

Using tourism free-choice learning experiences to promote environmentally sustainable behaviour: the role of post-visit 'action resources'

Roy Ballantyne and Jan Packer
The University of Queensland, School of Tourism

Environmental Education Research, 17 (2), 201-215.

Abstract

This paper argues the need for the providers of ecotourism and other free-choice environmental learning experiences to promote the adoption of environmentally sustainable actions beyond their own sites, when visitors return to their home environments. Previous research indicates that although visitors often leave such experiences with a heightened awareness of conservation issues and intentions to adopt environmentally responsible behaviors, only a minority translate these intentions into real actions. Building on research and theory in relation to visitor experiences in free-choice learning environments, the paper identifies three different stages in the educational process and proposes a strategy for facilitating the translation of visitors' behavioural intentions into the adoption of sustainable actions through the provision of post-visit action resources.

Keywords: Wildlife tourism; ecotourism; learning for sustainability; free-choice learning; action resources

Introduction

Today, it is widely accepted that world-wide economic development trends are not sustainable in the long term, and that societies need to develop and adopt more sustainable practices. Increasingly, both individuals and communities are being encouraged to assess and redress behaviour associated with unsustainable environmental practices that threaten our resource base and thus the quality of human existence. For example, the recent Stern report has concluded that "climate change could cause global economic devastation greater than either of the last century's two world wars or the Great Depression" (Wilson 2006, p38).

The environmental problems facing the world today, including global warming, acid rain, air pollution, ozone depletion, water contamination and depletion, waste and deforestation, are largely the result of the behaviours of individuals and societies (Nickerson 2003). A new set of individual and societal choices and actions are thus necessary to contribute to the solution of these problems. Accordingly, one of the most important and difficult tasks that confront governments, conservation organisations, industry and business is how to successfully persuade individuals to rapidly adopt environmentally responsible practices in their work and home lives. In this regard, education has been identified by the United Nations and its agencies, national governments, and the European Union as a key element in any program addressing sustainable development issues – education is perceived as essential to "help people build personal and social capacity so that they, as learners and social actors, are enabled to grapple with [sustainability] issues and relate them to their own lives and work" (Scott and Gough 2004, p.3).

Although formal education programs are undoubtedly important, they contribute only a small part to the public's understanding of environmental issues (Falk 2001; Falk and Dierking 2002; Falk and Storcksdieck 2005a). In fact, over the course of a lifetime, the average citizen spends only 3% of their time in school or formal education experiences

(Falk and Dierking, 2002). Access to a range of information sources such as the media, internet and other “free-choice” learning experiences is required across an individual’s lifespan in order to continually refine and update their knowledge and understanding of today’s environmental challenges. “Free-choice learning” is a term used to describe the learning that occurs when the learning is largely under the choice and control of the learner (Falk, Heimlich and Foutz, 2009), for example the environmental learning experiences that are available in tourism settings. It is argued that these free-choice environmental learning experiences have the potential to make an important contribution to community capacity building in relation to environmental issues.

Attractions such as museums, science centres, zoos, aquariums, botanic gardens, and environmental centres as well as eco- and wildlife tourism experiences have the potential to inspire, educate and influence large numbers of visitors in relation to their environmental behaviour. For example, Ebersole (2001) claimed that half the US population visits zoos and aquariums each year, and in Australia, attendance at zoos and aquariums has been estimated at 36% (Australian Bureau of Statistics, 2007). More than 600 million people – approximately 10% of the world’s population – visit over 1300 zoos and aquariums throughout the world each year (<http://www.waza.org/en/site/zoos-aquariums>). Wildlife tourism is also considered one of the biggest growth industries in the world (Singleton 2001) and opportunities for visitors to access eco- and wildlife tourism experiences are rapidly increasing. These experiences are thus well-positioned to influence, encourage and support visitors’ awareness and adoption of environmentally sustainable behaviours.

The tourism industry is increasingly adopting a conservation-based ethic that recognises its dependence upon the natural environment and seeks to minimise its negative environmental consequences. Miller and Twining-Ward (2005) discussed the moral and social responsibility of the tourism industry in relation to sustainability. They suggested that, regardless of the ethical considerations, the industry needs to respond to consumer demand for sustainability.

Internationally, the demand for tourism attractions to provide sustainable products and services is increasing (Butler, 1999; Hassan, 2000; Liu, 2003; Tarrant & Cordell, 2002). More than ever before, environmentally-oriented travel consumers are making travel decisions based on an expectation of environmental integrity (Hassan, 2000; Marshall, 1996). At the core of this demand has been changing public values and attitudes about how people should relate to the natural environment (Saarine, 2006; Tarrant & Cordell, 2002). According to Ballantyne, Packer and Hughes (2009), consumer demand in relation to eco- and wildlife tourism is strongly supportive of a conservation ethic.

Not only does the tourism industry have the responsibility to minimise its own negative impacts, it also has the opportunity to play a positive role in helping to solve global environmental problems by providing environmental education experiences that promote a fundamental change in people’s everyday behaviour and lifestyle. Adopting a proactive role, in which environmental responsibility is not only embedded in tourism products and services but also actively communicated to tourists and other visitors, is considered the most sustainable, and most effective approach (Hudson and Miller, 2005).

To this end, providers of free-choice environmental learning experiences need to focus on the ways in which tourism and leisure experiences might intentionally and positively

impact on visitors' environmental behaviour. This paper addresses this issue in the following ways. It:

- considers the role of free-choice environmental learning experiences in promoting environmentally sustainable behaviour;
- discusses the potential impact of free-choice environmental learning experiences on visitors' adoption of environmentally sustainable behaviour;
- examines theoretical models of learning and behaviour change that might inform the development of free-choice environmental learning experiences; and
- advocates for pioneering research which investigates innovative ways to extend and increase the impact of free-choice environmental learning experiences on the adoption of environmentally sustainable behaviour, for example, through the provision of post-visit action resources.

Using free-choice environmental learning experiences to promote environmentally sustainable behaviour

Already many tourism sites, especially eco- and wildlife tourism sites, include a pro-conservation ethic in their mission statements, and intentionally provide opportunities for their visitors to learn about environmental sustainability issues. Indeed, the provision of a conservation education element is considered to be an integral part of an ecotourism or wildlife tourism experience, with the aim of facilitating and supporting pro-conservation attitudes, knowledge and behaviour among visitors (Broad and Weiler, 1998; Dierking, Burtnyk, Buchner and Falk, 2002; Woods, 1998; Woods and Moscardo, 2003).

