SPECTATORS' CONTRIBUTION TO THE ENVIRONMENTAL DIMENSION OF SUSTAINABLE EVENT SPORTS TOURISM

by

ELIZABETH ANN KRUGER
02537796

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Prof. E.T. Heath

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University of Pretoria

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ABSTRACT

The need to take responsibility for protection of the natural environment is a contemporary issue of growing importance and urgency across industries worldwide. Sports tourism, as the subject area where the sports and tourism industries meet, has seen an increase in both practitioner and academic initiatives to measure and manage impacts on the environment. This is especially relevant, given the fact that event sports tourism has become the highest profile product within sports tourism. Within the sport, tourism and sports tourism literature, there are several studies that discuss the role of the industry (mainly from a supply-side perspective) to manage environmental consequences. It is, however, argued that industry initiatives alone will not suffice to bring about long term change in the relationship between event sports tourism and the environment. There needs to be an understanding of the consumers of event sports tourism products and their attitudes and behaviour regarding environmentally responsible practices. This study combines knowledge from other subject areas, namely Environmental Psychology, Environmental Education and Consumer Behaviour to explore environmentally responsible consumption within the event sports tourism context. The aim of this research study is to identify the factors that could have the greatest possibility to influence sport event spectators' propensity to display environmentally responsible behavoiur. To this purpose, a proposed theoretical model was developed, depicting the most relevant and significant factors driving such behaviour among sport event spectators. The model was based on the Theory of Planned Behaviour, a well-known and tested model in behavioural studies.

Mixed method research methodology was applied, combining qualitative and quantitative techniques. Firstly, a two-round Delphi survey was conducted to collect the opinions of experts on the most relevant factors that could possibly influence the environmental behaviour of spectators. These opinions were used to verify the proposed theoretical model. Secondly, structural equation modelling was used to simultaneously test the effect of the various factors on the behavioural intentions of spectators. A spectator survey was conducted across a series of 10 different cycling events across South Africa. The final sample included a total of 1034 spectators.

Upon completion of the data analysis at measurement model level, a refined structural model was presented. The research revealed that the refined structural model displayed adequate, but not good fit with the empirical data. Three of the relationships proved to be significant, namely the relationship between Situational Intention and Future Intention; between Sport Motivation and Situational Intention; and between Situational Intention and Place Attachment. The findings have a number of managerial implications. Firstly, spectators with a positive Situational Intention are more likely to display the desired behaviour in future; making it imperative for event managers to focus on identifying such individuals, as they will be the ones supporting future initiatives toward greening the event. The findings suggest that these individuals will most likely be those individuals attending because of their affiliation with, or love for the sport. Secondly, event owners have to realise the importance of implementing an environmental management system in a visible manner, as the results suggest that, within the sport spectating context, these facilities will act as the ‘norm’ and be the main indication to spectators of what the desired behaviour is. Thirdly, environmental communication should be placed within the right message frame. Encouraging people through rewards alone may not necessarily prove to be effective, as findings suggest that such gains may not motivate a sport spectator. Furthermore, event owners could also communicate in such a way as to establish an association between the spectator’s participation in responsible activities, with greater pride in the event or setting.

The study findings are restricted by a number of limitations. Firstly, two of the main predictors of the Theory of Planned Behaviour had to be removed from the model due to measurement concerns and the model as such could therefore not be validated. At the same time, the chosen model and statistical analysis technique presented a theoretical limitation as only a small number of variables could be included in the model. As indicated in the literature, a vast range of factors have been linked to environmentally responsible behaviour, and many other variables could have been included to improve the predictive power of the main predictor variables in the model. Secondly, despite efforts to empirically refine the measurement models, problems were noted with the properties of some of the scales. Thirdly, the data collection setting proved problematic, given the fact that participants in some instances hurried through the questions or returned incomplete questionnaires, leading to missing data in the data set.

Overall, the study contributes to the growing number of tourism studies focusing on environmentally responsible behaviour of tourists by providing insights into a growing niche segment, namely event sports tourism. It also makes a contribution to sport-focused environmental sustainability literature, as only one study could be found that tested aspects of one of the models of environmental behaviour in a sport spectating context.

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GLOSSARY

Attendance Motivation: The set of needs and attitudes which predispose a person to attending a specific sports event (adapted from Kurtzman & Zauhar, 2005).

Behavioural Attitude: An overall evaluation of environmentally responsible behaviour while spectating that is based on cognitive, affective, and behavioural information (adapted from Maio & Haddock, 2010:4).

Behavioural Benefits: A combination of rewards and punishments aimed at increasing environmentally responsible behaviour (from Lee & Holden, 1999).

Behavioural Costs: Beliefs about the likely losses of scarce personal resources as a result of performing environmentally responsible behaviour while spectating (adapted from Lindenberg & Steg, 2007).

Consumer Behaviour: "… encompasses the acquisition, consumption, and disposition of goods, services, time, and ideas by decision-making units (e.g. individuals, families, organisations, etc.)" (Jacoby, 1978:87).

Corporate Environmental Responsibility (CER): The strategies and policies of companies to manage the life cycle environmental risks associated with their products and processes (Dummet, 2008:10). "Corporate practices ranging from natural resource management and use, to waste generation and disposal, recycling, the marketing of environmentally friendly products, and pollution prevention and control." (Vogel, 2005:110).

Corporate Social Responsibility (CSR): "… is part of a 'triple bottom line approach', which advocates that companies consider the social and environmental impacts of their operations and balance these off against the financial bottom line" (Dummett, 2008:10).

Environmental Consumerism: "A consumer's purchase behaviour influenced by environmental concerns to seek products and services with minimal impact on the environment." (Gupta & Ogden, 2006:199).

Environmental Education: "Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution." (Stapp, Bennett, Bryan, Fulton, MacGregor, Nowak, Swan, Wall & Havlick, 1969:34).

Environmental Impact Assessment: A study to determine the effect of proposed actions on the environment (Greening the WSSD, 2003:48).

Environmental Management System: All efforts to minimise the negative environmental impacts of an event's processes and product throughout the entire event lifecycle (adapted from Yang, Yang & Peng, 2011).

Environmental Psychology: The study of manifest behaviours and actions in everyday environments that affect related natural processes or resources at the local and global level, with special attention given to the sociocultural or collective level of the environmental psychological processes considered (Bonnes & Bonaiuto, 2002:35).

Environmentally Responsible Behaviour: "Refers to either repeated or occasional concrete behavioural choices made in everyday environments. They concern specific natural and common resources of these daily environments such as choices of use/maintenance of specific resources, including water, air, land, sources of energy … and other more or less recyclable materials … as well as of life forms present in the environment." (Bonnes & Bonaiuto, 2002:35).

Environmental Sustainability: Safeguarding the natural environment for future generations (WCED, 1987:43).

Event Sports Tourism: "Tourism where the prime purpose of the trip is to take part in sports events, either as a participant or a spectator." (Weed & Bull, 2004:131).

Future Intention: The readiness to perform behaviour in a more or less pro-environmental direction before entering the behavioural setting in future (adapted from Ajzen, 1991 and Bonnes & Bonaiuto, 2002).

Impacts: The direct, measurable outcomes of an event; usually measured in economic terms (Chalip, 2006:112). The impacts also extend to include cultural, physical, technical and psychological impacts (Ritchie, 2000; Wood, 2005:38).

Legacies: "Irrespective of the time of production and space, legacy is all planned and unplanned, positive and negative, tangible and intangible structures created for and by a sport event that remain longer than the event itself." (Preuss, 2007:211). In simple terms, legacies are the long-term benefits (or losses) to be gained (or suffered) from an event and include elements before, during and after the actual event (Chalip, 2000:3).

Leverage: Leverage is the implementation or employment of resources in such a way as to optimise and generate desired outcomes (Chalip, 2006:112).

Perceived Behavioural Control: The extent to which a person feels able to enact environmentally responsible behaviour while spectating (adapted from Francis, Eccles, Johnston, Walker, Grimshaw, Foy, Kaner, Smith & Bonetti, 2004).

Place Attachment: Any positive or negative relationship that a person has with the location of the sports event or the specific sports event, creating an emotional bond with that place or event (adapted from Kyle, Graefe, Manning & Bacon, 2003).

Responsible Tourism: "Tourism management strategy in which the tourism sector and tourists take responsibility to protect and conserve the natural environment, respect and conserve local cultures and ways of life, and contribute to stronger local economies and a better quality of life for local people." (SABS, 2011:5).

Situational Intention: The readiness to perform behaviour in a more or less pro-environmental direction within the behavioural setting (adapted from Ajzen, 1991 and Bonnes & Bonaiuto, 2002).

Sport: "Institutionalized competitive activities that involve rigorous physical exertion or the use of relatively complex physical skills by participants motivated by internal and external rewards." (Coakley, 2007:6).

Sports Event: Sports activities that attract tourists of which a large percentage are spectators (Kurtzman & Zauhar, 2003:44).

Sports Tourism: "Sports tourism is a social, economic and cultural phenomenon arising from the unique interaction of activity, people and place." (Weed & Bull, 2004:37).

Sports Tourist: "Individuals and/or groups of people who actively or passively participate in competitive recreational sport, whilst travelling to and/or staying in places outside their usual environment." (Gammon & Robinson, 2003:23).

Subjective Norms: The perceived social pressure to perform or not to perform environmentally responsible behaviour while spectating (adapted from Ajzen, 1991).

Sustainable Tourism: "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." (UNWTO, N.d.a).

Tourism Industry: "The cluster of production units in different industries that provide consumption goods and services demanded by visitors… visitor acquisition represents such a significant share of their supply that, in the absence of visitors, their production of these would cease to exist in meaningful quantity." (UNWTO, N.d.b).

Visitor: "A visitor is a traveller taking a trip to a main destination outside his/her usual environment, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited. A visitor (domestic, inbound or outbound) is classified as a tourist (or overnight visitor), if his/her trip includes an overnight stay, or as a same-day visitor (or excursionist)." (UNWTO, N.d.b).

LIST OF ABBREVIATIONS

Abbreviation	Meaning
ATT	Behavioural Attitude
BNFT	Behavioural Benefits
CER	Corporate Environmental Responsibility
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CSR	Corporate Social Responsibility
CST	Behavioural Costs
DEA	Department of Environmental Affairs
DMO	Destination Marketing and Management Organisation
EFA	Exploratory Factor Analysis
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ERB	Environmentally Responsible Behaviour
FA	Factor Analysis
FIFA	Fédération Internationale de Football Association
FTI	Future Intention
GPST	Global Partnership for Sustainable Tourism
GSA	Global Sports Alliance
GSTC	Global Sustainable Tourism Council
IOC	International Olympic Committee
KMO	Keiser-Meyer-Olkin
LOC	Local Organising Commmittee
ML	Maximum Likelihood
MOTV	Attendance Motivation
MR	Multiple Regression
NAM	Norm-Activation-Model
NEP	New Environmental Paradigm
PBC	Perceived Behavioural Control
PEA	Place Attachment
RML	Robust Maximum Likelihood
RMSEA	Root Mean Square Error of Approximation
RT	Responsible Tourism
SABS	South African Bureau of Standards
SEM	Structural Equation Modelling
SJN	Subjective Norms
SRMR	Standardised Root Mean Residual Square
STI	Situational Intention
TBL	Triple Bottom Line
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNWTO	United Nations World Tourism Organisation
VBN	Values-Beliefs-Norms theory of environmentalism
WEF	World Economic Forum
WTTC	World Travel and Tourism Council

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

The need to take responsibility for protection of the natural environment is a contemporary issue of growing importance and urgency across industries worldwide. Tourism has duly been recognised as an agent of change that can have a significant effect on the environment and being 'green' appears to have become a mission of a substantial part of the industry (Holden, 2009:xix). The sports industry has similarly taken responsibility for its impact on the environment and a number of sustainability initiatives across the industry give evidence to this (Mallen, Stevens & Adams, 2011:240; Schmidt, 2006). Sports tourism, as the subject area where these two industries meet, has seen an increase in both practitioner and academic initiatives to measure and manage impacts on the environment (Hinch & Higham, 2011). A growing awareness of the threat posed by both tourism and sport as leisure activities has also manifested along with intensifying conscience within leisure studies (Mansfield & Wheaton, 2011).

The term sport tourism has been defined in many ways, with a fair share of debates surrounding the use of terminology (Hinch & Higham, 2011; Shipway, 2007b; Weed, 2009). The definitions of Hinch and Higham (2001), Gibson (1998), Standeven and De Knop (1999), as well as Gammon and Robinson (2003), focus on sport as a type of tourist attraction. Weed and Bull (2004)'s definition of sport tourism changes the focus from it being a large market niche based on the attraction (sport), to viewing it as a collection of separate niches (discussed in Hinch & Higham, 2005). They define sports tourism as "a social, economic and cultural phenomena arising from the unique integration of activity, people and place" (Weed & Bull, 2004:37). For the purpose of this study, the word sports tourism (as opposed to sport tourism, sports-tourism and sport-related tourism) is used. Weed (2009) states that sports tourism is related to both sport and tourism, yet it is more than the sum of its parts; with the interaction between the two as the unique element. The focus should be on sports tourism as a concept, instead of sport (the wider social institution) as the reason for tourism. In this definition 'sports' refers to a collection of heterogeneous activities (Weed, 2005) and a deliberate break is made from conceptualising sport tourism within the parameters of sport and tourism separately (Hinch & Higham, 2011).

Due to the continued growth in the number and extent of sports events globally, event sports tourism has become the highest profile product within sports tourism (Weed, 2009:621). Several studies explore the research themes of event sports tourism impacts on the environment in a wider context beyond the physical environment alone. Within these studies, strong focus has been on the economic dimension, often to the detriment of the socio-cultural and (physical) environmental dimensions (Collins, Jones & Munday, 2009; Weed, 2009). An increased focus on the natural environment is especially relevant, considering that these events attract large numbers of visitors (both as spectators and participants) and have both direct and indirect impacts on the natural environment of host destinations. Because of the vast number of sports events held globally, the ecological footprint of sport is immense, but often goes unnoticed (Collins *et al.*, 2009; Thibault, 2009:11). Nature-based operators, such as those involved in outdoor sports events (within the context of event sports tourism), have a particular responsibility towards the protection of the natural environment by responsibly managing ecologically sensitive land and habitats, as well as conserving biodiversity (Greening the WSSD, 2003:19). Despite the fact that event sports tourism has this recognised impact on the natural environment, coupled to the fact that it is a rapidly growing sector of tourism, it has not received much research attention from the perspective of sustainable tourism. In a review of sustainable tourism research, Lu and Nepal (2009:10) found nature-based, culture/heritage, urban, eco and alternative tourism to be the most researched types of tourism covered by a major sustainable tourism journal. The question then arises whether sports tourism could in fact be regarded as a sustainable form of tourism, not only in terms of the broader concept of sustainability, but especially in terms of the natural environment.

Within the sport, tourism and sports tourism literature, there are several studies that discuss the role of the industry (mainly from a supply-side perspective) to manage environmental consequences. It can, however, be argued that industry initiatives alone will not suffice to bring about long-term change in the relationship between event sports tourism and the environment. There needs to be an understanding of the consumers of event sports tourism products and their attitudes and behaviour regarding environmentally responsible practices. The attitudes and behaviour of these individuals will contribute to the success and effective execution of environmental management initiatives. In a study conducted by Dolnicar, Crouch and Long (2008) on *environment-friendly tourists*, it was found that the majority of studies aimed at the ecological sustainability of destinations address the supply-side of tourism and that demand-driven approaches may represent a valuable extension of the sustainable tourism management toolbox, which is currently dominated by supply-side measures.

Knowledge from the fields of tourism and sport, as well as the cross-cutting fields of sports tourism and event tourism, has to be explored in order to develop effective strategies to mitigate the negative environmental impacts associated with event sports tourism, along with the support of the consumers (event sports tourists). Furthermore, sports tourism is regarded as a "social, economic and cultural phenomenon arising from the unique interaction of activity, people and place" (Weed & Bull, 2004:37). This implies that one has to look beyond sport and tourism, and that it will be important to consider knowledge from other disciplines outside of sport and tourism to understand the phenomenon (Hinch & Higham, 2011; Weed, 2009). This study aims to draw selectively from various disciplines and subject areas to identify the factors that could facilitate and regulate environmentally responsible behaviour (ERB) of sport event spectators as consumers within the event sports tourism sector.

There has been significant growth in the knowledge of the relationship between industries and the natural environment (Cohen, 2007). The same is true for the tourism industry, as is reflected in the fact that environmentally sustainable tourism is at the top of the global tourism agenda. This growing awareness of the need to implement environmentally responsible practices has seen an increase in the efforts of both practitioners and academics from across the broad spectrum of tourism sectors to address the issue (Dickson & Arcodia, 2010a). Though much of the work focuses on a supply-side perspective and on practices to manage the environmental impacts of tourism (Dolnicar *et al.*, 2008), a large number of studies also aim to understand the ERB of tourists. Middleton and Hawkins (1998) state that improving sustainable practice at the destination chosen by visitors (in other words, the touch point where visitors engage in a certain manner), can in the long run be regarded as the most important dimension for improving sustainability (above the second dimension that focuses on the actions of tourism businesses regarding their development and operational decisions). In the same vein, Sheth, Sethia and Srinivas (2011) contend that any corporate sustainability initiatives can be more effective when built upon sustainability outcomes that are focused on the customer. Throughout the tourism literature there is a strong influence from psychology (Pearce, 2011a) to explain tourist motivation and behaviour. Furthermore, a substantial amount of literature explores tourist behaviour related to environmental responsibility, and the behaviour of tourists has been duly recognised as a major factor in sustainable tourism, being the second most prevalent perspective taken in related studies (Lu & Nepal, 2009).

Within the sports industry there is recognition among practitioners (event owners, organisers, suppliers and the public sector) of the importance of environmental sustainability, resulting in an increasing range of initiatives being undertaken to act in an environmentally responsible manner (Ahmed, Moodley & Sookrajh, 2008; Collins *et al*., 2009; Huggins, 2003; Mallen *et al*., 2011; Rydin, Seymour & Lorimer, 2011). However, there appears to be a lack of robust and comprehensive environmental sustainability research within sport-related literature, and the academic field can still be regarded as being “in its infancy” (Mallen *et al*., 2011:253). Rydin *et al.* (2011) also state that the economic and social dimensions of the sport sector have received more attention than the environmental impacts.

The majority of the existing research appears to focus on a supply-side (industry effort focused) perspective. Out of only 17 articles found within 21 sport-related journals that directly address environmental sustainability (Mallen *et al*., 2011), a mere three refer to sports participants’ perspectives. Overall, the articles present a managerial (sports industry) perspective on the ‘how’ and ‘why’ of environmentally sustainable practices. The 17 articles revealed a focus on aspects of environmental management performance, including definitions, policy, organisational systems, programmes and philosophy, but none addressed the sub-theme of ‘participant education’, which could imply addressing participant perspectives. This is also true for their subsequent exploration of sport-related environmental sustainability research in journals outside sport-related journals, including business studies, environmental health and urban studies. They identified that management literature provides valuable discussions on management theory, programmes, systems, stakeholder relationships and policies that can greatly contribute to environmental sustainability research and actions in the sports industry (Mallen *et al.*, 2011). Though many of the themes could indirectly be related to management of participants and their environmental behaviour, none of the articles provide management with a deeper understanding or explanation of their behaviour. In a similar vein, Harris, Jago, Allen and Huyskens's (2001) also indicated that event managers (including sports events) require more knowledge on consumer needs and motivations.

Similar to tourism studies, sport-related literature also presents an abundance of literature on sports participants' motivations and behaviour with the aim of understanding the behaviour. Within the cross-field of sports tourism, behaviour of sports tourists participating in outdoor and adventurous activities is the second most researched area in sports tourism, after event impact studies (Weed, 2006 in Weed, 2009). A substantial amount of literature explores aspects such as the sports tourist experiences, motivations for participation, sport identities and levels of involvement in sport. However, these studies tend to focus on describing behaviour, as opposed to providing an explanation of the processes leading to the behaviour (Weed, 2009). Furthermore, there appears to be very little work on ERB of sport event spectators as sports tourists (Ngyen, Iacono & Stratmann, 2011). For example, a meta-review of sports tourism research by Weed (2009) identifies a number of behavioural studies, but none of the mentioned studies have a specific focus on environmental attitudes or behaviour.

1.2 PROBLEM STATEMENT

Limited knowledge exists on the nature and extent of environmentally responsible practices from a demand-side perspective of sports tourism, even though a number of studies emphasise the importance of understanding the levels of environmental awareness among users of the natural resource base (Ahmed *et al.*, 2008:78). The United Nations Environmental Programme (UNEP) identifies sport as the ideal platform to communicate environmental messaging and to encourage responsible behaviour, because of the dependency between sport and the environment in which it takes place (UNEP, 2007). It can however be argued that this platform cannot optimally be utilised towards this purpose if there is not sufficient knowledge on the levels of awareness and perception, but importantly also on the factors that drive responsible behaviour of the consumers of sports tourism products.

Across the study disciplines under investigation, environmental sustainability literature mainly centres around a supply-side (industry driven) perspective; with only tourism literature presenting a greater number of environmental sustainability knowledge from a demand-side (consumer driven) perspective. It is not clear how much of this knowledge can be applied to sport event spectators as (sports) tourists, since there is limited knowledge that can be gained from sports tourism literature, sport-related literature as well as general management literature (Mallen *et al.*, 2011:251-253) to inform academics and practitioners regarding the factors driving ERB of sports participants in particular (Ngyen, *et al.,* 2011:185). For example, a study by Laing and Frost (2010) on festival event tourists' preference for green events indicated that these individuals would pay more to attend greener events and would consider a festival's environmental policy before deciding to buy a ticket in future. They state however that further research is needed to examine whether these findings are representative of a wider trend towards seeking out green events.
Even though the literature from all the fields contains links to different fields of psychology to investigate the motivations and behaviour of tourist and sports participants as consumers (demand-side perspective), the contribution to understanding environmentally responsible consumption is limited in the context of sports tourism. It may be beneficial to identify subject areas within psychology and environmental studies that can specifically inform this perspective. One such subject area, known as Environmental Psychology, may provide valuable insights, as it deals specifically with the origins of motivation and behaviour directly related to environmental responsibility (Bonnes & Bonaiuto, 2002). Another subject area is that of Environmental Education, where the focus is on creating a society of environmentally conscious individuals that are capable of contributing to solutions to environmental problems (Stapp, 1997). Furthermore, a subject area within management that has a long history of studies investigating the phenomenon of 'responsible' or 'green' consumption of goods and services is Consumer Behaviour (Gupta & Ogden, 2006). Such a link to related disciplines appears to be lacking within all three study areas under investigation (sport, tourism and sports tourism). This presents a gap in

knowledge within the field of event sports tourism, which is the focus of this study. As stated by Dolnicar *et al.* (2008:205), "It is unfortunate that such insights from related disciplines have only rarely been integrated with the study of EFTs, given that research into environmentally sustainable tourism behaviour is just a special case of environmental behaviour in general." At the same time it is stated that, to add to the field of sports consumption behaviour, it is important to explore topics and constructs that are specific to sports and not merely to apply wider consumer behaviour theory (King, Kahle & Close, 2011) – highlighting the need for meaningful integration of relevant theory from the various subject areas.

A knowledge-gap is thus identified within the demand-side driven research pertaining to the environment in sport, but also a lack of deeper understanding of the underlying factors of ERB in sports tourists. Apart from these gaps, it is furthermore not guaranteed that sport event spectators as tourists are in fact environmentally responsible individuals to start off with. It is stated that individuals are "highly stable with respect to their environmental behavior" (Dolnicar & Grün, 2009:704). If an individual is not environmentally responsible at home, he or she is not likely to display ERB away from home. Furthermore, individuals tend to display unfavourable behaviour within a holiday context, even if they are environmentally responsible individuals (Dolnicar & Grün, 2009:707). The question can therefore be asked whether different types of outdoor sport events attract distinct groups of individuals that display varied levels of ERB. It is not clear whether there are indeed distinctly different market segments within the outdoor sports event market that can be targeted as spectators who could make a substantial contribution to the overall environmental sustainability of such an event.

1.3 PURPOSE STATEMENT

This research study aims to fill the gap in knowledge on ERB of consumers within the context of event sports tourism. The purpose is to identify the factors that could have the greatest possibility to influence sport event spectators' propensity to display ERB. In an effort to obtain extensive insight into the concept and to develop exhaustive lists of factors, selective knowledge from different disciplines and subject areas will be utilised. This will be done by combining related knowledge from the fields of tourism (tourist behaviour), sport (spectator motivation and behaviour), as well as parent disciplines (psychology) and other relevant subject areas (Environmental Education and Consumer Behaviour).

Even though the gap that has been identified centres around a demand-side perspective, it is important to also explore industry initiatives that can possibly contribute to (influence) the ERB of event sports tourists. Despite the fact that people are more likely to display ERB if they are 'environmentally friendly' individuals than when they are merely being educated and motivated to display such behaviour at the destination (Dolnicar & Grün, 2009), it would still be important to understand the strategies that the industry are employing to use tourists (consumers) as partners toward sustainability.

1.4 RESEARCH OBJECTIVES

The main aim of this study is to develop a model depicting the most relevant and significant factors driving ERB among sport event spectators. Such a model could assist sport event organisers in identifying elements within their environmental management systems (EMSs) that require modification or greater consideration toward more effective management of an event's ecological footprint. The model could also serve as a tool through which to assess the levels of environmental responsibility of diverse sport tourist segments, thereby aiding destination and event marketers and managers in more accurate target market selection and marketing/communication strategies toward environmental sustainability of the destination.

In order to fulfil the overall purpose of the study, the researcher aims to achieve the following research objectives:

1. to explore environmentally sustainable practices within the event sports tourism industry;
2. to identify factors underlying ERB of individuals;
3. to identify the components of tourist behaviour that relate to environmental responsibility;

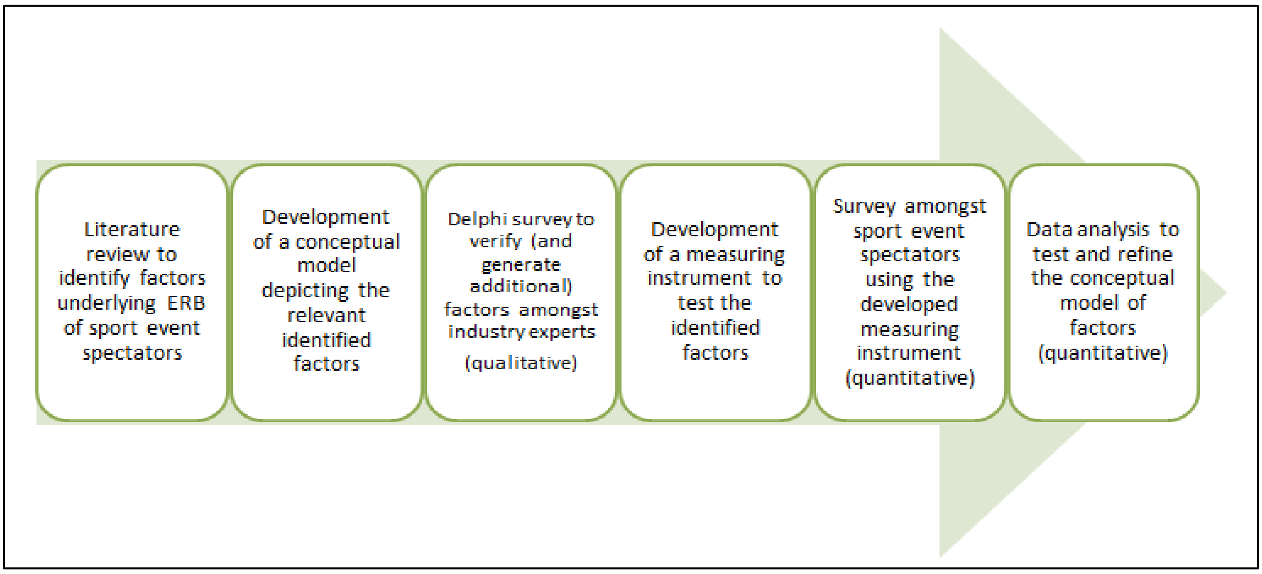
4. to identify the components of sport spectator behaviour that relate to environmental responsibility;
5. to explore expert opinions on the factors that could influence sport event spectators' ERB;
6. to develop a conceptual model depicting the factors that could influence ERB amongst sport event spectators;
7. to design a measuring instrument to test the factors underlying ERB of sport event spectators; and
8. to test the relevance of the model amongst sport event spectators at a series of outdoor cycling events.

To achieve these objectives, an appropriate strategy of enquiry has to be developed. The research process and chosen methodology will now be explained.

1.5 RESEARCH APPROACH AND METHODOLOGY

Various steps are followed to reach the objectives of the study. Figure 1 provides a graphical depiction of the different stages. The process starts off with an exploration of the literature to meet objectives 1 to 4. A first empirical phase takes on a qualitative approach (objective 5) that, together with the literature review, leads to a conceptual model (objective 6). The completed objectives guide the design of the measuring instrument (objective 7). The second empirical phase (objective 8) then produces data that is analysed and interpreted in order to refine the model (objective 9).

Figure 1: Research process followed in this study



1.5.1 <u>Empirical research design</u>

Based on the literature reviewed, it is apparent that an extensive range of factors underlie and influence the environmental behaviour of individuals. There are also a number of validated research instruments that already measure certain constructs within responsible environmental behaviour. Furthermore, the focus of the research necessitates the researcher to include knowledge from various disciplines. The opinions of experts in the various fields were therefore used to verify factors identified in the literature and to generate any additional factors that are most applicable within the study context. The Delphi technique was used to choose the most relevant factors for inclusion in the theoretical model. This technique is one of the most well established means of collecting the opinions of experts (Saunders, Lewis & Thornhill, 2007) and has been used by researchers with a similar research theme (Mallen *et al.,* 2011; Miller, 2001). It enables the researcher to involve potential participants that are geographically dispersed (national and international) (Garrod & Fyall, 2005). The experts were contacted via e-mail and a two-round iteration was completed through two different response sheets.

Moving from the first inductive phase, the second phase followed a strong deductive approach where quantitative data was collected, controls were implemented to ensure the validity of data, and an appropriately sized sample was selected to generalise conclusions

(Saunders *et al.,* 2007). The quantitative component served to answer questions about relationships among the factors, with the purpose of explanation and prediction that can be generalised to the population (Leedy & Ormrod, 2005). The sport of cycling was focused on, with specific reference to the spectators at selected outdoor cycling events. Cycling has become synonymous with environmental responsibility, healthy living and carbon free transport (Aldred, 2010; Cupples & Ridley, 2008). Cycling has also experienced a revival as leisure, recreation and tourism activity, with bicycle tourism being named as an environmentally sustainable niche market (Lamont, 2009). It is claimed that cycling is one of the fastest growing sports in South Africa (Cycling South Africa, 2012). The sport has a visible place on South Africa's national events calendar and is considered as important for inclusion in the national Sports Tourism Strategy (Pillay, 2012). Cycling races also attract large crowds and often cover areas of natural beauty, with spectators spread along the route of the race. Spectators have a big environmental impact, travelling to the event and spending time in the event's surrounding natural environment.

Research indicates that studies on behaviour should ideally be conducted within the behavioural setting in order to obtain accurate representations of the behaviour (Belk, 1975). A cross-sectional survey was therefore conducted by means of a self-completion questionnaire consisting of standardised and adapted measurement instruments mostly derived from the literature. This data collection method eliminated a time-distance gap between the actual behaviour and reporting on the behaviour.

1.5.2 <u>Sampling</u>

For the qualitative research component of the study non-random selection of data sources, or purposive sampling, was used to select individuals with the potential to yield the most information about the topic (Leedy & Ormrod, 2005). Heterogeneous or maximum variation sampling was used to include different (heterogeneous) individuals in the sample, based on a developed set of selection criteria (Saunder *et al*., 2007). The sample included academics and practitioners / consultants from four broad groups (fields of specialisation): (i) sports management / leisure; (ii) tourism / event tourism / sports tourism; (iii) sustainable / responsible tourism; and (iv) environmental psychology / environmental studies / sustainability studies. A total of 77 participants were initially identified, including both international and local experts. The first round included a total of 18 participants (12 academics and 6 practitioners), while the second round includes 13 participants (8 academics and 5 practitioners).

For the quantitative component, a total of ten cycling events that feature prominently on the national cycling calendar were selected. These are all established events that take place in various locations spread across South Africa and include both road and mountain bike races. As no researched estimates are available on the number of spectators at cycling events and unofficial estimates most likely present inaccurate estimations (Davies, Ramchandani & Coleman, 2010), the researcher employed convenience sampling as a non-random selection technique. In order to address the quality issues associated with this technique, a form of heterogeneous or maximum variation sampling was used to include different (heterogeneous) individuals (spectators) into the sample (after Saunders *et al.*, 2007). The final number of usable questionnaires added up to 1034. The suitability of this sample size is based on statistical probability and in this study the focus is on attaining a large enough sample to allow inferential statistics for hypothesis testing (Keyton, 2011). This large sample size is regarded as a countermeasure for the lack of representation inherent to convenience sampling (Saunders *et al.*, 2007).

1.5.3 <u>Data analysis and results</u>

Data in qualitative research can range from a single word to a lengthy essay, and in this study micro-level evidence (answers to specific questions) is collected (Keyton, 2011). Content analysis is used to measure the occurrence of identifiable elements within the text of the completed response sheets. Content categories are mostly based on the literature and aimed at covering all the possible occurrences without placing responses (units) into more than one category (Keyton, 2011).

Where qualitative data analysis focuses on giving meaning to the text, the quantitative data analysis aims to make inferences that could be generalised to the population (Leedy & Ormrod, 2005). Responses on the paper-based questionnaires were captured manually after each event, after which the data were prepared for analysis in the SPSS (version 21) statistical software programme. Descriptive statistics were initially used to describe the data in terms of central tendency and variability. Thereafter, structural equation modelling was used to test the conceptual model.

1.6 ACADEMIC CONTRIBUTION OF THE STUDY

The study could contribute to the growing number of tourism studies focusing on ERB of tourists, by providing insights into a growing niche segment, namely event sports tourism. Through the development of a model, the study aims to make a theoretical contribution to the current limited understanding of tourists' environmental behaviour beyond mere observation of behaviour. This is done through linking existing knowledge of tourist behaviour with other subject areas, including Environmental Psychology, Environmental Education and Consumer Behaviour – an endeavour that can be regarded as addressing a gap in the sustainable tourism research agenda (Dolnicar *et al.*, 2008). This contribution is in line with the research need expressed by several experts in sports tourism that call for broader theorisation through the application of theory from related subject areas and/or parent disciplines (Gibson, 2004; Hinch & Higham, 2011; Weed, 2009).

A contribution may also be made to sport-focused environmental sustainability research that can, in totality (including supply and demand side perspectives), still be regarded as being "in its infancy" (Mallen *et al.*, 2011:253).

Inversely, a theoretical contribution may be made to the related disciplines identified (Environmental Psychology, Environmental Education and Consumer Behaviour) as limited work exists within these fields that directly focus on either tourism or sport. As stated by Günther (2009), researchers of environmental behaviour are first trained in their major disciplines (in this case tourism), and then brings to Environmental Behaviour Studies (EBS) the particular perspectives from their discipline.

