that tourism activities poses an environmental threat, which the environmentally responsible tourist aspires to avoid. There is reason to believe that a high proportion of visitors to New Zealand are environmentally aware (Fairweather *et al.*, 2005) and it is likely that some European visitors have had prior experience with tourism ecolabels in their home countries or close by destinations (Lübbert, 2001; WTO, 2002), thus being aware of the need to act in environmentally responsible ways.

If tourists, in addition, attributed responsibility for the perceived environmental threat to their own behaviour, an action generating process could be triggered. The Integrated Action Model (IAM) (Martens & Rost, 1998) considers this motivational phase an important precursor to the action choice phase (intention to act) provided that the tourist's coping style is characterised by reacting to the perception of threat with action (information search) rather than cognitive avoidance (denial or suppression) (Martens, 1999). In parallel with Ajzen's (1991, 2002) Theory of Planned Behaviour (TPB), realisation of 'intention' during the action-choice phase depends on whether there are any appropriate actions (e.g. showing interest in ecolabel-information), and whether the expected outcome of the action is associated with the desired reduction of environmental impact and the self-efficacy of the tourist. The IAM also refers to external influences, such as perceived social needs (e.g. conforming with social norms), but, like the TPB, considers cognitive processes only. It is, however, possible that there is a role for affect (emotions and feelings) within the TPB as well as the IAM. For example, perceived threat is probably based on specific attitudes and these could be influenced by one's affective state during the attitude formation phase, if the attitude was acquired through direct experience (affect-based) (Pooley & O'Conner, 2000). 'Affect-based specific attitudes' are better predictors of behaviour (Millar & Millar, 1996), and should exist for Europeans who might have had direct experiences with tourism ecolabels (Lübbert, 2001; WTO, 2002).

Green Globe 21 in New Zealand

This research focuses on the Green Globe 21 (GG21) ecolabel for several reasons. In New Zealand, GG21 was introduced to the market in 1999 and, since 2001, it has been the one ecolabel that is officially advocated by the government through its national tourism strategy (Tourism Strategy Group, 2001). Against the backdrop of New Zealand's strong image of a clean and green destination, it is conceivable that tourists to New Zealand have a high awareness of sustainability issues (Barnett & Cheyne, 2003) and are potentially responsive to supporting GG21 benchmarked or certified products (Green Globe Asia Pacific, 2003). Green Globe should also be well known to New Zealand's many European visitors; it was launched in Europe in 1994 (Hawkins, 1995)

At the time of the research, New Zealand had the most GG21 participants (i.e. mainly companies and one destination – Kaikoura) worldwide ($n = 133$)

(personal communication with K. Benn, May 2003; GG21, 2003). Accommodation businesses constitute by far the largest participant group, although in March 2003 there were 22 different categories³ in which tourism operations could be certified. The majority of New Zealand tourism businesses actively working towards GG21 certification are from the Canterbury region (South Island); and all of these are business partners of the state-sponsored Christchurch Canterbury Marketing (CCM). Hence, all these companies ('GG21-businesses' hereafter) are represented with their brochures in the local territorial council sponsored Christchurch Visitor Information Centre (CVIC). The CVIC is operated by CCM as a private business, and serves as a booking agency for the businesses represented in the centre. CCM itself is one of New Zealand's first tourism marketing agencies currently working towards GG21 certification (GG21 benchmarked in 2003 in two sectors: accommodation office and visitor centre). For the above reasons, the CVIC was considered an ideal study location.

The Research Hypotheses and Theoretical Background

Based on the review of the literature and the situation of GG21 in New Zealand, two hypotheses were formulated:

Hypothesis I: The promotion of the GG21 ecolabel, including a poster and a continuously screened slide show (hereafter called promotional display) and the labelling of all brochures of GG21 businesses in CVIC, will increase tourists' interest in GG21 labelled products.

Hypothesis II: Tourists with 'high levels of environmental concern' will be more likely to show interest in the information about the GG21 label and also the GG21 labelled products.

As indicated in the literature review, the process of formulating and testing the research hypotheses was informed by theories from the field of psychology (Ajzen, 1991, 2002), environmental psychology (Bamberg, 2003) and consumer behaviour research (Sharpley, 2001). Bamberg (2003) utilised Ajzen's TPB (2002) in an experimental study. He pointed out (Bamberg, 2003: 30) that general environmental attitudes do not directly influence environmentally motivated behaviour in specific situations, but only people's perception and evaluation of the specific situation. Based on Ajzen's theory and Bamberg's utilisation of it, the authors assumed before the quasi-experiment that some, environmentally aware, visitors to CVIC would:

- perceive social pressure to act in environmentally positive ways given New Zealand's clean green image;⁴
- take pleasure in collecting information about or even purchase environmentally friendly (ecolabelled) tourism products;
- evaluate the situation in the VIC as a favourable opportunity to show interest in information provided about GG21 and the ecolabelled products advertised in CVIC.

With the intention of conveying social pressure to visitors and facilitating the second and third conditions, a quasi-experimental research methodology suitable to answer both hypotheses was developed. The quasi-experiment was designed based on Fairweather *et al.*'s (2005) and Barnett and Cheyne's (2003)

findings. These suggested that it could be possible to influence some visitors' information search behaviour in the centre. Conversely, Sharpley's (2001) theoretical article argues that the multi-dimensionality of consumer behaviour (including information search and decision-making) in tourism leaves environmental decision making criteria very limited space and, therefore, ecolabelling will only appeal to very few tourists. In this milieu of conflicting theoretical predictions, the blending of a purely behavioural research question (Hypothesis I) with an attitudinal element (Hypothesis II) seemed appropriate, but resulted in a complex research methodology.

Method and Study Design

To address the theoretical uncertainty raised above, a quasi-experiment was conducted in a real, fully operational, commercial environment and in direct combination with a conventional survey. For 30 days during May and June 2003 (New Zealand shoulder season) the impact of a promotional display on visitors to the CVIC was tested. The project featured a multi-layered methodology, applying the principle of triangulation (Denzin, 1989: 234–68) to validate results gained from different methods:

- (1) *Quasi-experiment*: Sequential addition of promotional material and measurement of behavioural changes operationalised by:
 - (a) Observation of visitors, analysing change in visitation patterns;
 - (b) Brochure Up-Take and Visitor Counts.
- (2) *Survey*: Questionnaire backed up by Tourist Interviews.

The quasi-experiment consisted of four different phases. The first phase, design of the promotional material, involved co-operation with Green Globe Asia Pacific, CCM and GG21 labelled businesses. Second, a 10-day pilot study increased the understanding of how the visitor centre operates, and the observation and survey instruments were developed accordingly. Third, a 6-day baseline measure of brochure up-take was undertaken to identify 'typical baseline tourist behaviour' without the promotional display (baseline-measure). This methodological step makes the study a quasi-experiment (interrupted time series design; Cook & Campbell, 1979), because the sample populations of the 'baseline-measure' phase and the main research phase are non-comparable. The fourth and the main research phase was conducted for 14 consecutive days. Research assistants observed visitor behaviour in the centre (general behaviour and visitor reactions to the GG21 display), conducted an ecolabel survey (questionnaire), and monitored daily visitor flows and brochure up-take (Table 1).