Weaver (2005) identifies two types of ecotourism experience ('minimalist' and 'comprehensive') which vary according to the extent of their educational impact. The 'minimalist' type of ecotourism emphasizes superficial learning opportunities and aims only to maintain the status quo in relation to sustainability objectives. The 'comprehensive' type of ecotourism aims to foster deep understanding and transformation of visitors' behaviour and thus promote global sustainability. The minimalist approach tends to be associated with the "soft" ecotourism market, i.e., the "larger numbers of participants who make relatively short and physically comfortable visits to serviced sites as one component of a multipurpose experience that is facilitated through the formal industry" (Weaver, 2005, p.446), while the comprehensive type of ecotourism tends to be associated with "relatively long and specialized trips that are physically and mentally challenging, involve the pursuit of a deeper interaction with the natural environment, and are arranged independently or through exclusive packages" (p.447).

According to Weaver (2005), more effort is needed to devise strategies and techniques that enable transformative outcomes to be generated through mass (or soft) ecotourism experiences. He argues that effective interpretation can have a 'transformative' effect that induces among participants not only a deeper understanding of the attraction itself, but also a consequent adherence to a more ethical and environmentalist ethos. Similarly, Orams (1995, p.3) argues that ecotourism should "implement management strategies which attempt to shift the 'ecotourist experience' from simple enjoyment and satisfaction through stages of greater understanding, attitude change and finally more environmentally responsible behavior". In particular, education-based strategies should prompt visitors to adopt an active role in contributing to the health and viability of the environment.

Despite these ideals, however, research suggests that many eco- and wildlife tourism experiences are failing to deliver a strong conservation message. For example, Armstrong and Weiler (2002) observed and recorded the messages conveyed in 60 hours of commentary, delivered by 18 different tour operators in protected areas in Australia. They found that messages encouraging conservation action by individuals were noticeably absent. (This type of message was delivered only once in all 60 hours of commentary.) Messages about minimising on-site impacts, the roles and actions of protected area managers, and the significance or heritage value of the area were delivered more frequently. Similarly, Mony and Heimlich (2008) found that docents at a large Midwestern United States zoo were more likely to communicate simple animal facts without tying them to the underlying conservation messages that the zoo wished to communicate.

Many free-choice environmental learning experiences rely on their ability to connect visitors with the natural environment. These play a unique role in environmental education by providing free-choice learning experiences in contexts that accentuate pro-environmental values and elicit supportive emotional responses (Ballantyne and Packer, 2005). Further, as it is often recognised that exploration and intellectual needs are important motivators for tourism (Mitchell, 1998), participants in these experiences may be particularly open to receiving messages that have a lasting and powerful impact on their everyday lives. However, if these activities are to reach their potential in terms of encouraging individuals to change their behaviour in some way to benefit the environment, more attention needs to be given to delivering messages that focus on individual actions, and to do so in a way that is effective and long-lasting.

Research regarding the impact of free-choice learning on sustainable behaviour

A recent review article (Ballantyne, Packer, Hughes and Dierking, 2007) which examines much of the research that has been done in the area of conservation learning in zoos, aquariums, and other wildlife-based tourism sites, concludes that visitors' experiences in these settings can and do contribute to their basic knowledge, understanding and awareness of environmental issues. Further, the factors that research has identified as having an impact on conservation learning are similar to those that lead to visitors' satisfaction with their experience (Ballantyne et al., 2007). These include opportunities to observe animals and animal behaviour at close range in a natural environment, and experiences that engage visitors' emotions and connect with their prior knowledge. Strengthening these aspects of the on-site experience will thus have a positive effect on satisfaction, as well as contributing to short-term pro-environmental learning outcomes.

Research has established that free-choice environmental learning experiences can influence visitors' knowledge about animals, their beliefs and attitudes in relation to the environment, their behaviour on site, and their behavioural intentions regarding conservation (Ham and Weiler 2002; Powell and Ham, 2008). Little is known, however, about the impact of such experiences on visitors' adoption of environmentally sustainable practices *after* they leave the site. This is a major shortcoming, as environmental educators stress the need to design learning experiences that provide people with the knowledge, attitudes and, most importantly, behavioural responses required to protect and conserve the environment (Environment Australia 2000).

The few studies that have investigated the impact of free-choice learning experiences on visitors' subsequent environmental behaviour suggest that encounters with wildlife in particular have significant potential to facilitate visitors' adoption of environmentally sustainable practices (Adelman, Falk and James, 2000; Ballantyne et al., 2007). These studies support the contention that giving visitors a first-hand experience of wildlife has a strong emotional impact on them and is a powerful way of delivering a pro-conservation message (Ballantyne, Fien and Packer 2001a, 2001b, 2001c; Ballantyne and Packer 2002; Ballantyne, Packer and Sutherland, 2009).

Bogner (1998) suggests that contacts with nature provide a "foot-in-the-door" which helps to shift individuals' orientation to environmental issues, and in combination with other experiences, eventually leads to actual commitment. He contends such experiences need to be of sufficient duration in order to affect environmental concern in a long-lasting way. This argument supports our contention that the impact of contact with nature in the context of a free-choice environmental learning experience might be increased if the intervention can be extended beyond the experience itself, through the provision of post-visit reinforcing events and learning materials.

Much of the research into free-choice environmental learning experiences consists of evaluative studies exploring the immediate impact of the experience on visitor learning, rather than theory-based studies aiming to understand how and why such impacts occur and how long they endure. Research based on theoretical frameworks regarding visitor learning and behaviour change is needed in order to advance our knowledge of these processes and explore ways in which the behavioural impacts of tourism experiences can be increased and maintained over time.