The study may also make a contribution to sports tourism as a maturing field (Weed, 2009). Gibson (2004) indicates that sport tourism studies need to move away from explaining the "what and who" to explaining "why". Dimeo (2008, discussed in Weed, 2009:625) states that sports tourism lacks "critical edge" because it focuses too much on management perspectives and pleasing user organisations. He states that the field of sports tourism will benefit from studies that take a critical outlook on sports tourism as a "good thing that could be made better through efficient management". Depending on the outcomes of the study, namely the environmentally responsible nature inherent to sport event spectators, it may contribute to the critical debate whether "sport tourism should be extensively regulated, or even banned, for moral ecological and social reasons".

1.7 INDUSTRY RELEVANCE OF THE STUDY

Apart from a theoretical contribution, the aim of research should also be to make a contribution to the industry or practitioners involved. In terms of the sports tourism industry, the key issue for future development is the way it is managed "… to mitigate or plan for potential negative aspects …" (Weed, 2009:623). In similar vein, Mallen *et al.* (2011) indicates that any proposed research in this field should promote competencies for managing challenges in environmental sustainability along with innovative solutions. Not only can positive environmental impacts be leveraged, but potential negative consequences of sports tourism development should be mitigated through effective management (Swart, 2012; Weed, 2009).

This study could serve as a reference tool to identify strategies and develop tactics that can be implemented before and during a sports event to enhance the environmental sustainability initiatives. Through a greater understanding of factors that positively influence sport event spectators' environmental responsibility, the industry could proactively manage environmental impacts (Mallen *et al*., 2011). Such an approach could contribute to responsible environmental practices within the event sports tourism industry and, in due course, a more environmentally responsible event sports tourism product for the host destination. Furthermore, it may enable the event sports tourism industry to pro-actively respond to the increasing consumer demand for environmentally conscious events (taken from Dickson & Arcodia, 2010a).

As stated, it may be that sport event spectators are not environmentally responsible individuals to start off with. If this is the case, it may be beneficial to use segmentation to identify specific environmentally friendly groups of sport event spectators that are more likely to make a positive contribution to the environmental management practices of the industry (Dolnicar, 2010; Dolnicar & Leisch, 2008a; Dolnicar & Matus, 2008).

An explanation of the delimitations and assumptions of the proposed study will now follow.

1.8 DELIMITATIONS AND ASSUMPTIONS

Any research study is directed through certain delimitations (set by the researcher) and is inevitably loaded with assumptions (leading to limitations) made by the researcher. The following delimitations and assumptions underlie this research.

1.8.1 Delimitations

By setting delimitations, the researcher is continually guided toward the focal centre of the study by distinguishing between relevant and irrelevant information (Leedy & Ormrod, 2005). This study is bounded by a number of delimitations.

The first set of delimitations of the study pertains to the perspectives taken on impacts and legacies. Although the various impacts and legacies of sports events are referred to, the key focus is on environmental impacts and legacies pertaining to the natural/physical environment. The difference between impacts and legacies are only briefly mentioned to establish an understanding of the differences and the way in which the terms are used within the context of sports tourism. The study also focuses primarily on the impacts of sport on the environment and not the environment on sport. The study explores some of the prominent environmental management practices employed within the sphere of sports events. It does, however, not aim to give a detailed account, or to debate the effectiveness of different practices used across different sporting codes and sport settings. Furthermore, the study does not debate the various methodologies to measure the environmental impacts of an event.

Secondly, the various sports tourism definitions, models and typologies are introduced and briefly explained in order to provide clarity on the various sports tourist categories and, as such, the subjects of the study. These definitions, typologies and models are however not analysed in depth or critically compared in terms of their differences and relevance. The typologies are used to explore the literature related to the known motivation and behaviour of spectators as event sports tourists. Thirdly, the study focuses on sport event spectators and excludes professional athletes and active participants. The difference in the ERB of spectators and participants are only explored theoretically to determine any possible influence of one on the other. Fourthly, the study focuses on outdoor sports events that have spectators spread along the route of the event. Sports events held within stadiums and other man-made structures are not included. Furthermore, the empirical component of the study is limited to cycling as a sports code. Lastly, the study is cross-sectional and is therefore not able to measure the behaviour of sport event spectators over time. The effectiveness of proposed interventions that may arise from the study is not empirically tested in this study.

1.8.2 Assumptions

Assumptions are statements by the researcher that certain elements of the research are understood to be true (Anon, 2011).

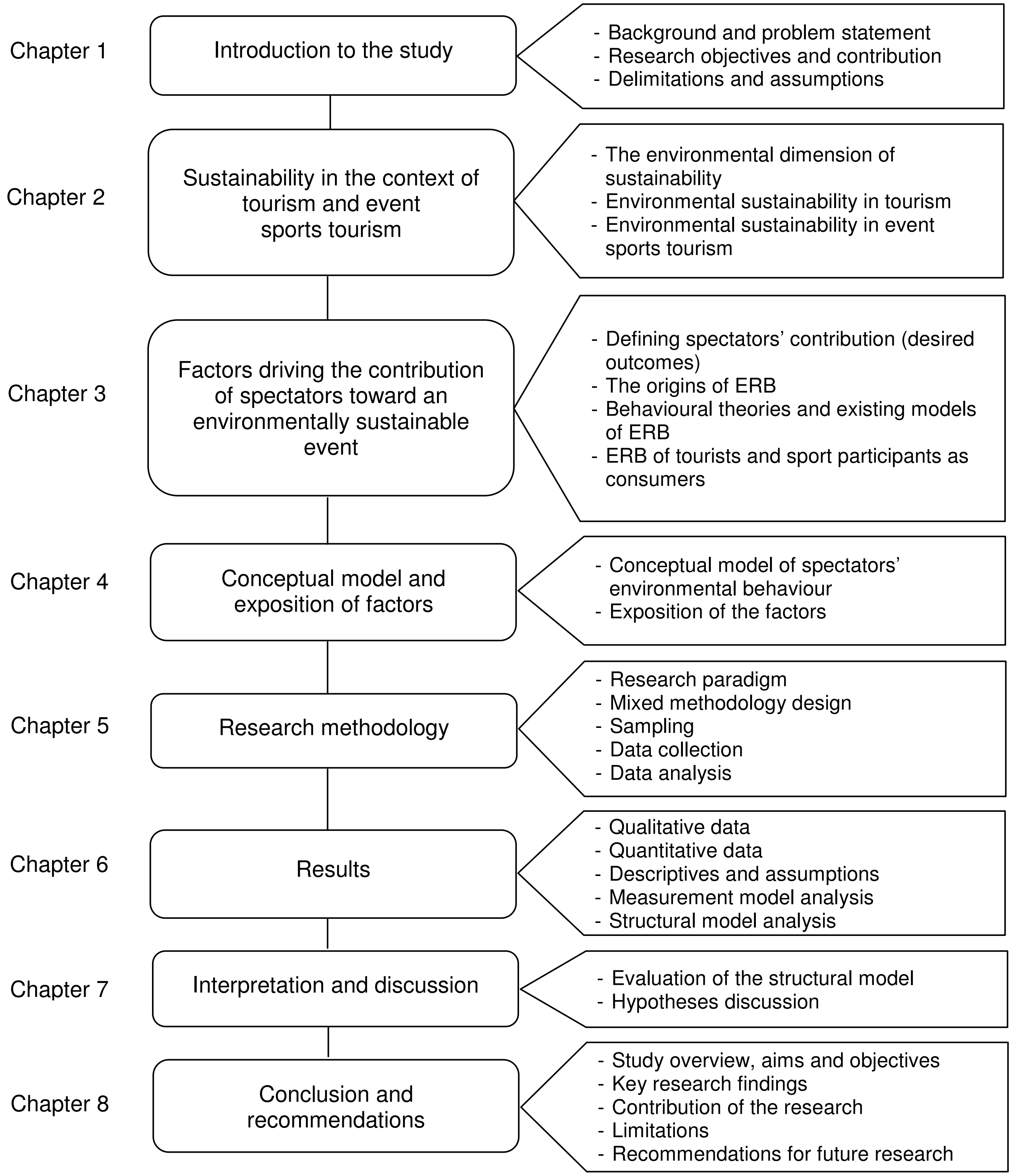
For this study, the researcher assumes that the disciplines and subject areas investigated provide a sound foundation for the phenomenon being studied. In other words, the combination of knowledge from Sport, Tourism, Sports Tourism, Psychology Environmental Education and Consumer Behaviour is regarded as sufficient to provide an accurate reflection of the variables influencing environmental behaviour of sport event spectators. The researcher assumes that the variables identified are measurable and that they are sufficiently defined in order to do so accurately. The various behavioural aspects are measurable through the design of an appropriate research instrument.

Furthermore, the researcher assumes that the participants in both the qualitative and quantitative stages of the study are honest and nonbiased in their participation. In other words, that the members of the expert panel give honest views from their areas of expertise, while the event spectators provide honest information based on their true behaviour. Finally, the researcher assumes that the chosen mixed methodology (qualitative and quantitative) is able to address the stated research problem and meet the research objectives.

1.9 FRAMEWORK FOR THE STUDY

The remainder of this document is laid out according to the framework indicated in Figure 2. The topic of each chapter is indicated along with its major sections.

Figure 2: Framework for the study



1.10 CONCLUSION

Sports tourism is a fast growing segment within the tourism industry, with event sports tourism being one of the prominent niches. Such events pose a challenge to destination managers and event organisers through their varied associated impacts, of which negative environmental impacts are increasingly being scrutinised in the light of global environmental concerns. Distinct subject disciplines and areas focus on explaining the manifestation of ERB of individuals. Many of the associated drivers of behaviour have been studied within the context of tourism, especially ecotourism, nature-based tourism and the likes, while only a few have been studied within the sports context. The focus of this study is to determine which of the multitude of factors feature most prominently as behavioural drivers within the context of event sports tourism, the nexus at which tourism and sport meets. The ultimate aim is to develop a model and guidelines that will contribute to increased effectiveness of EMS through an enhanced contribution made by spectators, through their environmental attitudes (ATT), situational behavioural intentions (STI) and future intentions (FTI).

The next chapter continues by explaining the concept of environmental sustainability and how it manifests within the tourism and sport industries respectively. Environmental practices employed within the event sports industry in particular, are discussed to determine actions of spectators as tourists that can be regarded as significant contributors toward environmental sustainability of these events.

CHAPTER 2

SUSTAINABILITY IN THE CONTEXT OF TOURISM AND EVENT SPORTS TOURISM

Chapter 1	Introduction to the study	- Background and problem statement - Research objectives and contribution - Delimitations and assumptions
Chapter 2	**Sustainability in the context of tourism and event sports tourism**	- **The environmental dimension of sustainability** - **Environmental sustainability in tourism** - **Environmental sustainability in event sports tourism**
Chapter 3	Factors driving the contribution of spectators toward an environmentally sustainable event	- Defining spectators' contribution (desired outcomes) - The origins of ERB - Behavioural theories and existing models of ERB - ERB of tourists and sport participants as consumers
Chapter 4	Conceptual model and exposition of factors	- Conceptual model of spectators' environmental behaviour - Exposition of the factors
Chapter 5	Research methodology	- Research paradigm - Mixed methodology design - Sampling - Data collection - Data analysis
Chapter 6	Results	- Qualitative data - Quantitative data - Descriptives and assumptions - Measurement model analysis - Structural model analysis
Chapter 7	Interpretation and discussion	- Evaluation of the structural model - Hypotheses discussion
Chapter 8	Conclusion and recommendations	- Study overview, aims and objectives - Key research findings - Contribution of the research - Limitations - Recommendations for future research

2.1 INTRODUCTION

Chapter 2 introduces the concept of sustainability and explains the rationale for focusing on the natural environment in this study. It then proceeds to place sustainability within the tourism industry, focusing firstly on some key industry initiatives to make the industry more environmentally sustainable. The chapter then conceptualises event sports tourism and describes the nature of environmental sustainability in the event sports industry. The chapter concludes with an exploration of the changing behaviour of tourists as well as sport participants as responsible consumers.

2.2 THE ENVIRONMENTAL DIMENSION OF SUSTAINABILITY

"The issue of sustainability is at the forefront of international dialogue and debate with pressure on both commercial operators of all sizes and from all industries, and private citizens to make adjustments to their daily lives which reduce negative impacts on the environment" (Dickson & Arcodia, 2010a:[1]).

This section will briefly introduce the concept and its components with the aim to distinguish this study's focus on the environmental dimension of sustainability.

2.2.1 <u>Definitions and dimensions of sustainability</u>

Within a relatively short period of time, the term 'sustainability' has gained status with profound implications (Spindler, 2013). The most popular definition of sustainable development is found in the influential Bruntland Report ('Our Common Future') by the World Commission on Environment and Development (WCED): "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987:43) This definition has been widely used despite the fact that it lacks operational clarity (Weaver, 2012). The term 'sustainability' has in fact been widely used and recognised from various described perceptions (Bonnes & Bonaiuto, 2002:34; Dickson & Arcodia, 2010a), to the extent that it is being described as a vague metaphor for describing current issues; a clumsy "catch-all term" (Spindler, 2013).

The call for sustainability gained momentum in the 1970s and, due to the environmental movement's loudening voice on 'global changes' in the Earth's biosphere, the United Nations (UN) launched various initiatives to promote a more holistic approach to the ecology. The list of UN Environmental Conferences include the first and second events held in Stockholm in 1972 and 1982, the third event held in Rio de Janeiro in 1992, the fourth in Johannesburg in 2002, with the most recent event returning to Rio de Janeiro in 2012 (also known as Rio+20) (Spindler, 2013). Apart from the UN initiatives, several other international programmes and collaborations have been promoted with the numbers subsequently growing (taken from Bonnes & Bonaiuto, 2002; Miller, 2001). Despite the increasing popularity of the term, especially in the light of global environmental problems, there is also an increasing doubt whether the harmonisation of ecological, social and economic goals as envisaged by sustainability is really attainable (Spindler, 2013).

There is a difference between sustainable development and sustainable tourism, and Saarinen (2006) argues that there has been an established tradition of including sustainability in tourism studies within the broader context of sustainable development. Similar to the term 'sustainable development', an array of interpretations and definitions exists on the term 'sustainable tourism'. To illustrate, Steer and Wade-Gery (1993, in Dickson & Arcodia, 2010a) identified a list of over 70 definitions. Sustainable tourism is defined by the United Nations World Tourism Organisation (UNWTO) as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities". It is applicable to all forms of tourism, from mass tourism to niche segments such as event sports tourism, and it requires a balance between the three dimensions (environmental, economic, and socio-cultural) to ensure long-term sustainability. Similar to this definition that recognises the fact that all tourism entails some costs, Weaver associates sustainability with management that strives to minimise the costs of an activity while simultaneously maximising the benefits, and recognises that costs and benefits are context-dependent. He argues that sustainability is not only relevant to small niche segments, but that there is an increasing convergence between sustainable and mass tourism (2012). Holden (2009) argues that sustainable tourism is underpinned by ethical considerations, while Butcher (2008) likewise links forms of sustainable tourism, such as ecotourism, to ethical consumption. It is said that the idea of sustainable tourism "has both fascinated and irritated academics and developers (Saarinen, 2006:1124), that scholars have diverse opinions about the validity of the sustainability concept and that some are even “so frustrated that they want to abandon its practice” (Singh, 2012:9).

The term ‘Triple Bottom Line’ (TBL) was first used by John Elkington in 1998 to present a framework through which businesses could become sustainable by accounting for their performance against economic, social and environmental parameters (Dummet, 2008:53). The term ‘sustainability’, however, has a broader meaning and encompasses an additional dimension. Ritchie and Crouch define sustainable development as “… balance among four complimentary pillars (economic, social, cultural, and political) in such a way that no fatal weaknesses are evident in the system of sustainability ...” (Ritchie & Crouch, 2003:30). This statement is supported by O’Connor (2006:286), who explains that the regulation of the interaction between the TBL (economics, society and nature) needs to take place within a ‘governance sphere’, thereby supporting the fourth additional ‘political’ dimension. Wight (2004) further refines these dimensions by making a clear distinction between social and cultural aspects to present five elements, namely economic, political, social (well-being of the community), cultural (acknowledgement and respect for heritage and traditions) and ecological/environmental.

To place the environmental dimension within context of the broader concept of sustainability, the following framework by O’Connor (2006) is presented.

Table 1: The four spheres and their interfaces

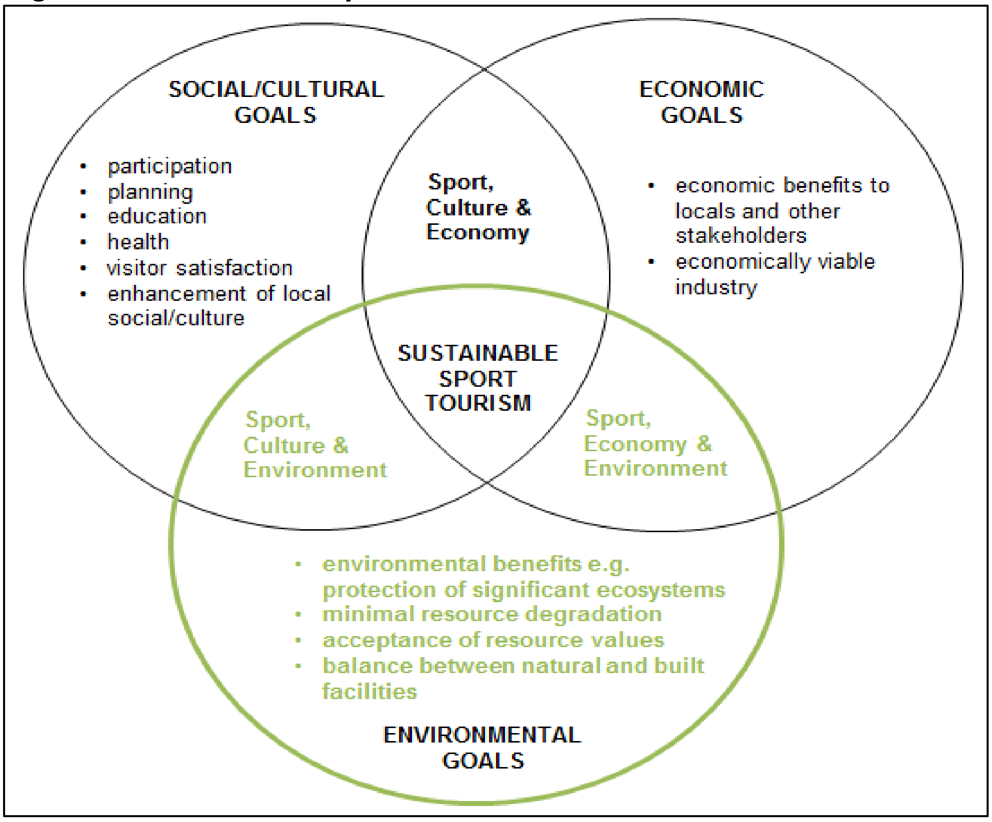
	SOCIAL	ECONOMICAL	ENVIRONMENTAL	POLITICAL
SOCIAL	Forms of collective identity and community: THE SOCIAL SPHERE			
ECONOMICAL	OPPORTUNITIES & IMPACTS: ‘The economy versus the community’	Performance, products and output: THE ECONOMIC SPHERE		
ENVIRONMENTAL	**LIVING WITH(IN) NATURE Meanings, values & risks: sustaining what & for whom**	**ENVIRONMENTAL FUNCTIONS: Pressures on & services of the environment**	**Energy, matter, natural cycles & biodiversity: THE ENVIRONMENTAL SPHERE**	
POLITICAL	SOCIAL POLICY: (capacity of communities; citizens/public participation)	ECONOMIC POLICY: (shaping the rules and limits of markets)	ENVIRONMENTAL POLICY: (regulation of what counts as environmental value)	Coordination, power & governance: THE POLITICAL SPHERE

Source: adapted from O’Connor (2006:287)

The framework illustrates how the environmental dimension has to be viewed from three perspectives. Firstly, how individuals (social) interact with nature through their meanings, values and risks. Secondly, how industry (economic) interacts with nature through understanding their impacts (pressures) and managing these impacts (services). Thirdly, the aspects of nature that are involved in long-term sustainability: energy, matter, natural cycles and biodiversity. Both individuals (social) and industry (economic) have to consider these four aspects in order to ensure sustainable usage of the natural resource base. Both these interfaces (environment-society and environment-economic) have to be explored when aiming to understand the environmental dimension within event sports tourism.

The need to take this three-dimensional approach is an imperative of both the sport and tourism industries that have "vested interests as well as a moral obligation to meet the goal of sustainability" (Hinch & Higham, 2011). Similar to the conceptualisation by O'Connor, Hall (1995, in Hinch & Higham, 2011) illustrated sustainable sport tourism as a balance between social, economic and environmental goals, or a TBL approach (refer to Figure 3).

Figure 3: Sustainable sports tourism



Source: adapted from Hall (1995, in Hinch & Higham, 2011)

The environment-society interface is here referred to as “Sport, culture and environment”, while the environmental-economic interface becomes the “Sport, economy, environment” sphere. In a recent article, Hall (2012) argues that mega sports events focused on economic or balanced sustainability are in fact not sustainable at all and that environmental capital continues to be run down. He speaks to a ‘steady-state’ approach to sustainability where natural capital is maintained or enhanced.

Taking cognisance of the fact that sustainability lays within these interrelated dimensions (environmental, economic, social, political), this study focuses on the natural (ecological) environment as there appears to be a gap in knowledge within the specific niche market segment that this study refers to. This argument is explained in the subsequent section.

2.2.2 <u>Rationale for focus on the natural environment in this study</u>

The debate around the relationship of organisations with the natural environment has grown exponentially over the last two decades, receiving attention from industry as well as academics and with several journals and interest groups dedicated to the topic (Cohen, 2007). Protection of the environment “has shifted from being a matter of social and political conscience, to one of profound communal concern and international significance” (Dickson & Arcodia, 2010a). This revival in the importance of ecological values in daily life gives witness to the reinforcement of environmental politics and greater validation of “global environmental social movements” (Mansfield & Wheaton, 2011:383).

Apart from this international revival of environmental values, the quality of the natural environment is of paramount importance as a factor of production contributing to the competitiveness of tourism destinations (Ritchie & Crouch, 2003). Priority given to environmental issues varies from destination to destination and sustainable tourism development issues are unique to each destination (Vellecco & Mancino, 2010). With a destination such as South Africa that ranks high up in 17th position for its natural resources on the Travel and Tourism Competitiveness Index (TTCI) of the World Economic Forum (2013), sustainable usage of this resource base is critical. The importance of this resource demands a greater investigation into sustainable usage thereof by both the tourism and sports industries as two important economic sectors of the country. Sports tourism, as the overlap between these sectors, has gained significant attention from government and the industry is witnessing a concerted effort to promote sports tourism as a national priority, as is evident from the new National Sports Tourism Bidding and Hosting Strategy (Thebe, 2013), the National Sport Tourism Strategy (Sport and Recreation South Africa, 2012), the National Sport and Recreation Plan (Sport and Recreation South Africa, 2011), and the National Events Strategy (National Department of Tourism, 2011). With a number of international major and mega sports events hosted successfully in the country, latest being the Fédération Internationale de Football Association (FIFA) Soccer World Cup in 2010, research indicates that the country could feasibly aim for events ranging from the Summer Olympics and the International Hockey Federation (ice hockey), Fédération Internationale de Natation (swimming), and Fédération Internationale de Basket-ball (basketball) World Cups, to Formula 1 Grand Prix, World Baseball Classic and Association of Tennis Professionals events (Havas Sports and Entertainment, 2010 in Thebe, 2013). Within both the National Events Strategy and the National Sport and Recreation Plan mention is made of sustainable use of the natural environment along with the development of sport activies. Where the Events Strategy makes a direct link to the principles of responsible tourism and environmental integrity, the Sport and Recreation Plan clearly places emphasis on the natural environment through strategic objective 30: "To ensure that participation in sport and recreation activities is conducted in an environmentally sustainable manner and to use sport as a tool for communicating environmental messages and encouraging actions to clean up the environment." (Sport and Recreation South Africa, 2011:67).

Natural environmental resources are key elements in tourism development and it is claimed that tourism can drive sustainable development by improving resource efficiency. These resources should be utilised optimally to maintain essential ecological processes and assist in the conversation of natural heritage and biodiversity (United Nations World Tourism Organisation, N.d., 2012). Despite the clearly defined role and importance of the natural environment for tourism destinations and businesses, and after more than two decades since the tourism industry started active engagement with the concept of sustainability, its effectiveness has been questioned (Holden, 2009:374). This discrepancy has been assigned to the fact that sustainability is often interpreted as sustaining the industry, instead of applying the required limitations on tourist numbers, infrastructure development and landscape changes in order to protect the environment (Butler, 1999 in Higgins-Desbiolles, 2010:117). In similar vein, it is argued that sustainable tourism presents juxtaposed objectives: small-scale sensitivity and limited numbers have to be achieved alongside economic viability and large income and employment impacts (Wheeler, 1991:93). These contradictions contribute to environmental sustainability remaining an important research area "at the intersections of tourism and contemporary society" (Cohen & Cohen, 2012).

At the same time the sports industry and sports tourism literature (as the focus of this study) are increasingly focusing on the negative impacts of sport and tourism on the environment as a broader term including all three dimensions (Weed, 2009:621). Much attention has already been given to the economic and social impacts as the most prominent and most widely researched dimensions (Chalip, 2006:112; Wood, 2005:38). However, changing social values are shifting the focus in sports tourism studies from economical to other dimensions including the natural environment (Jago, Dwyer, Lipman, Van Lill & Vorster, 2010). There is a discrepancy in the growth of literature focusing on the importance of the natural environmental versus the increasing global concern for environmental issues (Dickson & Arcodia, 2010a). Such a skewed focus is especially concerning in light of the fact that several sporting codes make intensive use of the natural environment and that almost all sporting activities have some form of ecological footprint. From a destination management perspective, it is thus imperative to understand and effectively manage the link between sports tourism and the natural environment. The natural environment forms an integral part of many sporting codes and if a destination possesses the required natural resources it already has a comparative advantage in this fast growing niche segment. If, however, the destination fails to deploy these resources in a sustainable manner, it will not have any competitive advantage in the market over the long term.

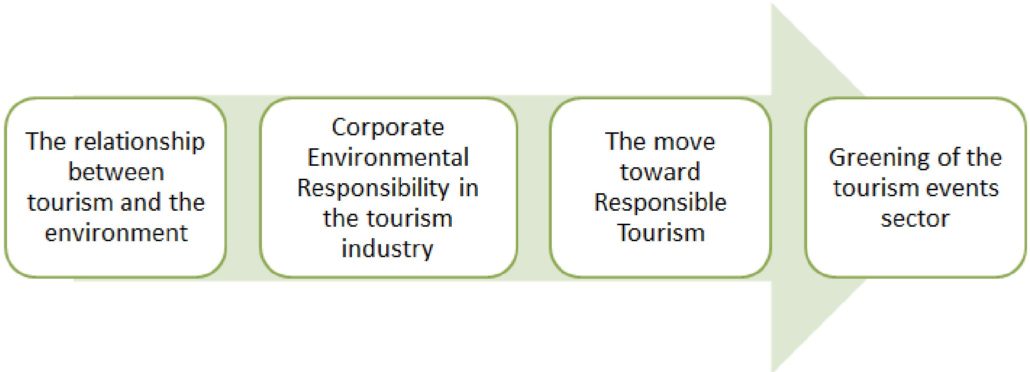
In order to clarify further discussions: throughout the remainder of the document the term 'environment' will be used to refer to the natural environment, except if indicated otherwise. The remainder of this chapter focuses on describing the environment-economic interface (see Table 1) in the two industries presented in the study (tourism and sport).

2.3 ENVIRONMENTAL SUSTAINABILITY IN TOURISM

"As we start seeing the ravages of climate change, more and more individuals and companies are increasingly making more environmentally friendly choices. Nowhere is this more evident than in the travel industry, where the carbon footprint and energy consumption of transport, catering and other services can be significant."

(Morrison, 2010:1)

The previous section indicated that environmental sustainability is a matter of global importance and demands commitment and efforts from a variety of perspective. The natural resource base is of vital importance for tourism destination, and responsible utilisation thereof is crucial to long-term sustainability and also competitiveness in the marketplace; even more so within a segment such as sports tourism that makes intensive use of these resources. This section aims to briefly introduce environmental sustainability within the context of the tourism industry. As the "topic of sustainable tourism encompasses an enormous body of information and knowledge that expands by the day" (Weaver, 2006:xiii), the focus will be on the relationship between tourism and the



environment, industry initiatives toward environmental responsibility, and greening of the event sector within tourism (sequence depicted below).

2.3.1 <u>The relationship between tourism and the environment</u>

Tourism is regarded as one of the leading industries of the world, maintaining its growth in the last decade and having an impressive recovery after the 'Great Recession' or economic global recession of 2007 to 2009. It contributed $6.3 trillion to the global economy in 2011 or 9.1% of the world's gross domestic product, consequently highlighting the industry's role in improving people's financial and social capital in almost every country of the globe. With this resilience comes concern for the environmental impacts of an industry that continues to spread across geographic regions (Reddy, 2013). There is increasing concern among the international community that the economic models driving this exponential growth are placing the planet at risk (Rifai, 2012). With an expected 1.5 billion tourists by 2020, proper management of the potential impact of tourism becomes even more crucial (Mariani & Baggio, 2012).

In order to understand the importance of the natural environment for the tourism industry specifically, one may refer to the definition of destination competitiveness by Ritchie and Crouch (2003:2): "A destination's ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations." Within this definition the sustainable use of the natural environment is clearly highlighted as a building block of destination competitiveness along with the economic and socio-cultural dimensions already introduced previously.

Table 2 illustrates the position of the natural environment as one of the resources of a destination, otherwise known as the 'factors of production'. The availability or lack (also poor quality) of certain factors will allow or prevent a destination from offering certain products to tourists. These factors also determine the differences between destinations. These differences are based on two elements. On the one hand, the possession of resources or the factors of production is known as *comparative advantage,* and the way in which a destination has more or less of one of the other resource/s, is referred to as factor proportions. On the other hand, a destination's ability to effectively (where and how) use or deploy these resources is known as *competitive advantage* (Ritchie & Crouch, 2003:20-23).

Table 2: Elements of comparative and competitive advantage

Comparative advantage (availability of resources)			Competitive advantage (deployment of resources)
Human resources Physical resources Knowledge resources Capital resources Infrastructure and tourism superstructure Historical and cultural resources Size of economy	Natural / inherited or Created / man-made	Renewable or Non-renewable	<u>Modes of deployment</u> - Locus of control - Actions of industry associations - Collective action of individual TBUs[1] - Support of special interest groups <u>Elements of deployment</u> - Audit/inventory - Maintenance - Growth and development - Efficiency - Effectiveness

Source: adapted from Ritchie and Crouch (2003:20-24)

Both these aspects are managed by destinations in an effort to counter factor proportions that present weaknesses and to capitalise on available strengths. A destination will, in an effort to "… apply its comparative and competitive advantages … look for a match between its competitive strengths and weaknesses, and the opportunities and threats present … in the global tourism market …" (Ritchie & Crouch, 2003:27). To illustrate the importance of environmental responsibility, environmental sustainability is included as one of the key indicators of destination competitiveness. The Travel and Tourism Competitiveness Index of the World Economic Forum (WEF) includes environmental sustainability as one of the 14 'pillars' of travel and tourism competitiveness (WEF, 2013).

A marked change has occurred in the tourism industry's attitude toward its interaction with the environment; from a situation where it was first viewed as "an environmentally friendly activity and a 'smokeless industry'", to a situation where this relationship is being profusely debated (Holden, 2009:65-70). Many critics believe that tourism is a primary cause of environmental pollution and degradation. Even though it is only one aspect of the total impact of human economic activity (Middleton & Hawkins, 1998), it is increasingly being recognised as industry contributing to global problems through localised degradation. Yet, it appears to have been responding slowly to major global and critical conservation needs of the 21st Century (Worboys & De Lacy, 2003:2).

[1] TBU: Tourism Business Unit

Negative impacts on the environment are generated from various sources. Davies and Cahill (2000) identified the sources of direct impacts of tourism as: travelling to the destinations; activities within the destination; and maintenance of facilities to cater for tourists. This category has been well researched in tourism and tourism related literature (Gössling, 2002:283; Hall & Higham, 2005:13). Transportation is regarded as the greatest contributor to climate change within the tourism industry, followed by tourist-related development; tourist activities; accommodation; and cruising (Davies & Cahill, 2000). Negative impacts can also be classified according to resource usage, human behaviour towards the destination environment, and pollution (Holden, 2009). Impacts range from visual impacts or "aesthetic pollution" or a decline in the aesthetic quality of the environment (including noise pollution), to air and atmospheric pollution (including greenhouse gas emissions), water and soil pollution, traffic congestion, a loss of natural habitats and biodiversity, destruction of ecosystem services, as well as environment-related social problems such as fuel and food shortages (Holden, 2009; Reddy, 2013).

Gössling (2002) emphasises that localised negative impacts of tourism, such as disturbance or destruction of an ecosystem, can contribute to global problems. He divides such a global environmental consequence of tourism into two categories: physical and psychological (and both directly or indirectly). Physical consequences include the aspects mentioned previously. The psychological consequence of tourism entails changes in the perception and understanding of the environment, including 'cosmopolitization' (people losing their understanding of the natural limitations of places, as well as the responsibility to care); environmental consciousness (comparing the character of the physical environment in different places and experiencing different representations of nature); and intercultural encounters (decreased place attachment leading to loss of knowledge about ecological limits of places for tourists, but also heightened consumerism amongst local communities who get exposed to 'western' culture).

There are also a number of positive environmental impacts, such as increased emphasis on maintaining the quality of the environment and the restoration of redundant areas and sights (Holden, 2009:99). However, much of this remains driven by an economic intention to increase the satisfaction of visitors and ensure tourist numbers in future. Davies and Cahill (2000) grouped positive impacts into upstream and downstream impacts. Upstream impacts result from travel service providers' ability to influence suppliers, while downstream impacts occur when service providers influence the behaviour and consumption patterns of tourists. For example, product owners demand environmentally friendly products from suppliers and develop 'preferred supplier' relationships with those that do comply (upstream), or the travel trade prefer to recommend environmentally responsible products to tourists (downstream). In the latter, tourism businesses have the potential to direct ('channel') the activities of tourists toward more environmentally responsible activities. It can include initiatives such as Environmental Education literature, guidelines on environmentally responsible actions while visiting, educational programmes for guests, incorporating educational component in tour packages; setting 'codes of conduct', and pre-trip orientations.

The increasing global concern about climate change is not only limited to manufacturing industries, but has also begun to look at tourism where the air travel industry has been implicated as the biggest culprit (Cohen & Cohen, 2012, Gössling, Hall, Peeters & Scott, 2010). Encouragingly, the industry has seen a proliferation of initiatives to address the issue of climate change mitigation, and there has been global recognition of the role that tourism can play toward a global 'Green Economy' through practices based on low-carbon approaches (Reddy, 2013, Rifai, 2012). The Green Economy is said to lead to "improved human well-being and reduced inequalities over the long term, while not exposing future generations to significant environmental risks and ecological scarcities". Tourism is regarded as one of ten sectors which can lead the transformation to a new global growth model. For this to happen, green strategies are required to adhere to reductions in water consumption, energy use and CO2 emissions (Rifai, 2012:202).