Aside from the quasi-experiment, seven tourists who had visited the CVIC during the experiment were interviewed at their overnight location (Christchurch backpackers/motel which is a GG21 participant) on three evenings during the main study (phase 4). The tourists were randomly selected (approached in the lounge of the main building after 4 pm) and those who had not visited CVIC during their current stay in Christchurch were screened out. In addition, two counter staff members (tourist consultants) working for the CVIC were interviewed regarding their experience of tourists' predominant information search behaviour and how

Table 1 The four research phases in overview

| <i>Phases</i> | <i>Phase 1</i> | <i>Phase 2</i> | <i>Phase 3</i> | <i>Phase 4</i> |
|---------------|--|---|--|---|
| Title | Preparation | Pilot-Study | Baseline Measure | Main Study |
| Length | 2 months | 10 days | 6 days | 14 days |
| Time | N/A | May | May | June |
| Season | N/A | Shoulder | Shoulder | Shoulder |
| Tasks | (1) Design of promotional GG21 material | (1) Set up promotional GG21 display | (1) Establish 'baseline tourist behaviour' | (1) Observation: observe visitors responses to GG21 promotion (behaviour) |
| | (2) Examine Christchurch Visitor Information Centre (CVIC) | (2) Label brochures of GG21 businesses | (2) Remove GG21 promotion | (2) Survey: Visitor attitudes |
| | (3) Meetings with CCM CEO and CVIC manager and supervisor | (3) Develop research instruments | (3) Monitor brochure take-up and visitor flows | (3) Monitor brochure up-take and visitor flows |
| | | (4) Define measures & install door counters | | (4) Interviews with tourists and VIC staff |

Notes: Main season: Jan-Mar approx. 80,000–90,000 visitors per month

Shoulder season: May/June approx. 30,000 per month

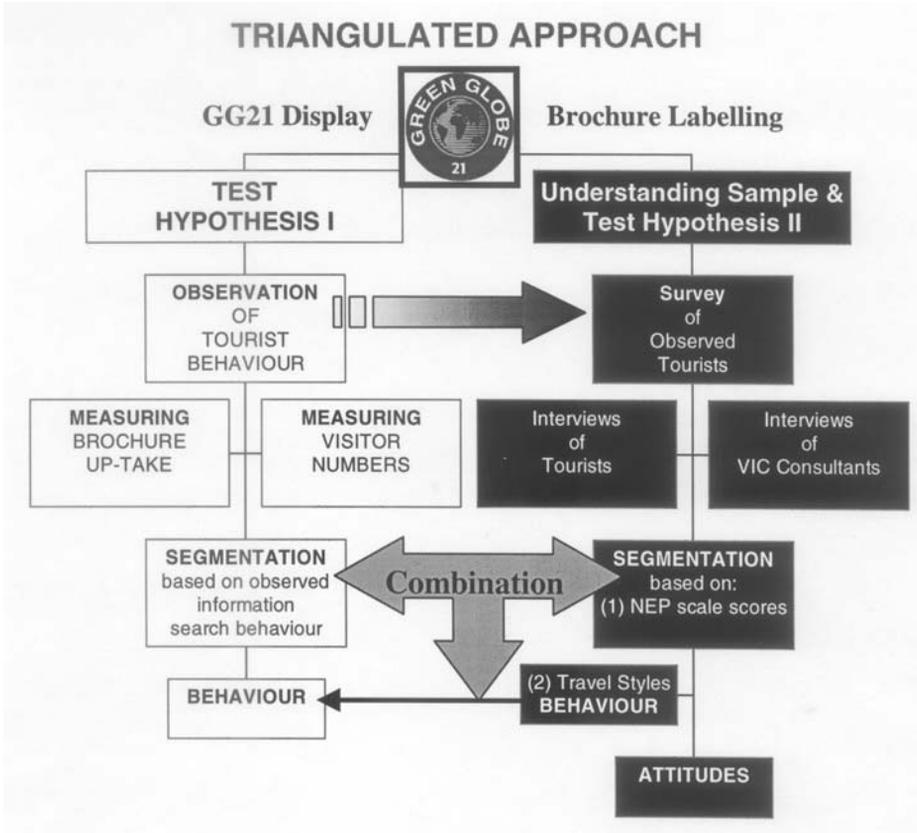


Figure 1 Research methodology

the centre staff understood their role as 'commercial' information providers. The research team selected the two most experienced staff members for interviewing.

Both strands of the research methodology led to a segmentation of the sample (Figure 1). The rationale for testing the two hypotheses for combinations of sub-samples based on distinctively different segments was that it would provide more insight into the relationships between attitudes, travel behaviour and environmental behaviour while on vacation. The following two sections explain in detail the quasi-experimental method outlined in Figure 1.

Quasi-experimental set-up and pilot study

In order to detect and measure behaviour changes in visitors to the CVIC stimulated by the quasi-experimental set-up, the study location required extensive examination and some minor adjustments to facilitate the execution of the quasi-experiment. For example, the promotional display had to be in a prominent location, door located people counters needed to be installed and brochures had to be labelled with the GG21 logo and a brochure counting routine needed to be developed (Figure 2).

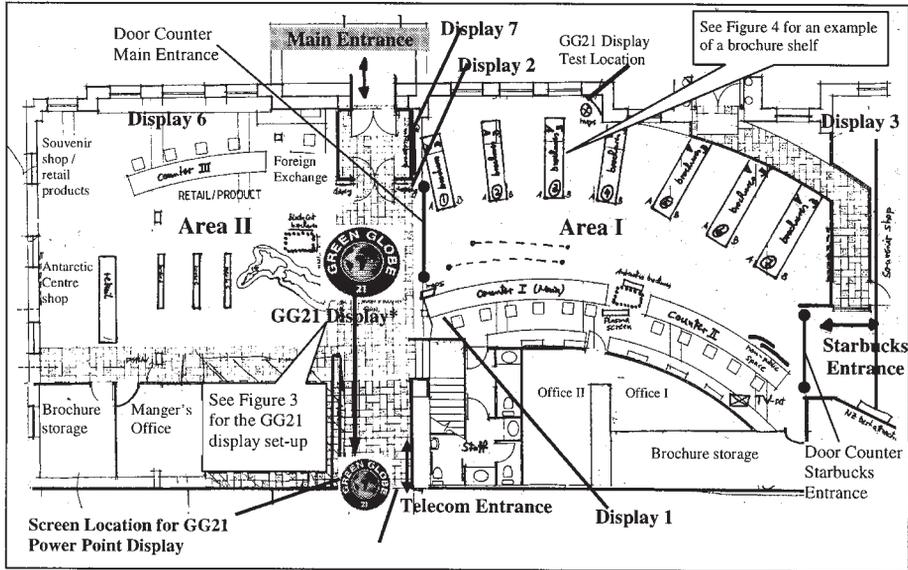


Figure 2 Christchurch VIC Floor Plan

Source: Christchurch and Canterbury Marketing

Notes: Christchurch Visitor Information Centre is an official government 'i-site'.