Theoretical Models of Learning and Behaviour Change

Various theoretical and conceptual models have been proposed regarding the factors that influence the adoption of environmentally sustainable behaviour (Heimlich and Ardoin, 2008). These theories contribute to our understanding of the process of free-choice environmental learning and can be enlisted to inform the design of experiences that effectively impact upon visitors' adoption of environmentally sustainable behaviour. Different theories emphasise different stages of the educational process. These include (1) the learning predispositions, values, beliefs and motivations that people bring with them to the experience, (2) their emotional engagement, social interactions and meaning construction during the visit, and (3) the learning contexts and reinforcers they are exposed to after the visit. Figure 1 illustrates these stages and the factors that research might focus on at each.

INSERT FIGURE 1

Pre-Visit Learning Predispositions

Stage 1 focuses on the predispositions and beliefs that visitors bring with them to the experience. The Theory of Planned Behaviour, for example, focuses on the need to design learning experiences that address specific beliefs about a phenomenon and target the information upon which these beliefs are founded (Ajzen 1991; Ham and Krumpal 1996; Ham and Weiler 2002). Research in this area attempts to understand visitors' pre-visit characteristics or predispositions and the ways in which these impact on their

learning experiences and outcomes. Such research has typically focussed on very specific on-site behaviours such as staying on walking tracks or using the park shuttle bus (Weiler and Brown, 2009). Because of the wide range of prior experiences that visitors bring with them, free-choice environmental learning experiences need to provide messages that connect with a diverse range of pre-visit interests, knowledge, experience and beliefs (Falk and Adelman, 2003; Falk and Dierking, 2000; Moscardo, 1999).

Research in Stage 1 has also focused on the concept of visitors' motivations for learning as an important aspect of their learning predispositions (Packer and Ballantyne, 2002). In free-choice environmental learning settings, involvement in learning is a matter of choice. People not only choose *whether* they will learn, but also what, where and when they will learn (Falk and Dierking, 2000). Visitors' motivations in relation to the learning aspects of the visit can thus be expected to impact on their receptiveness to conservation messages. Packer and Ballantyne (2004) argue that learning and discovery are an integral part of the experience offered in such settings and that they are likely to enhance rather than detract from the experience (Packer, 2006).

Falk and his colleagues (2006; 2009; Falk, Heimlich and Bronnenkant, 2008) suggest that visitors to free-choice learning experiences such as museums, zoos and aquariums enact one or more 'identities' during their visit, that characterize their motivations for a particular visit on a particular day. Common identities are the 'explorers' who visit out of curiosity, or a general interest in discovering more about the subject and the 'facilitators' who visit in order to satisfy the needs and desires of someone they care about, particularly their children. These identities, and the motivations that are associated with them, are likely to influence the way people go about their visit, and in turn, impact on the long-term learning that results (Falk, 2009).

Stage 1 research findings suggest that, if educational messages about environmentally sustainable behaviours are to be effective in bringing about real change, these messages need to be carefully targeted to their audience. Tourism providers thus need to collect information about their visitors' entering attributes, including their existing knowledge and beliefs, and their motivations regarding their visit, in order to ensure that educational messages are relevant and effective. In general, visitors to wildlife tourism experiences tend to be more knowledgeable and interested in environmental issues than the general public (Ballantyne, Packer and Hughes, 2008; Falk, et al., 2007).

On-site Free-Choice Learning Experiences

Stage 2 in Figure 1 focuses on the free-choice learning experiences themselves and in particular the ways in which such experiences can be designed in order to engage and influence participants. Protection motivation theory (Rogers and Prentice-Dunn, 1997), for example, addresses the types of messages that need to be conveyed in order to bring about changes in behaviour. According to this theory, in order to impact behaviour people must be convinced both that the world is under threat as a result of human impacts on the environment, and that individual actions can make a difference in halting or reversing environmental damage. Community-Based Social Marketing Theory (McKenzie-Mohr and Smith, 1999) proposes that messages should target the real and perceived barriers that prevent people from adopting environmentally sustainable practices (e.g., lack of information, lack of time), and emphasise the benefits of performing desired behaviours (e.g., cost savings, environmental benefits).

Kolb's (1984) experiential learning theory suggests that learners need to progress through a cycle of four stages: Concrete Experience, Reflective Observation, Abstract Conceptualisation, and Active Experimentation. In simpler terms, this is a cycle of experiencing, reflecting, thinking and acting. Ballantyne, Packer and Sutherland (2009) apply this theory to explain the process through which visitors to wildlife tourism sites move from what they see and hear, through how they feel and think, to what they actually do as a consequence of their visit. They argue that wildlife tourism managers and environmental interpreters can increase the likelihood that visitors will make long-term changes to their behaviour if they (a) capitalise on the emotional affinity between visitors and the animals they are observing, (b) encourage a reflective response to the experience, and (c) provide suggestions for manageable but meaningful behavioural responses that visitors could make.

Research in Stage 2 has identified a range of characteristics of the free-choice learning experience that impact on learning outcomes (Falk and Storksdieck, 2005b). In the context of wildlife tourism, which typically evokes a strong emotional response, it is important to consider both cognitive and affective aspects of the learning experience (Ballantyne, et al., 2007; Ballantyne, Packer and Sutherland, 2009). Stage 2 research findings suggest that in order to positively impact on visitors' environmental learning, the free-choice learning experience needs to fully engage visitors and encourage them to reflect on their experience (Ballantyne, Packer and Falk, 2009). Aspects of the physical and sociocultural context (Falk and Dierking, 2000) can contribute to these processes (e.g., being able to get close to animals or have a good view of them, being able to discuss the experience with staff or companions).

Post-Visit Learning Reinforcement

Stage 3 focuses on post-visit events that reinforce and extend the new knowledge, attitudes or behavioural intentions developed during the visit. The whole experiential learning cycle, as described by Kolb (1984), cannot realistically be completed during the visit itself. It takes time for visitors to process their experience both cognitively and affectively, to develop new concepts, ideas and identities, and to actively experiment with these in their everyday lives. Ideally, visitors need to be supported and encouraged to engage in this process and to translate their good intentions into real actions. The Contextual Model of Learning (Falk and Dierking, 2000) also highlights the important influence that post-visit experiences have on free-choice learning, and Community-Based Social Marketing Theory (McKenzie-Mohr and Smith, 1999) emphasises the need for a range of on-going strategies that prompt and remind people about desired behaviours at the time the behaviour is required.