From a practitioner and regulatory viewpoint, global industry bodies are taking initiative to guide destinations and sub-sectors of the industry toward climate change responsiveness. Examples include the WEF's Aviation, Travel & Tourism Partnership Programme, and United Nations Environment Programme (UNEP)'s *Green Economy Report* containing a chapter on tourism. The Climate Competitiveness Index (CCI) was launched in partnership with UNEP at the *Business for Environment Global Summit* in Seoul, South Korea, in 2010. According to the Index, climate competitiveness "is the ability of an economy to create enduring economic value through low carbon technology, products and services" (Lee, MacGillivray, Begley & Zayakova, 2010:4).

Tourism and climate change is also a rapidly growing field of investigation among the academic community, with the phenomenon being referred to as climatically sustainable tourism (Gössling *et al.*, 2010). It is stated that the relationship between tourism and climate change can only be understood if the "totality of the tourism consumption and production system, particularly with respect to transport impacts, rather than just specific elements of the tourism system" is investigated (Hall & Higham, 2005:13). Existing literature takes on a variety of perspectives, for example exploration of carbon neutral destination policies (Gössling & Schumacher, 2010); the effectiveness of voluntary carbon reduction in tourism (McKercher, Prideaux, Cheung & Law, 2010); the economic impacts of carbon tax on the industry (Dwyer, Forsyth, Spurr & Hoque, 2013); prediction of international tourism flow under climate change (Bigano, Hamilton, Maddison & Tol, 2006); and the study of tourism industry members' perceptions of their contribution to climate change (Otto & Heath, 2009). Much of the research has turned to tourism consumer behaviour, including the relationship between tourists' environmental values related to climate change (Becken, 2007; Kachel & Jennings, 2010), social norms regarding excessive tourist air travel (Cohen, Higham & Cavaliere, 2011), and consumer behaviour and demand responses to climate change (Gössling, Scott, Hall, Ceron & Dubois, 2012).

It is argued that, in order to truly account for the tourism industry's contribution to the global climate crisis, enforced regulations and rationing regimes are required, as well as "realistic pricing that incorporates environmental costs" (even if it means significantly raising the costs) (Higgins-Desbiolles, 2010:127). The current practice of voluntary purchase of carbon-offsets is regarded by some as "wholly unsatisfactory" (Higgins-Desbiolles, 2010:126), and that the contradictions between business and consumer intentions and actions highlight the complexities of dealing with this issue within the tourism industry (Burns & Bibbings, 2009). Similarly, Reddy and Wilkes (2012 in Reddy, 2013) state that achieving sustainability in destinations may be unrealistic in the near future due to the gaps in climate change policies and implementation strategies. Radical change is needed to reconcile the increasing demand for leisure and business travel with international climate policy targets (Gössling *et al*, 2010:119).

The next section highlights some of the major industry initiatives to take on responsibility for the industry's environmental impact.

2.3.2 Corporate Environmental Responsibility (CER) in the tourism industry

"From the 1960s ecology movement focusing on pollution and energy conservation, to the recent use of environmental issues as a source of competitive advantage in business and politics, individual and societal concerns over environmental issues have become increasingly apparent … With increased social and political pressure, companies have moved beyond simply addressing pollution and waste disposal to looking for alternative package composition and design, alternative product formulations, and cause-related promotion in an effort to keep in-step with the environmental movement."

(Straughan & Roberts, 1999:558)

It is stated that failure of industries to consider the risks of their actions to the environment, has resulted in a 'global environmental crisis' (Dummett, 2008:14). According to Cohen's framework, the economic-environmental interface is characterised by the industry seeking to use the 'services' of nature for economic welfare, which leads to 'environmental pressures and impacts' (Cohen, 2007:288). As a counter-measure, corporate social responsibility (CSR) has widely been used and accepted as a term referring to a business continually behaving responsibly or ethically within society through minimising its negative impacts, and maximising its benefits to the quality of life of its workforce, the local community, and society at large (Dummett, 2008:50; Morley, Balza & Zechnich, 2010). Where the concept of business ethics originated in the 1980s, it has since taken various avenues, including corporate citizenship and, more recently, a tighter link between companies and their financial goals, with studies proving positive impacts of CSR activities on the financial performance of tourism and hospitality organisations (Whitfield & Dioko, 2011). Dowling, Robinson and Washington (2013:271) state that CSR represents a paradigm shift in thinking by managers and society at large, and that organisation are "inextricably integrated with society and the environment", resulting in responsibilities requiring a TBL business approach.

Out of CSR flows the concept of corporate environmental responsibility (CER), which is defined as “Corporate practices ranging from natural resource management and use to waste generation and disposal, recycling, the marketing of environmentally friendly products, and pollution prevention and control” (Vogel, 2005:110). The term is increasingly used since the late nineteenth century to emphasise the environmental dimension and has been given various names, including corporate greening, corporate environmentalism and environmental responsibility. It has grown into more than just compliance with rules and regulations, where companies proactively manage the environment as a result of various drivers (Salome, Van Bottenburg & Van den Heuvel, 2013:176).

The private sector has a key role to play in building a low-carbon, resource efficient green future through CER. TourCert is a leading example of a certification scheme in the tourism industry. It began its CSR certification scheme in 2004 and encourages companies to take on more ecological responsibility than stipulated by law. Of the 219 indicators, ten are defined as key with the top two relating to CO2 emissions of guests and employees (Reißland & Thomas, 2012).

UNWTO research indicates that companies are especially committed to projects related to energy, water and recycling, education and support for local supply chains (Rifai, 2012). There are different reasons for businesses to engage in CER “including managerial and personal values and attitudes, gaining competitive advantages, cost savings, improving image or reputation, complying with regulations and stakeholder pressure” (Salome *et al.*, 2013:176; also mentioned in Kesidou & Demirel, 2012). Dummett (2008) states that very often companies need to provide solutions to problems that they themselves have caused. According to some, participation in CER makes financial and moral sense (Vogel, 2005). The top barriers to engaging in CER has been indicated as government failure (not enough incentives or support); lack of corporate culture/leadership; society/consumer failure (not enough demand); and costs involved (Dummett, 2008).

The responsible management of tourism can be categorised under the more general theme of CSR (Frey & George, 2010). It is most apt that members of the tourism industry engage in sincere and credible CER, not for the sake of upholding a reputation, but to counter the levels of environmental injustice that can be found throughout the industry across the globe (Bramwell & Lane, 2008; Higgins-Desbiolles & Whyte, 2013). Regardless of how sustainability is interpreted, support thereof is stated to be "almost universal within the tourism industry" (Weaver, 2012:1031). Practitioners across the globe are encouraged by international regulating bodies to adhere to environmentally responsible practices; a movement referred to by Weaver (2012) as the institutionalisation of environmentalism. It is stated that "... the tourism industry's success heavily depends on the quality of its geographic and social setting ...", and it is therefore necessary to implement "... an integrated destination management approach [that] provides an effective framework to promote the competitiveness of the tourism industry" (Baca, 2004). Many also argue that embracing sound environmental practices make tourism business sense. Not only does it reduce business running costs, but it provides a 'market advantage' through providing for the needs of increasingly "vigilant consumers" (Greening of the WSSD, 2003:06) and allows a business to compete on more than price alone (Forsyth, 1997). It also offers benefits of an enhanced image and greater competitiveness in the market (Hu & Wall, 2005, Vellecco & Mancino, 2010). The ideal is for tourism businesses to adopt environmental practices proactively, rather than merely responding to the market's demand for 'responsible' products (Forsyth, 1997).

The UNWTO has been promoting the use of sustainable tourism indicators since the early 1990s. They regard such indicators "... as essential instruments for policy-making, planning and management processes at destinations". According to them, sustainability issues include the wellbeing of host communities; community participation in tourism; tourist satisfaction; health and safety; capturing economic benefits from tourism; *sustaining cultural and natural heritage; managing scarce natural resources; limiting impacts of tourism activity; controlling use intensity;* products development and marketing; as well as sustainability of tourism operations and services. The UNWTO developed a Global Code of Ethics for Tourism through the Global Sustainable Tourism Council[2] (GSTC), and also initiated the Tour Operators Initiative which was developed by tours operators to show

[2] GSTC is a multi-stakeholder initiative formed in 2010 under the umbrella of the UN and includes among others the UNEP and the UNWTO. It is a merger between two former global sustainable tourism initiatives, namely the Partnership for Global Sustainable Tourism Criteria and the Sustainable Tourism Stewardship Council.

their support for sustainable tourism. This initiative is supported by two leading organisations driving the plight of sustainable development, UNEP and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) (Greening of the WSSD, 2003:6).

The Global Partnership for Sustainable Tourism (GPST), led by the UNEP Department of Technology, Industry and Economics, focuses on climate change adaptation and mitigations, reducing negative impacts, adopting strategies to assist protected areas management, greater adoption of sustainability criteria in tourism investment and decision-making, and assisting tourism businesses to become more sustainable (GPST, 2011). By 2011 this organisation already had 84 partners from 46 countries and 5 continents. The organisation aligns its work with the sustainability criteria (for destinations, and hotel and tour operators) and indicators (for diverse tourism organisation and businesses) developed by the GSTC (GSTC, 2009; 2011a). Where the Global Partnership focuses on criteria for project development and monitoring, the GSTC focuses on performance-based criteria (GPST, 2013).

The World Travel and Tourism Council (WTTC) also strives to collaborate with governments, businesses and non-governmental organisations to achieve shared sustainability objectives. They work around five themes, namely (i) accountability and responsibility; (ii) local community growth and capacity building; (iii) educating customers and stakeholders; (iv) greening supply chains; and (v) innovation, capital investment and infrastructure (WTTC, 2009). There are also a number of international voluntary industry initiatives that focus on sustainability. The International Coalition of Tourism Partners focuses on quality destinations committed to green growth; focusing on issues such as green growth oriented projects and community projects, and taking on climate change (International Coalition of Tourism Partners, 2014.). Sustainable Travel International is a non-profit organisation aimed at providing education and services to travellers, travel providers and destinations in an effort to support environmental conservation along the lines of the Global Sustainable Tourism Criteria set by the GSTC (Sustainable Travel International, 2014).

Cyberspace plays host to an increasing number of sustainability-related resource platforms. DestiNet is an independent online resource platform for individuals and organisations working toward sustainable tourism. The portal is officially registered as a UN “Partnerships for Sustainable Development” and is also in partnership with the European Environment Agency (EEA), UNEP and the UNWTO. It is administered by ECOTRANS (European Network for Sustainable Tourism Development) (ECOTRANS, 2012c). Growing recognition is given to sustainable tourism initiatives through various programmes. A total of 66 reward programmes are listed on the DestiNet portal and includes initiatives ranging from an international level (such as the WTTC’s *Tourism for Tomorrow* awards), to a local level (such as the Imvelo Awards for Responsible Tourism in South Africa) (ECOTRANS, 2012a). Foci of the different awards range from green parks and areas, to the implementation of sustainability models, community projects and even indigenous tourism and biodiversity website awards. There is als a staggering list of some 150 certificates of green accreditation (ECOTRANS, 2012b). This opportunistic employment of the Internet to distribute sustainability information through imagined online communities, is said to facilitate sustainability and to appropriately address global issues through a global platform (Weaver, 2012).

Despite several leading travel and tourism companies having started engaging in these and other sustainable business practices, as well as encouraging their consumers to follow sustainable tourism ideals, the signs of ‘greenwashing’ are apparent and the legal and institutional frameworks regulating the industry at all levels are feeble (Lansing & de Vries, 2007; Reddy, 2013). It is even proposed that global tourism presents as much ‘greenwashing’ as any other global industries promoting themselves as becoming greener, including coal, multinational car firms and aircraft manufacturers, because tourism indirectly contributes to these industries (Hall, 2009). It is stated that the industry still has to undertake “massive realignment” by reviewing current practices and changing business-as-usual practices to green approaches (Reddy, 2013). Some of the major obstacles to green innovation in the industry include knowledge gaps around the perceived business costs associated with greening, access to finance for small and medium sized businesses, and lack of policy integration across key economic sectors (UNWTO, 2012). Weaver (2012:1031) similarly states that sustainable practices are being implemented with little or no change to existing organisational structures and that there is no significant public pressure on the industry to “move transformationally”.

Even though the tourism industry's transition to a green economy "looks gloomy as now" (Reddy, 2013) and it appears that the enhancement of the ecological quality of services are mainly focused on hospitality firms and structures (Vellecco & Mancino, 2010), there have been progression toward sustainability in various sub-sectors of the industry. The next section turns the focus to one sub-sector, Responsible Tourism (RT), as a form of tourism that has been advocating greater responsibility of the industry as well as the consumers toward sustainable tourism.

2.3.3 The move toward Responsible Tourism (RT)

The RT movement grew out of the reaction to mass tourism which, at the beginning of the 1990s, was already perceived by some to be growing out of control, with "[an] uncontrolled flood of tourists from alien industrialised nations into the developing world" (Wheeler, 1991:91). The Responsible Tourism Partnership defines RT as "tourism that creates better places for people to live in and better places for people to visit" (responsibletourismpartnership.org, 2002). Within the South African context, RT is defined as: "Tourism that is focused on enabling local communities to enjoy a better quality of life, through increased socio-economic benefits and an improved environment. It is also about providing better holiday experiences for guests and good business opportunities for tourism enterprises." (Spenceley, Relly, Keyser, Warmeant, McKenzie, Matagobe, Norton, Mahlangu & Seif, 2002:8). It is sometimes also referred to as 'alternative', 'appropriate', 'soft' and 'green' tourism (Wheeller, 1991). Ironically, not even these alternative forms of tourism are immune as they too can be 'corporatised' because of the profitability of an increasingly diversified market (Higgins-Desbiolles, 2010).

Responsible and sustainable tourism have the same goal of sustainability and share the same three pillars (environment, society and economy). However, in the context of RT, focus is placed on the actions of individuals, organisations, governments and businesses to take responsibility for their actions and the consequences thereof (Responsible Tourism Cape Town, 2011). RT harnesses the market (the tourists) to achieve economic, social and environmental objectives and is focused on creating educated and motivated consumers (Goodwin, 2005). These informed tourists demand 'real encounters' with the

environment "based on values of respect for other people and their places" and they evaluate products and services based on claims made by the owners (Goodwin, 2005:4). A closely linked concept is that of *Ethical Tourism* which clearly places the responsibility within the hands of tourists along with the industry (Fennell, 2006; Weeden, 2002).
Environmental (ecological) guidelines for RT include reducing environmental impacts when developing tourism, using natural resources sustainably, and maintaining biodiversity (Greening the WSSD, 2003:5). In the South African context, a standard (SANS1162) has been developed by the South African Bureau of Standards (SABS) to establish a common understanding of the minimum criteria for RT, based on national guidelines for RT (Spenceley *et al*., 2002) and the internationally recognised Global Sustainable Tourism Criteria (GSTC, 2009; 2011a).

According to this standard, RT is based on a minimum set of principles, including avoiding waste and overconsumption; using local resources in a sustainable manner; maintaining and encouraging natural, economic, social and cultural diversity; being sensitive to the host culture; involving people from the local area in the planning and decision-making; assessing the environmental, social and economic impact as a prerequisite to developing tourism; ensuring that people from the local area are involved in and benefit from tourism; marketing tourism that is responsible, and that respects the local, natural and cultural environments; and monitoring the impact of tourism and ensuring open disclosure of information (SABS, 2011:6). It is clear that responsibility toward the natural resource base is fundamental to RT. In order for any form of tourism (including event sports tourism) to be managed responsibly, these principles have to be in place.

In terms of the natural environment specifically, a number of criteria apply. These include a responsible purchasing policy; measuring and managing energy consumption; measuring and managing water consumption (and improving reuse of waste water); reducing greenhouse gas emissions and other contributors to climate change; implementing a waste management plan (solids and liquids); limiting the use of harmful substances (e.g. pesticides, paint, cleaning and sanitation material) and substituting with environmentally friendly alternatives where possible; reducing pollution (noise, light, runoff, erosion, ozone-depleting compounds); adhering to requirements that govern the trade in listed, endangered or threatened species and making visitors aware thereof; not holding wildlife captive without the required permits; using indigenous plant species for landscaping and restoration; taking measures to eradicate invasive alien plant species; contributing to local biodiversity conservation (supporting natural protected areas/biodiversity hotspots); avoiding adverse effects of ecosystems and rectifying any negative resulting impacts; and providing environmental information to visitors so that they can reduce their impact (SABS, 2011:9).

The last discussion on the tourism sector focuses on the tourism events sector as a direct link to the focus of this study to understand how this sector is adapting toward sustainability.

2.3.4 Greening of the tourism events sector

Event tourism is an important subject area that overlaps with sports tourism at the cross-over between sport and tourism (Weed, 2009:616). The event industry has high visibility due to its environmental impact as a result of large numbers of visitors over a short period of time (Boo & Park, 2012). Tourism activities, including events, account for nearly 4% of the carbon emissions of the tourism industry (Gössling *et* al, 2010:121). Events are also vulnerable to impacts of climate change and larger hallmark events, such as some sports events, rely on specific outdoor locations (Mair, 2011a). It is therefore necessary to explore the current knowledge and practices relating to environmental responsibility within this sector. The section will focus on events from a tourism perspective, with greater elaboration on sports events in section 2.4.

In line with the wider tourism industry's awareness regarding environmental issues, there has been a steadily increasing awareness of the need to minimise and manage the negative environmental impacts associated with events, even though climate adaptation research for events, for example, is stated to lag more than seven years behind other economic sectors engaging in adaptation research (Mair, 2011a). This lower level of research interest (Guterman, 2009; Hede, 2007:18) stands in stark contrast to the fact that it has been identified as a priority research area (Getz, 2008) and that Ionnides already stated in 1995 that there was an abundance of literature available on the environmental impacts of an event (Ionnides cited in Bob, 2010:209). This lack of academic research is also in contrast to the increasing interest expressed by event organisers to market their green credentials in a reliable manner to a knowledgeable market (Laing & Frost, 2010).

It is stated that green strategies and environmental sustainability have become important considerations in staging successful events (Boo & Park, 2012; Dickson & Arcodia, 2010a, Whitfield & Dioko, 2011), with the focus falling on how such strategies contribute to successful bidding for mega-events, the arguments surrounding a TBL approach in event planning, studies on how climate change may affect events (Laing & Frost, 2010, Mair, 2011a), and some studies on event attendants' attitudes and willingness to pay for carbon offsets or greener events (Bergin-Seers & Mair, 2009; Jones, 2010). Event venues such as conferences as part of the growing business tourism sector are increasingly being inspected in terms of their social responsiveness, and an increase in CSR behaviour is regarded as a prerequisite for repeat visitation (Bergin-Seers & Mair, 2009; Whitfield & Dioko, 2011). Similarly, Mair (2011a) states that events will increasingly be required to persuade potential attendees of their greenness or sustainable credentials to attract a wide audience. This is in line with the increased societal pressure that is being put on organisations at various levels to manage and improve their environmental performance (Huggins, 2003:8), and an increasing consumer demand for environmentally conscious events (Dickson & Arcodia, 2010a). Not only client companies and consumers, but also sponsors can put pressure on event organisers to adhere to sustainable practices (Fairer-Wessels & Malherbe, 2011). Researchers and scientific organisations are also becoming more aware of their carbon footprints when attending scientific conferences, and the industry and academic institutions have been responding with carbon offsets, recycling, reducing conference travel and even replacing meetings with teleconferences (Guterman, 2009). To the contrary, a study focusing on leisure events (cultural festivals) found no connection between responsible initiatives and marketing thereof, with a growth in popularity (Kuokkanen, 2011).

A green event is defined as "An event that has a sustainability policy or incorporates sustainable practices into its management and operations." (Laing & Frost, 2010:262). There are a number of operational issues involved when greening an event, including:

- the location in terms of access to transport, waste management and 'green power';

- the availability and management of carbon offsets;
- type and quantity of materials and products used;
- waste management (ablutions, use of grey water, recycling, precise catering to reduce waste, compostable eating utensils); and
- energy management (Laing & Frost, 2010).

Transport is considered a major consideration as it can affect the event's carbon footprint, damage to local nature, congestion, noise, visual intrusion and reduction in local air quality. Events in locations not serviced by public transport often opt for providing charter vehicles or shuttle buses, or by encouraging attendants to make use of car-pooling by offering parking discounts for multi-occupied vehicles, or offering free local public transport passes (Jones, 2010; Laing & Frost, 2010).

It is stated that event organisers can be regarded as 'change agents' by integrating environmental management into all aspects of an event, to demand a green supply chain and to spread messages of sustainable living to event attendees (Mair, 2011a). Events also offer a platform to direct green messages to audiences that are traditionally not regarded as green (Laing & Frost, 2010). In many instances, they offer authorities in various fields an opportunity "to demonstrate best practice models in waste management and to change public attitudes and habits" (Ahmed *et al.*, 2008:76). During the 17th Conference of the Parties to the United National Framework Convention on Climate Change (COP17) held in Durban during 2011, for example, authorities in Durban used this opportunity to display a variety of initiatives and capabilities of the host city and host country to the rest of the world. It included a municipal climate protection programme, conservation projects, carbon and ecological footprint measuring and management, as well as a voluntary offset project. Initiatives directed at event visitors included green tours to various green project sites, an environmental code of conduct, low impact transportation, green conference venues, a responsible accommodation campaign, as well as a responsible visitor charter (COP17CMP7, 2011). In a similar manner, green events are used to promote political ends, but also to support various charities (Laing & Frost, 2010).

Environmental protection, nature conservation and climate protection at large events are usually based on voluntary activities and direct initiatives from participants (Sahler, 2007:12). Progress has been made in the development of tools that can assist in making events more sustainable (Dickson & Arcodia, 2010a), with many events completing an environmental impact assessment (EIA) and undertaking audits of their green credentials to benchmark and improve their own performance (Laing & Frost, 2010). Many events and event venues also use existing accreditation schemes to assist in addressing environmental sustainability issues, for example Green Globe Benchmarking (Laing & Frost, 2010). There are also tools to measure an event's environmental performance at the hand of quantifiable indicators (EPIs or environmental performance indicators) and frameworks such as the 'Greener Venue' framework proposed by Whitfield and Dioko (2011).

Some event associations adopt environmental principles in order to influence and guide their members and it has been proven that event associations play a major role in the greening of the industry (Dickson & Arcodia, 2010b). For example, the Association of Event Organisers has a *sustainability centre* that provides related resources (AEO, n.d.). In South Africa, the initiative to green events is undertaken by the *Event Greening Forum*. In other instances the initiative comes from government agencies such as governmental departments.

There are also examples of public agencies that have identified the need to include events as an important focus area. In this regard, great work has been done by UNEP. They have developed a *Green Meeting Guide* along with a *Greening Meeting Checklist*, in partnership with ICLEI (Local Governments for Sustainability). The checklist provides a detailed set of recommendations for the organisers of small and medium-sized events (ICLEI, 2009b; UNEP, 2009). The Convention Industry Council in the USA focuses on green meetings and through its Green Meetings Task Force published the Green Meetings Report which addresses the minimum guidelines for the implementation of sustainability policies in this industry (Boo & Park, 2012; Guterman, 2009). The UK's British Standard 8901 is currently regarded as the "gold standard" for certifying an event as green. The report was developed in an effort to green the London Olympics of 2012, and where American standards focus on logistics, the British Standards focus on processes (Guterman, 2009). In South Africa, a few local and provincial authorities have taken initiative to encourage the greening of events. Examples include the City of Cape Town's *Smart Events Handbook* (City of Cape Town, 2010); eThekwini Municipality's *Green Event Guideline* which was developed out of the COP17/CMP7 greening programme (eThekwini Municipality, 2011); as well as Gauteng Tourism Authority's *Gauteng Green Events Guidelines* (GTA, 2012).

As custodian of the tourism destination, the destination marketing and management organisation (DMO) has to actively participate in and support the 'greening' of the events sector. After an evaluation of environmentally responsible practices in the events industry, Kruger (2011:158) identified various tasks that could form part of any DMO's environmental accountability initiatives related to events hosted within its jurisdiction. These include:

- encouraging tourism industry members to comply with and commit to sustainability standards;
- demanding environmental accountability from event organisers and suppliers;
- considering the environmental impacts of the different event types in the event portfolio of the destination;
- including 'green' aspects into destination marketing communication in a responsible manner;
- supporting related initiatives of public and private agency stakeholders; and
- supporting environmental education of event tourists.

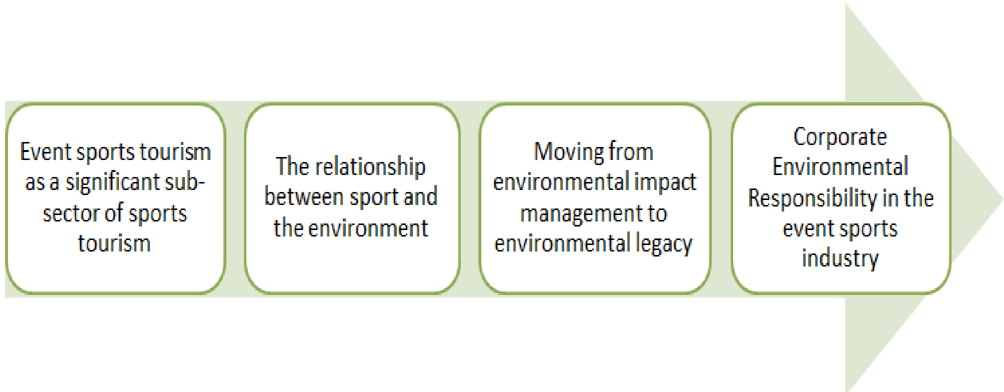
Apart from the growing body of knowledge and industry practices related to green events, not much is known about green event attendees, and research is needed to explore aspects of behaviour of such individuals. Information related to their motivations, interest in green issues and expectations of an event's 'greenness' can assist with market segmentation and increased levels of visitor satisfaction (Laing & Frost, 2010). Mair (2011a) applies the work of Scott and Jones (2006) to illustrate that event attendees have higher capacity than event organisers to adapt to climate change through behavioural changes. These adaptations may include something simplistic like adjusting their clothing worn to an event, or equipment carried to an event (e.g. umbrellas), or it may imply more radical adaptation such as deciding not to attend.

It is clear that much is being done from both the industry perspective to build on a healthy environment-economic interface within the tourism industry. The next section will explore this interface within the sports industry context. Because of the broad scope of sporting codes, as well as the different sub-sectors of sports tourism, it is necessary to first define event sports tourism as the focus of this study before continuing.

2.4 ENVIRONMENTAL SUSTAINABILITY IN EVENT SPORTS TOURISM

"The issue of sport and the environment or the question of how sport can be greener may not be one of the prime directives of the sports industry in the Western world but the environment and survival of human life itself is one of the foremost twenty-first-century concerns." (Jarvie, 2012:280)

Sport stands central to economic, social and cultural life in many countries across the world and imparts several indirect benefits to participants and spectators as consumers. This section will start off by defining event sports tourism as a fast growing sub-sector of sports tourism. The relationship between sport and the environment will then be explored, followed by a discussion on the move away from mere environmental impact management toward creating environmental legacies. The section ends off by exploring CER within the event sports tourism industry (sequence depicted below).



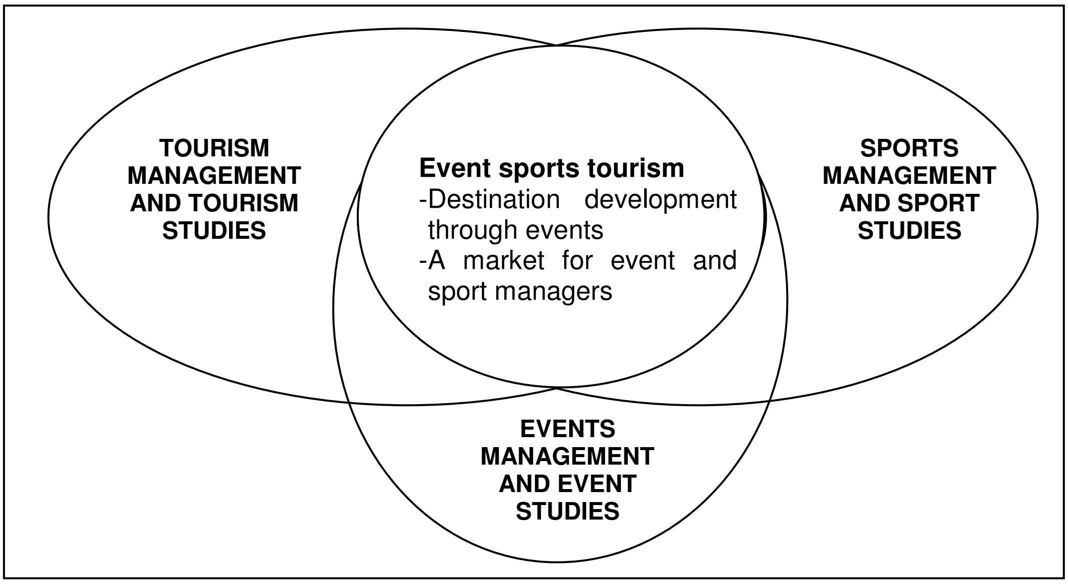
2.4.1 Event sports tourism as a significant sub-sector of sports tourism

The concepts of tourism and sport are related, with sport being an important activity within tourism and tourism being a fundamental characteristic of sport (Hinch & Higham, 2001). Sports events are represented in the various categorisations and typologies of sports tourism. Three typologies define sports events as a clear and distinct category based on the format in which the sporting activities take place. These include Weed and Bull's Model of Sports Tourism Types (2004); Kurtzman and Zauhar's category of sport tourism events (2003); as well as Glyptis' spectator events category (1982). According to Kurtzman and Zauhar (2003), these events consist of "those sports activities that attract tourists of which a large percentage are spectators". Gibson (2006:2) defines sports tourism as "Leisure based travel that takes individuals temporarily outside of their home communities to participate in physical activities, to watch physical activities or to venerate attractions associated with physical activities". Event sports tourism can fall within both the first and second groups even though the second category, "to watch physical activities", is also named 'event sport tourism'.

Getz (2008) also identifies sports events as one of the four categories within events literature. Three different fields of study are involved in the development of the specialisation field of event sports tourism from a managerial perspective, including tourism management, sports management and events management (Weed, 2009). Within this overlap, two separate sub-fields also exist, namely event tourism and sports tourism. At the nexus of the three main fields and two sub-fields, lays the specialisation sub-field of event sports tourism (illustrated in Figure 4). From a tourism management perspective, the focus is on promotion of the destination through the events market segment (events tourism) or through the sports market segment (sports tourism). Events of all natures (sport, cultural, business, etc.) are important motivators of tourist movement and they often feature as prominent components of DMO strategy (Getz, 2008). On the other hand, tourists have become a lucrative potential market for both sport managers and event managers alike, and the tourism industry is regarded as a vital stakeholder in the success and sustainability of both sport and event related initiatives (adapted from Getz, 2008).

When viewing sports tourism as this overlapping area, it is important not to give primacy to either sport or tourism (Weed, 2005).

Figure 4: Event sports tourism at the nexus of tourism, sport and event studies



Source: adapted from Getz (2008:406)

Sports tourism as a whole is said to be significant because of the significance of its practice throughout the world (Hinch & Higham, 2011; Richards & Walker, 2009). Though it may appear to be a small, specialised niche segment, event sports tourism is regarded as one of the fastest growing segments within sports tourism. It involves travelling to experience sporting events, where a large number of spectators outweigh a smaller number of competitors or active participants (Getz, 1998). It has been expanding at a rapid rate since 2000 (Byeon, Carr & Hall, 2009; Getz, 2008) and is regarded as the highest profile product within sports tourism (Weed, 2009). Hums (2010:2) states that sport events at local, national and international levels have “molded the sport industry into a shape not seen before”.

Sport mega-events in particular have become sought-after opportunities for destination managers; not only because of the expected economic benefits, but also for the increased drawing power of the destination resulting from the event exposure (Byeon *et al*., 2009; Getz, 2008; Hede, 2007). They appear to be of particular significance because of their political importance and frequent controversy surrounding the local organising committees

(LOCs) of the events (Getz, 2008; Swart, 2010). These events attract the attention of a variety of audiences including participants, spectators, tourists, investors and prominent media (Byeon *et al.*, 2009). Nauright (2004) even goes as far as to state that there appears to be a “21st century sport–media–tourism complex”. Of all the sport mega-events, the Olympic Games have tended to receive the greatest attention by researchers and a substantial amount of material is available on the topic (Getz, 2008; Shipway & Kirkup, 2012).

At the same time, the academic discourse around mega-events is dominated by economic perspectives (Shipway & Kirkup, 2012) which (exasperatingly) continue to claim that the biggest events bring the biggest payoffs (Weed, 2009). This claim has been challenged through a number of studies (see Abelson, 2011; Hall, 2012; Hall & Wilson, 2011). Shaffer, Greer and Mauboules already indicated in 2003 that the Vancouver 2010 Winter Olympic Games was not attractive from a financial point of view and couldn’t be justified based on the projected economic impacts. Other authors similarly challenge the ability of these events to truly offer positive long-term benefits for the host destination (see Jago *et al.*, 2010 and Kavetsos & Szymanski, 2010). A number of authors forewarned that the recently hosted 2010 FIFA World Cup in South Africa would not deliver on the widely publicised economic (and other) legacies if not approached differently given the local context (Atkinson, 2009; Cornelissen, 2007; Cornelissen & Swart, 2006; Du Plessis & Maennig, 2009; Pillay & Bass, 2009). Giampiccoli, Lee and Nauright (2013) found the event to be a short-term success, with only a brief tourism boom in the established local destinations and limited rural tourism spread. They state that even the promulgated boost in international reputation seems to be questionable. South Africa’s position on the 2013 TTCI has only increased slightly, moving from 66th to 64th position since 2011; with the country’s image affected by safety, security, health and price competitiveness issues (WEF, 2013).

A separate line of discourse, challenging the impacts of these events, is focused on the effect that these events have on the Quality of Life (QOL) of local residents as part of these events’ social impacts; a topic of increasing importance in tourism studies (Moscardo, 2009). Some studies indicate that expected political, psychological, social and economic impacts contribute positively to perceived QOL benefits (Kaplanidou, Karadakis, Gibson, Thapa, Walker, Geldenhuys & Coetzee, 2013), with the associated sport-specific benefits including health benefits, increased active lifestyles, and broader access to participation (Shipway, 2007a). At the same time a host of studies indicate perceived negative impacts such as crime and prostitution (Ohmann, Jones & Wilkes, 2006), displacement of local residents (Bénit-Gbaffou, 2009; Ohmann *et al.*, 2006), as well as crowding, noise, traffic congestion, pollution in their living environments and raised costs of living (Chen, Ritchie, Shipway & Henderson, 2012; Fredline, 2004; Ritchie, Shipway & Cleeve, 2009; Turco, Swart, Bob & Moodley, 2003). Giampiccoli and Nauright (2010) argue that mega-events often don't fulfil the 'development dreams' of the host population, and that the spread of wealth as envisaged through community-based tourism strategies are actually threatened by such events.

Fortunately, the growth in sports events has not only been limited to those of a 'mega' scale. Destinations around the globe have experienced a proliferation of sports events at different scales and for varied sporting codes; a trend that fits in with the global consumption of image and lifestyle (Swart, 2010). Several authors have argued that regular and small-scale events (locally or regionally organised and managed) provide greater benefits and fewer burdens than once-off mega-events (Higham, 1999; Shipway & Kirkup, 2012; Weed, 2009:621). The operation of such events on a recurring basis can collectively create significant impacts (Giampiccoli *et al.*, 2013); even very similar benefits to those of a mega-event (given the parameters of the destination) (Hinch & Higham, 2011). The promotion of such events is often connected to a motivation of increased tourism and local opportunities and needs. In the case of South Africa, three local annual events (cycling, running and swimming) proved to be more sustainable, with greater economic impacts within the given regions in the long term, than the recently hosted FIFA World Cup of 2010. These events showed to be less vulnerable to global economic crises because they attract "niche markets of recurring participants and spectators drawn both locally and globally", with year-to-year fluctuations having no significant effect on the tourism benefits accrued (Giampiccoli *et al.*, 2013:17).