Location: Cathedral Square Christchurch City

Annual visitor volume: 550,000

Floor space of centre: 500 m²

Employees 23

Recognising the importance of both the design and positioning of the promotion material, a poster and a power-point presentation were designed specifically for the study. This process assumed that tourists were interested in environmental quality, but not in the management processes guaranteeing this quality (Lübbert, 2001), and that the material should appeal to tourists' emotions and beliefs, rather than their cognition (Pooley & O'Conner, 2000), for example by showcasing marine mammals and sea birds typical of New Zealand. In addition, an attempt was made to link the poster theme to the international '100% Pure', Tourism New Zealand's international marketing brand. A GG21 promotional slide show was screened continuously on a specifically mounted advertising screen (see Figure 2 for location) and a TV monitor (see Figure 3) in the centre of the visitor hall. The theme of the presentation paralleled the poster and re-presented the key messages of GG21. All 14 GG21 participants advertising products in the CVIC ('GG21 businesses') were specifically mentioned on one of the screens. CCM, themselves a participant in GG21, did not consider the free additional advertising a breach of visitor centres traditional impartiality, since supporting environmental quality is supporting the conservation of a public good and not a private business. The display was designed to passively prompt tourists' interest in ecolabels and prepare them for an extended interview. That is, it was anticipated that a small number of tourists would react to the poster message and either read the text and additional information provided about GG21 in the centre, would start looking

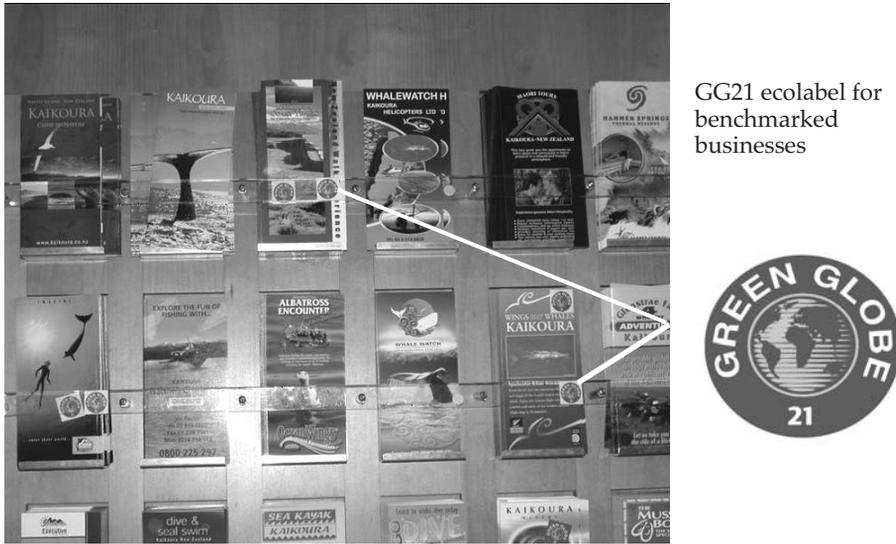


Figure 3 'Green Globe 21 Display' in the Christchurch Visitor Information Centre

for labelled products or interact with the VIC staff (by enquiries, questions about GG21, etc.). This planned qualitative methodological approach proved impractical, because during the pilot study (phase 2) too few visitors to the CVIC were willing to sacrifice the time to talk about ecolabels at length. Furthermore, virtually none of the visitors had taken notice of the GG21 display in the centre of the visitor hall or GG21 ecolabels on the brochures. Initially, the poor response was credited to the hidden and dispersed 'test location' (Figure 2) of the GG21 display set-up. Accordingly, the display was shifted to a more prominent location opposite the main entrance to the centre and the promotional slide show was projected on a 1×1 metre screen above the secondary 'Telecom entrance' (Figure 2). Despite the better display location, visitors' observable attention (time spent looking at display) did not increase, even when tourists were prompted by handing out GG21 brochures to all visitors entering the centre during the pilot study (phase 2).

To highlight an individual firm's participation in GG21 to visitors independently from the GG21 display, all the brochures of the 14 GG21 businesses were fitted with a visible GG21 label on the front cover and on the respective shelf location (Figure 4). The labelling of the GG21 businesses' brochures was necessary, because only one out of the 14 operators had the GG21 ecolabel displayed clearly on the front cover of their brochure.

The study design assumed that the research team was able to observe tourists' level of interest in GG21 labelled products and the promotional display. The pilot



GG21 ecolabel for benchmarked businesses

Figure 4 Example of shelf with Green Globe 21 labelled brochures

study (phase 2), however, indicated that tourists did not show much observable interest in the promotional GG21 activities. During 122 minutes of observation 280 people walked past the display, but only eight glanced at it for longer than 1–2 seconds. Therefore, it was necessary to support observations with more objective measures and daily brochure up-take of GG21 labelled products was monitored. Since brochure up-take could be influenced by various factors unrelated to the promotional efforts, a control group of ‘non-ecolabelled’ comparable products was selected and a ‘brochure up-take baseline’ was established during the ‘baseline-measure’ phase (phase 3). The introduction of the control group changed the quasi-experimental research design into a ‘multiple time-series design’. In total, 26 businesses across several industry sectors (tour operators, attractions, accommodation, winery, airline, cruise boats) were monitored.

Daily brochure up-take was normalised by the number of visitors entering the ‘brochure display area’ (Area I, Figure 2) of the VIC per day to correct for fluctuations in visitor volumes. This was possible by using the door located counters (motion sensors; see floor plan in Figure 2).

Visitor observation and ethical considerations

The pilot study showed that isolated observation of visitor behaviour in relation to the quasi-experimental set-up did not yield rich enough observations. It became clear that in order to understand tourists’ information search behaviour in the visitor centre the whole visit needed to be observed in as much detail as possible. To achieve this, research assistants followed randomly selected tourist unobtrusively through the centre and sketched their ‘walking routes’ and selected information search behaviours on a floor plan. Following a tourist’s visit to the CVIC, they approached the tourist on leaving the centre, to inform them that their visit had been observed and to ask them why they had come to the

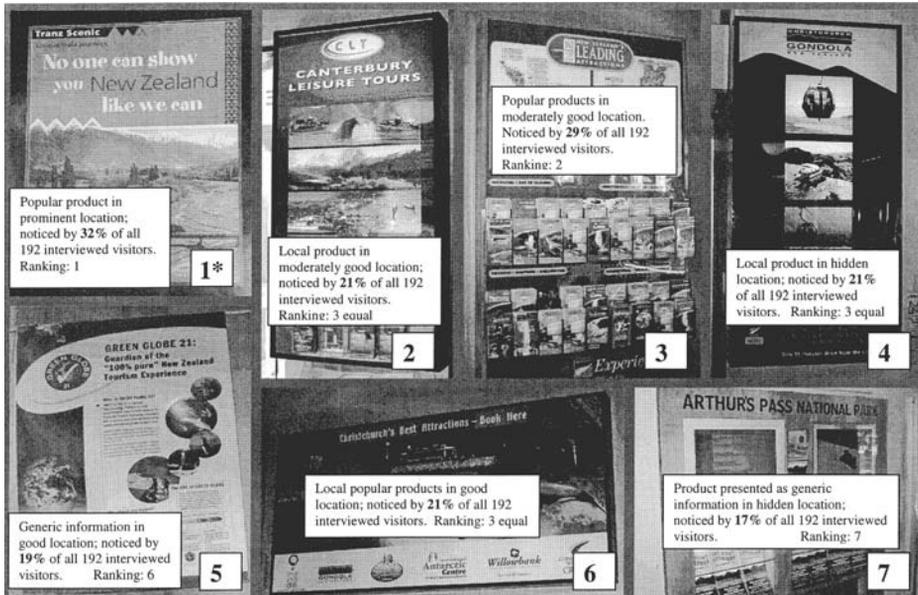


Figure 5 Show card used in 'Poster Recall' exercise for comparing advertising effectiveness of seven selected displays from CVIC

Notes: See Figure 2 for location of displays; * Display numbers referring to Figure 2

CVIC. The tourist was also shown a card to identify which out of seven promotional displays (the GG21 display among them) they had noticed in the centre (Figure 5) and were asked whether they would participate in a survey. The approach provided an opportunity to compare the GG21 display's quality in capturing tourists' attention in relation to other displays in the centre and served as an invitation to participate in the survey.