Although research in formal education contexts demonstrates the importance of the reinforcement and consolidation of learning (Anderson, Lucas, Ginns, & Dierking, 2000), post-visit reinforcement of learning is rarely provided in the context of free-choice environmental learning experiences. As Falk and Dierking (2000) argue in the context of museums, free-choice learning is more effective when the knowledge and experiences gained during the visit are reinforced by subsequent events and experiences. We would similarly argue that in the context of free-choice environmental learning experiences, the heightened awareness of conservation issues engendered by the on-site visit will quickly dissipate unless it is reinforced by subsequent learning experiences.

A number of studies have indeed found that, in the absence of reinforcing experiences after the visit, short-term changes in levels of commitment or planned environmental action do not persist over time (Adelman, Falk & James 2000; Dierking, et al., 2004; Rickinson, 2001). Research in other contexts also suggests that intentions do not automatically convert to sustained, long-term behavioural change (Hwang, Kim & Jeng, 2000; Stern and Oskamp, 1987). In reviewing a series of longitudinal studies in formal educational settings, Hungerford and Volk (1990) found that without some sort of intervening treatment, initial conservation actions declined over time.

We have found further evidence of this “drop-off” effect in our recent research at four wildlife tourism experiences in South-East Queensland, Australia. (The methods and other findings of this research are reported in detail by Ballantyne, Packer and Falk, 2009 and Ballantyne, Packer and Sutherland, 2009). Exit questionnaires (N = 907) collected information about behavioural intentions, and asked participants to rate both how they felt after their visit, and how they had felt before the visit. Three items were taken as indicators of behavioural intentions: “We need to help protect animals”; “I do my best to avoid doing things that might hurt or destroy an animal’s habitat”; and “I want to do everything I can to protect and conserve wildlife”. These three items had a scale reliability (Cronbach’s alpha) of .745, indicating an acceptable level of internal consistency. Those who indicated a high level of agreement (6 or 7 on a 7-point scale) with all three of these items were considered to have positive behavioural intentions. The follow-up survey four months later (N = 240) asked participants to describe the lasting impact of the visit. Four open-ended questions were used in this regard: (1) What are your strongest or most vivid memories of your visit? (2) Have you talked about your visit to other people, and if so, what kinds of things have you spoken about? (3) What did your visit teach you about marine life and marine life conservation? (4) In what ways (if any) have your feelings about your own role in marine life conservation changed as a result of your visit? Participants’ responses were coded using a 4-point scale where 1 = no impact; 2 = already committed; 3 = intend to act; and 4 = engaged in new behaviours as a result of the visit. Thus responses coded as 3 indicate behavioural intentions and responses coded as 4 indicate actual behaviour change. Although this was still a self-report measure of behaviour change, it was considered more objective than rating scale measures as participants were responding to open-ended questions and were not specifically prompted to comment about new behaviours.

A graphical representation of the changes – from pre-visit to exit behavioural intentions to actual behaviour four months after the visit – is presented in Figure 2. This figure illustrates (1) the positive impact of the wildlife tourism experience on the proportion of people who intended to “do the right thing” for the environment, (2) the erosion of this impact four months after the visit, where the proportion of people who intended to “do the right thing” had returned to pre-visit levels, and (3) the gap between behavioural intentions and actual behaviour. In short, although 33% of people expressed a strong desire to protect and conserve the environment immediately after the visit, only 7% had actually taken such actions four months later. Although the impact of the visit varied significantly across the four sites (ranging from 18-49% expressing behavioural intentions immediately after the visit; and from 5-9% actually taking action four months later), the pattern was the same at each site.

Ballantyne, Packer and Falk (2009) further found that new knowledge and understandings were more likely to be retained over time (39% of respondents could remember some new knowledge they had gained as a result of the wildlife tourism

experience) than new attitudes (5%) and behaviours (7%). In this regard, it is suggested that the influence of post-visit targeted learning experiences that reinforce and maintain the immediate effects of the experience, especially in relation to attitudinal and behavioural outcomes, needs to be considered.

INSERT FIGURE 2

At present, the influence of intervening, reinforcing events such as post-visit discussions with friends and family, exposure to messages from the mass media, and individual reflection, is in most cases haphazard and idiosyncratic (Falk and Dierking, 2000). We would argue that one way to increase the translation of behavioural intentions into the subsequent adoption of environmentally sustainable behaviours is to systematically provide learning materials that reinforce on-site conservation messages; provide examples of environmentally sustainable behaviours; and motivate visitors to translate their intentions into real actions. Such materials, which are referred to here as *action resources*, should build on and extend on-site conservation learning and sustainability messages and link these with post-visit behavioural responses.

Action resources might be delivered through printed materials given to visitors on exiting the on-site learning experience; through web-based learning materials that they are encouraged to access when they return home; through social media such as [Internet forums](#), [weblogs](#), [podcasts](#), [email](#), and [instant messaging](#); or through targeted mailouts. Action resources should encourage responsible decision-making with regard to the issues highlighted during the on-site visit, and provide motivation for the adoption of appropriate behavioural responses. A range of different types and levels of action response should be suggested, in order to cater for different interests and levels of commitment and provide the opportunity for choice. Action resources should be explicitly behaviour-orientated in their content – providing specific examples or models of appropriate behaviour – rather than providing additional information or just repeating on-site messages. Accordingly, such resources would allow the demonstration of a range of behaviours specifically tailored to the on-site visitor experience thereby providing examples of appropriate responses that visitors might make to fulfill their behavioural intentions.

Preliminary research using an experimental design to investigate the impact of post-visit action resources on long-term conservation learning (knowledge, attitudes and behaviour) following a wildlife tourism experience (Hughes, Packer and Ballantyne, 2010) has demonstrated a measurable, statistically significant effect of the provision of post-visit action resources on long-term behaviour change. This study concluded that wildlife tourism experiences and post-visit action resources can act in tandem, the former drawing attention to the issues and providing visitors with a reason to care, and the latter empowering visitors to take action by providing them with specific strategies and reminder prompts.