These more 'modest scale' events include a great variety of sporting codes with regular domestic sport competitions; local, regional or national championships/tournaments and non-elite sports events (Hinch & Higham, 2011; Yusof, Omar-Fauzee, Mohd & Kim, 2009).

Gibson, Kaplanidou and Kang (2012) explored six small-scale sports events (a marathon, senior games, archery, soccer, softball and swimming) and concluded that, if implemented appropriately within the host community's resource capacity, it could be a viable form of sustainable tourism development. Halpenny and Kulczycki (2012) similarly found that the impacts of small-scale sport events are experienced differently by residents, participants and spectators, and that effective management of these experiences could ensure sustained support for such events. A study by Karadakis (2012), for example, found that only psychological, infrastructure and tourism impacts significantly influenced residents' positive perceived influence on quality of life by a small-scale sports event, with environmental impacts negatively affecting quality of life. According to Shipway (2007b), residents present a key stakeholder in a destination and any sport tourism development outcomes are untenable if they negatively influence residents' QOL.

The issue of scale is very important in sports tourism and it is said to reflect the debate around alternative versus mass tourism. The achievement of a balance between events of different scales and with appropriate capacity requirements is key to achieving sustained success in event sports tourism (Hinch & Higham, 2011). In the South African context there appears to be great scope for a sports development plan focused on small-scale sport events as part of tourism development strategies (Giampiccoli *et al.*, 2013). The natural landscape is sure to stand central to many of the outdoor sports tourism experiences, while at the same time often being fragile and sensitive to disturbances (Halpenny & Kulczycki, 2012; Hinch & Higham, 2011). The next section elaborates on this dual relationship between sport and the natural environment as an important consideration given the prospect of growth in sport events.

2.4.2 <u>The relationship between sport and the natural environment</u>

"Since time immemorial, people have entertained themselves with sports. Sports are emblematic of health …. But ironically, even as sports promote health, they can also degrade the environment upon which good health depends … Whether played or watched, athletic endeavours have the potential to produce huge environmental 'footprints' in terms of their use and abuse of natural resources." (Schmidt, 2006:A286)

The natural environment can be regarded as a primary stakeholder in sport (Mallen & Chard, 2011), and sport has unique obligations in terms of environmental responsibility given the extent of demands on the environment (Smith & Westerbeek, 2007). Environmental sporting problems are not new (Jarvie, 2012), and the environmental movement within sport is continuously growing and mainly focuses on two broad perspectives: reducing the ecological footprint of sports activities, and using the popularity of sports to raise environmental awareness in general (Schmidt, 2006:A286). UNESCO regards sport as a vehicle to promote environmental protection through mobilising athletes and spectators. It regards the educational dimension as its most important action for sport and the environment and regards NGOs as tools in raising awareness (UNEP, 2007).

Elements of the natural environment form the platform for many sporting codes, where participants actively compete against inanimate natural objects (e.g. rocks, mountains, water, snow) or the forces of nature (e.g. wind, waves) (taken from Hinch & Higham, 2001). In other instances the natural environment contributes to the uniqueness of the experience and counters the increasing standardisation of sportscapes inherent to built sports facilities (discussed in Hinch & Higham, 2011). Sports such as cycling can take place in constructed spaces in urban areas (circuits, velodromes), or they can take place in outdoor settings (parks, forests) where participants have different challenges and experiences. Other examples include swimming, climbing, running and even scuba diving. It is in these instances where "naturalness" forms an essential part of the sport tourist experience that the activities tend to have longer term or permanent impacts; with the deterioration of the resource quality directly affecting the sport tourist experience (Hinch & Higham, 2011). It is therefore imperative to manage activities in such areas and to mitigate negative impacts (Weed & Bull, 2004).

The relationship between sport and the environment goes both ways: sports activities can cause damage to vulnerable locations, but sports activities are also influenced by changes occurring in the natural environment where changes in climate and the loss of natural spaces hinder participation in sport (UNEP, 2013b). For example, just as sports events can contribute to climate change (Otto & Heath, 2009), climate change can pose serious challenges to the sustainability of certain sporting activities such as snowmobile tourism (Gilmour, 2010) and ice fishing, ice skating and skiing (Jones, Scott & Khaled, 2006).

During the Vancouver 2010 Winter Olympics, changing international weather patterns brought about unusual warm winter weather and a resultant lack of snow, presenting problems to the event organisers (Jarvie, 2012). Where the environmental impact on sport tended to be local, the nature of current environmental risks associated with global warming, large scale pollution, changing seasons and nature means that environmental sporting issues have now become international issues. Many of these problems and concerns are linked to human desires for wealth, knowledge, affluence and power, as well as other social issues such as population growth and patterns of energy consumption, making it a practical necessity to "relate sport and the environment to other spheres of life" (Jarvie, 2012:269).

The natural landscape can be interpreted in different ways, with each having its own resulting impacts (Bale, 1994 adapted in Hinch & Higham, 2011:123-124). Considering these interpretations are important for the sustainable development of sports tourism. The first set of interpretations relate to the influence of humans over the environment.

- The landscape is utilised as is for an event, but never 'sportised' in a permanent sense; the quality of nature is an important part of the experience.
- The landscape is 'rearranged' into different sport-related forms (with slopes, routes, channels, etc.); the landscape is adjusted for the sake of sport.
- The landscape is disregarded and replaced or 'conquered' with human-made surfaces.
- The landscape is seen as an entire economic or physical system through which the sport takes place (e.g. the Tour de France route running through various places).

The second set relates to abstract associations made with the landscape:

- The landscape is seen as a 'problem' as a result of sport because of associated environmental manifestations such as pollution, congestion, erosion, etc.
- The landscape is seen as possessing a particular sense of place (particular nuances and unique flavours) that contributes to the overall experience and a sense of 'place attachment'.
- The landscape is seen as possessing aesthetic qualities that make it more desirable than others. It has to do with the actual aesthetics, but also portrayals through imagery which can give it a mythical character.

Importantly, it has been suggested that participation in nature-based sports activities (which are inherently sensitive to environmental disturbances) may promote stronger feelings of connectedness with and desires to care for nature (Brymer & Gray, 2011; Brymer, Downey & Gray, 2009).

The relationship between sport and its environment remains a problematic and urgent issue (Book & Carlsson, 2011:401) and 'environmental respect' is regarded as one of the key challenges facing sport managers in the 21st century (Hums, 2010), despite economic and social dimensions of the sport sector receiving most of the attention (Rydin *et al.*, 2011:2). Some of the challenges associated with the management of sport in natural areas include (i) the speed with which new sports are developed and spread; (ii) the absence of relevant institutional frameworks; (iii) the absence of baselines from which to measure changes brought about by sport tourism specifically (as opposed to other activities); (iv) the difficulty in developing appropriate intervention and long-term monitoring programmes for more subtle changes; (v) the incompatibility of different sports codes and competition levels sharing the same resources; (vi) as well as the conflicting motivational profiles of participants within a sport (taken from Hinch & Higham, 2011:137–141). Before exploring the scope of strategies in place to manage this relationship, the subsequent section first describes the environmental impacts associated with sport and explains the move away from a focus on impacts towards legacies.

2.4.3 Moving from environmental impact management to environmental legacy

"A number of sports have a potentially detrimental impact upon the environment." (Jarvie, 2012:267) The study of event impacts is the most researched area in sports tourism and there is considerable debate in the literature about the interaction between economic, social and environmental impacts (Weed, 2006 in Weed, 2009:621). Several authors support the need to take a TBL approach toward measuring the impacts of events at economic, socio-cultural and environmental level (Bob, 2010; Chernushenko, Van der Kamp & Stubbs, 2001; Fairley, Tyler, Kellett & D'Elia, 2011; Hede, 2007; Jago, Deery, Fredline & Raybould, 2005; Preuss, 2007; Sherwood, 2007). At the same time there appears to be an 'economic bias inherent in event tourism' (Getz, 2008:420; Shipway & Kirkup, 2012), as well as sports tourism (Chalip, 2006:112; Wood, 2005:38) and this domination by economic perspectives are considered to be at the expense of social and environmental issues (Weed, 2009).

It is problematic to give a full account of the environmental impacts of sports activities, due to the variety and different environments in which they take place (Hinch & Higham, 2011). Sports activities in a built environment (such as stadiums or tracks) are prone to high energy usage (and emission of greenhouse gases), large amounts of trash and vast paved surfaces. Outdoor activities tend to disrupt ecosystems, cause pollution and erosion of natural features (taken from Schmidt, 2006:A286). The focus of this study is on outdoor sports events, where the effect of the activities on nature will depend on the extent, intensity, type of sport, as well as the ecological resilience of the natural area being used (Jagemann, 2003:[3]). Apart from mega-events, studies on the environmental impacts of sporting activities include golf (Briassoulis, 2010; Trendafilova, 2008; Trendafilova & Waller, 2011; Wheeler & Nauright, 2006); skiing (Pickering, Harrington & Worboys, 2003); motorsports (Dingle, 2009; Tranter & Lowes, 2009); mountain biking (Howie, 2003); beach sports events/surfing (Ahmed, *et al.*, 2008); rock climbing (Carr, 2007); cross-country racing (Barnes, 2009); and canyoning (Hardiman & Burgin, 2010). Türk, Jakob, Krämer and Roth (2004) provide interesting perspectives on the way in which landscape analysis can be used to monitor the development of sporting activities such as canoeing, climbing, paragliding, scuba diving, surfing, hiking, mountain biking and snow sports.

Impacts are the direct, measurable outcomes of an event. Some of the negative environmental impacts associated with sports events include overcrowding, noise and traffic congestion (Byeon *et al.*, 2009:67; Jones, 2001:243), and different forms of pollution (Collins *et al.,* 2009; Dickson & Arcodia, 2010b; Otto & Heath, 2009:174). Research done by UNEP similarly indicated the following environmental impacts of sports events: development of fragile or scarce land types; pollution from liquid spills (fuels, cleaners, solvents, etc); noise and light pollution; consumption of non-renewable resources (fuel, metals, etc); consumption of natural resources (water, wood, paper, etc); creation of greenhouse gases by consuming electricity and fuel; ozone layer depletion; soil and water pollution from pesticide use; soil erosion and compaction during construction and from spectators; waste sent to landfill, incinerator and sewerage plants (including paper consumed by media and officials, as well as waste generated from signs, food services, banners and temporary booths (Huggins, 2003; UNEP, 2013a). Furthermore, the latest global concerns surrounding climate change has introduced a new level of environmental accountability, and may require extensive measures to assess an event's energy footprint (Mair, 2011a; Otto & Heath, 2009:174). Apart from the variety of possible impacts across different sporting codes, there is also much debate over the most effective way to measure these impacts. For example, EIA, carrying capacity concept (CCC), limits of acceptable change (LAC) planning systems, life cycle analysis (LCA), cost-benefit analysis (CBA), and procedural and process tools such as EMSs (Collins, Munday & Roberts, 2012:578). The value of and difference between Input-Output modelling (ENVIO) versus Ecological Footprint (EF) analysis is argued in a number of articles (Collins & Flynn, 2007; Collins, Flynn, Munday & Roberts, 2007; Collins *et al.*, 2009; Collins *et al.*, 2012). Major weaknesses of the popularly used EIA, is that it is unable to rank impacts in order of significance; that it is geographically bound to the event location (leaving tourist travel out of the calculation); only takes into account direct impacts; and that it tends to be built around subjective judgement of event organisers. The wide range of tools makes comparison between different events unpractical, and there is no single tool that accounts for all the aspects of event sustainability (Collins *et al.*, 2012).

Even though it is valuable to predict and manage these negative impacts of sport events, a focus on impacts in a 'snapshot' manner and not as part of a longitudinal process will lead to an unclear understanding of the contribution that the event makes toward sustainability of the host destination's resources (Byeon *et al.*, 2009:66). Cornelissen, Bob & Swart (2011) argue that event impacts should be evaluated in relation to the context in which they occur. Consequently, the last decade has seen a significant move toward gaining a greater understanding of the 'legacies' of sports events for host destinations (Jago *et al.,* 2010; Leopkey & Parent, 2012; Preuss, 2007; Weed, 2009). Legacies have to do with the indirect influences as a result of the event (the wider 'repercussions' so to say). The underlying idea of legacy creation is that it will represent something of substance that will enhance the wellbeing or lifestyle of the destination's residents, in a way that reflects their values (Ritchie, 2000).

Positive environmental legacies of sports events may include greater environmental awareness among event sports tourists (spectators as well as participants) (Hinch &

Higham, 2011), and environmental stewardship among members of the local community (Collins *et al.,* 2009); establishment of environmental education initiatives, infrastructure and programmes that remain after the event (Allen, O'Toole, McDonnell & Harris, 2008; Collins *et al.*, 2009); and financial contribution to environmental initiatives by the event participants (e.g. participants giving money to a chosen charity). Still, Thomson, Leopkey, Schlenker and Schulenkorf (2010) debate the concept of legacy and argue that, in order for legacy to continue as a justification for sport event policy, much is still to be done in conceptualising its key components and the practical management application thereof.

The only way of ensuring positive legacies is if there is a shift from impacts that measure outcomes, toward 'leveraging' where a strategic focus pro-actively capitalises on event-related opportunities (Chalip, 2004), and where an event is not regarded as an 'intervention', but rather as a "temporary limited set of opportunities to foster and nurture longer-term outcomes" (O'Brien, 2006:258). Weed (2011b:2) similarly argues that TBL evaluations often struggle to reach holistic conclusions and that the focus should be on "processes of change", where leveraging or mitigation strategies create change in individual behaviour, in society, communities and in the environment. Current research on legacy shows that the concept of legacy has evolved from merely having early perceptions of the need to acquire benefits from hosting an event, toward "strategically developing sustainable long-term legacy plans" (Leopkey & Parent, 2012).

In order to effectively leverage a sport event for tourism purposes, a destination should have a focused tourism events strategy, as opposed to merely having an event strategy through which tourism objectives are also incidentally met (Stokes, 2008); something that few destinations actually have (Getz in Stokes, 2008). Within such a strategy, provision should ideally be made for a variety of events to be hosted in the destination as different types of events will present different opportunities, benefits and challenges to the destination (Bob, Swart & Cornelisen, 2008; Clark, 2008; O'Toole, 2010). The argument is that sports events should run alongside other types of events (cultural, political, business, etc.), while also representing a variation in the size of the different events (local versus international), as well as frequency of occurrence (annually, bi-annually, every four years, etc.). Ultimately, such an extensive and varied number of events should deliver a logically flowing attendee experience to destination visitors (Crowther, 2010).

There is a notable shift in the sports tourism industry toward responsible and sustainable utilisation of sports events to generate tourism. As explained in this section, a paradigm shift has taken place from being economically driven toward being sustainability driven through giving greater attention to the TBL, event legacies and strategic leveraging of sports events. Hinch and Higham (2011:142) note a shift "away from impact mitigation to proactive environmental stewardship and habitat creation associated with event sport tourism". Similar to tourism (Dummet, 2008:51) however, there is often a lack of governance through official environmental policy, and initiative is left at the door of individual practitioners through self-regulation (Book & Carlsson, 2011:401). The next section explores some of the prominent environmental initiatives undertaken by members of the event sports industry.

2.4.4 CER in the event sports industry

"Greening an event is not about simply planting trees in the area … Rather, it involves deliberate management intervention in all facets of event planning and execution, such that all resources (such as water, energy, waste and biodiversity) are utilised in a way that promotes sustainable development" (DEA, N.d.a:2)

It is stated that environmental initiatives have not until recently been viewed as a priority by sport organisations and that the linkage between sport and the environment was almost non-existent during the early 1990s (Uecker-Mercado & Walker, 2012). Since the time that David Chernushenko published his seminal text "*Greening Our Games: Running Sports Events & Facilities that Won't Cost the Earth"* in 1994, an array of initiatives have been launched in the sports industry to address the sustainability of sporting events (Ahmed *et al.*, 2008:77; Bob, 2010:216; Chernushenko, 2011). Sport has witnessed a growing interest in CSR (including social, environmental and economic dimensions) in line with other industries worldwide, and there have been notable advances in research in the field (Dowling *et al.*, 2013; Trendafilova, Babiak & Heinze, 2013). Sports have been recognised as a platform through which causes, CSR and philanthropic endeavours can be contextualised (Greyser, 2011); while professional teams and sport leagues are increasingly turning their attention to 'environmental CSR' as such practices are now expected by stakeholders (including customers/fans) (McCullough & Cunningham, 2010;

Trendafilova *et al*., 2013). Yet, examinations of CER (focusing on the environmental dimension) in the sport industry are relatively scarce and while socially responsible initiatives are growing, CER in sports has attracted little academic attention (Babiak & Trendafilova, 2011; Mallen & Chard, 2011; Salome *et al*., 2013).

There is extensive variation in the extent to which different professional sport organisations are adopting and performing CER (Trendafilova *et al*., 2013). UNEP is the "veteran influential player in the arena" and was among the first to get involved in the sports sustainability movement (Schmidt, 2006:A286). Through its *Sports and Environment Programme* it aims to work toward the two broad goals previously mentioned (Schmidt, 2006:A286). It has hosted several *World Conferences on Sport and Environment* since 2001, with the 2009 event featuring nearly 350 organisations from 93 countries (Hums, 2010). The 2011 event in Doha, Qatar, lead to the creation of the so-called *Doha Declaration*, renewing the sports world's commitment to economic, social and environmental aspects of sustainable development in sport (Olympic.org, 2013). The *Global Sports Alliance* (GSA) is an NGO working with UNEP to create an environmentally aware sports culture (Schmidt, 2006:A287).

The Olympic Movement has the most advanced system in place to determine the effects of a mega-event on a host destination. The International Olympic Committee (IOC) was founded in 1894, and has been working together with UNEP since 1994 to incorporate environmental issues in Olympic Games. In 1995 these two organisations partnered to host the first World Conference on Sport and Environment (Schmidt, 2006:287) and the environment and environmental policy became the *third dimension* of the Olympic Movement (Jarvie, 2012). It has also collaborated with UNEP to develop an *Agenda 21 for Sport and the Environment*. UNEP subsequently assists the LOCs of the various host countries to implement environmental plans and projects, and to carry out the *Olympic Games Impact Programme* which forms part of all host destination agreements (Bob, 2010:217; UNEP, 2010b). It evaluates the costs and legacies (economic, social and environmental) of the Games, from start (conceptualisation) to finish (bidding and hosting). It also evaluates the effectiveness and outcomes of the measurement strategies employed by the host destinations. In this way, knowledge is transferred from one host to the next (Cornelissen, 2007:248). According to the IOC, the environment and sustainability has to be taken into account throughout the lifecycle of an Olympic Games project (from conceptualisation to evaluation - which can span a period of 11 years) in order to make their *Green Games* concept a reality (IOC, 2009). The work of the IOC Sport and Environment Commission is dependent on, and should be complementary to the political framework on environmental protection that is set up by host destination governments (IOC, N.d). The IOC also aims to take sustainability beyond the Olympic events. They have developed a document, 'Think globally, act locally' to encourage and guide members of the Olympic family to put the major principles of environmental protection and sustainable development into their day by day sporting lives (IOC, 2006).

The 1994 Winter Olympics in Lillehammer, Norway, is regarded as the first attempt to create a 'green' Olympic Games (Schmidt, 2006:A289). Since then host countries of the Olympic Games have been developing programmes specifically aimed at addressing environmental issues. The Sydney Olympic Games of 2000 is regarded as the most successful green Games to date, with the environmental guidelines governing the Games focusing on environmental protection and sustainable development of Olympic sites (Jarvie, 2012). Where the 1992 Winter Olympic Games in Albertville is regarded as having had the most destructive impact on the natural environment (Konstantaki & Wickens, 2010), and the 2004 Athens Summer Olympics as an "environmental failure" due to poorly designed venues and inefficient energy use, subsequent events have all been characterised by commitment to strategic environmental assessment (Schmidt, 2006:A289). The events have all inspired the creation of environmental guideline publications. For example, the *Heritage Climate Torino* programme of the 2006 Torino Games (GSA, 2006:[8]). The 2010 Vancouver Winter Olympics focused on sustainability as a central theme of their extensive legacy strategy (Leopkey & Parent, 2012). The Canadian Standards Association developed a *Requirements and Guidance for Organizers of Sustainable Events* standard, based on the work of the Vancouver Organising Committee for the 2010 Olympic and Paralympic Winter Games (VANOC), the VANOC Sustainability Management and Reporting System (SMRS), and the International Academy of Sports Science and Technology's *Sustainable Sport and Event Toolkit* (Hall, 2012). Several concerns have already been raised regarding the 2014 Winter Olympic Games in Sochi, which would initially have taken place on the borders of a World Heritage Site and in extremely vulnerable ecological terrain (Prudnikova, 2012). UNEP has been working with the Sochi 2014 Organising Committee on Action Plans for *Zero Waste Games, Climate Neutral Games, Games in Harmony with Nature* and *Enlightenment Games* (UNEP, N.d).

Even before the 2012 Games, the UK has been synonymous with environmentally responsible sport and event practices with initiatives such as the *Environmental Guidelines for World Class Events* produced by UK Sport (Huggins, 2003:8), and the University College London Environment Institute that works with the British Association for Sustainability in Sport (BASiS). London's bid for the Olympic Games was built around sustainability, with legacy opportunities formulated in terms of sport, social, economic as well as environmental issues (Leopkey & Parent, 2012). Their concept, "Towards a One Planet Olympics", was based on the notion that three planets would be necessary if the entire world's population were to live a typical British lifestyle (Singh, 2012). It has been stated that the London Games of 2012 would leave a legacy as the most energy efficient Olympics to date with energy efficient, sustainable and recyclable facilities (Hyrkas, 2012). The event's top sustainable achievements lauded include the world's first recyclable stadium; the sustainable surface of the cycling VeloPark; a 'greener food' vision; low impact transport through 400 branded bicycles and 4000 electric vehicles for the Olympic fleet; extensive reuse or recycling of construction waste; a green athlete's village including a bio-diverse habitat; and energy monitoring systems installed at the high-profile venues (McCarthy, 2012; Shankleman, 2012). The London Organising Committee of the Olympic Games and Paralympic Games (LOCOG) developed a *Zero Waste Games Vision* (2012a), with the 'Waste to Landfill' strategy recognised as a flagship sustainability initiative. A number of standards were also developed as part of their Games-related activities, including a Zero Waste Events Protocol, Sustainability Guidelines for Corporate and Public Events, the Event Resource Management Plan Tool, and new GRI (Global Reporting Initiative) Event Organisers Sector Supplement. The London 2012 sustainability plan also aimed at changing behaviour of individuals in the long term. Under the overall theme of 'Healthy Living', an 'Active Spectator Programme' was also used to encourage and facilitate walking and cycling between venues, with 7 000 secure cycle spaces created at the Olympic Park (LOCOG, 2012b; McCarthy, 2012). All news being reported on the 2012 Games is not positive, however, with indications that officials were distancing them from sustainability targets; an excessive Games carbon emission but a failure to create carbon offsets; a number of embarrassing public relations incidents; transportation disruptions (also mentioned pre-event in Konstantaki & Wickens, 2010); allegations of Games merchandise being produced in Chinese 'sweat shops; and inappropriate choice of commercial sponsors that are associated with negative environmental practices (McCarthy, 2012; Singh, 2013).

The FIFA World Cup addresses the issue of environmental accountability through its *Green Goal* campaign. In comparison to the longer-standing programme of the IOC, the 2006 FIFA World Cup is regarded as the first Football World Cup to have a comprehensive environmental and climate protection concept (Sahler, 2007:12). Green Goal focuses on water, waste, energy, transport and legacy (Stevens, 2008:97-100). Hosting of the 2006 World Cup in Germany encouraged publication of the *Green Champions in Sport and Environment* guide by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety in partnership with the German Olympic Sports Confederation (Sahler, 2007). The Green Goal programme launched by FIFA during this event is an excellent example of a sport-related environmental programme that aims to offset the added carbon dioxide emissions created by staging the event (Jarvie, 2012). With South Africa as a long-haul host country, the carbon footprint was calculated at 2,753 000 tons of CO2 emissions (UNEP, 2010a) – the largest emissions in the history of sporting events (Stone, 2010). A number of carbon offset projects were identified and visitors were provided with a *Green Passport,* a 32-page booklet containing greening tips and information on RT in each host city (Swart, 2012). Research conducted amongst 15 066 visitors during the event in all nine of the host cities indicated that 62,8% of these visitors did not intend to offset their visit's carbon emissions. Only 21.6% of the visitors surveyed were aware of the Green Passport initiative. Key findings of the research indicated significant environmental degradation as a result of the event and a great need to create awareness among visitors (Swart, 2012). Notably, despite these seemingly negative findings host city Cape Town's Green Goal Programme won the IOC's Sport and Environment Award from among 43 projects from 34 participating countries on five continents (City of Cape Town, 2014).

Various other sporting codes have also taken up the challenge to promote environmental sustainability. Examples include the Rugby World Cup (notably the 2003 tournament in

Australia), the Vans/Triple Crown Surfing Championship in Hawaii with its 'Respect the Beach' and *'Blue Wave Task Force'* awareness campaigns, and the International Association of Athletics Federations (IAAF) with its *ECOmass* (Eco-Efficient Major (or Mass) Event) environmental management programme; the U.S. National Football League's carbon mitigation projects for the Super Bowl; the Major Baseball League (MLB)'s *Green Teaming Programme* in 2008; and the National Ski Areas Association in the U.S.'s *'Sustainable Slopes Initiative'* (GSA, 2006; Helming, 2009; Schmidt, 2006). Slear (2007) provides an interesting perspective on ways in which organisers of triathlons in the U.S. have taken on greening. The Punjab Cricket Association hosted the world's first green cricket match on 9 April 2010. The carbon neutral event (co-organised by UNEP and the Indian Premier League) formed part of the *Batting for the Environment* initiative that ran over the 45 days of the tournament (Jarvie, 2012). *Recently*, World Rowing also published its *Environmental Sustainability Policy & Guidelines document* (FISA, 2012). The National Basketball Association (NBA) in the USA supports teams to run environmental awareness campaigns and runs an annual *NBA Green Week* (Kennett-Hensel, Lacey & Biggers, 2011).

Two sports codes that have received significant negative attention in terms of their environmental impacts are motorsports (Dingle, 2009; Tranter & Lowes, 2009) and golf (Trendafilova & Waller, 2011; Wheeler & Nauright, 2006; Briassoulis, 2010). The National Association of Stock Car Racing (NASCAR) requires stock cars to use lead-free fuel, while the International Motorcycling Federation (IMF) developed an 'Environmental Code of Conduct' (Schmidt, 2006). The Formula One Teams Association (FOTA) launched a comprehensive and audited carbon emissions reduction programme, with efforts to develop technologies that enhance fuel efficiency (Saward, 2010). Golf is associated with significant environmental impacts; with worldwide protest against the sport such as the Global Anti-golf Movement in Malaysia and the Global Network for Anti-Golf Course Action in Japan (Briassoulis, 2010; Jarvie, 2012). An increasing number of initiatives are being launched to change the face of this sports activity. Examples include the U.S. Golf Association's initiatives to manage environmental concerns around water and pesticide and the Ryder Cup golf tournament implementing a wide range of measures to encourage recycling and minimising waste (Schmidt, 2006), as well as the UK Sports Turf Research Institute reporting extensively on environmental practices of golf facilities (Jarvie, 2012).

Cycling has become synonymous with environmental responsibility, healthy living and carbon free transport (Aldred, 2010; Cupples & Ridley, 2008; cycletoursglobal.com, 2013b; Horton, 2006). Cycling has experienced a revival as leisure, recreation and tourism activity, as is evident in the number of tour operators specialising in cycling tours across the world (cycletoursglobal.com, 2013a). Bicycle tourism has even been named as an environmentally sustainable niche market (Lamont, 2009). Some tour operators are even selling it as the "ultimate green vacation" (Mehta, 2009) and a trip that has minimum environmental impacts (responsibletravel.com, N.d.) – even though the tourists are accompanied by an entourage of carbon emitting support vehicles. Cycling is also used as a platform for charities related to environmental issues. For example, 'Groundworks' is an NGO helping communities in the UK to live environmentally sustainable lives by, amongst others, starting up community cycling projects as a way for the community to raise awareness of their local environment, but also contribute to lower carbon emissions (groundwork.org.uk, N.d.). In South Africa, the South African chapter of the World Wildlife Foundation (WWF) has launched a campaign, *Ride for Nature,* to raise funds and create awareness for conservation through cycling. Cyclists join the 'Panda Peloton', cycle with a campaign-branded t-shirt and raise funds through personal 'sponsorships' for a race. As one of the flagship sports events on the global calendar, the Tour de France developed the 'Cycling and Environment' charter, which was also adopted by the International Cycling Union (Schmidt, 2006). A recent study by Collins *et al.* (2012) indicates the extent of the environmental impacts of this popular event. On average, the EF of an average visitor attending the event is 2.2 times more than what it would have been if the person stayed at home. Visitor travel accounted for 75% of this footprint, followed by food and drink at 7%. When combining these footprints across the total estimated 2.85 million visitors (for the 3-day UK stages), the event's total EF becomes immense, and this is even before giving consideration to the cycling teams, sponsors, the Tour carnival, media or other organisations involved in the operations.

The GSA aims to mainstream environmental issues in major sports events through encouraging sports organisations to undertake environmental management and audit schemes. Such programmes can either focus on specific themes related to the sport (such as waste and noise pollution for motor sport organisations) or aim to employ a comprehensive environmental management programme (GSA, 2006:[12]). They encourage environmental management by focusing on:

- transport: encouraging the use of sustainable public transport by spectators;
- eco-design: ecologically designed arenas/stadiums that conserve energy, water and other resource and limit pollution;
- water management: protecting water quality during an event, maintaining healthy water-based ecosystems, and also creating awareness about water protection;
- rainwater: harvesting (collecting and storing) rainwater from roofs or surface catchments of large sports venues;
- waste management: employing the ‘reduce, reuse and recycle’ hierarchy and raising awareness;
- recycling: encouraging spectators and participants to recycle waste through a user-friendly recycling programme;
- re-use: finding ‘new life’ for used sports equipment;
- sporting goods: rethinking the manufacturing processes of these goods to minimise harm to the environment;
- energy management: promoting the use of cleaner energy sources (including renewable energy);
- CO2 offset: reducing energy consumption;
- public awareness: using the opportunity to raise awareness and mobilise people through environmental messages at events; and
- policy: formulating policy aimed at members and implementing it through, for example, an ‘Environmental Code of Conduct’ (taken from GSA, 2006).

Jagemann (2003:[4]) mentions a range of additional measures that can be used to transfer sports activities from vulnerable to more ecologically resilient areas without this being noticed by the people involved (spectators and participants). Examples include signposts, banning traffic and movement in certain areas, route marking, setting up obstacles, restricting activities during certain periods of time, and restricting visitor numbers. Huggins (2003) also provides a broad set of management guidelines for the greening of sporting events and emphasises the need for training and commitment of team members to ensure environmental improvement. The levels of awareness and education among management and employees in the industry are considered to be important to ensure that efforts toward environmental performance lead to actual achievements (Mallen, Stevens, Adams & McRoberts, 2010). Hinch and Higham (2011) similarly state that sports tourism managers and planners need to be conscious of the impacts of their decision.

Uecker-Mercado and Walker (2012) found that many sport facilities have developed formal and informal environmental systems and policies, but a substantial number still remains at a crossroads of making a decision. Many facilities adopt CER practices to reduce costs, but structures are needed to move past superficial and cost-saving initiatives alone. Importantly, the study showed that customers of these facilities (e.g. event organisers) appear inconsistent in their requirements for environmental responsibility and that very few facilities felt a significant threat of losing events due to an inability to meet environmental requirements. Salome *et al.* (2013) similarly found the main drivers behind the uptake of CER to be cost savings. Interestingly, they found managerial and personal values and attitudes to be second most important; a factor that arguably could be an important cross over from the 'superficial' initiatives as mentioned by Uecker-Mercado and Walker. Still, Salome *et al*. (2013) state that the motives for greening remain strategic and altruistic, with gaining competitive advantages and improving reputations being just as important as genuine environmental concerns. McCullough and Cunningham (2010) also indicated cost savings, competitive advantage, goodwill perceptions and fan identification as equally important outcomes of adopting green management practices for sport organisations. Importantly, a study by Inoue and Kent (2012) found a positive relationship between sport consumers' pro-environmental behaviour and environmental initiatives undertaken by sport teams that were viewed as environmentally 'credible'; emphasising the need for genuine involvement in CER initiatives.

Event sponsors also play an important role in enhancement of the positive environmental impacts of these events. Sponsors and donors often seek out high profile events to associate themselves with publicly supported causes and will often use the opportunity to demonstrate their own environmental technologies, practises and achievements (DEA, N.d.a:2; Kang & Stotlar, 2011). Sponsors have the capacity to encourage the event organiser/company to implement sustainable practices. They can also educate the public on the importance of participating in responsible event practices, raise environmental awareness, and encourage public support for an event due to the sponsor's own sustainable practices (DEA, N.d.a:2; Jin, Mao, Zhang & Walker; 2011; Fairer-Wessels & Malherbe, 2012). An example of such a 'green sponsor' of sports events (such as the Million Dollar Golf Tournament) in South Africa is the commercial bank, Nedbank. It claims to be the first bank in Africa to achieve effective zero-carbon status and expresses the desire to demonstrate their commitment to sustainability. It is in a conservation partnership with the World Wildlife Fund South Africa, The Green Trust, and has an impressive list of green credentials. The bank has developed a set of guidelines for green events and catering (Nedbank, 2010). A major global sport sponsor, Nike, is also turning to greener forms of production for its event and season sponsorship kits. During the 2010 FIFA World Cup, the teams from Australia, Brazil, the Netherlands, New Zealand, Portugal, Serbia, Slovenia, South Korea and the US all wore environmentally friendly uniforms made from recycled plastic bottles (Jarvie, 2012).

At a local level, South Africa's Department of Environmental Affairs (DEA) produced two guideline documents in the wake of the 2010 FIFA World Cup. The one document focuses on guidelines for the greening of large sports events, with a focus on the World Cup (DEA, N.d.b), while the second document provides guidelines to volunteers (individuals whom in their own capacity want to contribute to a green sports event) (DEA, N.d.a). The documents focus on similar priority areas as the GSA, including climate change/energy, waste reduction and management, water conservation and management, sustainable procurement, biodiversity conservation, transport, design and construction, tourism, as well as health and well-being. The document aimed at 'volunteers' provides a short introduction to each topic, examples of best practices, ways in which to estimate your individual impact, as well as tips on reducing your own event footprint (including references to a wide variety of online platforms with a sustainability theme). The principle of placing the responsibility in the hands of individuals is clearly represented in this document. Apart from these examples, the majority of greening in events within South Africa appears to be focused on the business tourism sector (meetings, conferences, exhibitions); with no specific organisation/agency taking responsibility of sports events.