Because the research involved un-notified observation of tourists, an in-depth discussion of research ethics is required at this point. Any research project involving interaction with humans outside their professional capacities is subject to scrutiny by the Lincoln University Human Ethics Committee. Although desirable from a research perspective, any recording of tourist behaviour (video, audio, etc.) was ruled out from the beginning on ethical grounds. The method chosen (see next section for detail) was designed to be as unobtrusive as possible under the guidance of the HEC. This resulted in training research assistants to only observe tourist behaviour from a distance which did not invade tourists' personal space. This meant that only the tourists' 'public' behaviour (where did they go, where did they stop, how long did they stay, etc.) could be observed, but none of their 'personal' behaviour (communication, etc.). Additionally, when observed subjects were approached for surveying on leaving the centre they were informed of the previous observation of their visit and shown the documentation (see next section for detail) with an offer that they could withdraw the observation sheet of their visit. None of the observed and surveyed tourists made use of the withdrawal offer.

The survey

The survey questionnaire was divided into four sections. Section One assessed five different environmental topics in the context of travel and tourism based on questions adapted from the 2000 International Social Science Project Module on Environment (ISSP MoE) (Jarvis *et al.*, 1999). In summary these included attitudes to science and nature, limits to growth, willingness to make trade-offs for the environment, the dangers of global warming, environmental efficacy, and information sources about environmental issues. In addition, a reduced (8-item) New Environmental Paradigm (NEP) scale (Dunlap *et al.*, 2000) was administered to allow for comparison of this study's sample with Fairweather *et al.*'s (2005) sample regarding the environmental concern of the respondents. Fairweather *et al.* usefully clustered respondents according to their score on the reduced NEP scale and showed a correlation between tourists' general environmental concern and attitudes towards tourism ecolabels.

Section Two collected information on the familiarity of respondents with the GG21 ecolabel, and familiarity with 54 existing ecolabels in various countries. Furthermore, open-ended questions were asked to explore respondents' knowledge of the meaning of ecolabels and what respondents thought tourists, the tourism industry and the government should do to protect the environment.

Section Three collected data on demographics (country of residence, age, gender, education, income) and respondents' degree of commitment towards typical environmental behaviour at home (recycling and private car use). Section Four of the questionnaire collected information on typical trip characteristics (length of stay, transport mode, accommodation, information sources used for trip planning, type of travel party). Information on demographics and trip characteristics were used to characterise groups of tourists displaying similar information search behaviour (observation) or environmental attitudes (Section One). Completion of the whole questionnaire took between 15 and 30 minutes dependent, mainly, on the English language proficiency of the respondent.

As mentioned previously, a series of interviews with CVIC staff and seven tourists were conducted during the main study phase off-site (Phase 4). The tourist interview schedule followed the topics of the survey questionnaire, but focused more on the value and meaning of ecolabels. The interview of CVIC front desk staff members, in contrast, focused more around the needs and the information search behaviour of tourists. Although the same amount of resources were not dedicated to this remnant of the initially planned qualitative approach, it was seen as an important linking element in the research methodology.

Results

Throughout the 10-day pilot study (Phase 2), 161 tourists were observed and 59 surveys were conducted (refusal rate: 63%⁵). During the main study phase of the quasi-experiment (Phase 4, see Table 1) 248 visitors were observed, but 54 of them refused the additional survey resulting in 194 completed questionnaires (refusal rate of 22%). Observation and surveying was carried out within the entire CVIC (Area I+II, Figure 2) and outside the VIC in the city centre (Cathedral Square). The questionnaire data from the pilot study (Phase 2) and the main study (Phase 4) were not combined, because the instruments were not identical.

Table 2 Segmentation analysis of visitors' information search behaviour

| Phases | Information search behaviour | | Visitation pattern | Information search |
|-------------|--|--|---|---|
| | (I) Coding followed by ⇒ | (II) Data Aggregation | | |
| Description | Coding of observed info-search behaviour was necessary in order concentrate on visitors' key behaviours | Aggregation based on level of involvement in info-search | Coding of recorded visitation patterns into five distinct areas of CVIC | Types were aggregated through a combination of visitation pattern and info-search behaviour |
| When? | Codes were developed prior to observation, during piloting | Labels developed during analysis | Codes were developed after observation as first step of the data analysis | Last step of visitor observation analysis |
| Labelling | Coded 'Information Search Behaviours' | 'Information Search Behaviour Classes' | + CVIC Areas visited ⇒ | TYPE LABELS |
| Variables | <p>(1) W = Wandering around (2) L = Looking (3) R = Resting, sitting down doing nothing (4) T = Taking brochures from shelves, looking at them and putting them back (5) TB = Takes brochures from the shelves and taking them away (to counter or out of the centre) (6) E = Enquiring at VIC counter (7) P = Making a purchase</p> <p>Passive information search + Active information search = Interactive information search</p> <p>Interactive information search → Screening info-seeker Interactive information search → Active info-seeker Interactive information search → Souvenir shopper Interactive information search → Interactive info-seeker</p> <p>(3*) General Info Area (Visited all areas except counters (2 + 5)) (2*) Main counter (5*) Christchurch counter and souvenir cashier (1*) DID NOT VISIT (Brochure shelves) (4*) DID NOT VISIT (Souvenir Shop)</p> | | | |

Notes: * See Figure 6 for location of areas 1–5

Initially, it was planned to analyse the interaction of the different types of visitor with the GG21 display. However, as already anticipated from the pilot study, there was no significant observable interaction of any visitor with the GG21 display. None of the 248 tourists observed during the GG21 phase stopped to look and read the promotional material. Similarly, CVIC consultants reported no questions asked by tourists concerning the labelling of products or GG21. Similarly, the VIC staff reported that the research activity did not seem to influence tourist behaviour. VIC staff members were naturally concerned that researchers did not disturb or interrupt tourists' visitation of the centre. The only visitor group showing interest in the display were tourism professionals passing by on their way to business meetings with CCM which is housed upstairs in the same building. These individuals were, however, excluded from the survey.

The comparison of observed activities and visitation patterns yielded four different 'information search types' (Table 2), whose main characteristics are summarised below. The four types did not differ in their demographics or refusal rate with regards to the survey:

- (1) The *screening information seekers* ($N = 76$) were tourists who came to CVIC to seek general information without interacting with CVIC staff or to collect brochures after arriving in New Zealand or the South Island.
- (2) The *active information seekers* ($N = 49$) were tourists who displayed similar behaviour to the screening information seeker, but appeared more specifically interested. The most distinguishable behaviour (compared to the 'info-screener') was the collection and reading of brochures within the CVIC. The researchers interpreted this behaviour as heightened and more specific interest.
- (3) The *interactive information seekers* ($N = 74$) displayed most of the above behaviours, but additionally interacted with the CVIC staff either to seek advice or to purchase a certain product or both.
- (4) The *non-information seeking shoppers* ($N = 51$) were tourists who came to CVIC specifically to make bookings or to purchase a certain product.