We would suggest that the role of on-site environmental learning experiences can thus be re-conceptualised as providing the motivating force that drives further information-seeking and, together with other reinforcing events, leads eventually to long-term behaviour change (see Figure 3). If, however, information and other reinforcing events are not naturally encountered or easily accessible, it is likely that the motivating effects

of the free-choice learning experience will quickly dissipate. We would therefore argue that extending the on-site experience to provide access to “take-home” information and ongoing reinforcing events, will optimise the potential impact of the experience on visitors’ adoption of environmentally sustainable behaviour in their home and work environments, and their ability to translate their behavioural intentions into actions.

INSERT FIGURE 3

Conclusion

Visitor behaviour and visitor experience research suggests that free-choice learning experiences can play an important role in addressing environmental problems by providing experiences that impact on visitors’ everyday behaviour and lifestyle choices. Although research supports the possible contribution that eco- and wildlife tourism in particular might make in this regard, it is clear that many tourism visitor experiences fail to reach this potential. Drawing on a review of research and theory in relation to free-choice learning experiences and behaviour change, this paper suggests that the provision of post-visit action resources may help to increase and extend the positive impact of such experiences on visitors’ adoption of environmentally sustainable behaviour. By adopting this positive role, tourism providers in particular can off-set some of the negative impacts that their industry is often purported to have on the environment.

This paper thus offers a new direction in the field. It argues for a proactive approach in which free-choice environmental learning experiences are used to motivate visitors to connect with post-visit learning materials once they leave the site. It thus reconceptualises the role of such experiences in offering not only enjoyment, satisfaction and immediate benefits to their visitors, but also transformative experiences that have a *long-term impact* on visitor’s understanding, attitudes, and behaviour in relation to the environment.

Further research is needed to develop an understanding of the impact of post-visit learning experiences, viz., action resources, to evaluate their potential potency and effectiveness in informing and facilitating visitors’ adoption of environmentally sustainable practices. Research could also inform the development of a range of action resources designed to reinforce and build on visitor experiences; motivate and enhance visitor awareness, concern and behavioural intentions towards the environment; translate such behavioural intentions into the adoption of everyday environmentally sustainable practices; and empower visitors to act as catalysts for change in their own communities. Research in this regard will identify the kinds of materials that elicit the most durable pro-environmental responses. It will thus support eco- and wildlife tourism enterprises in meeting their missional aims to promote visitors’ conservation awareness and environmentally sustainable behaviour. It will also inform and extend present conceptual models of free-choice learning. Such pioneering research would, it is argued, enable free-choice environmental learning experiences to play an important role in helping the global community to develop capacity in relation to the adoption of environmentally sustainable lifestyles, thus addressing one of the most pressing issues of our time.

Acknowledgements

We would like to acknowledge the many discussions we have had with Professor John Falk, Professor Lynn Dierking, Associate Professor David Anderson and Dr Karen Hughes and would like to thank Nigel Bond for his assistance with the literature review.

References

- Adelman, L.M., J.H., Falk, and S. James. 2000. Assessing the National Aquarium in Baltimore's impact on visitors' conservation knowledge, attitudes and behaviors. *Curator: The Museum Journal* 43(1): 33-62.
- Ajzen, I. 1991. The theory of planned behaviour, *Organizational behaviour and human decision processes* 50: 179-211.
- Anderson, D., Lucas, K. B., Ginns, I. S., & Dierking, L. D. 2000. Development of knowledge about electricity and magnetism during a visit to a science museum and related post-visit activities. *Science Education*, 84(5): 658 - 679.
- Armstrong, E.K., and B. Weiler. 2002. Getting the message across: an analysis of messages delivered by tour operators in protected areas. *Journal of Ecotourism* 1 (2&3): 104-121.
- Australian Bureau of Statistics 2007. Arts and culture in Australia: A statistical overview. Retrieved from:
<http://www.abs.gov.au/ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/5e1b001d91721f49ca2572a400753ae4!OpenDocument> (19 October 2007)
- Ballantyne, R., J. Fein, and J. Packer. 2001a. Programme effectiveness in facilitating intergenerational influence in environmental education: Lessons from the field. *Journal of Environmental Education* 32(4): 8-15.
- Ballantyne, R., J. Fein, and J. Packer. 2001b. School environmental education programme impacts upon student and family learning: A case study analysis. *Environmental Education Research* 7(1): 23-37.
- Ballantyne, R., J. Fien, and J. Packer. 2001c. Intergenerational influence in environmental education: a quantitative analysis, *Australian Journal of Environmental Education*, 17: 1-7.
- Ballantyne, R. and J. Packer. 2002. Nature-based excursions: school students' perceptions of learning in natural environments, *International Research in Geographical and Environmental Education* 12 (1): 1-19.
- Ballantyne, R. & Packer, J. (2005). Promoting environmentally sustainable attitudes and behaviour through free-choice learning experiences: what is the state of the game? *Environmental Education Research*, 11, 3, 21-35.
- Ballantyne, R., J. Packer, and J.H. Falk. 2009. The impact of wildlife tourism experiences on visitors' learning for sustainability. Paper presented at the Forum on Visitor Research in Natural and Cultural Heritage Attractions, 13 July 2009, University of Queensland, Brisbane, Australia.
- Ballantyne, R., J.Packer, and K. Hughes, 2008. Environmental awareness, interests and motives of Botanic Gardens visitors: Implications for interpretive practice. *Tourism Management*, 29 (3): 439-444.
- Ballantyne, R., J. Packer, and K. Hughes. 2009. Tourists' support for conservation messages and sustainable management practices in wildlife tourism experiences. *Tourism Management* 30: 658-664.
- Ballantyne, R., J. Packer, K. Hughes, and L.D. Dierking. 2007. Conservation learning in wildlife tourism settings: lessons from research in zoos and aquariums. *Environmental Education Research* 13(3): 367-383.
- Ballantyne, R., J. Packer, and L. Sutherland. 2009. *Memories of wildlife tourism: From experience to action*. Paper presented at the Forum on Visitor Research in Natural and Cultural Heritage Attractions, 13 July 2009, University of Queensland, Brisbane, Australia.
- Bogner, F.X. 1998. The influence of short-term outdoor ecology education on long-term variables of environmental protection. *The Journal of Environmental Education* 29: 4, 17-29.