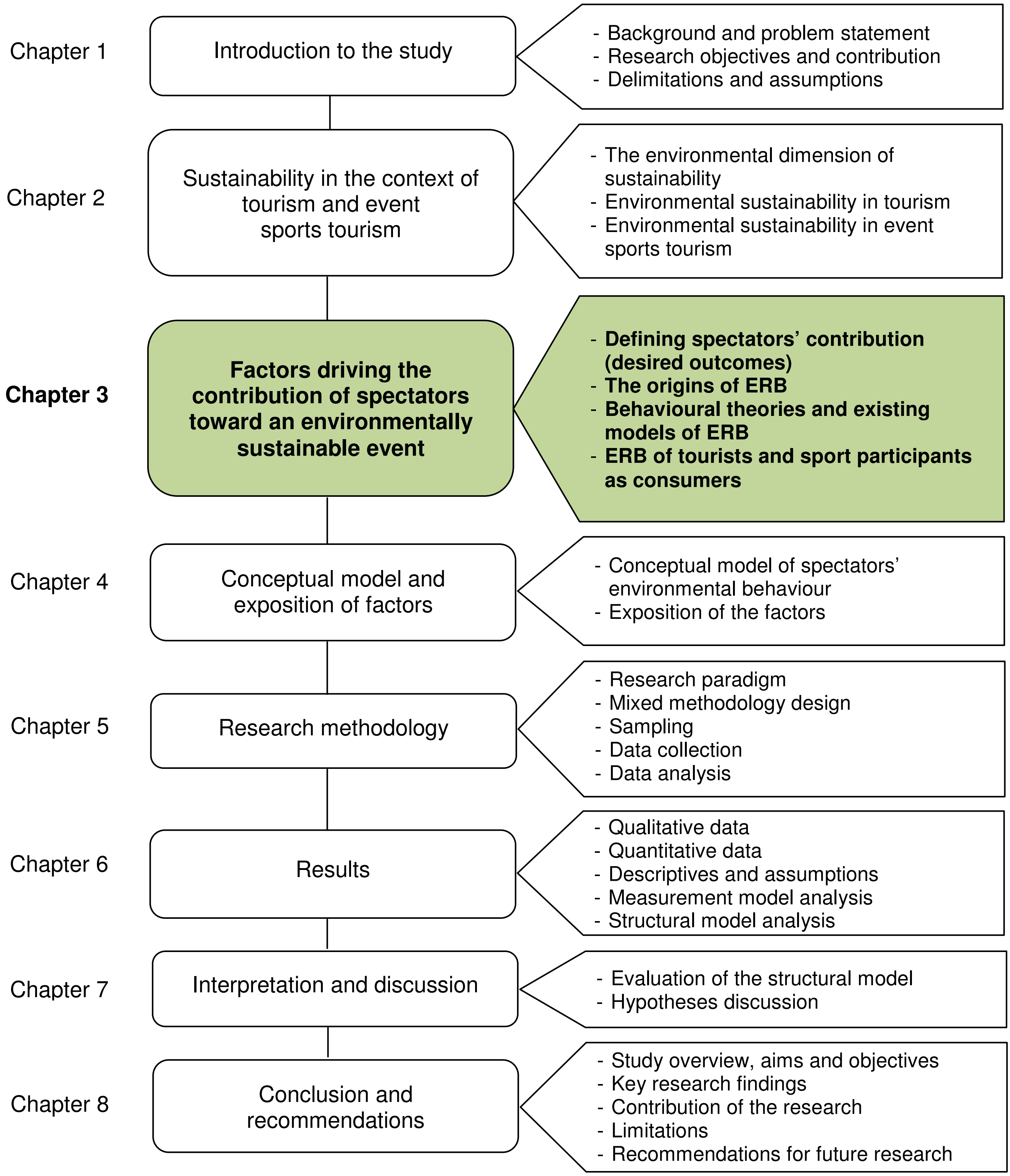
There are countless other examples of industry-driven initiatives to promote environmental responsibility in sport. Many of the practices and best practice examples mentioned are also reflected in a comprehensive report by Andy Stevens (2008) on environmental sustainability in sport. Similar to the situation within tourism, it would require a study on its own to fully comprehend and provide a concise picture of practices implemented throughout the broad range of sports industry sectors. Importantly, researchers have only recently started exploring the effects of CER on consumer attitudes and behaviour; indicating that "when consumers perceive CSR to be implemented for strategic reasons, the effectiveness of the CSR falls away and can even cause ''diminishing returns'' for the organization" (Walker, Heere, Parent & Drane, 2010:675).

2.5 CONCLUSION

The chapter introduced the concept 'sustainability' and explained the rationale behind focusing on the environmental dimension thereof. It then proceeded to place sustainability within the tourism industry, where there is an apparent established knowledge base on environmental sustainability. The chapter then focused on environmental sustainability in the sports industry, indicating that the relationship between sport and the environment has long been established, though being mostly researched from an industry perspective. The event sports tourism industry as a major component of the sports tourism industry was introduced and it was indicated that an array of initiatives are in place addressing the environmental impacts of such events, especially at a mega-event and international federation level. The next chapter will turn the focus to exploring the factors underlying ERB in terms of individuals, not only as consumers of tourism and sport, but also as individuals operating within a socio-cultural context in everyday life.

CHAPTER 3

FACTORS DRIVING THE CONTRIBUTION OF SPECTATORS TOWARD AN ENVIRONMENTALLY SUSTAINABLE EVENT



3.1 INTRODUCTION

A culture of consumerism and hedonism has been blamed for the increasing strain on, and degradation of the natural environment (Sheth *et al.,* 2011; Stevenson, 2002). Sheth *et al.* contend that CSR strategies can be more effective if they are built on a core element called *customer-centric sustainability*. CSR performance should be based on "sustainability outcomes that are personally consequential for customers, and result from customer directed business action", where "outcomes will be a joint product of marketing actions and consumer behaviour" (2011:24). In this perspective the environmental dimension relates to the impact of consumption on *environmental well-being* (health and human well-being), which in turn implies that consumption should not damage the natural environment because the same consumers' health and well-being depend on it.

Where Chapter 2 focused on the economic-environmental interface and industry actions related to environmental sustainability, Chapter 3 turns to the social-environmental interface where the role of consumers as members of society is addressed (refer to Table 1).

Table 1: The four spheres and their interfaces

	SOCIAL	ECONOMICAL	ENVIRONMENTAL	POLITICAL
SOCIAL	Forms of collective identity and community: THE SOCIAL SPHERE			
ECONOMICAL	OPPORTUNITIES & IMPACTS: 'The economy versus the community'	Performance, products and output: THE ECONOMIC SPHERE		
ENVIRONMENTAL	**LIVING WITH(IN) NATURE Meanings, values & risks: sustaining what & for whom**	**ENVIRONMENTAL FUNCTIONS: Pressures on & services of the environment**	**Energy, matter, natural cycles & biodiversity: THE ENVIRONMENTAL SPHERE**	
POLITICAL	SOCIAL POLICY: (capacity of communities; citizens/public participation)	ECONOMIC POLICY: (shaping the rules and limits of markets)	ENVIRONMENTAL POLICY: (regulation of what counts as environmental value)	Coordination, power & governance: THE POLITICAL SPHERE

__Source:__ adapted from O'Connor (2006:287)

According to O'Connor's framework, the social-environmental interface is characterised by a society's culture that determines the meanings of nature or the functions that the environment has to fulfil; for example, nature as "cosmology", a source of well-being and the "perceived quality of the landscape". It allows individuals to express their perceived 'risks' and also to affirm certain values such as conservation, appreciation for nature and the obligation to use nature relative to the rights of future generations (O'Connor, 2006).

The aim of this chapter is to firstly conceptualise the term 'contribution' as it is used in the title of the study. Next, to introduce the concept and origins of ERB as it has been studied in other related disciplines outside of tourism and sport. Each factor will not be discussed in detail at initial introduction, but given a context as background to the conceptual model presented in Chapter 4. The chapter then proceeds with a discussion of behavioural theories and existing models of ERB. Lastly, it focuses respectively on the ERB of tourists and sport participants as consumers to determine the extent to which existing ERB knowledge has been applied within these two domains (tourism and sport).

3.2 DEFINING THE CONTRIBUTION THAT SPECTATORS CAN MAKE TOWARD ENVIRONMENTAL SUSTAINABILITY OF AN EVENT

Though the industry has to take responsibility through the implementation of EMSs, such initiatives have to be supported by the spectators. Bonnes and Bonaiuto (2002:36) indicate that the aim of understanding environmental behaviour of individuals should be to prepare, guide and establish "environmentally aware behavioural choices in a more or less pro-environmental direction". Sports tourism industry members should thus understand this role of preparing, guiding and establishing ERB among consumers.

Stanford (2008) argues that a starting point to any initiative to encourage ERB among tourists would be for the industry to understand what exactly is meant by this construct and which specific behaviours are expected of tourists within the various tourist experience contexts. In the context of a sports event, there can arguably be two categories in which behaviour should be prepared, guided and established. Firstly, preparing participants for and guiding them to act responsibly once they step into the behavioural setting (at an event). Secondly, contributing to a sense of commitment toward the environment that will encourage desired behaviour in future. It is argued that a spectator's contribution to the overall sustainability of a sports event will be the extent to which he or she participates in or complies within these two categories. Each of these categories will be discussed next.

3.2.1 Intending to display responsible behaviour in the setting

It is important to understand which behaviour should be measured. This can be linked back to the environmental management practices employed by the event organiser to place it within the outdoor sports event context. Yang, Yang and Peng (2011) identify the EMS as all efforts to minimise the negative environmental impacts of an organisation's processes and product throughout the entire production lifecycle. Though their research is based on manufacturing industries, their main argument holds true in this study's context, namely that it is important to understand which aspects of the EMS are most important.

According to Sahler (2007), the 'production' of an event runs through 5 phases and each phase presents different environmental practices (refer to Table 3).

Table 3: Phases of an event's environmental management

Measures Phase 1: Application and concept
• Environmental protection has to be organised • Formulation of guidelines and objectives • Statutory framework • The right choice: Event venues and sports facilities • Sponsoring • Systematic environmental protection
Measures Phase 2: Construction/modernisation/extension of sports facilities
• Building materials • Transport • Energy • Water/Wastewater • Nature and landscape • Noise

Table continues on the next page

Table 3: Phases of an event's environmental management (continued)

Measures Phase 3: Planning large events
• Transport • Energy • Waste • Water • Nature and landscape • Noise • Catering • Merchandising • Communications
Measures Phase 4: Let's go – organising an event
• Transport • Waste • Nature and landscape • Noise • Communications
Measures Phase 5: A sigh of relief – after the event
• Subsequent use • Waste • Nature and landscape • Communications

Source: from Sahler (2007)

The activities indicated above are also mentioned in other sources, indicating that these present the most pertinent aspects to manage the environmental impacts of sports events:

- transport: encouraging the use of sustainable public transport by spectators;
- eco-design: ecologically designed arenas/stadiums that conserve energy, water and other resources and limit pollution;
- water management: protecting water quality during an event, maintaining healthy water-based ecosystems, and also creating awareness about water protection;
- rainwater: harvesting (collecting and storing) rainwater from roofs or surface catchments of large sports venues;
- waste management: employing the 'reduce, reuse and recycle' hierarchy and raising awareness;
- recycling: encouraging spectators and participants to recycle waste through a user-friendly recycling programme;
- re-use: finding 'new life' for used sports equipment;
- sporting goods: rethinking the manufacturing processes of these goods to minimise harm to the environment;

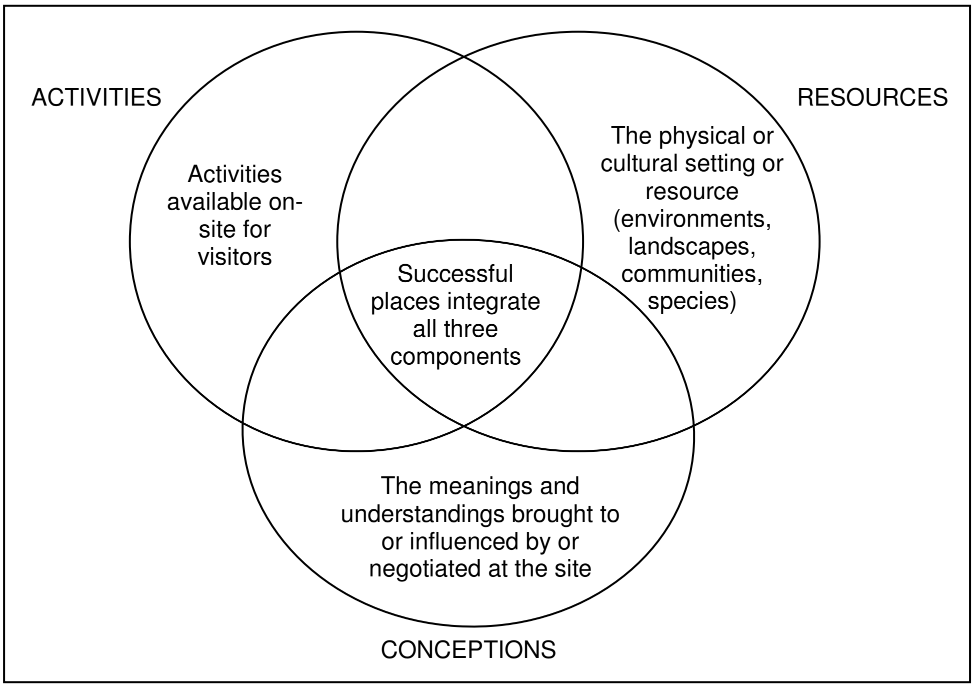
- Energy management: promoting the use of cleaner energy sources (including renewable energy);
- CO_2 offset: reducing energy consumption;
- public awareness: using the opportunity to raise awareness and mobilise people through environmental messages at events; and
- policy: formulating policy aimed at members and implementing it through, for example, an 'Environmental Code of Conduct' (taken from GSA, 2006; Laing & Frost, 2010; Schmidt, 2006).

Other examples include signposts, banning traffic and movement in certain areas, route marking, setting up obstacles, restricting activities during certain periods of time, and restricting visitor numbers (Jagemann, 2003).

Along with each activity, there is arguably an element requiring cooperation and action by the event attendee. Referring back to the phases (Table 3), the greatest area of impact due to event attendees will take place during Phase 4, where they enter the behavioural setting. During this phase they will use transport, consume products, create waste, interact with the landscape and create noise. They will also give attention to, or ignore environment-related communication by the event organiser. During Phase 3 attendees may make choices on responsible merchandise (sporting goods or supporter paraphernalia). During Phase 5 they may (or not) engage with environmental communication from the event organiser.

The visitor setting (or behavioural setting) is an important part of a tourist's overall travel experience. Also known as the 'on-site experience', behaviour of visitors in this setting is integral to sustainability of the resources being utilised (Pearce, 2005). The place model of tourist sites (Figure 5) is a useful tool to structure the understanding of on-site experiences (Pearce, 2005).

Figure 5: Tourist sites, a tripartite sustainability embedded place model



Source: Pearce (2005:136)

Tourist activities have numerous direct impacts on biophysical environments, and the specific negative effects of on-site tourist behaviour are well documented. These include pollution, energy abuse, erosion, habitat destruction and changes to ecological systems. Successful site management is said to be synonymous with tourists' appreciation and understanding of the site, and synergy between the setting and tourist-related facilities. Managerial and operational processes are also essential to guide behaviour and can include legal measures, permits/passes, fees, infrastructure design (physical layout), and visitor education. These can be equated to the EMS implemented by the sport event organiser. Furthermore, the importance of tourists' skills required to perform the desired behaviour, are crucial to influencing behaviour; with the skills being a combination of knowledge and physical abilities (taken from Pearce, 2005). Importantly, it is stated that most tourists (as consumers) are "superficial environmentalists" who are 'concerned' but very reluctant to undertake any corrective actions that inconvenience them (Weaver, 2012). Measurement of the actual behaviour displayed within the visitor setting is thus important.

3.2.2 Showing environmental commitment through future intended behaviour

It may not only be necessary to determine the environmental behaviour of spectators in the actual setting as part of managing the direct environmental impacts of the event, but also to understand how environmental responsibility forms part of their intended future behaviour in an effort to identify appropriate mitigation strategies. Not a lot is known about the effects that a travel experience may or may not have on the individual. Even though environmental learning and behavioural change as a result of experiences have been explored in both tourism (see Kachel & Jennings, 2010; Lee & Moscardo, 2005; Moscardo, 2009) and sport (see Brymer *et al.*, 2009; Ray, 2009), there is said to be no strong evidence of significant or substantial changes to the individual tourist/traveller/participant's knowledge (Moscardo, 2009).

Middleton and Hawkins (1998, in Pearce, 2005, 2011b) argue that actions need to be identified to address sustainability challenges by providing tourists with advice guidelines beyond the mere 'reduce, re-use, recycle' approach. They add six principles that need to be communicated. Firstly, recognition of the impacts of one's own actions (and therefore, for example, being willing to make a financial contribution to counter the environmental impacts of an event). Secondly, refusal to make unethical purchases (or for example boycotting an event if it is found to be unsustainable). Thirdly, replacing of high impact with lower impact experiences (e.g. rather attending a sports event closer to home or using public transport to attend an event). Fourthly, retraining oneself in order to be less dependent on high impact activities (e.g. learning to make use of public transport and then opting for this mode to travel to an event in future). Fifthly, rewarding oneself by making use of incentives that promote sustainable activities (e.g. discounts on public transport to an event; or supporting an event sponsoring company). Lastly, re-education to change one's personal behaviour based on tourists experiences (e.g. reading up on environmental rules and regulations of an event before actually attending the event in order to guide one's own behaviour).

Laing and Frost (2010) state that research is needed to understand how sustainability initiatives of event organisers may play a part in the decision to attend these types of events in future. Surveys in the UK found that 48% of individuals planning to attend outdoor festivals stated that they would pay more to attend greener events; while 36% of fans said that they consider a festival's environmental policy before deciding to buy a ticket (Laing & Frost, 2010). Puczkó and Smith (2012) similarly argue that there are tourists that may show environmental commitment to the extent where they choose not to travel at all for the sake of the environment. Understanding such behaviour indicates the level of importance that the intended target markets place on these aspects, and identifies aspects in the event organiser's strategy that may need to be altered or strengthened to increase the event's appeal to these markets. It is argued that, the greater the importance of environmental responsibility, the higher the levels of commitment toward the environment. There will be varying degrees of commitment and can be measured in terms of the sacrifices that are willing to be made.

The 'contribution' that the spectators could thus make toward more sustainable sports events can be divided into two aspects, namely the ***Situational Intention (STI)*** and ***Future Intention (FTI)***. Table 4 summarises the specific behaviours that can be measured in the case of an outdoor sports event. It indicates the component of the EMS employed by management, the related spectator behaviour, and whether it will be part of the situational behaviour (intention while spectating) or future intended behaviour. There may also be extreme levels of environmental commitment that elicit intended future behaviour that are not necessarily preferred by the event organiser. These can include signing a petition against an environmentally unsustainable event; and rather watching a sports event on television or over the internet to reduce the environmental impact of the event (adapted from Puczkó & Smith, 2012).

Table 4: Aspects of situational behaviour to be measured

Environmental management component	Possible spectator behaviour	Situational intention	Future intention
Water management	Closing taps	✓	
	Refilling water bottles with tap water	✓	
	Not polluting natural water sources	✓	
Waste management	Making use of the ablution facilities provided	✓	
	Throwing rubbish in the bins provided	✓	
	Participating in recycling activities	✓	
	Picking up litter (during or after the race)	✓	
	Making a financial contribution toward an event's clean-up and recycling initiatives		✓
Energy management	Making use of public transport/car-pooling to reduce the carbon footprint of an event		✓
Protection of biodiversity	Parking cars in designated parking areas	✓	
	Staying within the designated viewing areas	✓	
	Respecting plants and animals	✓	
Aesthetics and noise pollution	Refraining from making noise	✓	
Information communication (encouragement)	Reading the information signs to guide behaviour	✓	
	Reading the event's environmental rules and regulations before actual attendance		✓
Management of non-compliance	Reporting inappropriate behaviour of other spectators	✓	
Marketing communication	Following an event's environmental initiatives in the media before deciding to return		✓
	Supporting a sustainable event's sponsors because of the association with responsible practices		✓

Source: taken from Greening the WSSD (2003), GSA (2006), Jagemann (2003), Kang and Stotlar (2011), Laing and Frost (2010), Pearce (2005), Sahler (2007), Schmidt (2006), Responsible Traveller (2011)

In order to explore the factors leading to these two desired outcomes, it is necessary to explore the factors underlying ERB. Identifying the underlying factors among sport event spectators in particular can arguably be regarded as a more effective approach than merely measuring their responses to certain environmental management practices employed by an event organiser. The next section introduces the origins of ERB as they have been identified in subject areas specialising in the field of human-environment interaction.

3.3 THE ORIGINS OF ERB

This section aims to identify the origins of behaviour directed toward the environment. The study of behaviour in tourism is briefly introduced to clarify the link between tourism and psychology as parent discipline. Environmental Psychology as specialisation field is then introduced, along with Environmental Education and Consumer Behaviour as subject areas exploring the relationship between individuals and their environment. Studying psychology in the context of the study is deemed appropriate as it can be used to understand how individuals may possibly react to structural and regulatory changes proposed by policymakers aiming to increase environmental sustainability (Gifford, 2007).

3.3.1 Brief introduction to the study of behaviour in tourism

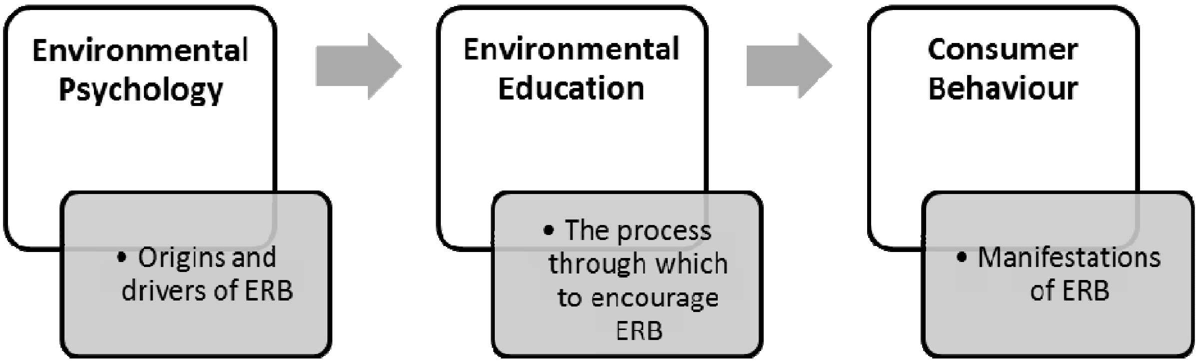
Pearce (2005) argues that tourist behaviour is important to the tourists themselves who want to understand their experiences, but also to decision-makers who have to make enabling decisions or policy choices about tourist activities. As a dynamic multidisciplinary field and an applied science, researchers have to acknowledge the contributions of other fields of knowledge in this effort to explain tourist behaviour. There is a wealth of knowledge on tourism, with sociology presenting arguably the greatest contribution to the understanding of tourism as a social phenomenon (as opposed to geography, anthropology or economics for example). Dann and Parrinello (2009) argue that there should be an amalgamation between sociology and psychology for example, as this dual perspective provides a comprehensive view on the tourism-tourist phenomena. Pearce (2005) similarly states that writings about tourists' views of their travels are often sociological (looking at abstract systems and social structures), but that the needs and characteristics of the human body need to be addressed as well to study tourist experiences.

The study of individual behaviour falls within various areas of psychology, including social psychology and applied sociology, even though the tourism scholars that work from this perspective rather view themselves as marketing researchers, tourism researchers, consumer behaviour analysts or recreation specialists. As tourism can be regarded as a social behaviour (Iso-Ahola, 2011), it seems appropriate that behaviourism as an approach to the study of psychology became an area of interest to tourism academics (Pearce, 2001b). Pearce argues that there is not a definite point in time when psychological studies became part of tourism and that a number of non-psychologists wrote about psychology topics within the tourism domain (Pearce, 2011a). Despite the vast amount of scholarly writing on tourist behaviour (see Pearce, 2005; Swarbrooke & Horner, 2007; Pizam & Mansfeld, 1999; Ryan, 2002; Sharpley & Stone, 2011; Pearce, 2011b; Uysal, Perdue & Sirgy, 2012), Dann and Parrinello (2009) state that there is a gap in social psychological research on tourism, and that the study of the psychology of tourism is overthrown by the pragmatic view on behaviour taken by tourism marketers. This study of tourists from a consumer behaviour viewpoint is distinctly different from psychology or sociology based studies (Pearce, 2005).

Social psychologists are interested in aspects of behaviour such as needs, motivations, experiences, emotions and so forth, at work in the individual. A good example is the work of Maslow on the hierarchy of needs. Iso-Ahola (2011) states that social psychologists are mainly interested in tourism experiences (the nature thereof, the thoughts and feelings, expectations, satisfaction, etc.). Pearce (2011b:2) explains that early writers in tourism were actually weary of using the term ‘behaviour’ “because of its restrictive use by some branches of psychology” and the concept of ’experiences’ became the preferred expression. In this study, the researcher regards behaviour as “both observable actions and the internal cognitive and affective worlds of individuals” and one therefore has to look at what people do, but also to link this to “how they think, feel and react to tourism settings” (Pearce, 2011b:2).

Importantly, “sustainable behaviours” can be regarded as part of the behavioural components that define the tourist experience; with the focus being on investigating “specific sustainability enhancing behaviours” (Pearce, 2011b:3). Apart from the study of behaviour in social psychology, a number of subject fields explore the relationship between individual behaviour and the natural environment specifically. Figure 6 is presented to explain the order in which these subject areas are consulted within this study. Environmental Psychology as the discipline studying the relationship between humans and their physical environment is presented first, followed by Environmental Education as the discipline focused on understanding how individuals can be influenced to behave favourably toward the environment. Lastly, Consumer Behaviour is presented as a discipline that includes studies on the way in which environmental orientation influences consumption patterns of individuals (sequence depicted below).

Figure 6: Sequential presentation of literature related to ERB



The aim of this section is not to debate whether environmental behaviour should be studied from a Social or Environmental Psychology perspective, but rather to acknowledge the integrated contribution that both areas make to studying behaviour, as the knowledge arising from social psychology is applied within the field of Environmental Psychology. In the subsequent discussions, focus is specifically on ERB of people as individuals and consumers in broader terms.

3.3.2 Views from Environmental Psychology

Environmental Psychology aims to find *"ways and means to bring about the necessary behavioural changes to assure human sustainability"* (Günther, 2009:364). The section provides a brief introduction to the subject area and presents the definition of ERB as it is used within this study.

3.3.2.1 Defining Environmental Psychology and ERB

Environmental Psychology as a subject area where the perceptions and behaviour of people in different settings are investigated appeared in the early 1970kolls. The focus is on understanding people's experiences of different places (built or natural) and poses a logical link to tourism given the notion that some places are experienced as 'happy' or 'desirable' for living or and/or leisure (Pearce, 2011a). The challenge posed to the field is that it has become increasingly 'diffused' due to its "multidisciplinary complexity, its international scope, and the incorporation of environmental issues into all or almost all sectors of psychology … [and] because more and more its conceptual and methodological principles are included in other … disciplines (Giuliani & Scopelliti, 2009:376) such as tourism (Pearce, 2011a). Furthermore, the discipline has also grown along with the sustainable development agenda over the past 20 years. This tendency can also be noted in the variety of proposed names/sub-names within the field, such as 'green', 'natural', eco', 'ecological' psychology (Bonnes & Bonaiuto, 2002:35).

The definition of Environmental Psychology as presented by Bonnes and Bonaiuto (2002:35) appear to be most relevant within the context of this study (when compared to other definitions in Giuliani & Scopelliti, 2009): *The study of manifest behaviours and actions in everyday environments that affect related natural processes or resources at the local and global level, with special attention given to the sociocultural or collective level of the environmental psychological processes considered*. These authors focus on psychology of sustainable development and have specifically looked at the influence of ecological concerns on environmental behaviour.

Within their definition of ERB, behavioural choices leading to the deterioration of natural resources are considered, including pollution of the ground (e.g. littering of refuse), pollution in water (e.g. waterways and other water sources), pollution of the air (emission of gas, noise and radiation), and pollution of any other material that is dangerous for the well-being and health of living beings. Any action that is orientated toward the optimal maintenance of these natural resources is defined as *pro-environmental behaviour.* ERB is not only confined to negative impacts such as pollution, but also includes the interaction between people and the built environment, crowding, reactions to natural disaster, etc.

Bonnes and Bonaiuto (2002:36) indicate that all constructs and processes underlying ERB should be considered, especially those processes "aimed at preparing, guiding and establishing environmentally aware behavioural choices in a more or less pro-environmental direction". Through this statement a link is already made to Environmental Education, which will be discussed in the next section.

A number of theories underlie the study of human behaviour toward the environment. It is necessary to briefly introduce them as theoretical background before identifying factors that may have an influence on the environmental behaviour of individuals.

3.3.2.2 Factors underlying ERB for sustainable development

In a meta-review of research on the topic, Giuliani and Scopelliti (2009) identified several research themes within four broad fields ('modes of transaction' between the environment and the person) (refer to Table 5).

Table 5: Research themes within Environmental Psychology

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">Form of transaction</td></tr>
<tr><td>Cognitive</td><td>Behavioural</td></tr>
<tr><td rowspan="4">Phase of transaction</td><td>Active</td><td>Interpretive</td><td>Operative</td></tr>
<tr><td>Research themes</td><td>- Spatial cognition, cognitive maps, way finding, perception of the environment;
- Meaning and sense of place, place and identity processes, affective processes;
- Personality and the environment.</td><td>- Pro-environmental behaviour (recycling, littering, energy use, etc.), interventions to preserve the environment;
- Control of the environment, and use of space and distance in the management of social interaction (territoriality, privacy, personal space);
- Organisation and use of the space, location choices, participation in planning.</td></tr>
<tr><td>Reactive</td><td>Evaluative</td><td>Responsive</td></tr>
<tr><td>Research themes</td><td>- Aesthetic evaluation;
- Assessment of environmental quality, preferences and satisfaction;
- Environmental attitudes and disposition, environmental concern and values, risk perception.</td><td>- Behavioural and health consequences of environmental stressors, coping behaviour;
- Environmental properties and impact of the built/natural environment on performance, health and behaviour.</td></tr>
</table>

<u>Source:</u> taken from Giuliani and Scopelliti (2009:377)

The researcher has indicated (in bold, Table 5) the areas with greatest relevance to this study. These also concur with constructs identified by Bonnes and Bonaiuto (2002:35-44), including environmental awareness, attitude, concern, commitment, environmental beliefs, ethics, feelings, knowledge, global values, ecological world views, and ecological self.

Both local and global dimensions, as well as physical and social aspects, make up the multidimensional nature of environmental actions and experiences. Because of this, one may distinguish between aspects that are more globally oriented from those that are focused on a local level of analysis to investigate circumscribed behaviour (Bonnes & Bonaiuto, 2002). Globally oriented studies will include constructs such as ecological world views/beliefs, global values (such as altruism), global ethics and ecological self, arguing that individual behaviour can be directed toward ERB if such global perspectives or values are adopted at the individual level. Though aspects such as environmental concern and awareness, as measured through globally oriented constructs, have been proven as significant drivers of ERB, it is argued that they present “a very general or global sense without sufficient attention to adopting a more local perspective” and they tend to be distant from localised perspectives (Bonnes & Bonaiuto, 2002).

To bring a more localised perspective, one has to consider the interdependence between individual and collective choices related to the same type of ERB. Three theories (as discussed below) present a phenomenon known as the ‘commons dilemmas’, found when dealing with the sustainable usage of natural resources in this manner. *Freedom of the commons* proposes that individuals act for their own benefit. Any sustainable usage strategies should be built on shared normative systems where people place the pressure on themselves to comply or through their ethics (Hardin, 1968 in Bonnes & Bonaiuto, 2002). The theory of *collective actions* states that “People will not orient their action in the expected direction to acquire a collective good … [with the probability] depending on the logical structure of the group … (the size and ability to show sensitivity toward the action of the individual). In other words, the larger the group, the smaller the perceived impact of the ERB of the individual. Solutions on sustainable usage lie with collective pressure from the group or outside incentive (Olson, 1965 in Bonnes & Bonaiuto, 2002). The *prisoner’s dilemma* states that social dilemmas arise through a conflict of interest between that of individuals and that of society at large. People pay a higher price (e.g. tax, fine) for not complying, than for cooperating – but everybody benefits if everybody complies. ERB is viewed as a collective action, where conflict of interest is set aside to embrace interdependence. Psychological processes that need to be understood are all the possible and multilevel group processes (communication; sharing of social values; social identity processes; collective decision making) (Olson, 1965 in Bonnes & Bonaiuto, 2002).

Two theories that present solutions to the commons dilemmas include *cooperation* and the *theory of interdependence* (discussed in Bonnes & Bonaiuto, 2002:35-44). Environmental dilemmas are dependent on *cooperation choices* (a mixture between altruistic and selfish motives that develop because of dependence over time). Solutions lie in not using pressure and punishment to induce selfless actions focused on the long-term, but to emphasise people's norms, values and social identities as motives underlying cooperation. Two possible approaches can be taken (Messick, 2000 in Bonnes & Bonaiuto, 2002), namely individual solutions based on voluntary choice of individuals, and structural solutions based on the design of agreed upon social arrangements. People's cooperation increases when they see themselves as part of a group problem that needs a collective solution (therefore requires making them see something as a collective problem). In a similar vein, the *theory of interdependence* states that people/groups can overcome conflict through an awareness of having a common fate which needs a joint effort. Everybody in the group/situation has to contribute to achieve a goal (which will not be reachable by a single member). Solutions lie in restoring "a concrete character to ethics" – linking behaviour to the achievement of goals that are useful and interesting (as opposed to only abstract values, norms, and concerns). Shape frames, rules and norms through adequate communication at different levels (help individuals to understand their place in the bigger scheme of things).

From these discussions, it becomes clear that the behaviour of an individual also takes place within a social context (personal, psychological or socio-economic status) and from social interaction with other behaviours (that of a larger social, cultural context) (Günther, 2009; Winkel, Seagert and Evans, 2009). Dolnicar and Grün (2009) specifically distinguish between the environmentally friendly behaviour of individuals based on *individual heterogeneity* versus *context/environment heterogeneity*. It is important to consider that person-based variables such as gender, personality, stage in life course and environmental belief systems, can shape the behaviour of a person in response to and actions taken within the physical environment (Winkel *et al*., 2009). These aspects indicate how knowledge from the field of social psychology needs to be incorporated into knowledge on environmental behaviour.

Without further explanation (at this stage) of the various constructs underlying ERB, the next section explains how Environmental Education forms part of ERB and aims to play a role in establishing or reinforcing the psychological processes underlying such behaviour.

3.3.3 Views from Environmental Education

"Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution."

(Stapp, Bennett, Bryan, Fulton, MacGregor, Nowak, Swan, Wall & Havlick, 1969:34)

Environmental Education was first defined as a concept in 1969 by Stapp *et al.* and this definition is regarded as an 'Environmental Education classic', designed to reach citizens of all ages. According to the authors, the main objectives of Environmental Education are to help individuals acquire an understanding that they are inseparable from a system (humans, culture, biosphere) that can be altered by humans; of the biophysical environment (natural and man-made) and its role in society; of the biophysical environmental problems facing society, how to solve them and what the responsibility of society is to work toward solutions; and of the desired attitude of concern for the quality of this environment – which will ultimately motivate individuals to participate in problem-solving (Stapp *et al*., 1969:30-31).