Analysis of brochure counts confirmed the observation results. After the brochure counts were normalised by daily visitor numbers the results for the research phases two, three and four were compared. For each of the three possible combinations of 'pilot' study, 'baseline'-measure and 'main' study the differences in average brochure up-take for the GG21 labelled group compared with the control group was analysed. Under the assumption that 'GG21 businesses' and 'Control Group businesses' are two independent samples three non-parametric Mann-Whitney U test showed no significant difference for any of the three research phases (Mann-Whitney_{pilot}: $U = 78$, $Z = -1.271$, $p = 0.204$ /Mann-Whitney_{baseline}: $U = 106$, $Z = -0.064$, $p = 0.204$ /Mann-Whitney_{main}: $U = 95$, $Z = -0.551$, $p = 0.582$). In addition, analysis of the responses to the poster recall exercise (show card, Figure 5) showed none of the above visitor information search types could significantly better recall whether they had seen the GG21 poster (Pearson Chi-Square: $\chi^2 = 6.6$; $df = 3$; $p = 0.085$). These data indicate that despite the promotional efforts undertaken, interest in GG21 labelled products did not increase and 'Hypothesis I' is rejected.

Visitor survey results

The sample of this study was not representative of all visitors to New Zealand and to Christchurch. For example, the majority of interviewed tourists came from the UK (36% as opposed to 12% to NZ; [Tourism New Zealand (TNZ), 2003a] or 9% to Christchurch [CCM, 2003]) and most respondents were young backpacker travellers on a multi-destination trip with longer than average stays in New Zealand. Females were more likely to participate in the survey (60%) and over half of the sample were university educated (57%). It was not surprising to find that for most of the subjects of this study VICs were the second most important information source for trip planning after 'guide books' (guide books accounted for 22% of all nominations, while VICs followed closely with 18%). Beyond the scope of this study, VICs play a key role for international visitors in learning about cultural tourism products. VICs were among the top two information sources for international visitors to find out about arts/craft markets (second to 'accidental'), museums (second by one per cent point to guide books) or historic sites (most important by far) (Tourism New Zealand, 2003b).

Following the descriptive analysis of the sample a segmentation analysis was conducted. Applying the same method as Fairweather *et al.* (2005), the sample was cluster analysed (Hierarchical Cluster Analysis) based on tourists' NEP scale scores (reduced 8-item scale; Dunlap *et al.*, 2000). The analysis (using within-groups linkage and a Euclidean distance measure) yielded two distinctive groups. Nearly half of all respondents ($N = 92$) were characterised as having mildly bio-centric worldviews, whereas the second half ($N = 98$) had ambivalent attitudes towards the environment. Demographic differences between the two clusters were not statistically significant.

To confirm that the segmentation analysis is valid in the travel and tourism context, the NEP-typology was tested regarding its reliability to predict environmental attitudes towards tourism. Using either one-way ANOVA tests or MANOVA tests the responses to questions from section one were compared for both NEP types. As Fairweather *et al.*'s (2005) results already suggested the NEP cluster solution was a good predictor for environmental attitudes towards tourism. Compared with this study's ambivalent group, the bio-centric group had more positive attitudes towards the environment except for the assessment of the severity of global warming. For this issue, no such differences between the groups existed; both groups expressed high concern.

Based on these analytical steps, 'Hypothesis II' was tested. Following the above observations, which uniformly revealed that the quasi-experimental promotion of GG21 in the CVIC did not influence observable visitor behaviour at all (Hypothesis I), the rationale behind the next analytical step was to explore whether positive attitudes towards the environment would at least predict a higher likelihood to notice or memorise the GG21 brand (Hypothesis II). It was assumed that bio-centric survey respondents would remember the GG21 display significantly more often than the ambivalent visitors.

For the statistical analysis, the 'poster recall' results were used as dependent variables. Pearson Chi Square ($\chi^2 = 3.0$; $df = 1$; $p = 0.082$) test did not show statistically significant differences between the two groups for recall of the GG21 display. Similar Pearson Chi Square results were also obtained for the other six

displays and the GG21 display was neither significantly more or less remembered compared with the other six displays on the card (Figure 5). These findings led to the rejection of 'Hypothesis II' and to the conclusion that even travellers displaying 'high environmental concern' did not respond to the ecolabel promotion.

Discussion

For interrupted time series research designs discussion typically must focus on the comparability of the tourist populations during the 'baseline-measure' (Phase 3) and the main study (Phase 4) (Cook & Campbell, 1979). The research planning and design was focused on ensuring near-comparability of both populations. Three different steps were undertaken. First, the research timing (pilot study, Phase 2) was delayed to avoid the two-week Easter holiday period, which traditionally leads to an increased visitation of the centre by domestic tourists. Second, the 'baseline-measure' phase was framed by pilot study and main study phase during which demographic data from the visiting population were collected. It seems reasonable to assume that the tourist population visiting for the seven days without promotional activity was comparable to the one visiting during the main study phase, since no population differences on the measured parameters between the two phases were detected. Third the normalisation by daily visitor numbers of the number of brochures taken from the shelves eliminated external effects on brochure demand owing to changes in visitation levels. Following Cook and Campbell's (1979) recommendation, an additional no-treatment control group ('non-ecolabelled' products) was introduced to correct for possible history effects (for a definition of the history effect see, e.g. Patzer, 1996: 40 and 43–45) that could have occurred during the 30-day research period. The Easter break, mentioned above, resulting in an increase of domestic visitor volumes in CVIC is a typical example of a history effect. Hence, after the introduction of the control group the research followed a 'multiple time-series design'. The main concerns related to the disadvantages of 'quasi-experiment' in comparison with 'true', fully controlled experiments should have been addressed and the focus of the discussion shall now be placed on issues related to practical problems and the validity of the results.

Lessons learned

The preparation of the quasi-experimental research design for testing human behaviour within a commercial tourism environment proved to be a time and resource consuming process. This was attributable mainly to the organisation of the quasi-experimental promotion that had to take place under real market conditions. Complexity was added, because the promotion (brochure labelling and display) served as the independent variable for the quasi-experiment and, therefore, had to be conducted under quasi-controlled conditions as much as possible. Despite the backing of GG21 from TIANZ (Tourism Industry Association of New Zealand) and the New Zealand government (New Zealand Tourism Strategy 2010), public awareness of the GG21 ecolabel programme is still low. The design of the previously non-existing promotional material was therefore a lengthy process involving the cooperation of the research team, Lincoln Univer-

sity's graphic design team and GG21 for final approval of the produced material (regarding consistency with its corporate image).

Unlike conducting a tourist survey, this study required continuous interaction and negotiation with CCM staff at all levels, including the CEO for general consent, the VIC manager and supervisor for co-ordination of the research activities, and the VIC consultants and other VIC staff for sharing of their workspace. In particular the placement of a promotional display within a centre, where most of the floor and wall space was sold to advertisers, was a real challenge. Several days of the pilot study had to be dedicated to finding a display location that satisfied commercial constraints (visual obstruction of other advertisers and impartiality of the CVIC) while remaining prominent enough to be visible for all visitors to the centre (Figure 2). Notwithstanding these commercial constraints, they were important in adding to a realistic study design, which was paramount for this project.

Measurement error

Despite the extended pilot study and the familiarisation of the centre staff with the rigour required in conducting research, error related to the brochure counts was introduced caused by uninformed VIC staff behaviour. Measuring brochure up-take per day in the commercial environment was more complicated than anticipated and some non-quantifiable measurement error could not be corrected. The research assistants had to monitor and maintain (re-shelving, re-fill, etc.) 46 individual brochure-shelf locations, each holding on average 67 brochures, amounting to approximately 3100 brochures in total. To save time, markers were inserted in each shelf location, which required the researcher to only count the top 20–30 brochures. Consequently, probability for measurement error was increased as the inserted markers were occasionally lost or shifted.