- Broad, S., and B. Weiler. 1998. Captive animals and interpretation – A tale of two tiger exhibits. *The Journal of Tourism Studies*, 9(1): 14-27.
- Butler, R.W. (1999) Sustainable tourism: A state-of-the-art review, *Tourism Geographies*, 1, 1, 7-25.
- Dierking, L.D., L.M. Adelman, J. Ogden, K. Lehnhardt, L. Miller, and J.D. Mellen, 2004. Using a behaviour change model to document the impact of visits to Disney's Animal Kingdom: A study investigating intended conservation action. *Curator: The Museum Journal*, 47(3), 322-343.
- Dierking, L.D., K. Burtnyk, K.S. Büchner, and J.H. Falk. 2002. *American Zoo and Aquarium Association Multi-Institutional Research Project Literature Review*. Annapolis, MD: Institute for Learning Innovation.
- Ebersole, R.S. 2001. The new zoo. Retrieved from: <http://magazine.audubon.org/features0111/newzoo.html> (19 October 2007).
- Environment Australia 2000. *Environmental education for a sustainable future: National action plan*. Canberra: Commonwealth of Australia.
- Falk, J.H., ed. 2001. *Free-Choice Science Education: How We Learn Science Outside of School*. New York, NY: Teacher's College Press, Columbia University.
- Falk, J.H. 2006. An Identity-centered approach to understanding museum learning. *Curator: The Museum Journal* 49 (2): 151-166.
- Falk, J.H. 2009. *Identity and the museum visitor experience*. Walnut Creek, CA: Left Coast Press.
- Falk, J.H., and L.M. Adelman. 2003. Investigating the impact of prior knowledge and interest on aquarium visitor learning. *Journal of Research in Science Teaching* 40 (2): 163-176.
- Falk, J.H., and L.D. Dierking. 2000. *Learning from Museums: Visitor Experiences and the Making of Meaning*. Walnut Creek, CA: AltaMira Press.
- Falk, J.H., and L.D. Dierking 2002. *Lessons without Limit: How free-choice learning is transforming education*. Walnut Creek, CA: AltaMira Press.
- Falk, J.H., J. Heimlich, and K. Bronnenkant. 2008. Using identity-related visit motivations as a tool for understanding adult zoo and aquarium visitors' meaning-making. *Curator: The Museum Journal* 50 (1): 55-79.
- Falk, J.H., J.E. Heimlich, and S. Foutz. 2009. *Free-Choice learning and the Environment*. Lanham: AltaMira Press.
- Falk, J.H., and M. Storksdieck. 2005a. Learning science from museums. *História, Ciências, Saúde – Manguinhos*, Vol 12, pp. 117-144. Rio de Janeiro: Casa de Oswaldo Cruz.
- Falk, J.H., E.M. Reinhard, C.L. Vernon, K. Bronnenkant, N.L. Deans, and J.E. Heimlich, 2007. *Why Zoos & Aquariums Matter: Assessing the Impact of a Visit*. Association of Zoos & Aquariums. Silver Spring, MD.
- Falk, J.H., and M. Storksdieck. 2005b. Using the Contextual Model of Learning to understand visitor learning from a science center exhibition. *Science Education* 89: 744-778.
- Ham, S.H., and E.E. Krumpal. 1996. Identifying audiences and messages for nonformal environmental education – a theoretical framework for interpreters, *Journal of Interpretation* 1(1): 11-23.
- Ham, S. and B. Weiler. 2002. Interpretation as the centrepiece of sustainable wildlife tourism. In R. Harris, P. Williams, and T. Griffin (eds.) *Sustainable tourism: A global perspective*, pp. 35-44. Oxford: Butterworth Heinemann.
- Hassan. S. (2000). Determinants of Market Competitiveness in an Environmentally Sustainable Tourism Industry. *Journal of Travel Research*, 38, 239-245.

- Heimlich, J. E., and N.M. Ardoin. 2008. Understanding behaviour to understand behaviour change: a literature review. *Environmental Education Research* 14 (3): 215-237.
- Hudson, S., and G.A. Miller. 2005. The responsible marketing of tourism: the case of Canadian Mountain Holidays. *Tourism Management* 26: 133-142.
- Hughes, K., J. Packer, , & R. Ballantyne, 2010. Using post-visit action resources to support family conservation learning following a wildlife tourism experience. Unpublished manuscript. The University of Queensland.
- Hwang, Y., S, Kim, & J. Jeng, 2000. Examining the causal relationships among selected antecedents of responsible environmental behaviour. *Journal of Environmental Education*, 31(4): 19-25.
- Liu, Z. (2003) Sustainable tourism development: a critique. *Journal of Sustainable Tourism*, 11 (6). 459-475.
- McKenzie-Mohr, D., and W. Smith. 1999. *Fostering sustainable behaviour: An introduction to community-based social marketing*. Gabriola Island, BC, Canada: New Society Publishers.
- Marshall, A. (1996). Myths of ecotourism making industry miss a major market. *Hotel and Motel Management*, 211, 19, 15-16.
- Miller, G., and L. Twining-Ward. 2005. *Monitoring for a sustainable tourism transition: the challenge of developing and using indicators*. Wallingford, Oxfordshire, UK: CABI Publishing.
- Mitchell, R. 1998. Learning through play and pleasure travel: Using play literature to enhance research into touristic learning. *Current Issues in Tourism* 1 (2): 176-188.
- Mony, P.R.S. & Heimlich, J.E. (2008). Talking to visitors about conservation: Exploring message communication through docent-visitor interactions at zoos. *Visitor Studies*, 11 (2), 151-162.
- Moscardo, G. 1999. *Making visitors mindful: Principles for creating sustainable visitor experiences through effective communication*. Champaign, Illinois: Sagamore Publishing.
- Nickerson, R.S. 2003. *Psychology and environmental change*. Lawrence Erlbaum Associates, Mahwah, NJ.
- Orams, M.B. 1995. Towards a more desirable form of ecotourism. *Tourism Management*, 16 (1): 3-8.
- Packer, J. 2006. Learning for fun: The Unique Contribution of Educational Leisure Experiences. *Curator: The Museum Journal* 49 (3): 329-344.
- Packer, J. and R. Ballantyne. 2002. Motivational factors and the visitor experience: A comparison of three sites. *Curator: The Museum Journal* 45(3): 183-198.
- Packer, J. and R. Ballantyne. 2004. Is educational leisure a contradiction in terms?: Exploring the synergy of education and entertainment. *Annals of Leisure Research* 7 (1): 54-71.
- Powell, R.B. and S.H. Ham. 2008. Can ecotourism interpretation really lead to pro-conservation knowledge, attitudes and behavior? Evidence from the Galapagos Islands. *Journal of Sustainable Tourism* 16 (4): 467-489.
- Rickinson, M. (2001). Learners and learning in environmental education: A critical review of the evidence. *Environmental Education Research*, 7 (3), 207-320.
- Rogers, R.R. and S. Prentice-Dunn. 1997. Protection motivation theory. In D.S. Gochman (Ed.) *Handbook of health behaviour research, Vol I* (pp. 113-132). New York: Plenum Press.
- Saarinen, J. (2006). Traditions of sustainability in tourism studies. *Annals of Tourism Research*, 33, 4, 1121-1140.
- Scott, W. and S. Gough, eds. 2004. *Key Issues in sustainable development and learning: A critical review*. London: Routledge Falmer.