At the Tbilisi Intergovernmental Conference on Environmental Education in 1977, a very similar international definition of Environmental Education was formulated:

> *"… a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and has the attitudes, motivations, knowledge, commitment and skills to work individually and collectively*

towards solutions of current problems and the prevention of new ones" (Tbilisi, 1977 in Stapp, 1997).

Out of these definitions, five important constructs emerge as the desired outcomes of Environmental Education (Stapp, 1997). Firstly, *awareness* through mindfulness and sensitivity to the total environment and its problems. Secondly, *knowledge* through a variety of experiences with, and basic understanding of the total environment, its related problems and the critical responsible role of society through its presence in this environment. Thirdly, *attitudes* that represent social values, strong feelings of concern and motivation for active participation in the environment's protection and improvement. Fourthly, *skills* as the abilities to work toward solutions and foster dialogue between individuals and social groups. Lastly, *participation* through developing a sense of responsibility and urgency to ensure appropriate action to help solve environmental problems and avoid future problems. These outcomes can directly be linked to the constructs emerging from Environmental Psychology and discussed in the previous section.

Through an exploration of literature and electronic platforms that relate to Environmental Education, a number of platforms could be identified. Environmental Education can take place through education curricula. Society in general is increasingly aware of environmental issues. At a school and tertiary education level, the issue of sustainability and environmental responsibility is systematically being built into educational curricula through a variety of tools (Haigh, 2005; Herremans & Reid; 2002; Higgit, Haigh & Chalkley, 2005; Jensen & Schnack, 2006; Jickling & Wals, 2008). Environmental Education can also take place through experiences with nature. It is argued that direct experiences of natural environments will develop a greater awareness of and appreciation for nature, ultimately increasing the propensity to display ERB (Ballantyne & Packer, 2008; Bögeholz, 2006; Brymer and Gray, 2010; Davis, 2004; Duerden & Witt, 2010; Ray, 2009; Roos, Coetzee & Puren, 2011; Stewart & Craig, 2001). Environmental Education can effectively be promoted through product packaging and labelling. Society has become aware that everyday choices such as food may contribute to climate crisis, loss of species, impaired water and air quality, as well as soil degradation. Consumer information labelling could serve as an effective platform for Environmental Education as countermeasure (Czarnezki, 2011; Thogersen, 2000). Environmental Education can also take place through online platforms (Non-Governmental Organisations). Within the virtual domain, several resources exist through which consumers can educate themselves. GlobalGiving.org is a good example of how this universal sense of ecological responsibility (Dummett, 2008:124) can manifest in lucrative initiatives where people are willing to give their money freely into the global social domain. This charity fundraising website assists social entrepreneurs and non-profit organisations from anywhere in the world with fundraising, and has already raised money for 5,653 projects since its inception (GlobalGiving Foundation, 2000; globalstewards.org; treehugger.com).

Environmental Education also takes place through governmental/agency messaging. Though there are countless examples, an example will be used from a local level (South Africa) where the majority of the final respondents (event spectators) are expected to originate. Indalo Yethu, the national environment agency of South Africa, has been advocating environmental and sustainability issues since 2006. It provides toolkits through which individuals and households can make themselves more responsible, such as their online carbon calculator and interactive house tool providing tips on ways to save energy, carbon, water and electricity (Indalo Yethu, N.d.). Another excellent example is the 'Smart Living' Handbook to make Cape Town homes more sustainable (City of Cape Town, 2011). Other platforms used by governments/agencies to communicate to the public include social media, websites, media releases, leaflets, posters, call centres, inserts in rates bills, on-hold message on the phone, viral videos/marketing, newsletters (City Energy Support Unit, 2011; Pawul & Sobczyk, 2011; PlasticsSA, N.d). Lastly, environmental awareness is created through commercial environmental messaging. Companies use greening and include promises of environmental protection in their advertising. They also increasingly communicate their CSR initiatives through social networking platforms (such as Twitter) and commercial websites (Frame & Newton, 2007; Gomez, 2011; Hartmann & Apaolaza-Ibáñez, 2010; Lee, 2011; Lekakos, Vlachos & Koritos, 2011). Society at large is knowingly and unknowingly exposed to environmental messaging through these various platforms. Though all of these sources indirectly affect the individual sport spectator in his everyday life, focus in this study is on the direct measurement of experiences with nature, product packaging (event signage) and commercial messaging (rules and regulations posted on the event website) as sources of Environmental Education.

Where Environmental Psychology and Environmental Education focused on origins of ERB and ways to promote desirable behaviour, Consumer Behaviour explores how people consume goods as a result of these underlying drivers. Within this study, it is important to understand spectators as consumers of event sports tourism products in order to encourage desired behaviour. Such a process would assumedly start with a greater understanding of psychology that drives ERB and then applying this to principles of Environmental Education within the context of the event (as illustrated in Figure 2).

3.3.4 Views from Consumer Behaviour

Consumer behaviour is a well-established subject area focused on understanding how individuals choose, get, consume and dispose of goods, services and even their time. It is defined by Jacoby (1978) as encompassing *"the acquisition, consumption, and disposition of goods, services, time, and ideas by decision-making units (e.g. individuals, families, organisations, etc.)".* Even though there are many distinct differences between tourist behaviour and consumer behaviour in terms of the decision and consumption process (start to finish), the social modes of production and consumption, and the important role of experiences (Pearce, 2005), the field offers insight into the behaviour of tourists as individuals that need to make choices between different options. In the context of this study, *environmental consumerism* along with some of the personal factors influencing such consumption is of relevance. This section introduces the concept and explains what is known as the attitude-behaviour gap, as well as the importance of the behavioural setting when studying consumption behaviour.

3.3.4.1 Defining environmental consumerism and the attitude-behaviour gap

The link between environmental sustainability and consumption is made through the concept *green consumption*. Gupta and Ogden (2006:199) define it as *"A consumer's purchase behaviour influenced by environmental concerns to seek products and services* *with minimal impact on the environment".* It entails consumption of *green* products that are lighter in their environmental footprint from production to disposal/post-use, and is driven by a mindset of conscious or *mindful consumption* (Sheth *et al.*, 2011:27).

According to Muldoon (2006), this concept of green consumption or *environmental consumerism* poses a paradox. On the one hand, it is stated that 'environmentally conscientious shopping' has no significant effects; does not address any of the wider issues related to growing consumerism; and is a marketing gimmick. Yet, it is argued that environmental consumerism provides a platform through which consumers can express their environmental beliefs and concerns, as well as the ability to make a change through consumption choices. Ironically, many consumers express strong pro-environmental sentiments, but do not consume enough green products to make a meaningful environmental impact (Sheth *et al.*, 2011). This difference between environmental beliefs and actual behaviour is known as *attitude-behaviour gap.*

'Societal or consumer failure' has been identified as one of the key barriers to a business's implementation of CER (Dummet, 2008). This failure is presented in the difference or gap between what consumers say they believe in, and how they actually behave. Some of the problems experienced by industry include (2008:131-134):

- lack of awareness (no 'ecological/energy' consciousness);
- unwillingness to pay for more environmentally friendly products (i.e. contributing to the additional costs associated with the production of such goods);
- willingness to pay for 'cheaper' products that are environmentally friendly (e.g. detergent or toilet paper), but not for more expensive 'investments' in water or energy efficient appliances.
- a discrepancy between actual behaviour and expressed concerns (attitudes and beliefs);
- not buying recycled products despite taking part in recycling activities; and
- consumers' expectations of products (high performance versus environmental consequences to allow such performance).

There are different strategies to promote environmental consumption and certain advocates may serve as more 'credible' sources to promote such behaviour. For instance, D'Souza (2005) contends that government initiatives such as providing appropriate recycling facilities, and business initiatives to offer lower prices and good quality for green products as two strategies to address environmental problems and to generate environmental consumption. Moraes, Carrigan and Szmigin (2012) explore the social processes through which ethical and green consumption are established and normalised. They propose suitable upstream and downstream approaches whereby it may be possible to increase consistency in individuals' consumption behaviour. Gupta and Ogden (2006) propose that *levels of consumer involvement* and *perceived consumer effectiveness* can be used to overcome the attitude-behaviour gap.

3.3.4.2 Personal factors influencing environmental consumerism

By the end of the 1990s there was already a wealth of literature available on the characteristics of ecologically conscious consumers (Straughan & Roberts, 1999). Aspects include *demographic variables* (age, gender, income, education, place of residence), indicators of *environmental commitment*, scales of *environmental consciousness*, and *green attitudes,* and these studies all suggest general indicators of an individual's propensity to display ERB within a consumer context (Straughan & Roberts, 1999). *Psychographic characteristics* that have shown to hold some relation to green attitudes and behaviour include *political orientation* (liberalism); *altruism* (selflessness); *perceived consumer effectiveness,* also known as *locus of control* (the belief that one's actions can make a difference) (also discussed in Bodur & Sarigöllü, 2005, Kim & Choi, 2005 and Tan, 2011); and *environmental concern* (also discussed by Mainieri, Barnett, Valdero, Unipan & Oskamp, 1997). It is suggested that psychographic variables provide greater insight into behaviour than demographic variables which "lack the explanatory power of the psychographic variables" (Straughan & Roberts, 1999:567). Other influencing factors that may play a role in promoting environmental consumption include *personality* (Balderjahn, 1988); *faith in others* (Berger & Corbin, 1992); *culture* (Luna & Gupta, 2001); *life events* (Schäfer, Jaeger-Erben & Bamberg, 2012); *citizenship* (Stevenson, 2002); *collectivism* (Kim & Choi, 2005); the role of *consumer policy* (Thogersen, 2005); *perceived behavioural consequences* (Follows & Jobber, 2000); and *personal norms* (Chandon, Smith, Morwitz, Spangenberg & Sprott, 2011). A recent study by Andorfer and Liebe (2013) investigated the role of *personal identity, justice beliefs, social norms, status and trust (faith in others),* and found personal norms and consumer identity to be the major determinants of ethical consumption.

Many of these factors relate to the constructs identified previously in the Environmental Psychology and Education literature. These include *attitude, consciousness, commitment, concern, culture, citizenship, collectivism, identity, locus of control (perceived consumer effectiveness), norms (social and personal), personality, responsibility attribution and values (altruism)*. New constructs include *faith in others (trust), levels of involvement* and the *role of consumer policy.* The next section introduces an additional factor, namely *the behavioural setting*, or the situation in which the behaviour takes place. Where the previous factors are to an extent more abstract and person-specific, the behavioural setting introduces the idea that behaviour is also influenced by situational factors at the point of performing the behaviour.

3.3.4.3 Understanding the behavioural setting

The display of ERB takes place within a specific behavioural setting - a concept that stands at the centre of general consumer behaviour studies. Any human behaviour takes place within a specific 'situation' - a point in time and place with the presence of one or more persons. Yet, a behavioural setting is not only bound by time and place, but consists of a sequence of behaviour that is expected to take place regardless of the particular person/s present (Belk, 1975). To explain within the context of the proposed study: an outdoor sports event is a behavioural setting that takes place at a certain time (date of the event) and place (venue of the event). Certain behaviours will be displayed within this setting, such as the course laid out, participants of the race/marathon running, stalls selling goods, judges observing, amenities ready for use (recycling bins, bathrooms etc.). This will all take place with or without the presence of the spectator. When the spectator enters the setting, certain situations will occur; for example, the spectator parking his car, entering the gate, standing on the grass to view the race, and throwing away food containers. These 'consumer situations' are particular to a time and place, and there will be certain factors influencing displayed behaviour. Belk (1975:159) proposed the five groups of situational characteristics listed below.

a) Physical surroundings: geographical and institutional location, décor, sounds, aromas, lighting, weather, visible material surrounding the object.
b) Social surroundings: other persons present (their characteristics, their roles, and interpersonal interactions).
c) Temporal perspectives: time of day, season of the year, past or future events, time constraints (such as other commitments).
d) Task definition: intent or requirement to select, purchase or obtain information about a purchase; purchasing for self or others.
e) Antecedent states: momentary moods (e.g. anxiety, pleasantness, excitement) or momentary conditions (spending money, fatigue, illness) – states that the consumer is in when coming into the situation; not when leaving the situation [The altered state may become an antecedent for behaviour within the next choice situation].

Within the context of this study it is important to define the situational characteristics relevant to outdoor sport event spectating. These characteristics have to be included when testing the ERB of spectators as their features may play an important role in encouraging the desired behaviour. It will include aspects associated with the EMS employed by the event organiser, such as the location of waste bins, demarcation of footpaths/viewing areas and informative signage.

Importantly, this study explores behaviour against the backdrop of a particular spatial setting as opposed to studying spatial settings as they take into account certain behavioural needs (Günther, 2009). To explain, the ERB of spectators is studied within the context of an outdoor sporting event; as opposed to outdoor sporting events being studied in order to determine how they should provide for the need of spectators to behave environmentally responsible. Yet, it is argued that contributions to the latter could emerge from this study.

It is evident that ERB is a multi-dimensional construct with several factors leading to the final outcome. The list of factors identified from the initial literature overview include *affective processes/feelings, citizenship, collectivism, consciousness/awareness, culture, ecological self, ecological worldview, attitude, awareness, beliefs, commitment, concern, ethics, faith in others, knowledge, levels of involvement, locus of control / perceived* *consumer effectiveness, norms, personality, place and identity, political orientation, responsibility attribution, risk perception, the role of consumer policy, sense of place, situational factors, skills and values.*

It is important to state that the different factors are difficult to delineate as “most are broadly and vaguely defined, interrelated, and often do not have clear boundaries”. For example, environmental knowledge can be regarded as a subcategory of environmental awareness, while emotional involvement is said to be the factor shaping environmental awareness and attitude (Kollmuss & Agyeman, 2002:248).

Numerous authors have developed and tested models using varied factors in different combinations and study contexts. As indicated earlier, it combines knowledge from both environmental and social psychology. The next section introduces such existing models of ERB in an effort to identify commonalities in the usage of the factors, as well as to gain insight into possible relationships between them.

3.4 EXISTING THEORIES OF ERB

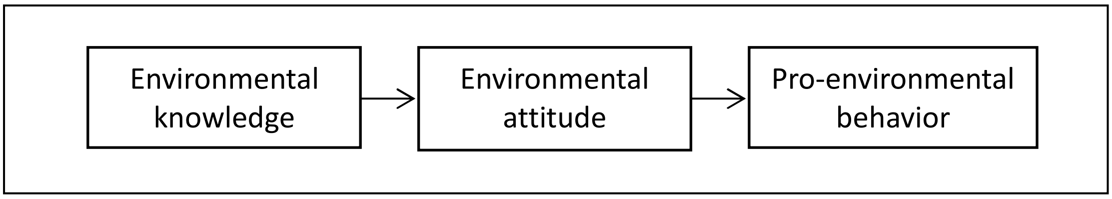
This section starts off by first discussing some of the most prominent behavioural theories and models of ERB. It then provides a summary of the application of these models in a tourism and sport context where applicable. The aim is to establish a base from which to develop the conceptual model of this study through understanding the popular and proven relational structures between factors. The theories are mostly presented in the form of models developed by other researchers, where models are classified as one form of presenting conceptual schemes (“well-defined and interconnected concepts as summary and explanatory tools”). It is argued that presentation of existing knowledge on ERB in this form makes it easier to understand the links between variables and also to view the phenomenon as a process (from Pearce, 2005:13).

ERB can be viewed from two perspectives, with each perspective being represented by specific theoretical models (Bamberg & Möser, 2007; Klöckner & Blöbaum, 2011). Firstly, ERB can be seen as a matter of self-interest, where the focus is on strategies to minimise one’s own health risks. Researchers following this view rely on rational choice models such as Ajzen and Fishbein's Theory of Reasoned Action (TRA) and Ajzen's Theory of Planned Behaviour (TPB). Secondly, ERB can be seen as something that is pro-socially motivated with the focus on concern for other people, future generations, or biospheric systems. Researchers following this view refer to models such as Schwartz's Norm-Activation-Model (NAM) or Stern's Values-Beliefs-Norms (VBN) model as theoretical frameworks. Still, ERB is never just one of these, but rather a mixture of both. The next sections discuss the most prominent models of ERB in each category.

3.4.1 <u>Models of ERB based on rational choice</u>

The earliest models of ERB followed a simple linear line (Figure 7). This linear model was proven wrong as it became clear that an increase in knowledge and awareness did not necessarily lead to ERB (Kollmuss & Agyeman, 2002).

Figure 7: Early model of ERB



<u>Source:</u> Kollmuss and Agyeman (2002:241)

The attitude-behaviour gap became a prominent feature and some researchers tried to explain this gap. Four explanations for occurrence of the gap were offered (Rajecki, 1982 in Kollmuss & Agyeman, 2002), including the way in which the knowledge is gained (first-hand experience versus indirectly); the influence of norms, traditions and customs; the time between measuring the attitude and the actual behaviour; and the items being measured (the attitude being measured must be toward the specific behaviour being measured).

A range of different models followed to account for these additional factors. Starting with the first category of models built on rational choice, Fishbein (1979) argued that attitude does not stand central to behaviour, but that it should be viewed in the context of the *beliefs, attitude* and *intentions* within a behavioural sequence. FIshbein's TRA postulates that attitude should not be measured in terms of 'traditional attitudes' as it was used in existing studies, but to focus on 'attitude toward the behaviour'. To explain, Fishbein stated that attitude toward the behaviour (for example, attitude toward recycling) is a better predictor of that behaviour (participating in recycling) than attitude toward the object necessitating the behaviour (climate change or pollution) (Ajzen, 1975 in Montaño & Kasprzyk, 2008). Personality and values are not regarded as predictors of behaviour and is left out from this theory (Fishbein, 1979).

The TRA was extensively referenced in social psychology studies and in later work, Ajzen and Fishbein proposed an extension to the theory by including *behavioural control beliefs* as an additional predictor of intentions and behaviour. Various studies initially confirmed that perceived behavioural control (PBC) adds to the prediction of behaviour (Madden, Ellen & Ajzen, 1992). Since then, The TPB (Ajzen, 1991; Ajzen & Fishbein, 1980) has been the most influential attitude-behaviour model in social psychology and is supported by a vast amount of empirical evidence that has been summarised in numerous meta-analyses and reviews (Curtis, Ham & Weiler, 2010; Maio, Verplanken, Manstead, Stroebe, Abraham, Sheeran & Conner, 2007; Montaño & Kasprzyk, 2008).

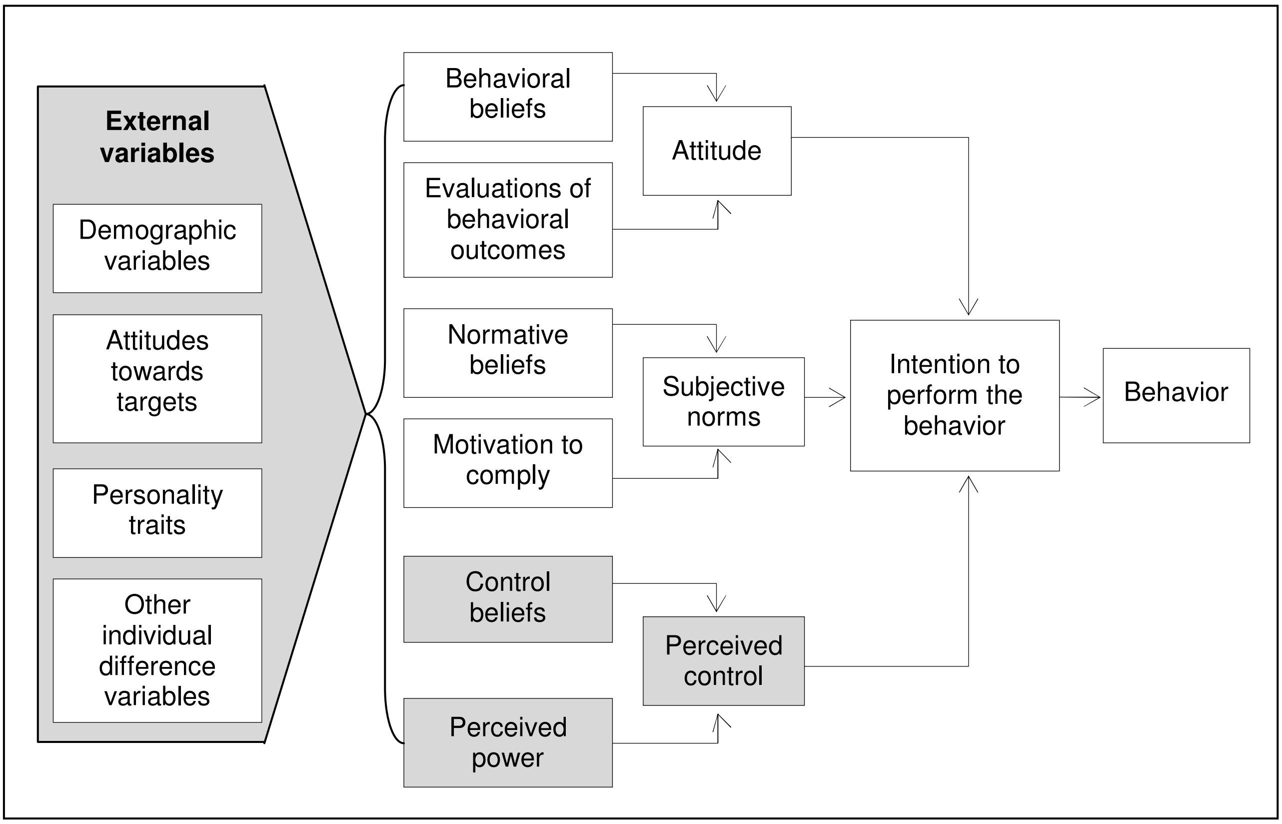
Montaño and Kasprzyk (2008) provide a useful illustration where the components of the two models are presented simultaneously. Figure 8 indicates the initial TRA components in white blocks (attitude, subjective norms, behaviour), and the expanded TPB components in grey (perceived control).

Fishbein and Ajzen maintain that people are essentially rational, making use of information available to them to guide behaviour. They state that individuals are not controlled by subconscious motivations, not overpowered by their desires, and do not behave impulsively (Ajzen & Fishbein, 1980 in Maio *et al.*, 2007). The theory predicts that behaviour is guided by three main factors (taken from Maio *et al.*, 2007:106).

a) Behavioural beliefs: beliefs about the possible consequences of the behaviour, and the evaluation of these consequences.
b) Normative beliefs: beliefs about the expectations of others in terms of the behaviour, and the motivation to comply with these expectations.

c) Control beliefs: Beliefs about factors expected to help or hinder the performance of the behaviour, and the perceived importance of these factors.

Figure 8: The TPB and TRA combined



Source: Montaño and Kasprzyk (2008:70)

Klöckner and Blöbaum (2011:576) explain that personal and social norms act as references along with attitudes and PBC to generate behavioural intentions in a decision-making situation. "While attitudes reflect cognitive and affective beliefs about the behaviour in question and PBC reflects beliefs about the degree of determination, personal norms provide the moral "colouring" of the decision-making process." Where these three aspects integrate, one will find the intention that preceed a behavioural decision. All other personal, demographic, and environmental factors are said to influence behaviour through their effects on the three sets of beliefs (in other words, they serve a mediating role) (Maio *et al.*, 2007).

Hines, Hungerford and Tomera developed their *Model of Responsible Environmental Behaviour* (Figure 9) in 1986, based on the TPB (Kollmuss & Agyeman, 2002). Their model includes the following additional factors (taken from Kollmuss & Agyeman, 2002:243):

a) *Knowledge of action strategies:* The person has to know how he or she has to act to lower his or her impact on the environment.

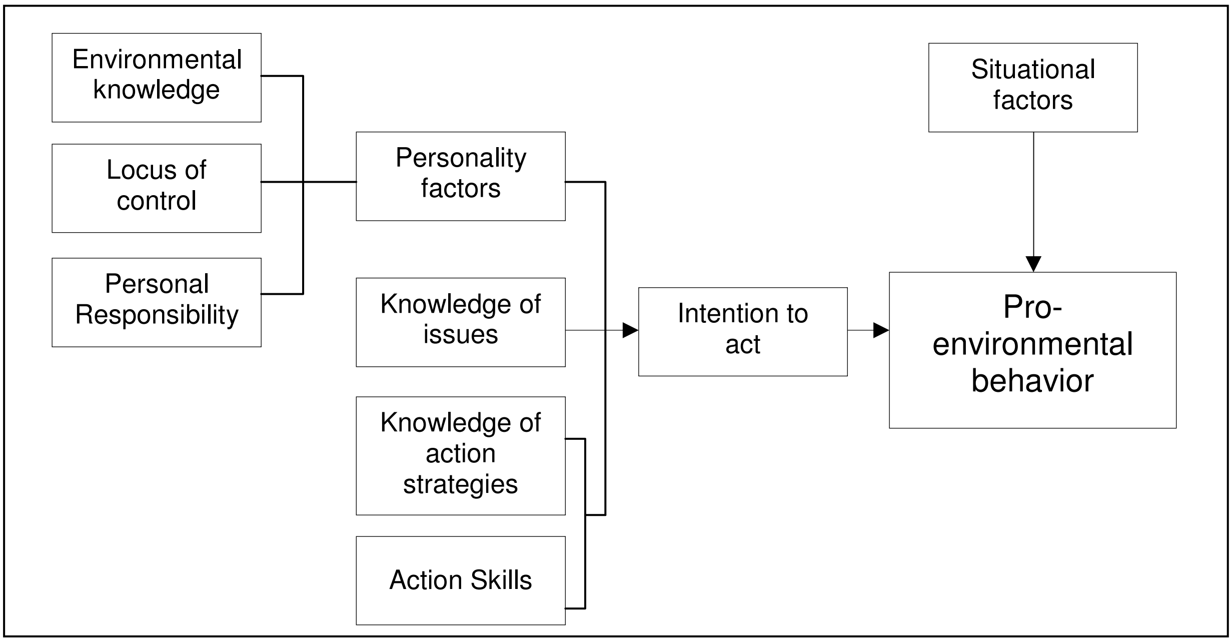
b) *Locus of control:* An individual's perception that he or she has the ability to bring about change through his or her individual behaviour. This term has also been referred to as perceived consumer effectiveness (Bodur & Sarigollu, 2005, Kim & Choi, 2005; Tan, 2011).

c) *Personal responsibility:* People with a greater sense of personal responsibility are more likely to have engaged in ERB.

d) *Situational factors:* A variety of other factors influence actual behaviour, including economic constraints, social pressures, and opportunities to choose different actions.

Importantly, the relationship between knowledge and attitudes, attitudes and intentions, and intentions and actual responsible behaviour, were found to be weak.

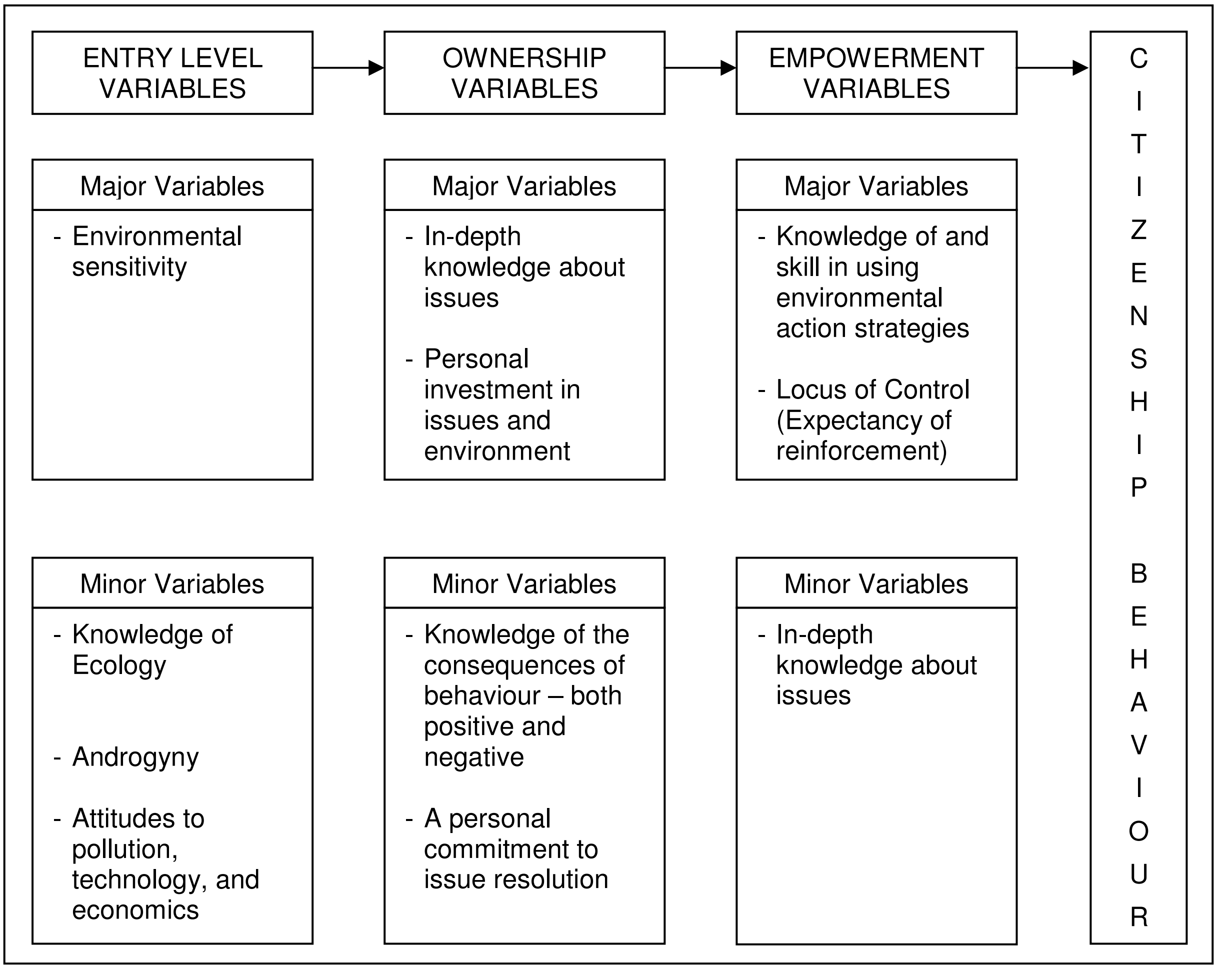
Figure 9: Model of predictors of environmental behaviour



<u>**Source:**</u> Hines *et al.* (1986-1987, in Hungerford & Volk, 1990:259)

Hungerford and Volk (1990) incorporated this model along with other research to develop an environmental behaviour model that distinguishes between major and minor influencing factors (Figure 10). This model is often cited in Environmental Education research, being regarded as “something of a classic” in the field. The entry-level variables (Figure 10) are related to responsible citizenship and argued to be good predictors of behaviour[3]. Ownership variables bring environmental issues to a very personal level where the individual sees the issue as very important to him-/herself and are regarded as critical to ERB. Empowerment variables relate to the training of citizens to be responsible and giving them a sense that they can contribute and make a difference. The empowerment variables are regarded as part of “the cornerstone of training in Environmental Education” (Hungerford & Volk, 1990:261).

Figure 10: Environmental behaviour model with major and minor variables



__Source:__ Hungerford and Volk (1990:260)

[3] *Androgyny* refers to a personality trait where the individual displays non-traditional gender characteristics (e.g. a male as very sympathetic or a female being very assertive).

The TPB has been criticised based on conceptual and empirical bases, including the assumptions of rationality and deliberation of the individual performing the behaviour (no room for affect or emotions); inconsistent measurement items and operational definitions; and the theory not being falsifiable. This has led to the authors to clarify, defend and test the model since its development in 1985 (Ajzen, 2011; Curtis *et al.*, 2010). The aim of this discussion is not to debate the validity of the model, but to acknowledge that it has certain identified shortcomings and that there is room for inclusion of other causal factors.

The next section turns to models that give consideration to the activation of norms and values. The norm-activation principle defined by Schwartz (1977) is presented first as the model on which many others have been built.

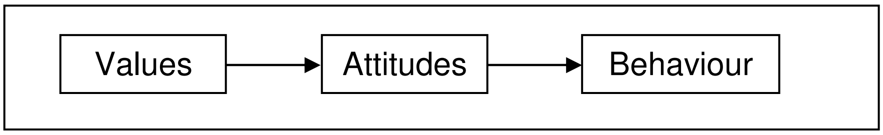
3.4.2 <u>Models of ERB based on the activation of norms and values</u>

The NAM of Schwartz (1977) is based on the principle that (altruistic) moral or personal norms are direct determinants of pro-social behaviour, and that these norms are a stronger influence on ERB than general environmental concerns (Tanner, 1999). Schwartz (1977, discussed in Bamberg & Möser, 2007) describes moral norms as strong feelings of obligation that an individual experiences and that urge him/her to participate in pro-social behaviour. The formation as well as activation of a moral norm is said to result from the interaction between cognitive (intellectual), emotional, and social factors.

In the field of pro-environmental behaviour, the awareness of and knowledge about environmental problems will be the cognitive preconditions for developing moral norms. Causal attribution is also an important cognitive process. When an individual feels personally responsible, an emotional reaction in the form of guilt feelings may occur when the individual perceives him-/herself as contributing to the situation. This emotion of guilt is very important as it leads to a sense of ‘obligation’ (a moral norm) and is also associated with social norms (when the individual feels that his/her behaviour does not match that of socially significant others).

Homer and Kahle’s model (1988) integrates the interrelationships between values, attitudes, and behaviours through a hierarchical influence of cognitions (perceptions or understandings). Theoretically, the influence is shown to flow from abstract values to mid-range attitudes into specific behaviours (Milfont, Duckitt & Wagner, 2010; Tan, 2011) (refer to Figure 11). The strongest causal effects are stated to be between values and attitudes, and between attitudes and behaviour. The model assumes that values can influence behaviours through attitudes as the mediating factor (empirical research found no significant direct influence of values on behaviour). This model has been applied widely in especially consumer behaviour studies, including studies on ‘green’ consumption and ERB (summarised in Tan, 2011).