The measurement error encountered with the counting of visitors to the centre was insignificant, because this study was not concerned with finding the true number of visitors to the centre. The counting method used was by no means accurate, but the obtained results were directly related to the real visitor flows and therefore sufficient for normalising the brochure count results.

The challenge of real life situations and external validity

As this study was concerned with conducting the quasi-experiment in a functional commercial setting, a discussion about the lack of control over external disturbances (background factors) is essential. Many authors have discussed external validity as the main dimension of experimental research (Calder *et al.*, 1982; Cook & Campbell, 1979; Patzer, 1996), placing their main focus of discussion on the generalisability of experimental research findings as a methodological issue. Lucas (2003: 236), in contrast, argues for a more theoretical discussion of the 'problem of external validity' by a closer examination of the 'interplay between theories and methods' (2003: 236). While this study had to deal with a multitude of uncontrolled background factors, the researchers follow Lucas's (2003) suggestion and assess external validity by analysing the characteristics of the two hypotheses under test from a theoretical perspective. Since this was an explorative study, the assessment is based on qualitative scrutiny of the theoretical propositions rather than on statistical analyses.

In the view of the authors, the study design created a quasi-experimental situation that reflected the conditions allowing for an application of the Theory of Planned Behaviour (TPB) (Ajzen, 1991, 2002). Prior attitudinal research undertaken in New Zealand (Barnett & Cheyne, 2003; Fairweather *et al.*, 2005) and the survey results related to environmental attitudes showed that 'behavioural beliefs' and 'attitudes towards showing interest in tourism ecolabels' of the research subjects supported the expectation of a behavioural response (interest in the ecolabel promotion). It was believed that, although little was known about tourists' normative beliefs, New Zealand's image as a tourist destination ('100% Pure NZ') would exert perceived social pressure for visitors to be interested in environmentally friendly tourism products. In addition, the nature of visitor centres suggested that the opportunity to develop interest in the promotion should be high (perceived behavioural control). In the light of the reported results it is likely that the subjects had neither an intention to search for information on ecolabelled products, nor did they impulsively engage with the promotional material or, alternatively, time (limited time for information search in VICs) and place constraints (VICs are the wrong place to disseminate ecolabel information) have prevented them from taking notice. The interpretation of the lack of visitor interest in the ecolabel promotion could have been helped with additional information on why exactly tourists visited the information centre. In addition, the questionnaire, designed after qualitative interviews proved unrealistic, lacked construct validity. The questions asked yielded useful information on respondents' environmental attitudes, but more information on behavioural, normative and control beliefs should have been collected. This could have further improved the interpretation of the results from the theoretical perspective of the TPB.

Hereafter, further theoretical considerations are performed separately for the two hypotheses:

H1: Firstly, observation of visitors' information processing behaviour revealed that tourists scanned the VIC at entry and seemed to eliminate the ecolabel promotion displays as irrelevant information (the display was not less eye-catching than other displays in the CVIC; Figure 5). These observations support Gross's (1987) findings that tourists perceive time pressure while collecting information, and, therefore, limit the amount of information that has to be processed. A potential 'information overload' (Gross, 1987) resulting from abundant information in visitor centres means that tourists prefer obvious and reliable cues that help their decision making. In this light, it seems unlikely that tourists pay attention to unwanted information on ecolabels. This poses a wider question whether tourists are able to incorporate ecolabels or environmentally friendly products into their complex and already demanding decision-making process and resulting consumption behaviour. The researchers acknowledge that the predominant information processing strategy of observed visitors seemed most accurately described by Petty and Cacioppo's (1986) peripheral processing route. Since this route relies more on cues (recognisable brand symbols) than elaborate, highly cognitive scrutiny of available information, the absence of an intention to search for new ecolabel information is not surprising. This limits the application of the TPB, which requires the cognitive involvement of the actor. The researchers assume that visits to VICs are associated with a

range of specific intentions (e.g. booking accommodation) leaving little room for extraordinary information search intentions. In summary, VICs, despite being one of the most important en-route tourist information sources may be an unsuitable location for disseminating environmental information and thereby triggering changes towards environmentally-friendly tourist behaviour.

III: Hypothesis II was primarily based on the belief that a decision to seek environmentally friendly tourism products is a predominately cognitive process. It seems, however, that affect plays a far greater role in attitude formation (Pooley & O'Conner, 2000). From the observations of this study, it is questionable whether there are any tourists with affect-based specific attitudes towards ecolabels, since only few had prior direct experience with ecolabelled products. It is more likely that some tourists have affect-based positive specific attitudes towards certain environmentally responsible tourist activities, such as bird watching, spending money for research on marine mammals, or voluntary conservation work. Should ecolabels ever turn into brands representing such activities, then recognition via the label would be possible and be more likely by bio-centric tourists. Teisl *et al.* (2001) described the development of a dolphin friendly label for the food industry (tuna). In this case, pre-label negative media attention followed by post-label positive media attention were necessary for the label to gain influence over purchase behaviour. These conditions were not fulfilled for the GG21 label in the New Zealand tourism market. Therefore, the authors conclude that a much broader promotional campaign addressing tourists' emotions and feelings would have been necessary to draw their attention to the GG21 ecolabel information.

In summary, this study contributed to achieving what Lucas (2003: 248) calls cumulative external validity. Its internal consistency and its consistency with Sharpley's (2001) predictions are convincing. The authors believe that, in particular, the study's high reproducibility has potential to identify conditions under which tourists' environmental attitudes are a reliable predictor for their behaviour according to Ajzen's widely supported Theory of Planned Behaviour (1991). Future replications of the quasi-experiment with a refined questionnaire, however, should be encouraged. The study context (ecolabelling in tourism) remains a highly relevant application of the TPB, because the conscious decision to choose an ecolabelled product over a non-labelled product requires a reasoned cognitive process and cannot bypass intention and environmental attitudes (Bamberg *et al.*, 2003).

Conclusion

The effectiveness of the GG21 promotion in the CVIC was assessed from three different perspectives providing some new insight into the relationship between environmental concern and tourist behaviour. First, the measurement of daily gross brochure uptake as an indicator of interest in the GG21 label objectively showed that visitor interest in the eco-labelled products had not been raised. Second, the observations of 248 visitors revealed that, despite having spent enough time in the centre to allow for interaction with the display, none of the visitors showed any interest in the information provided on the GG21 ecolabel. Third, the tourist survey revealed that even tourists with high levels of environ-

mental concern did not take special notice of the GG21 display or brochure labelling. Using the theoretical framework of the TPB (Ajzen, 1991), this research demonstrated that the specific attitudes towards ecolabels in general and the GG21 label measured by two prior studies (Barnett & Cheney, 2003; Fairweather *et al.*, 2005) did not lead to any behavioural response, and probably not even to the formation of an intention of searching for ecolabelled products. Taking into consideration the limitations discussed earlier, it can be concluded that the attitudes measured in Barnett and Cheney's and Fairweather *et al.*'s studies may not accurately reflect tourists' 'specific attitudes' towards the GG21 label. One major limitation of this study, and a possible explanation for tourists' ignorance of the GG21 promotion, might be the fact that visitors to New Zealand did not perceive any environmental threat related to their tourist activities in the country. This may arguably be a prerequisite for triggering any environmentally responsible behaviour (Martens, 1999; Martens & Rost, 1998).