- Singleton, I. 2001. *Dolphin Mania*. Sydney: Singing Nomads Productions, Beyond Distribution Pty Ltd.
- Stern, P.C. and S. Oskamp, 1987. Managing scarce environmental resources. In D.Stokols and I.Altman (Eds.). *Handbook of Environmental Psychology*, Vol 2, pp. 1043-1088. John Wiley and Sons, New York.
- Tarrant, M.A., Cordell, H.K. (2002). Amenity Values of Public and Private Forests: Examining the Value–Attitude Relationship. *Environmental Management*, 30, 5, 692-703.
- Weaver, D.B. 2005. Comprehensive and minimalist dimensions of ecotourism. *Annals of Tourism Research*, 32 (2): 439–455.
- Weiler, B. and T. Brown, 2009. *Being proactive: Using research to design and deliver messages that achieve behavioural outcomes*. Paper presented at the Forum on Visitor Research in Natural and Cultural Heritage Attractions, 13 July 2009, University of Queensland, Brisbane, Australia.
- Wilson, N. 2006. Stern warning, but no carbon copy. *The Weekend Australian*, November 4-5, p38.
- Woods, B. 1998. Animals on display. *The Journal of Tourism Studies* 9(1): 28-39.
- Woods, B. and G. Moscardo. 2003. Enhancing wildlife education through mindfulness. *Australian Journal of Environmental Education* 19: 97-108.

Biography

Professor Roy Ballantyne is Head of School, and Dr Jan Packer is a Senior Research Fellow, at the School of Tourism, University of Queensland, in Brisbane, Australia. Their research interests are in wildlife tourism, environmental education, environmental and cultural heritage interpretation, tourist behaviour and visitor experiences. They are currently the co-editors of the journal *Visitor Studies*.