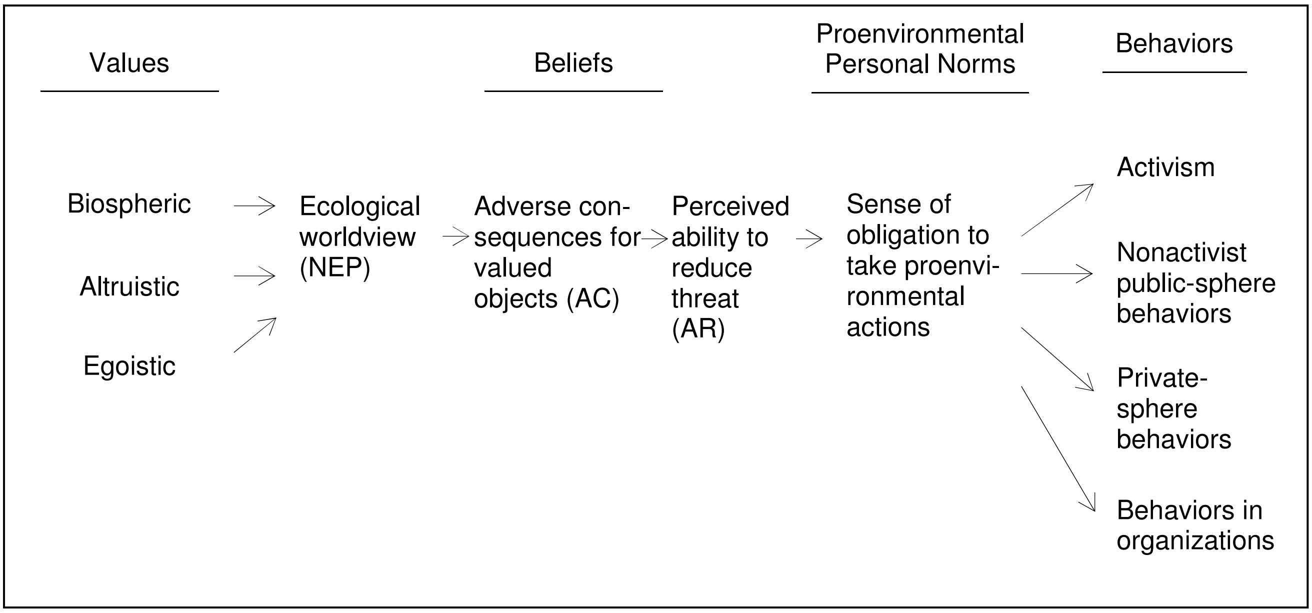
Figure 11: Homer and Kahle’s Value-Attitude-Behaviour Hierarchy



<u>Source:</u> own depiction

Stern’s (2000) VBN model of environmentalism links value theory to the NAM of Schwartz (1977), by proposing that people will feel responsible for environmental action if they are aware of the consequences and when they judge themselves to be responsible for the outcomes (Tanner, 1999). The model implies a similar hierarchical structure such as the one presented by Homer and Kahle (1988), but the influence flows from values into beliefs and then into norms, as opposed to attitude, before flowing into behaviour (see Figure 12). Stern (2000) explains that the causal chain moves from central elements of personality and belief structures (biospheric, altruistic and egoistic values), to more focused beliefs about human-environment relations (ecological worldview), the consequences of behaviour (perceived risk indicated as AC), and the individual’s ability to take corrective action (locus of control indicated as AR). These beliefs activate personal norms, driving the individual’s sense that he or she has to take action. In addition, “behaviour-specific personal norms and other social-psychological factors (e.g., perceived personal costs and benefits of action, and beliefs about the efficacy of particular actions) may affect particular behaviours”. Empirical testing provided “strong initial support … that personal moral norms are the main basis for an individual’s general predispositions to proenvironmental action” (Stern, 2000:414). This approach to ERB, where intentions are said to relate to more general values, worldviews and beliefs, is in response to that of Ajzen and Fishbein’s argument that an individual attitude must include only an intention to carry out a specific behaviour based on "reasoned evaluation of the likely consequences of that action" (Blake, 1999:264).

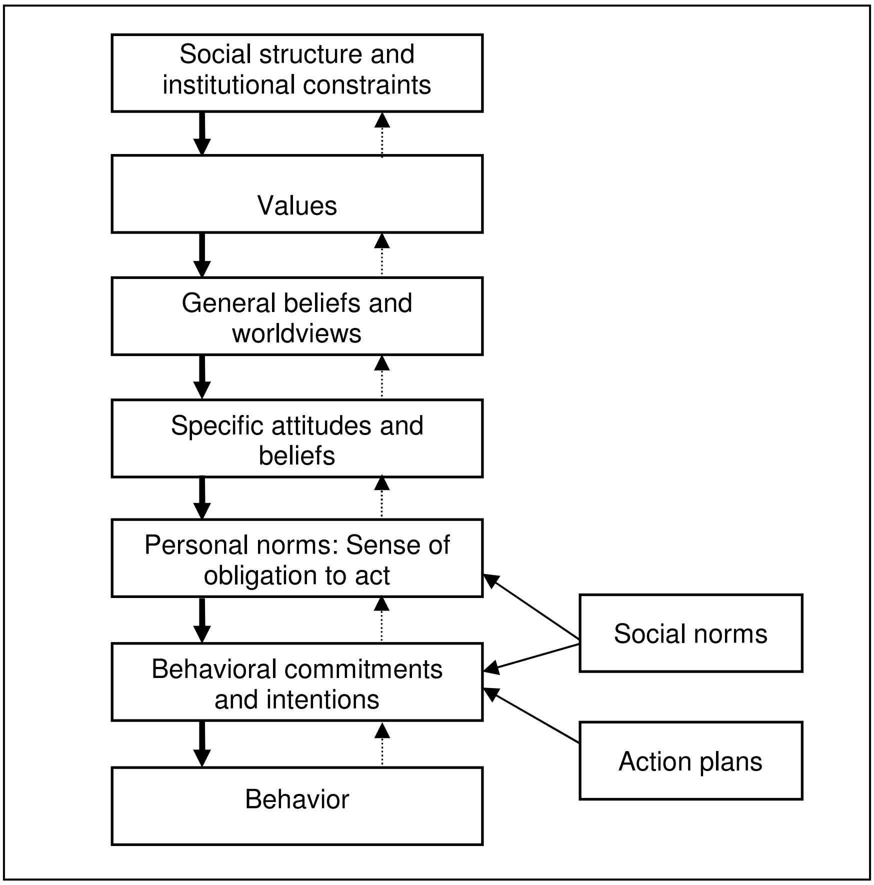
Figure 12: The Values-Beliefs-Norms theory of environmentalism



Source: Stern (2000:412)

Stern, Dietz and Guagnano (1995) indicated that social structures (e.g., national laws, market and incentive structures) are the factors that shape the development of an individual's values (e.g., egocentric, altruistic, ecocentric values). These values "guide the development of belief systems and worldviews. Belief systems and worldviews represent a general knowledge base from which new attitudes and beliefs about specific environmental issues are formed (e.g., attitudes about recycling, composting, buying green products). These attitudes and beliefs influence behavioural commitments and intentions, which, in turn, influence ecological behaviour" (discussed in Milfont *et al*., 2010:2793). Figure 13 presents an adapted version of Stern's initial model after adding contributions by Cameron (2002) and Stern *et al*. 1995.

Figure 13: Schematic causal model of the roles of social structures, values, general beliefs, attitudes, and intentions in determining ecological behaviour



Source: Milfont *et al.* (2010:2793)

Fietkau and Kessel (1981 in Kollmuss & Agyeman, 2002) developed their model of ecological behaviour using five influencing variables, with three additional factors (from Kollmuss & Agyeman, 2002:246). *Possibilities to act pro-environmentall* are identified as external, infrastructural and economic factors that enable or hinder people to act ecologically. This is similar to Hines *et al.*'s (1986-1987) 'situational factors'. *Behavioural incentives* are internal factors that can reinforce and support ecological behaviour (e.g. social desirability, quality of life, monetary savings). These may be related to norms (social norms identified by Schwartz, 1977). *Perceived consequences of behaviour* entail that *a* person has to receive positive reinforcement to continue a certain ecological behaviour. This feedback can be intrinsic (personal satisfaction of doing the right thing – linked to moral norms), or extrinsic (being socially rewarded because ERB is a socially desirable action – linked to social norms, or economically rewarded by receiving monetary rewards).

In this model, knowledge does not directly influence behaviour as in the model by Hines *et al.,* but "acts as a modifier of attitudes and values" (Kollmuss & Agyeman, 2002:246). In a sense, 'behavioural incentives' and 'perceived consequences of behaviour' are the same, as both deal with intrinsic motivations that may be triggered by behaviour.

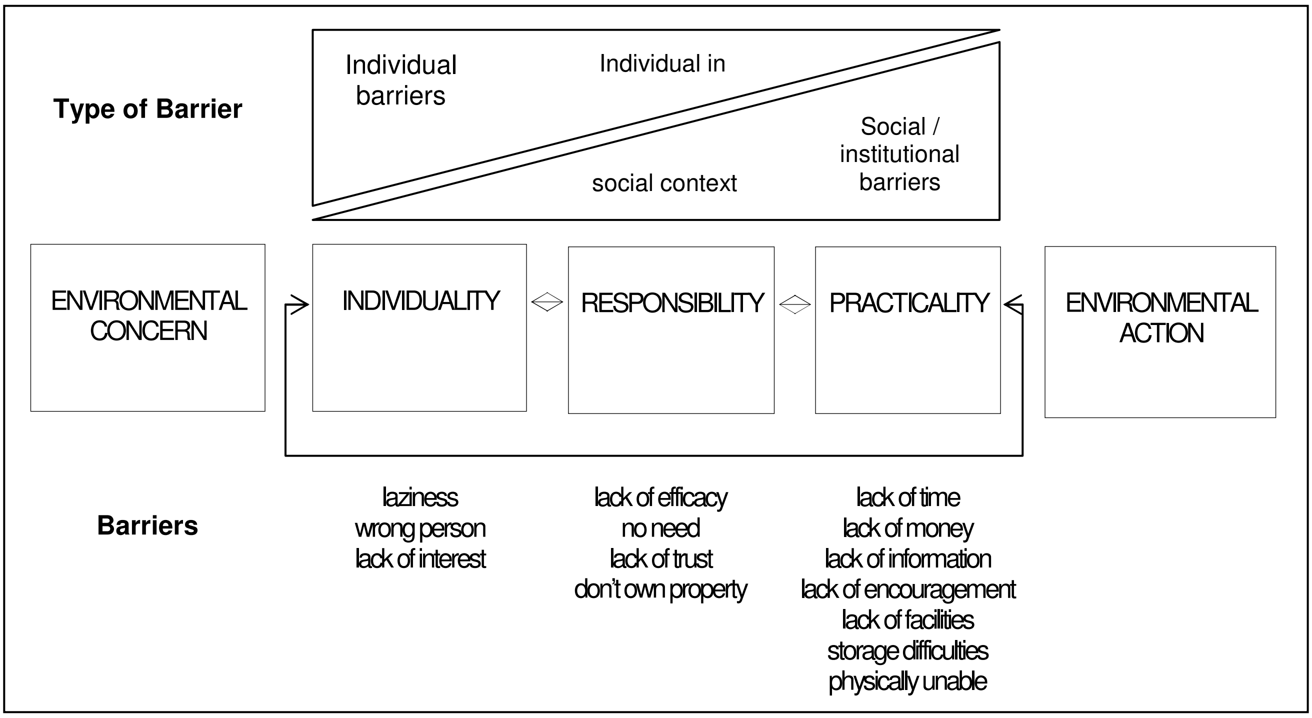
As stated earlier and discussed to this point, ERB can be seen from the perspective of the NAM or the TPB. Still, ERB is never just one of these, but rather a mixture of both. Klöckner and Blöbaum (2011:574) argue that the TPB "focuses on intentions, but neglects the role of objective situational constraints and facilitators as well as habits and personal norms. The NAM focuses on personal norms, but underestimates the role of habits, intentions, attitudes, and the situations themselves". A number of authors have aimed to integrate the two approaches and these are briefly introduced in the next setion.

3.4.3 Models combining pro-social (NAM) and self-interest (TPB) approaches

Grob (1995) developed a simplistic five-factor model combining elements from the TBP and the VBN. He tested the direct influences of environmental awareness and emotions as additional contributing factors. *Awareness* is the factual knowledge about the environment and recognition of environmental problems; thus similar to 'knowledge' presented in previous models. *Emotion* includes "the emotional value which the individual places on aspects of the environment and of the discrepancy between ideal and actual environmental conditions". The *personal-philosophical values* "include post-materialistic beliefs and readiness to adopt new attitudes". The *perceived control* component "involves beliefs about the efficacy of science and technology and beliefs about self-efficacy"; thus similar to *PBC* presented in previous models.

Blake (1999) presented a framework specifically addressing the attitude-behaviour gap, or as he calls it the *Value–Action Gap* (Figure 14). He criticises the rationality encompassed in other models, where humans are regarded as rational beings without giving consideration to social and individual-specific factors. He argues that people's ERB is influenced by psychological and institutional factors, with the relative importance of each differing between individuals, environmental actions and social or institutional constraints.

Figure 14: Barriers between environmental concern and action

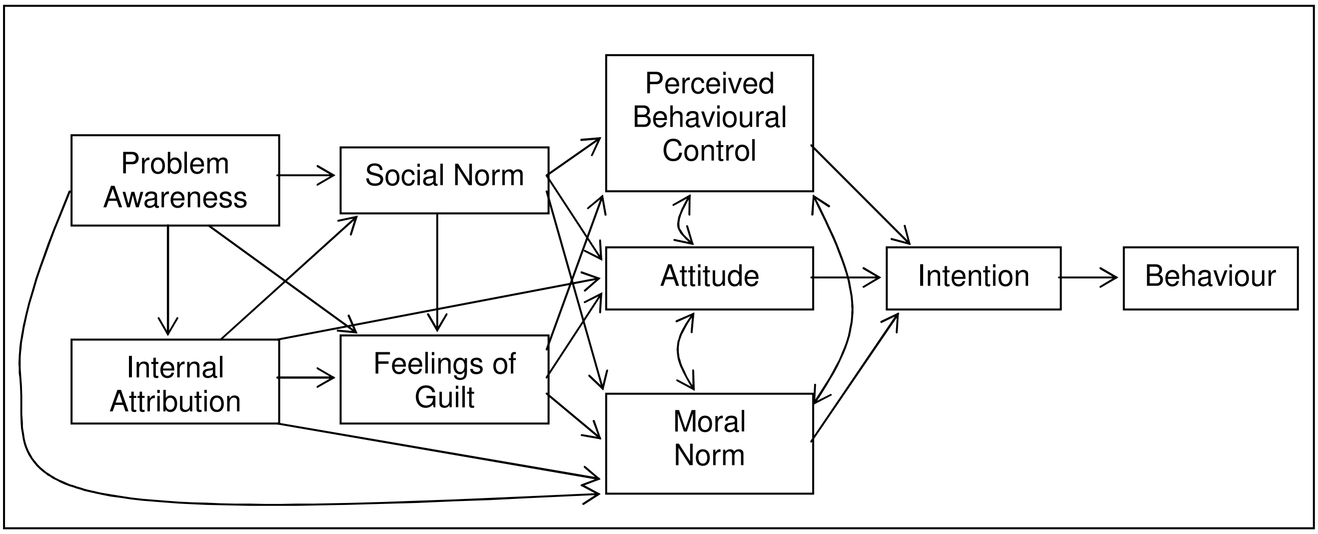


Source: Blake (1999:267)

The barriers to ERB are presented in three categories, namely individuality, responsibility and practicality. *Individuality* refers to personal attitudes or cognitive structures. Environmental concerns will, for example, be overshadowed by a conflicting attitude of laziness or lack of interest. Sometimes a person will just not see him-/herself as being a 'typical environmentalist'. *Responsibility* refers to the extent to which a person feels that he or she (as individual) is responsible to help solve environmental problems; based on perceptions that the individual's action cannot make a real difference to the bigger problem. People also see it as the responsibility of other individuals or groups to act as these parties are perceived to have a more effective influence. This can be related to *locus of control (perceived consumer effectiveness)* identified in other studies. *Practicality* refers to concrete or everyday social or institutional constraints that may prevent a person from adopting ERB, even if he or she has a favourable attitude or intention (e.g. lack of time, money, capacity, information, encouragement, facilities, etc.). These relate to *situational factors* identified in other studies.

Bamberg and Möser (2007) aimed to balance the pro-social (VBN) and self-interest (TPB) approaches by including moral norms instead of social norms as a determinant of intention (Figure 15).

Figure 15: Revised TPB model with moral norms as predictor

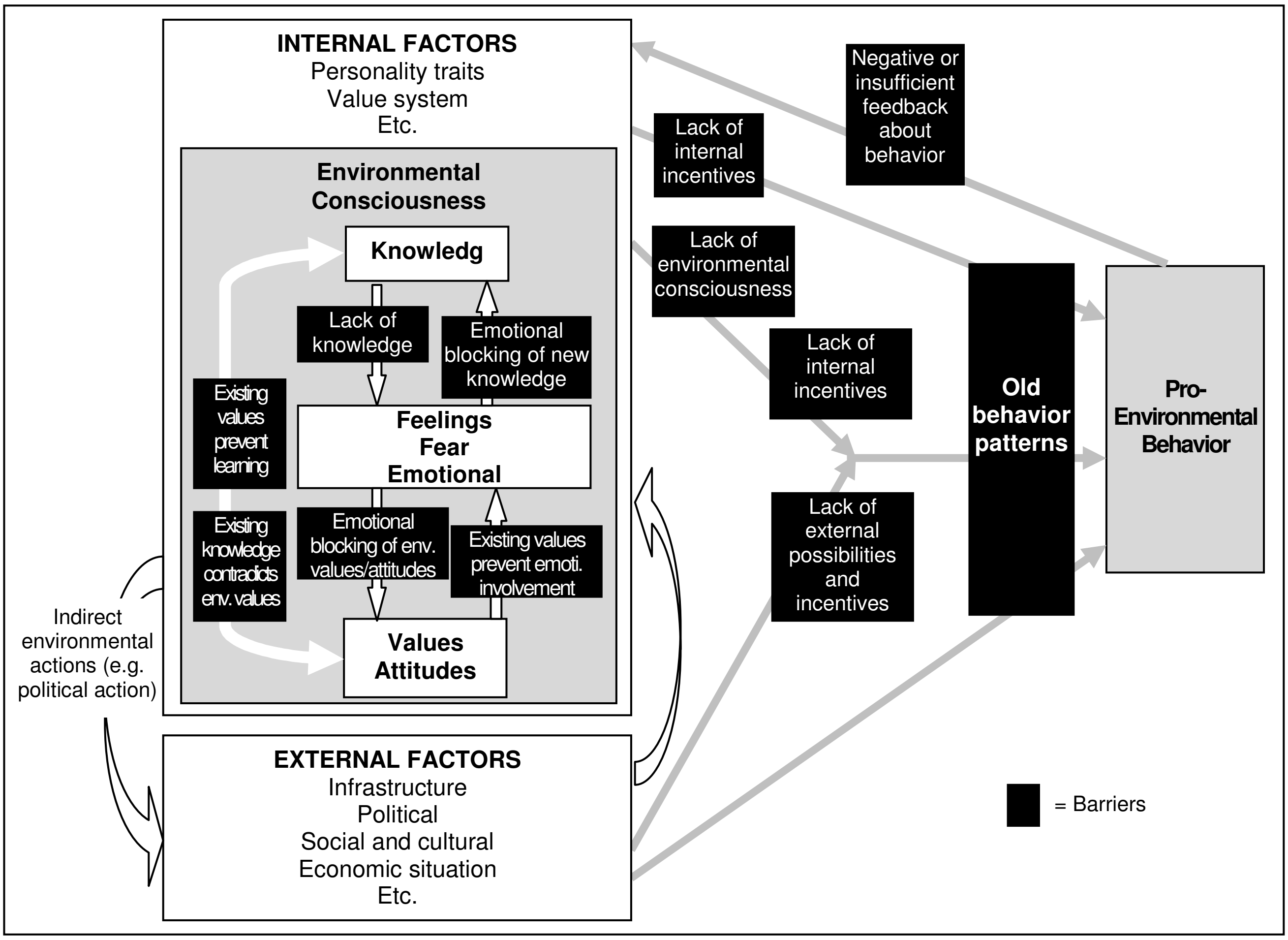


<u>Source:</u> adapted from Bamberg and Möser (2007:16)

They found the impact of PBC, attitude and moral norms to be similar. They argue that the intention to perform ERB can be described as a weighted balance of information regarding three aspects. Firstly, the number of positive/negative *personal consequences* that would result from choosing the ERB option compared to other behavioural options (also identified in Stern, 2000 and Fietkau & Kessel, 1981). Secondly, the *perceived difficulty of performing* the ERB compared to other behavioural options. This can be related to Blake's (1999) *practicality,* Fietkau and Kessel's (1981) *possibilities to act pro-environmentally,* and Hines *et al.*'s (1986) *action skills*. Thirdly, any reasons indicating *a moral obligation* for performing the ERB option.

Kollmuss and Agyeman's (2002) model of pro-environmental behaviour distinguish between three factors as influences on a person's likelihood of performing ERB (refer to Figure 16), namely *demographic factors external factors (* institutional, economic, social, and cultural factors); and *internal factors (m*otivation, environmental knowledge, awareness, values, attitudes, emotion, locus of control, responsibilities, and priorities). Similar to Fietkau and Kessel's (1981) model of ecological behaviour, they do not predict a direct influence of environmental knowledge on behaviour. They see knowledge, values and attitudes as a bundle making up '*pro-environmental consciousness*', which is rooted in "personal values and shaped by personality traits and other internal as well as external factors" (Kollmuss & Agyeman, 2002:256). Their model also postulates the possibility that environmental actions may be undertaken for reasons other than being concerned about the environment, for example to save money. They regard old behavioural patterns (habits) as the largest barrier to ERB.

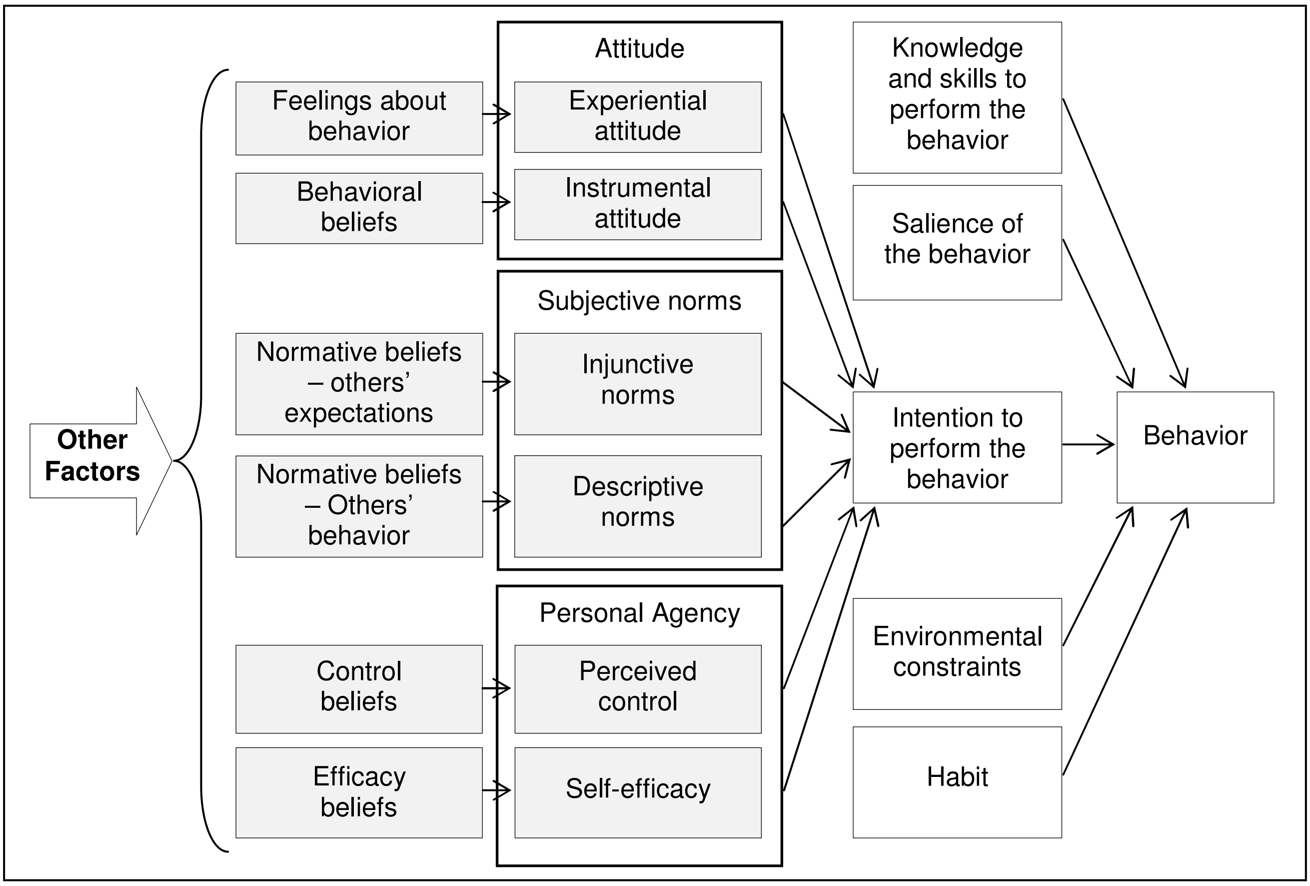
Figure 16: Model of pro-environmental behaviour



Source: Kollmuss and Agyeman (2002)

Montaño and Kasprzyk also argue for the integration of theories and present their Integrated Behavioral Model (IBM) (Figure 17) that includes constructs from TRA/TPB, as well as from other influential theories (Montaño & Kasprzyk, 2008). The authors specifically focus on the additional influence of four other factors, thereby affirming elements of other models. The factors include *knowledge and skills to carry out the* *behaviour;* the influence of *environmental constraints;* the *relative importance (salience)* of the behaviour to the individual; and the influence of *habitually* performing the behaviour.

Figure 17: Integrated Behavioral Model

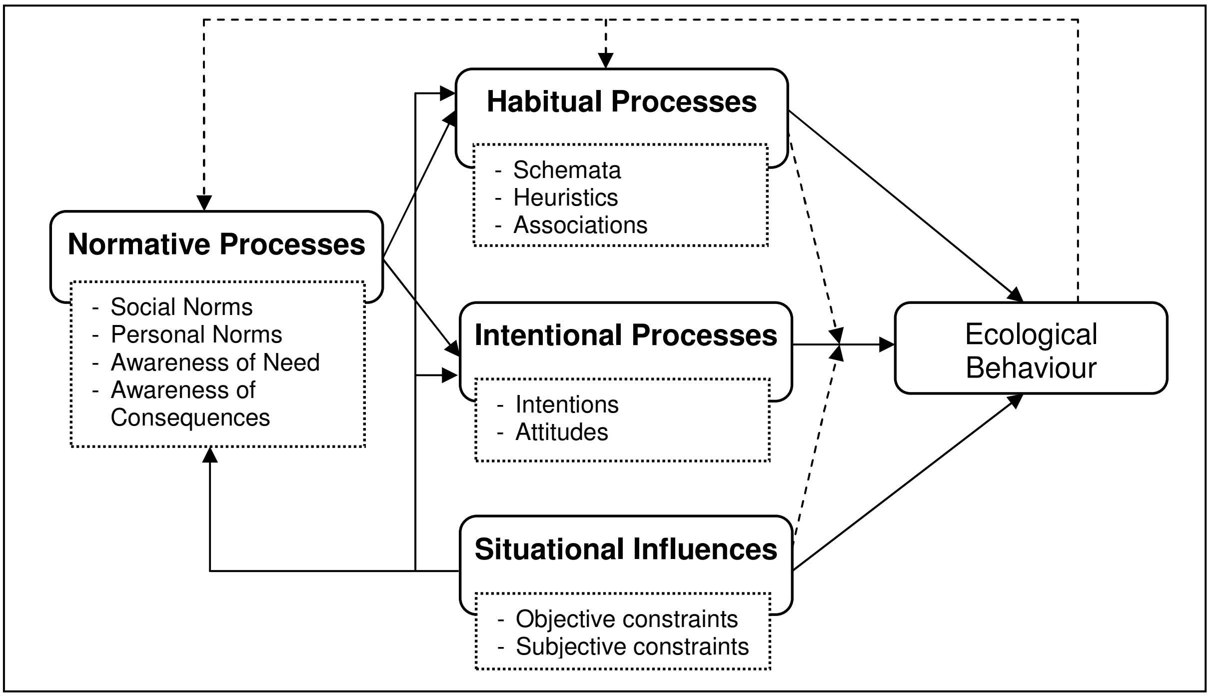


Source: Montaño and Kasprzyk (2008:77)

The addition of relative importance or 'salience' as they refer to it is a newly added factor which could be linked to values and norms that will determine this level of perceived importance. They thus argue that "a particular behavior is most likely to occur if (1) a person has a strong intention to perform it and the knowledge and skill to do so, (2) there is no serious environmental constraint preventing performance, (3) the behavior is salient, and (4) the person has performed the behavior previously" (Montaño & Kasprzyk, 2008:78).

Klöckner and Blöbaum similarly integrated the main assumptions of the TPB, the NAM, and the concept of habit into their Comprehensive Action Determination Model (refer to Figure 18). Another dimension included is that of the ipsative theory of behaviour specifically, which focuses on the situational determination of behaviour. An important assumption underlying this model is that individual behaviour is directly determined by influences from three possible sources: intentional, situational, and habitual. Empirical research demonstrated potential of using the proposed integration of TPB and NAM components (intentional, normative, situational and habitual) on behaviour in this way (Klöckner & Blöbaum, 2011:583).

Figure 18: Comprehensive Action Determination Model



Source: Klöckner and Blöbaum (2011:576)

Tanner (1999) argued that traditional psychological research only focuses on the reasons for action, instead of finding reasons for inaction or constraints (see Table 6), which could be a better indication of conditions that are necessary to perform ERB. The attitude-behaviour gap may be explained due to a lack of opportunity to perform ERB.

Table 6: Types of constraints emphasised in ipsative theory of behaviour

Type	Ipsative constraints	Subjective constraints	Objective constraints
Function	Preventing the **activation** of particular behavioural alternatives	Preventing **preference** for particular behavioural alternative	Preventing **performance** of particular behavioural alternative

Source: Tanner (1999:147)

In general, the ipsative theory of behaviour makes three assumptions about human behaviour (Table 6) (taken from Tanner, 1999:147). Firstly, the action must be objectively possible, otherwise they present objective constraints (OPS). These variables prevent or inhibit people's ability to participate in certain behaviour and they exist independently of the individual's perceptions. They determine what someone can do, what someone should do or is allowed to do, or what someone can know in a particular society. They may include structural factors such as limitations of time; income and price; legal and political institution; the current state of scientific knowledge; available technology; the state of infrastructure; available social interaction, information networks and shared set of social rules and norms; and also mental and physical disabilities. Secondly, the behaviour must be evoked as an alternative possibility – placing it in the ipsative possibility set (IPS). Behavioural options must be relevant for the individual in the situation; in other words, it must be activated from memory in the current situation. Sometimes the particular alternative behaviour simple does not occur to him or her in the situation. Thirdly, the alternative actions of the IPS must be preferred or chosen, otherwise it presents subjective constraints to performing the behaviour. When people are faced with a few evoked alternatives (in the IPS), they have to make a choice and this choice will be made on the basis of their beliefs of what is possible, what is permissible or what is pleasurable. These subjective constraints are responsible for the exclusion of particular behaviour alternatives of the IPS. They are assumed to influence preferences directly rather than actual behaviour; thus they affect willingness to perform a behaviour.

The alternative behaviour set (IPS) is influenced by the objective constraints (OPS). Where the NAM assumes personal norms to be a direct predictor of behaviour and the TPB predicts the influence of norms on behaviour through intentions, the ipsative theory of behaviour predicts that the IPS determines the final behavioural decision. Furthermore, the IPS is related to PBC, because a person that cannot perceive a range of alternative behavioural choices will have lower levels of perceived control over the behaviour (Klöckner & Blöbaum, 2011).

3.4.4 Concluding remarks on factors and models emerging from the literature

Overall, a broad array of terms and more or less successful models has been used to predict environmental behaviour, and in particular to explain the attitude-behaviour gap (Tanner, 1999). All of the behavioural models have some validity in certain circumstances (Kollmuss & Agyeman, 2002). Still, two most prominent theories remain that of the TPB and NAM as the basis of subsequently developed models and as representation of two theoretical approaches to behaviour (rational versus pro-social).

The importance of each source of behavioural determination varies over time, across situations and between people (Klöckner & Blöbaum, 2011; Montaño & Kasprzyk, 2008). For example, intention to perform a specific behaviour may be primarily determined by attitude toward the behaviour, while another is largely determined by normative influence. Also, the intention to perform a specific behaviour may be under the influence of different factors across different populations. It is thus important to determine the relative importance of various factors in different contexts (Montaño & Kasprzyk, 2008). Importantly, the performance of behaviour should not only be viewed as a function of personal variables, but also situational constraints (Tanner, 1999).

Kollmuss and Agyeman (2002:248) argue that the question of what shapes ERB is such a complex one that it cannot be visualised in one single framework or diagram. “Such a single diagram with all the factors that shape and influence behaviour would be so complicated that it would lose its practicality and probably even its meaning.” Certain statistical procedures may “punish” more complex models because it is harder to achieve a good model fit (Klöckner & Blöbaum, 2011). Instead of looking for an integrated model, some authors suggest using models only in the domains where they perform best; thus matching the most applicable model to a specific domain (Steg & Vlek, 2009). At the same time, Andorfer and Liebe (2013) argue that studies based on a limited number of determinants might be misleading, with factors previously identified as important losing explanatory power if other determinants are included in an analyses. Studies focusing on single or a limited number of determinants might therefore overestimate effects of these determinants.

Some authors argue that combining existing theories is a more promising approach (for example Bamberg & Möser, 2007; Blake, 1999; Montaño and Kasprzyk, 2008; Klöckner & Blöbaum, 2011). It may result in a theoretical framework that might apply to all behavioural situations by describing all relevant factors influencing behaviour and their relative importance depending on the domain. Furthermore, by integrating all potentially relevant predictors of behaviour into one model, it would be easier for planners to include all relevant aspects in their design of intervention strategies (Klöckner & Blöbaum, 2011).

From the literature overview it is evident that a wide range of factors underlies ERB and that the relationships between these factors have been tested in various contexts. There are also factors specific to tourist and sport participation behaviour that may add additional dimensions to the dynamic interaction between the established factors. The next two sections explore the way in which the existing models of ERB have been applied in tourism and sport studies. Behavioural theories from both tourism and sport that may be relevant to this study's context are also introduced. It is argued that, in order to investigate ERB effectively within this study's context, one has to link these constructs to knowledge presented in existing tourism and sport studies on consumer behaviour. Through such a link, the 'pure' ERB literature can support and further explain the knowledge from the tourism and sport studies. At the same time, the deeper understanding of the behaviour presented in the latter studies can place the constructs of ERB within the sports tourism context.

3.5 TOURISTS AND SPORT SPECTATORS AS RESPONSIBLE CONSUMERS

This section explores the literature to shed light on the existing knowledge regarding people that travel to spectate at sports events. As sport spectators may not always be regarded as tourists in strict terms based on the definition of a tourist (travelling away from home for more than 24 hours, UNWTO), they are still viewed as part of the tourism industry via their classification as excursionists (same-day visitors) and form an important component of the sports tourism market. In this section, knowledge from the domains of tourism and sport will therefore be combined to shed light collectively on the characteristics of these consumers.