This study has demonstrated the design constraints and care required to establish a quasi-experiment in a functional commercial environment. In particular, it proved challenging to integrate the variety of experimental measures and observations into a meaningful whole. The key challenges for this study were:

- cross-linking of observations to attitudes;
- high quality observation without violating research ethics;
- linking methodology to theory: external validity;
- assessing the representativeness of the sample location rather than the sample population;
- measurement of behaviour (daily net brochure uptake/ visitor count).

Irrespective of the rejection of both hypotheses the authors believe that the quasi-experimental approach presented in this paper proved a valuable contribution to progressing tourism research methods. Much tourism research is descriptive or cross-sectional and, at times, the reliability and validity of sample-based approaches remain untested. As tourism matures as a discipline increasing attention must be paid to these crucial matters (which are already well established in other applied social science research). In this context it should be emphasised that the presented research methodology allows for a fine-tuning of the quasi-experiment (location, promotion media, etc.) in future repetitions, which could eventually lead to the discovery of conditions supporting behaviour change.

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Notes

1. Quasi-experiments: A research design in which treatment and comparison groups are formed by some means other than random assignment (Kratwohl, 1993). If results from quasi-experiments are to be interpreted, one has to separate the effects of the treatment from those due to the initial non-comparability between the average units in each treatment group (Cook & Campbell, 1979: 6). In the 'Method and Study Design' section it will be pointed out how this study meets the requirements of a quasi-experimental research design.
2. Ecolabels do not seem to have enough source credibility and are not attractive enough for tourists to consider them in their decision making. See Petty and Cacioppo (1981) or Heesacker *et al.* (1984) for the effects of source credibility on persuasion.
3. GG21 Benchmarking Sectors: Accommodation, Activity, Administration Office, Ariel Cableway, Airline, Airport, Attraction, Bus Company, Car Hire, Community (Destination), Convention Centre, Cruise Boat, Ecotourism, Exhibition Hall, Farmstay, Golf Course, Marina, Railway, Restaurant, Tour Company, Tour Operator, Trailer Park, Vineyard, Visitor Centre.
4. The international '100% pure New Zealand' destination marketing brand has been in place for five years and has achieved international acclaim (e.g. 2004 Pacific Asia Travel Association (PATA) Grand Award for Marketing).
5. The 63% refusal rate during pilot study phase is an outcome of a mixture of two methodological approaches. Initially, subjects were asked if they were prepared to participate in an interview (a free coffee or tea in a nearby café was offered as an incentive) which resulted in many refusals. Towards the end of the 10-day pilot study phase interviews were 'shortcut' to the survey-approach and better response rates were obtained.

References

- Ajzen, I. (1991) The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50 (2), 179–211.
- Ajzen, I. (2002) Theory of planned behaviour (TPB). On WWW at <http://www-unix.oit.umass.edu/~Ajzen/index.html>. Accessed 07.01.04.
- Axelrod, L.J and Lehman, D.R. (1993) Responding to environmental concerns: What factors guide individual actions? *Journal of Environmental Psychology* 13 (2), 149–59.
- Bamberg, S. (2003) How does environmental concern influence specific environmentally related behaviour? A new answer to an old question. *Journal of Environmental Psychology* 23 (1), 21–32.
- Bamberg, S., Ajzen, I. and Schmid, P. (2003) Choice of travel mode in the theory of planned behavior: The role of past behavior, habit and reasoned action. *Basic and Applied Social Psychology* 25 (3), 175–87.
- Barr, S. (2003) Strategies for sustainability: Citizens and responsible environmental behaviour. *Area* 35 (3), 227–40.
- Barnett, S. and Cheyne, J. (2003) *Visitor Perceptions of Tourism Environmental Certification and Green Globe 21*. Wellington: Tourism Industry Association of New Zealand.
- Becken, S. and Wilson, J. (submitted) Trip planning and decision making of rental vehicle tourists – a quasi-experiment. Submitted to *Journal of Travel and Tourism Marketing*.
- Bergin, S. and Jago, L. (1999) Accreditation of adventure tourism operators: The consumer perspective. In J. Molloy and J. Davies (eds) *Delighting the Senses* (pp. 305–16). Proceedings of the Ninth Australian Tourism and Hospitality Research Conference. Adelaide: CAUTHE.

- Christchurch Canterbury Marketing (2003) *Key Tourism Statistics May 2003*. On WWW at <http://www.christchurchnz.net/index.cfm/ktsdetail>. Accessed 12.06.03.
- Cook, T.D. and Campbell, D.T. (1979) *Quasi-experimentation: Design and Analysis Issues for Field Settings*. Boston: Houghton Mifflin.
- Calder, B.J., Phillips, L.W. and Tybout, A.M. (1982) The concept of external validity. *Journal of Consumer Research* 9 (3), 239–44.
- Denzin, N.K. (1989) *The Research Act: A Theoretical Introduction to Sociological Methods* (3rd edn). Englewood Cliffs: Prentice-Hall.
- Dunlap, R.E., Van Liere, K.D., Mertig, A.G. and Jones, R.E. (2000) Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues* 56 (3), 425–42.
- Engel, J., Blackwell, R.D. and Miniard, P. (1990) *Consumer Behavior* (6th edn). Fort Worth: Dryden.
- European Environment Agency (EEA) (2002) Indicator fact sheet signals 2001 – chapter tourism. On WWW at http://themes.eea.eu.int/Sectors_and_activities/tourism/indicators/ecolabelling/to12eco_labels.pdf. Accessed 12.03.03.
- Fairweather, J.R., Maslin, C. and Simmons, D.G. (2005) Environmental values and response to ecolabels among international visitors to New Zealand. *Journal of Sustainable Tourism*, 13 (1).
- Font, X. (2001) Environmental certification in tourism and hospitality: Progress, process and prospects. *Tourism Management* 23 (3), 197–205.
- Font X. and Buckley, R.C. (eds) (2001) *Tourism Ecolabelling: Certification and Promotion of Sustainable Management*. Wallingford: CABI.
- Giner-Sorella, R. and Chaiken, S. (1997) Selective use of heuristic and systematic processing under defence motivation. *Personality and Social Psychology Bulletin* 23 (1), 84–97.
- Green Globe 21 (2003) Green Globe participants. On WWW at <http://www.greenglobe21.com/Participants.aspx>. Accessed 15.05.03.
- Grob, A. (1995) A structural model of environmental attitudes and behaviour. *Journal of Environmental Psychology* 15 (3), 209–20.
- Gross, B.L. (1987) Time scarcity: Interdisciplinary perspectives and implications for consumer behavior. *Research in Consumer Behavior* 2, 1–54.
- Hammitt, P., Freimund, W., Watson, A., Brod, R. and Mronz, C. (1995) Responsible environmental behaviour: Metaphoric transfer of minimum-impact ideology. National Outdoor Leadership School (NOLS) on-line research papers and abstracts. On WWW at <http://www.nols.edu/resources/research/pdfs/porterhammittpaper.pdf>. Accessed 29.10.03.
- Hawkins, R. (1995) The Green Globe programme: Developing a greener future for travel and tourism. *Journal of Sustainable Tourism* 3 (1) 59–60.
- Heesacker, M., Petty, R.E. and Cacioppo, J.T. (1984) Field dependence and attitude change: Source credibility can alter persuasion by affecting message relevant thinking. *Journal of Personality* 51, 653–66.
- Higham, J., Carr, C. and Gael, S. (2001) Ecotourism in New Zealand: Profiling visitors to New Zealand ecotourism operations. *Department of Tourism Research Paper 10*. Dunedin: University of Otago.
- Hyde, K. (1999) A hedonic perspective on independent vacation planning, decision-making and behavior. In A. Woodside, G. Crouch, J. Mazanec, M. Oppermann and M. Sakai (eds) *Consumer Psychology of Tourism, Hospitality and Leisure* (pp. 177–91). Wallingford: CABI.
- Jarvis, L., Park, A. and Jowell, R. (1999) *2000 ISSP Module on the Environment*. National Centre for Social Science Research, London. On WWW at <http://www.za.uni-koeln.de/data/en/issp/codebooks/issp00.pdf>. Accessed 20.03.03.
- Kahlenborn, W. and Dominé, A. (2001) The future belongs to international ecolabelling schemes. In X. Font and R.C. Buckley (eds) *Tourism Ecolabelling: Certification and Promotion of Sustainable Management* (pp. 247–58). Wallingford: CABI.
- Krathwohl, D.R. (1993) *Methods of Educational and Social Science Research* (2nd edn). New York: Longman.