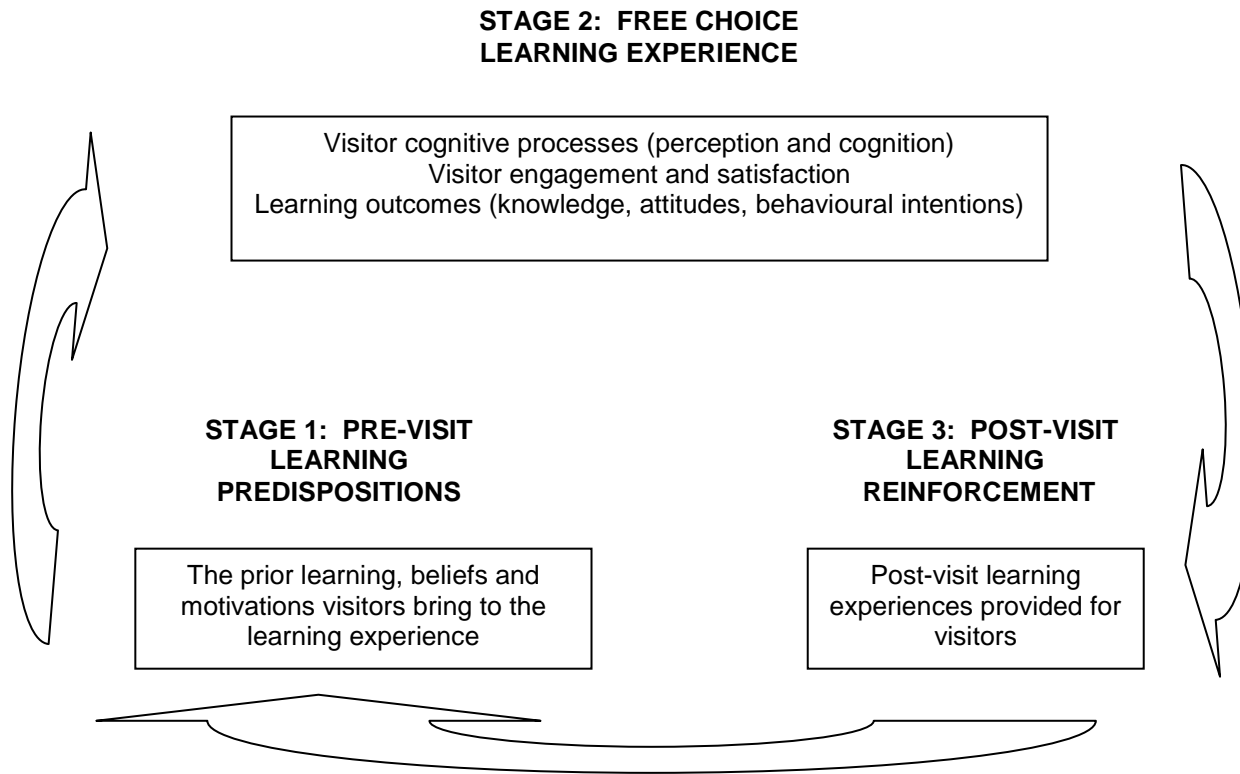


Figure 1. Research foci in the free-choice learning process

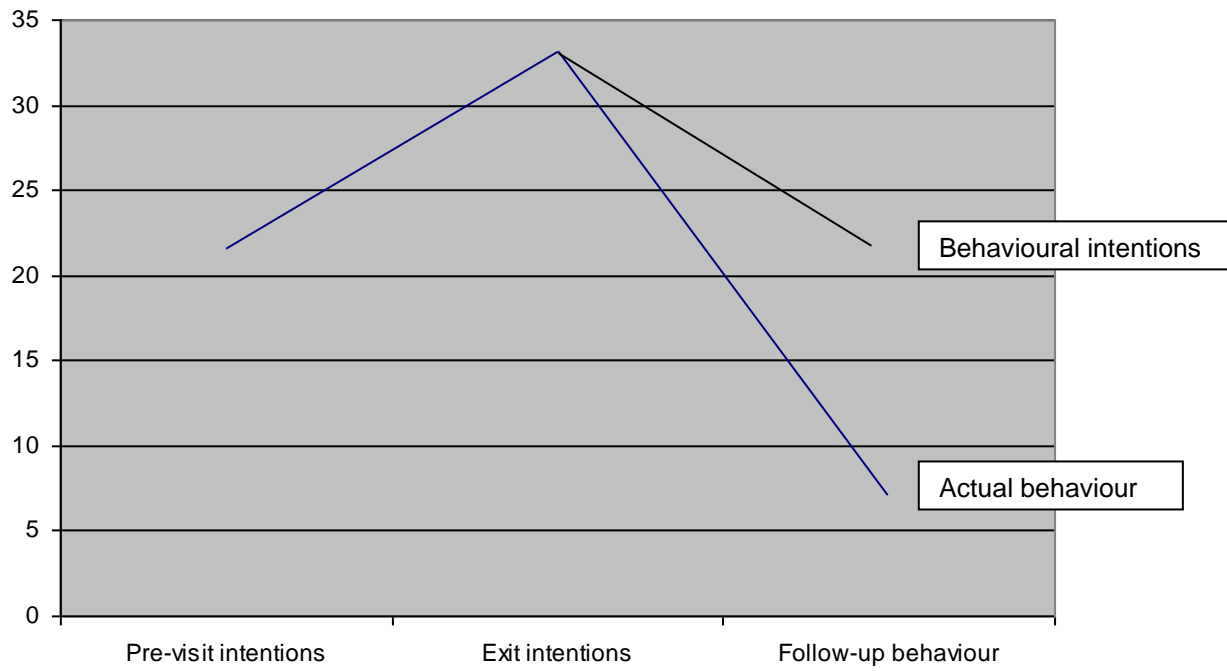


Figure 2. Estimated mean percentage of people who want to, and actually do, engage in environmental action in relation to four wildlife experiences in South-East Queensland

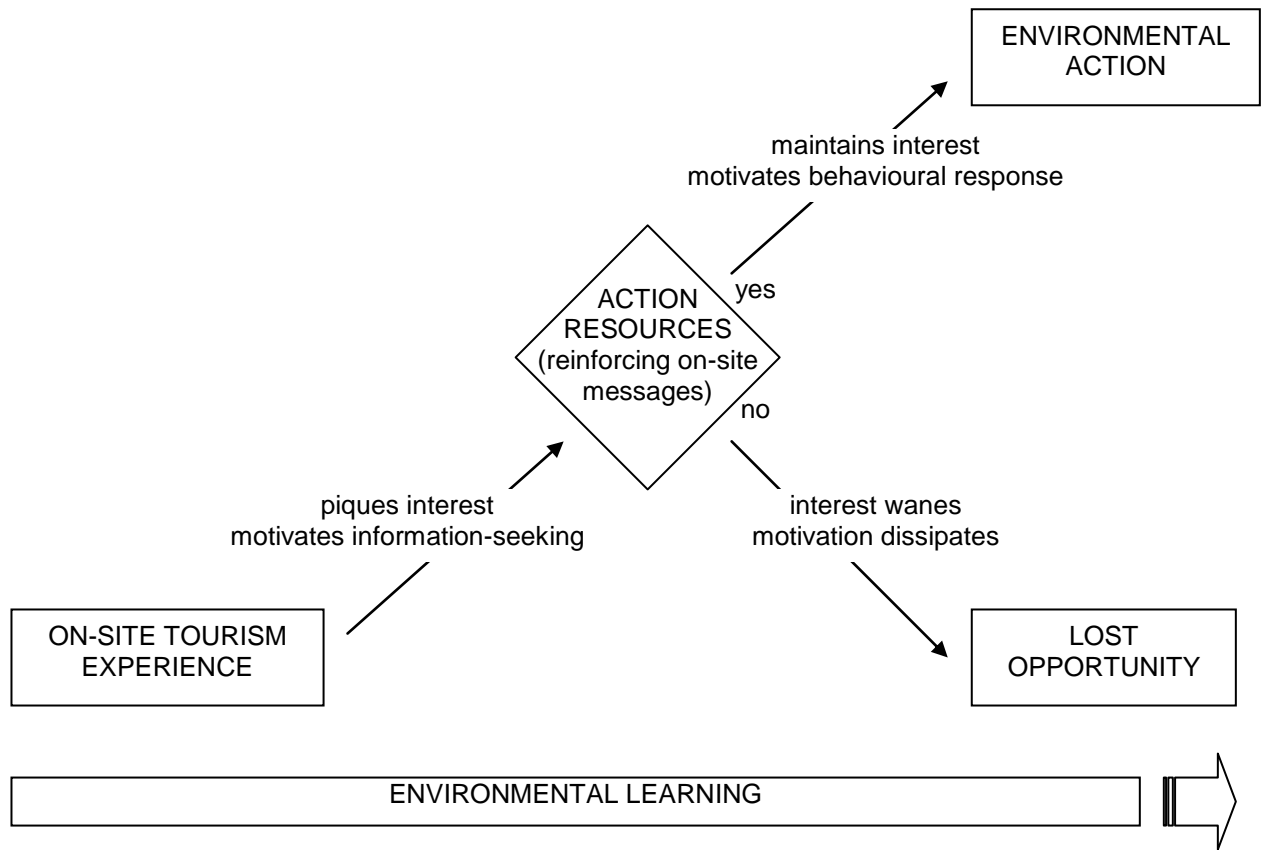


Figure 3. The role of tourism experiences and action resources in motivating environmental action