- Lübbert, C. (2001) Tourism ecolabels market research in Germany. In X. Font and R.C. Buckley (eds) *Tourism Ecolabelling: Certification and Promotion of Sustainable Management* (pp. 71–85). Wallingford: CABI.
- Lucas, J.W. (2003) Theory-testing, generalization, and the problem of external validity. *Sociological Theory* 21 (3), 237–53.
- Martens, T. (1999) Kognitive und Affektive Bedingungen von Umwelthandeln. PhD thesis. On WWW at <http://www.dissertation.de/PDF/tm225.pdf>. Accessed 21.01.04.
- Martens, T. and Rost, J. (1998) Der Zusammenhang von wahrgenommener Bedrohung durch Umweltgefahren und der Ausbildung von Handlungsintentionen. *Zeitschrift für Experimentelle Psychologie* 45 (4), 345–64.
- Mihalic, T. (2001) Environmental behaviour implications for tourist destinations and ecolabels. In X. Font and R.C. Buckley (eds) *Tourism Ecolabelling. Certification and Promotion of Sustainable Management* (pp. 59–70). Wallingford: CABI.
- Millar, M.G. and Millar, K.U. (1996) The effects of direct and indirect experience on affective and cognitive responses and the attitude-behavior relationship. *Journal of Experiential Social Psychology* 32, 561–79.
- Miller, G.A. (2003) Consumerism in sustainable tourism: A survey of UK consumers. *Journal of Sustainable Tourism* 11 (1), 17–39.
- Nielson, N., Birtles, A. and Sofield, T. (1995) Ecotourism accreditation: Shouldn't the tourists have a say? In H. Richins and A. Crabtree (eds) *Ecotourism and Nature-based Tourism: Taking the Next Steps* (pp. 235–42). Brisbane: Proceedings of the Ecotourism Association of Australia National Conference.
- Nilsson, M. and Küller, R. (2000) Travel behaviour and environmental concern. *Transport Research D* 5, 211–34.
- Patzer, G.L. (1996) *Experiment-research Methodology in Marketing*. Westport: Quorum.
- Petty, R.E. and Cacioppo, J.T. (1981) (reprinted 1996) *Attitudes and Persuasion: Classic and Contemporary Approaches*. Boulder, CO: Westview.
- Petty, R.E. and Cacioppo, J.T. (1986) *Communication and Persuasion: Central and Peripheral Routes to Attitudes Change*. New York: Springer.
- Petty, R.E., Cacioppo, J.T. and Goldman, R. (1981) Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, 41, 847–55.
- Petty, R.E., Cacioppo, J.T. and Schumann, D. (1983) Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research* 10 (2), 135–46.
- Pooley, J. and O'Conner, M. (2000) Environmental education and attitudes – emotions and beliefs are what is needed. *Environment and Behavior* 32 (5), 711–23.
- Robinson, A.M. (2002) Examining advertorials: An application of the elaboration likelihood model. Unpublished MA thesis, Lincoln University.
- Sanne, C. (2002) Willing consumers – or lock-in? Policies for sustainable consumption. *Ecological Economics* 42, 273–87.
- Sharpley (2001) The consumer behaviour context of ecolabelling. In X. Font and R.C. Buckley (eds) *Tourism Ecolabelling. Certification and Promotion of Sustainable Management* (pp. 41–55). Wallingford: CABI.
- Snepenger, D. and Snepenger, M. (1993) Information search by pleasure travelers. In M.A. Kahn, M.D. Olsen and T. Var *Encyclopedia of Hospitality and Tourism* (pp. 830–35). New York: Van Nostrand Reinhold.
- Shimp, T.A. (2002) *Advertising, Promotion and Supplemental Aspects of Integrated Marketing Communications* (6th edn). Manson: South-Western College.
- Spittler, R. and Haak, U. (2001) Quality analysis of tourism ecolabels. In X. Font and R.C. Buckley (eds) *Tourism Ecolabelling: Certification and Promotion of Sustainable Management* (pp. 213–246). Wallingford: CABI.
- Stewart, S. and Vogt, C. (1999) A case-based approach to understanding vacation planning. *Leisure Science* 21, 79–95.
- Sustainable Tourism Stewardship Council (STSC) (2002) Results from the Berlin ITB (Internationale Tourismusborse) 2002 Meeting: A proposed accreditation body for sustainable tourism and ecotourism certifiers. On WWW at <http://www.rainforest-alliance.org/programs/su/stsc>. Accessed 12.03.03.

- Teisl, M.F., Roe, B. and Hicks, R.L. (2002) Can eco-labels tune a market? Evidence from dolphin-safe labelling. *Journal of Environmental Economics and Management* 43 (3), 339–59.
- Tourism New Zealand (2003a) International visitor survey. On WWW at http://www.tourisminfo.govt.nz/cir_randd/index.cfm?fuseaction=Survey&subaction=KeyNZ&item=DisplayReport. Accessed 20.06.03.
- Tourism New Zealand (2003b) *Demand for Cultural Tourism: Final Research Report*. Auckland: Colmar Brunton.
- Tourism Strategy Group (2001) *New Zealand Tourism Strategy 2010*. Wellington: Tourism New Zealand.
- Wood, M.E. and Halpenny, E.A. (2001) Ecotourism certification and evaluation: Progress and prospects. In X. Font and R.C. Buckley (eds) *Tourism Ecolabelling: Certification and Promotion of Sustainable Management* (pp. 121–40). Wallingford: CABI.
- Weaver, D.B. (2001) *The Encyclopedia of Ecotourism*. Wallingford: CABI.
- World Tourism Organisation (WTO) (2002) *Voluntary Initiatives for Sustainable Tourism*. Madrid: WTO.
- World Wildlife Fund – United Kingdom (WWF-UK) (2000) Tourism certification: An analysis of Green Globe 21 and other tourism certification programmes. A report by Synergy for WWF-UK. On WWW at <http://www.wwf-uk.org/filelibrary/pdf/tcr.pdf>. Accessed 18.10.04.
- Woodside, A.G. and King, R.I. (2001) An updated model of travel and tourism purchase-consumption systems. *Journal of Travel and Tourism Marketing* 10 (1), 3–26.