3.5.1 Tourists as consumers

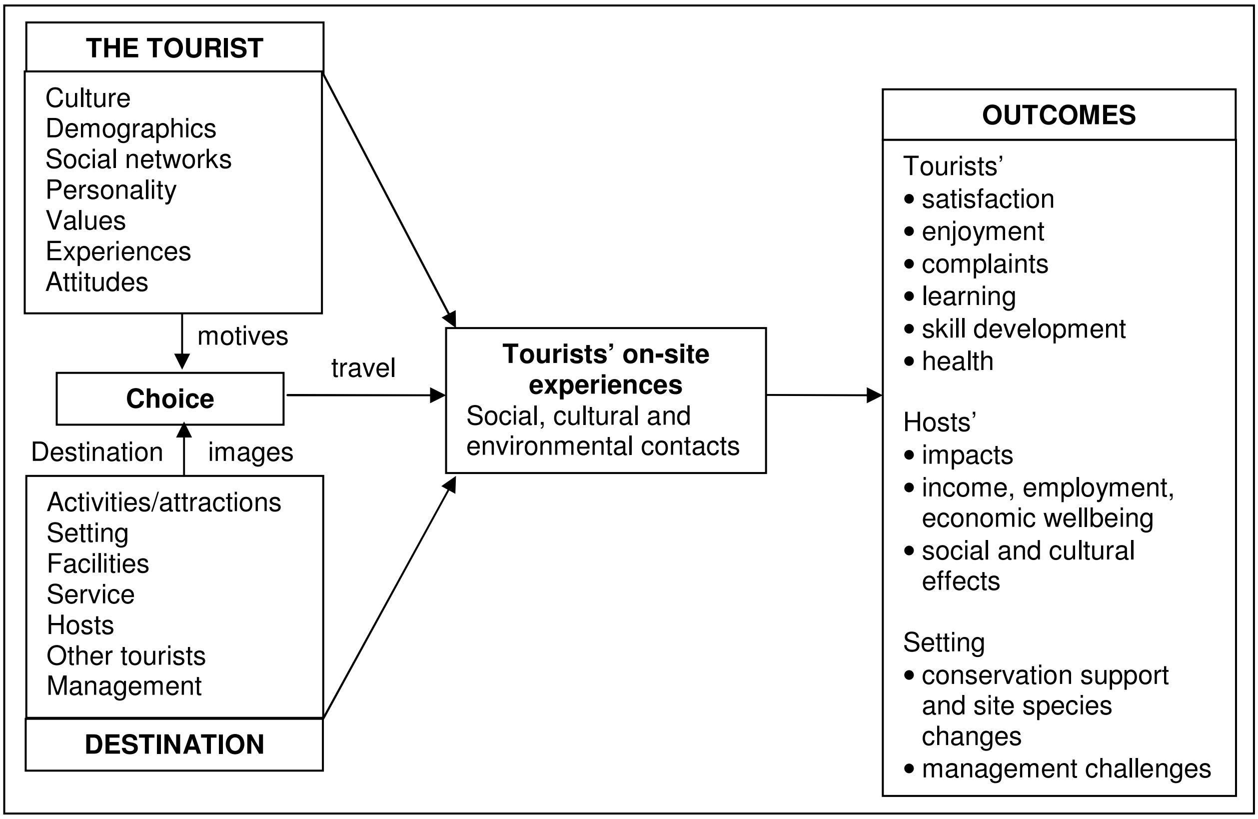
"We ask a lot of tourism these days … that it be eco, that it be sustainable and that it be responsible. Global tourism is experiencing a massive transformation in the 21st century. Travelers and locals are seeking ways of building constituencies with the shared goal of making tourism more responsible. Toward that end we propose connecting the natural and virtual world. Live Local. Think Global. Respond Personally"

(Ron Mader, CEO of Planeta.com)

Consumption refers to the action of individuals "who are involved in the purchasing and experiencing of products" and the term 'consumer' is widely used in the literature related to tourist behaviour, especially when investigating customer satisfaction (Pearce, 2005). Unfortunately, the term 'consumer' has many negative connotations, with 'consumption' often being linked to irresponsible environmental practices. Moscardo (1999, in Pearce, 2005) argues that tourist behaviour researchers have to be aware of this connotation, as sustainability issues are a dominant focus in tourism studies. This view of tourists as irresponsible consumers is clearly depicted in current research. For example, it is stated that mass tourism is closely linked to extensive consumerism in society (Sharpley, 2012; Singh, 2012), and tourists as consumers are part of the *culture-ideology of consumerism* which is brought about by capitalist globalisation (Higgins-Desbiolles, 2010:119). This implies that consumers are driven by a consumerist 'worldview' where endless consumption is the goal (Sharpley, 2012). Tourism is said to be a good example of consumerism because it is an 'induced want' and an optional item to consume, usually for pleasure-seeking purposes. The rate at which tourism consumerism is growing, can be ascribed to tourism marketers telling people that they need it and that they have a 'right' to travel and tourism (Higgins-Desbiolles, 2010).

Popular themes investigated in tourist behaviour include destination choice; buying behaviour; motivations; experiences (on-site and in retrospect for different tourism settings); perception (of destinations/products/brands); expectations; satisfaction; travel careers/-lifestyles; the difference between planned and realised travel; tourist-host relationships; and behaviouristic segmentation / tourist typologies (drawn from March & Woodside, 2005; Pizam & Mansfeld, 1999; Ryan, 2002; Sharpley & Stone, 2011; Swarbrooke & Horner, 2007). A number of consumer behaviour models have been adapted and new models developed to explain buying behaviour, travel/holiday decision-making and experiences in a tourism context. Pearce (2005) initially presented a framework of aspects (Figure 19) that need to be explored to understand tourist behaviour, including many of the themes mentioned above.

Figure 19: Concept map for understanding tourist behaviour

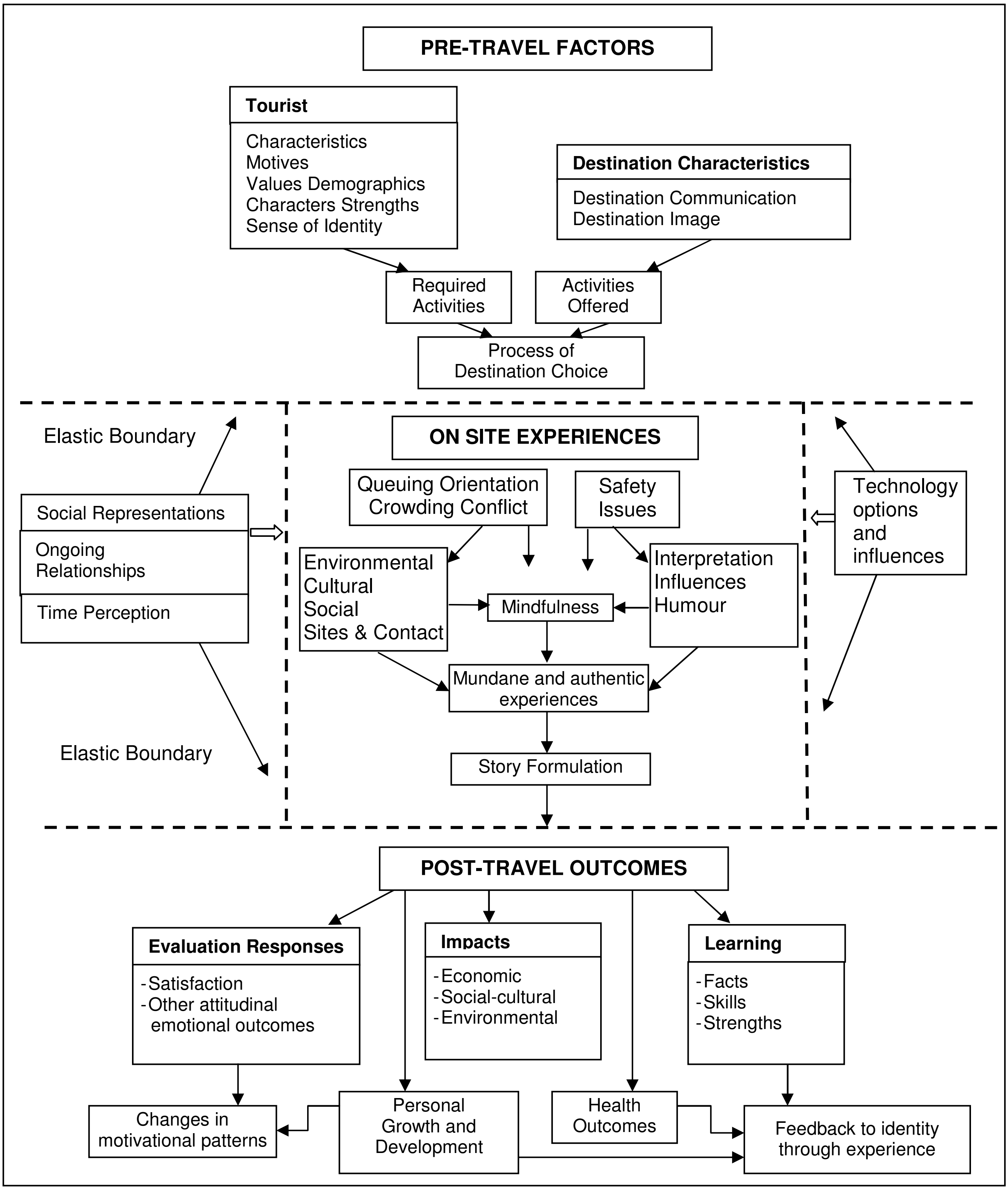


Source: Pearce (2005:17)

Emerging themes in tourist behaviour and experience research include digital tourist experiences, and the influence of information and communication technology on tourist behaviour across the travel decision making and process; changing motivations of tourists, including greater sense of responsibility, desires for personal change, and deep connections to others; tourists' footprints; new tourist mobilities; as well as the search for more extreme experiences (drawn from Pearce, 2011b; Sharpley & Stone, 2011; Singh, 2004; Uysal *et al.*, 2012). The study on Quality of Life as another emerging theme in tourism (Moscardo, 2009), directly links access to high quality natural resources as an essential element of individual well-being (Genç, 2012; Liburd, Benckendorff & Carlsen, 2012; Puczkó & Smith, 2012). Moscardo (2009:167) argues that traveling contributes to the quality of life of the individual tourists through "an increased awareness of natural capital and support for environmental conservation"; even committing to the extent where they choose not to travel at all for the sake of the environment (Puczkó & Smith, 2012).

In an adapted version of his initial framework, Pearce (2011b) depicts contemporary tourist behaviour and experiences, with a clear distinction between three phases (Figure 20). Compared to the 2005 framework, great progress in research has been made to define and describe on-site experiences and post-travel outcomes; with a variety of dimensions added to each. Similar in both models, is the role that the environment plays as part of the on-site experience; with the 2011 framework linking it to mindfulness (or ERB). Given the explanation of 'quality of life' above, the inclusion of environmental impacts in the post-travel phase could also refer to impacts on the individual's environmental perceptions or attitudes (not just the individual's footprint left on the environment).

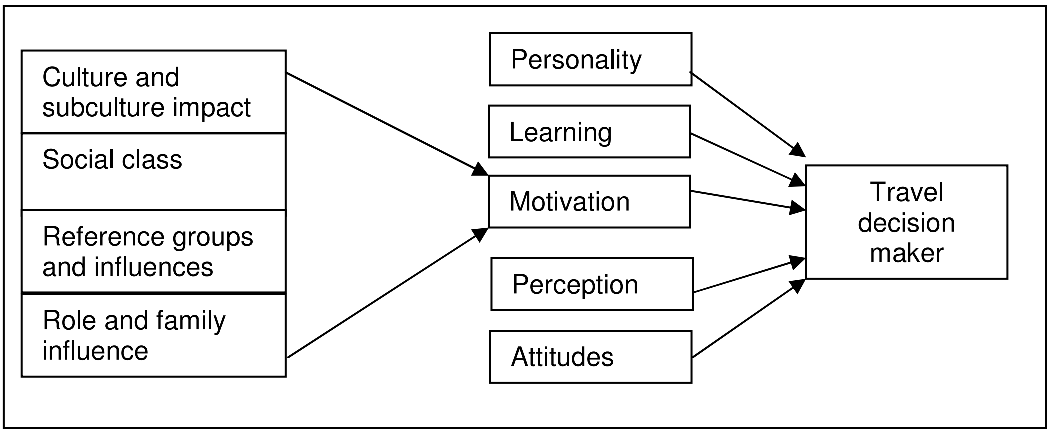
Figure 20: Contemporary tourist behaviour and experiences; phases, components and influences



Source: Pearce (2011b:159)

Moutinho, Ballantyne & Rate (2011a) summarise the major influencing factors on individual travel behaviour (Figure 21), with several aspects matching those presented by Pearce (2011b). Clearly a number of factors determine the final choice to travel to a specific place for a specific reason. Influences on behaviour arise out of a number of socially vested aspects, such as the influence of a subculture that the tourists may belong to (based on age or interests), but also aspects vested internally, such as personal motivations for travelling (needs that may be met by travelling); personality; learning (similar to awareness of travel/options); perceptions (e.g. the desirability of different options); and attitudes toward travelling.

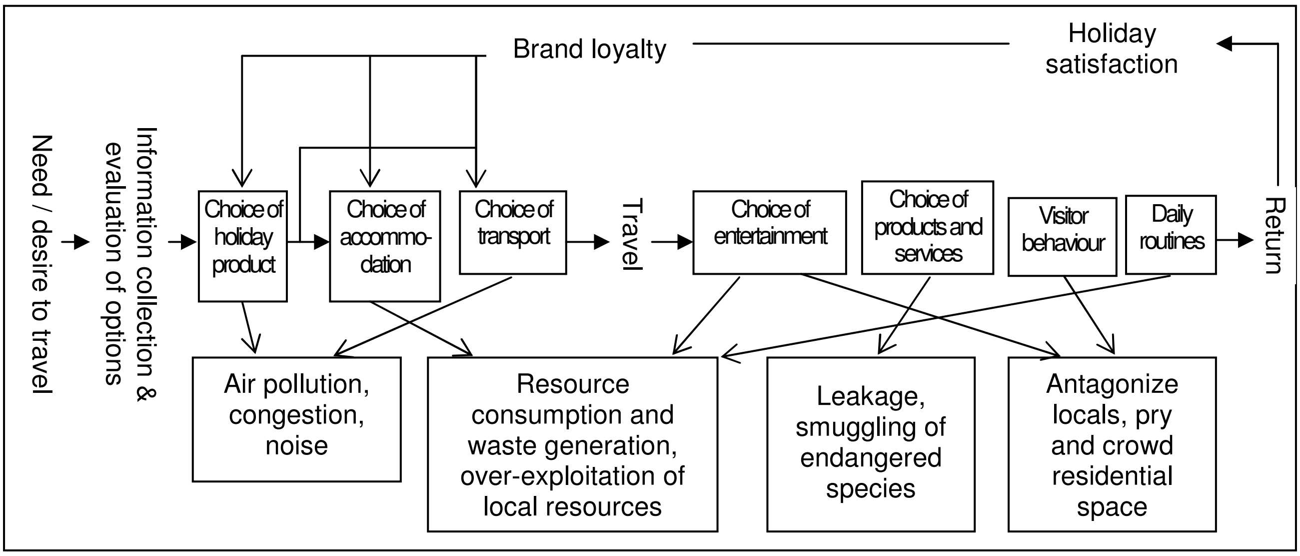
Figure 21: Major influences on individual travel behaviour



<u>Source:</u> Moutinho *et al*. (2011:84)

Many of these terms also appeared in the ERB literature, but were used in different contexts. It is important to consider the above drivers, as conflict may arise between an individual's travel behaviour and ERB. Budeanu (2007) illustrates all the possible environmental impacts that may accrue along the travel journey of an individual (refer to Figure 22). From the starting point, the motivations and needs of the tourists may be in direct contrast to conscious consumption. At every point along the journey, the tourist has the opportunity to make pro-environmental choices. Yet, the direction of these choices will arguably be determined by the relative importance of the underlying motivations (pro-environmental versus pleasure/convenience/price for example).

Figure 22: Tourist holiday choices and associated environmental impacts



Source: Budeanu (2007:501)

Despite the critical view of tourists as hedonistic consumers driven by a capitalist machine, countermeasures are also increasingly guiding tourists toward self-regulated, responsible consumption. It is stated that very few tourists intentionally abuse the destinations they are visiting and that many visitors are seeking to make environmentally and socially responsible choices (Hall, 2009).

Similar to the tourism context, consumers of sport have been indicated as an important partner in overall sustainability of the industry. Even though a major part of industry-driven initiatives toward environmental sustainability focus on planning, design and management aspects, there is clear recognition of the important role that the consumer (participants and spectators) plays in successful implementation thereof (Nguyen *et al.*, 2011; Sheth *et al.*, 2011). The next section explores some of the prominent aspects of sport consumption.

3.5.2 Sports participants as consumers

"Fun, self-realisation, independence, spontaneity, and individuality combined with nature experience are the key characteristics of modern sports." (Türk *et al.*, 2004:171)

The consumption of sport differs from other forms of consumption as it takes place in different degrees, with the levels of emotion and depths of affiliation exceeding other types of consumption. Studying consumption and consumer behaviour in the context of sports events specifically requires research distinct from other pleasure-seeking consumption experiences (King *et al*., 2011). Current levels in the consumption of sport have been driven by forces of globalisation and democratisation, with a number of trends influencing this consumption, such as the expanding demographic profile of participants, increased interest in health and fitness, and the demand for active engagement while on holiday (discussed in Hinch & Higham, 2011). The growth of indoor artificial sport environments has also created perfect "postmodern consumption settings" where lifestyle sports can be practiced (Salome *et al.,* 2013).

The eminant link between motivation and behaviour is a significant part of sport and sports tourism (Hinch & Higham, 2011; Kurpis & Bozman, 2011), and the behaviour of sports tourists participating in outdoor and adventurous activities is the second most researched area after impact studies (Weed, 2006 in Weed, 2009:621). Several authors have aimed to segment the sports tourism market through behaviouristic segmentation based on motivations, with some 32 distinct theories that have been applied to explain sport-related behaviour (Kurpis & Bozman, 2011). While some classifications aim to be comprehensively drawn from theory, others focus on randomly selected subsets of motives (Kurpis & Bozman, 2011). Green and Jones (2005:165) argue that, even though these typologies can be useful tools, they have three main weaknesses: (i) individuals rarely fall perfectly within one of the categories and human behaviour is "over-simplified"; (ii) the dynamic nature of participation is not taken into account; and (iii) "the activity itself, rather than the meanings, norms and values of the individual undertaking the activity" is examined.

Even though markets may vary from one event to another, there are some useful generalisations. For example, 'sport junkies' will follow a specific sport to any destination, with little interest in the host area, while 'casual consumers' will adjust their attendance based on temporal elements such as the venue. The former group is often associated with negative behaviour. The importance of understanding these differences and related touristic behaviour is of great importance to the industry (discussed in Hinch & Higham, 2011).

King *et al.* (2011) provide a useful overview of the attributes that characterise sport consumption; also indicating the lines of discourse in related academic enquiries. Table 7 provides a summary of the major themes identified by the authors, along with reference to other literature also referring to these topics.

Table 7: Attributes that characterise sport consumption

Theme	Description
Intensity *(level of involvement)*	Levels of involvement run along a continuum from being aware of a sport, to forming an allegiance to the sport and living out this relationship in everyday life. Based on functional theory, it ranges from compliance to identification to internalisation. Corresponding psychology macro theories are: behaviourism, neo-psychoanalysis and humanism. Fans at different ends of the continuum will display different behaviour.
Self-concept	Sport is one of the most powerful associations, informing an individual's definition of who he or she is. People define themselves based on certain sporting codes, leading to whole patterns of values and lifestyles. Associations with specific teams, sports and athletes fulfil needs of belonging. The more involved a person is in a sport, the more prominent consumption features as a definition of self.
Identification and internalisation *(sub-culture identification)*	The beliefs and values held by a particular sport consumption community are adopted and internalised by individual consumers. They use their affiliations with sports to express aspects of their self-concept to others. The concept of sub-culture identification is especially relevant in team sport where 'fandom' forms a significant part of consumer studies in sport (see Earnheardt, Haridakis & Hugenberg, 2012; Hirt & Clarkson, 2011; Scammon, Fuller, Karniouchina & Masters, 2011; Shipway & Kirkup, 2011).
Socialisation	Sport consumption takes place in a social setting, where the presence of others is a significant factor of the overall experience. This socialisation contributes to inter-personal relationships, where supporters of the same team/athlete may feel a bond with one another.
Self-esteem	The levels of affiliation with a team/athlete contribute to a shared sense of victory or loss. Highly involved fans become biased and evaluations of the team/athlete can manifest as evaluations of the self.
Emotion	Sport spectatorship is classified as experiential consumption, with the competitive context often leading to strong emotions. These include both positive and negative emotions and they play a significant part in the enjoyment of the experience.

Source: taken from King *et al.* (2011:2-8)

Many of the themes identified in the table present overlapping constructs. For example, socialisation, self-esteem, emotion and identity can all form part of sub-culture identification, yet can be seen as different aspects of motivation for involvement in sport that link back to sport-related value systems (Kurpis & Bozman, 2011).

Another prominent theme in sport and sport tourism consumption is *place attachment* (PEA) or place identification; also discussed from the perspective of the sport-tourism interface (see Hinch & Higham, 2011; Weed & Bull, 2004). Place (abstract and subjective) is concerned with the specific meaning attached to a space (physical and geometric); with a distinction being made between central and peripheral locations. PEA consists of two dimensions: (i) functional, where a certain activity is based on the resources located there; and (ii) place identity, where a certain contextual meaning is given to a setting. Sport places become important visitation points to tourists due to their characteristics of authenticity, emotional or social meaning, aesthetics, or heritage/nostalgia (from Hinch & Higham, 2011).

Understanding the motivational and other psychological aspects of participation is important in managing the overall sport tourist experience (Gibson, 2005). Similar to the tourism domain, sport experiences are being researched as a broader phenomenon, yet have arguably received relatively little attention (Sharpley & Stone, 2011). The increasing volume of literature on sport and sport event consumption experiences is apt, given the accelerated growth of the sports industry (King *et al.*, 2011). Hinch and Higham (2011) provide a framework (refer to Figure 23) of the three components comprising a sport tourist's experience: the travel and tourism component; the sport and competition experience; and the supporting sport and tourism systems. Interestingly, none of these categories specifically refers to the quality of the natural environment or the surroundings, even though place aesthetics have been identified as an important aspect in sports consumption.

Figure 23: Factors influencing the sport tourism visitor experience

Travel and tourist experiences	Sport and tourism systems	Sport and competition experiences
- Time/cost/distance thresholds - Length of stay - Tourism and excursionism - Touristic activities - First time and repeat visitation - Expenditure patterns	- Status of the sport centre - Nodal regions - Existence of nuclei salient to the tourist - Clustered attraction nuclei - Proximity to tourist precincts - Infrastructure (e.g. accommodation) - Existence of information	*Sport experiences* - Level of competition - Competition and participation - Type of sport/event *Competition experiences* - Home and away team support - Standard of performance - Result of contest - Relevance of outcome

Source: Hinch & Higham (2011:157)

Linked to this, one may refer to the criteria for rewarding consumer and tourist experiences as summarised by Moscardo (2010). The nature of sport in itself, as well as the surroundings in which it takes place, provides a perfect platform on which to build rewarding experiences. Sport in itself is the *theme* that guides the design on the servicescape and as sport is a first-hand experience with unexpected outcomes, it provides an *authentic* space. There is ample opportunity at sports events to be *interactive*, *participatory, engaging* and to *socialise.* Furthermore, the nature of sport as something that is experienced by many *senses* (sights, sounds, smells), with high levels of *emotion*, provides an opportunity for *total immersion*.

Before turning to the discussion on responsible consumption among the two groups of consumers, it is necessary to make an important distinction within sport: spectators versus active participants. This distinction is vital, as it represents different experiences, motivation sets, and patterns of behaviour (Shipway & Kirkup, 2011).

Spectators versus active participants

Sport consumption entails viewing sport through live attendance or via media platforms, as well as physical participation (Haridakis & Earnheardt, 2012; King *et al.,* 2011). Within sports tourism studies, it is important to distinguish between spectators and physical participants, as the diversity within sport tourism markets is significant (Hinch & Higham, 2011; Shipway & Kirkup, 2011). According to Kurtzman and Zauhar (2003:44) as well as Glyptis (1982), spectators are the driving force behind sports events. Gibson (2006) as well as Gammon and Robinson (2003) indicate that attendance of a sports event as a spectator can be the main motivation to travel. In Gibson (2006)'s classification, spectators will form part of this event sport tourism category, while the participants form part of the active sport tourism category ('to participate in physical activities'). Gammon and Robinson's classification (2003) makes a distinction based on two categories, *sport tourism* and *tourism sport*, with a further distinction between 'hard' and 'soft' definitions of each. Event sports tourism will fall within the first category (sport tourism)'s hard definition; where individuals/groups participate either actively (participants) or passively (spectators) in competitive sporting events while travelling; with sport being the prime motivation to travel. Standeven and De Knop's classification (1999) makes a distinction based on sports within or outside of a holiday context. Event sports tourism forms part of the *passive sports on holidays* category, which is further divided into *connoisseur observers* (such as spectators at Olympic Games and championships) and *casual observers* (traditional sports such as Thai Boxing in Thailand). It has to be considered that it is not always possible to establish the primacy of either sport or tourism, and that many visitor experiences do not have separate and distinguishable elements (Weed, 2009 in Hinch & Higham, 2011).

The number of spectators attending an event has been linked to the nature of the competition taking place. Hinch and Higham (2011) conceptualise a greater engagement of spectators/fans in elite events (where elite competitiors compete), versus a higher engagement of participants at non-elite events where the number of spectators may be negligible or even non-existent. Some events include both groups of participants (elite and non-elite) and will lead to a greater catchment range of spectators. It is not necessarily that the sports competition is the primary attraction of a sports event, but that other aspects such as heritage, fashion or the exclusivity associated with the event become the primary motivations. In the case of amateur sporting events there is far less 'skill' involved and much more of a social component; with the barrier between spectators and participant being low as sport consumers can move easily between the two categories (Kurpis & Bozman, 2011).

Spectators can also be divided into three categories: avid, frequent and casual. Spectators in each category will have different trip purposes. For example, where the avid spectator undertakes a trip in order to attend an event, a casual spectator's main trip motivation will be related to other factors such as the holiday destination. Frequent spectators, as the middle of the continuum, will be influenced by sport and tourism motivations (Kaplanidou & Havitz, 2010). In their study, Kaplanidou and Havitz tested the relationships between situational and enduring involvement with sport and travel as main motivations respectively. They found that spectators traveling primarily for the sport had consistent levels of involvement, where these levels fluctuated for spectators traveling primarily for reasons other than the sports event. This study reiterates a previous statement that many of the psychological factors of sport consumption are interrelated.

It is stated that the study of sports consumer behaviour "has yet to be fully realised" and that the special aspects of sports consumption mentioned above, separate it from mainstream theories of consumer behaviour. To add to the field of sports consumption behaviour, it is important to explore topics and constructs that are specific to sports and not merely to apply wider consumer behaviour theory (King *et al.*, 2011:10).

The next two sections explore the literature from both domains to determine the extent to which consumers have taken up responsible consumption.

3.5.3 Tourists moving toward responsible consumption

Tourists, as the individuals consuming tourism products, contribute to the overall performance of the industry in terms of sustainability (Frey & George, 2010). Even though the main obstacles to green innovation in the industry still remain lack of awareness among tourists and unwillingness to pay premium prices for sustainable holiday experiences (UNWTO, 2012), tourists are said to increasingly opt for 'alternative' and more responsible forms of tourism such as slow tourism, volunteer tourism, adventure tourism, participatory tourism and holidaying closer to home (aboutourism.com, 2012; Higgins-Desbiolles, 2010). Sharpley (2012) contends, however, that advocates of these forms of tourism base their arguments on the belief that tourists are adopting a new paradigm, whilst there is in fact little evidence that tourists are fundamentally transforming to the principles of responsible tourism consumption. Pearce (2011b) similarly indicates that there are few studies that measure tourists' perceptions of their own impacts, with existing studies revealing unawareness. Nonetheless, emphasis is shifting toward meaningful travel experiences that can raise tourists' awareness of sustainability issues and promote sustainable practices among tourists (UNWTO, N.d.a). Mr Taleb Rifai, Secretary-General of the UNWTO, speaking at the 2012 Adventure Travel World Summit, stated that there is a clear shift in the leisure tourism market toward more experience-based, responsible and lower-impact (environmentally and culturally) travel (aboutourism.com, 2012). A term that developed around this "more caring, aware form of tourism" is *responsible tourism* (RT) and has been introduced in Chapter 2. Even though the industry is held responsible to perform the tasks in order to be responsible, none of the practices will suffice without the support/contribution of the tourist. These individuals will have specific attitudes toward and behaviour in terms of the actions implemented by industry.

The notion of placing the responsibility in the hands of individuals (including the tourist) concurs with the concept of *customer-centric sustainability* as proposed by Sheth *et al.* (2011). During 2000, Hjalager argued that a lack of appropriate institutional frameworks that provide tourists with information and co-ordinate tourists' purchasing power can be blamed for the gap between awareness and preferences versus the behaviour of tourists. It may be argued that progress has been made since then to overcome these constraints on responsible consumerism within tourism. In academic terms, for example, Sharpley, Sharpley and Telfer (2002:300) state that an analysis of the role of tourism in sustainable development should include an exploration of the "consumerism within which the consumption of tourism occurs". Similarly, Miller (2003) suggests that the power of the consumer can be regarded as a major force for progress towards greater sustainability of the tourism industry, and that it can act as the foundation for change (which is often not the case in traditional planning, management or regulatory techniques within the industry).

Burns and Bibbings (2009:31) highlight the challenge of changing norms for a society that considers travel as the 'perfect freedom'. Higgins-Desbiolles (2010:127) expands on this statement by saying that alternative value systems and ideologies have to be fostered to ensure living sustainably in a "finite world", and that priorities have to be changed towards quality of life and living “within ecological parameters”. From another perspective, Stanford (2008) argues that a starting point to any initiative to encourage ERB among tourists would be for the industry to understand what exactly is meant by this construct and which specific behaviours are expected of tourists within the various tourist experience contexts. For example, the viewing of wildlife species in their natural habitat is a popular activity for tourists. Ironically, this desire of tourists to improve their knowledge by observing wildlife from close-by disrupts the natural behaviour which they intended to see in the first place (Holden, 2009:88). Similarly, it is stated that most tourists (as consumers) are “superficial environmentalists” who are ‘concerned’ but very reluctant to undertake any corrective actions that inconvenience them (Weaver, 2012).

Nevertheless, the increasing awareness and proactivity of society at large regarding environmental issues also appear to be on the increase among tourists (Goodwin & Francis, 2003). A study by Miller (2003) found that tourists (as consumers) are keen to transfer their established daily *mindful consumption* habits to the purchase of tourism products. Reiter (2011) refers to this increased awareness and changes in attitude of consumers as “eco-awareness”. He indicates that it is driven by external factors such as rising energy costs and climate protection, as well as social aspects such as higher levels of education and more ethical value orientation. He argues that tourism products increasingly have to meet these hybrid consumers’ desire for a “green lifestyle”. This trend toward greater awareness and accountability amongst consumers coincides with a megatrend known as *vigilantism* (identified by Popcorn, 2002 in Moutinho *et al.*, 2011a:24). This trend is said to produce a “socio-quake”, where consumers no longer accept inappropriate behaviour and demand that organisations have respect for the communities (and environment) in which they operate. It also includes respecting the consumers that they serve by not making assumptions about their characteristics or needs. It also coincides with another megatrend identified, known as *rehumanization*. This trend implies that consumers will increasingly search for meaning in a “technological, rapidly moving, pressure-filled society” (Moutinho *et al.*, 2011b:28). It will manifest through tourists seeking to participate in pursuits that contribute to charities, as well as enable and facilitate learning and personal growth.

It has to be said that research on RT has mostly been conducted in developed countries such as the UK and USA, where "consumer market trends towards lifestyle marketing and ethical consumption are spreading to tourism" (Goodwin & Francis, 2003:113. This is, however, not the case in all destinations. In South Africa, for example, it has been found that consumer demand for responsible tourism products remain low (Frey & George, 2008). It is argued that, even though tourists do not explicitly demand RT, knowing that their visit does not harm the host destination leads to a 'feel good factor', resulting in increased levels of satisfaction (Frey, 2007 in Frey & George, 2008).

Raising environmental awareness amongst tourists

The notion to 'educate' tourists in destination awareness is a significant part of RT. This can be done, for example, through providing interpretation material to visitors when exploring natural features, developing and distributing environmental literature and informing visitors on how they can assist with actions such as water and energy saving and waste management, developing codes of conduct within the context of the tourist's interaction with nature, providing information on relevant local natural resources, and encouraging visitors to contribute to local nature conservation programmes (taken from Greening the WSSD, 2003:23-37). Reddy (2013) also argues that increasing awareness among tourists, encouraging them to buy local product and to practice travel and tourism responsibly, is key to the tourism industry's transition into a green economy. Yet, it does not guarantee success as education is focused on the future, while the problem is in the present time. Furthermore, it is argued that raising awareness through education also raises demand – which in effect perpetuates the problem (Wheeller, 1991:92). Middleton and Hawkins (1998, in Pearce, 2005, 2011b) argue that actions need to be identified to address sustainability challenges on site by providing tourists with advice guidelines beyond the mere 'reduce, re-use, recycle' approach. He adds the following principles that need to be communicated: recognition of the impacts of one's own actions; refusal to make unethical purchases; replacing of high impact with lower impact experiences; retraining oneself in order to be less dependent on high impact activities; rewarding oneself by making use of incentives that promote sustainable activities; and re-education to change one's personal behaviour based on tourists experiences.

An increasing number of resources exist in the public domain facilitating this move toward a more responsible consumer. Several resources exist online that empower tourists to take on a role of "eco-leadership" (Reiter, 2011:93). Leading examples include Planeta.com, Transitionabroad.com, ResponsibleTravel.com and the travel tips provided by the GSTC to be responsible before, during, as well as after travelling (GSTC, 2011c). Sustainable Travel International is a good example of the way in which travellers, as members of society, are embracing the global call for responsible behaviour. It offers travellers the opportunity to take up volunteering opportunities in different destinations, to donate to their sustainable tourism education program, and to complete self-assessments of destinations' sustainability before making a final travel decision (Sustainable Travel International, 2014). There are also printed publications directed toward travellers to encourage responsible travel. One such example is *Responsible Traveller – Be the Difference,* the official magazine of the Heritage Environmental Management Company of South Africa. Through the magazine (which is also available online) they provide tips for responsible travel; educate tourists on specific issues such as eating responsibly (e.g. demanding responsibly sourced seafood products); using low impact transport alternatives within destinations; finding out about the environmental practices of the tourism product owners used, behaving responsibly in wildlife settings; and provide opportunities for volunteering (Responsible Traveller Magazine, 2014). A variety of online tools assist tourists in computing their ecological footprints, offer opportunities to offset their carbon emissions through various organisations, and find hints on changing personal behaviour that can reduce the types of consumption that generate large travel-related footprints (Pearce, 2011b).

The effectiveness of all the strategies to encourage environmental responsibility among tourists has to be questioned. A study conducted by Dolnicar and Grün (2009) tested whether individual characteristics or contextual characteristics would have the greatest effect on the display of responsible behaviour. The findings have an important implication for practitioners in the industry. Should one support the hypothesis of individual heterogeneity (differences among people that do not change within different contexts), it would imply that attracting environment-friendly tourists may be a more effective strategy than trying to educate and motivate them to act in a pro-environmental manner while they are at the destination. Should one, however, support the hypotheses of context/environment dependency, tourism destination practitioners have to focus on a variety of measures at the destination to promote such behaviour. They found that individuals are "highly stable with respect to their environmental behavior" (2009:704). Simply stated, if individuals are not environmentally responsible at home, they are not likely to display such behaviour away from home. Furthermore, they found a "systematic shift" in behaviour patterns toward more unfavourable behaviour within a holiday context. This can either be ascribed to a lack of infrastructure that facilitates ERB, or a need to break away from daily activities while travelling. Interestingly, this shift did not occur in the respondents classified as 'environmentally friendly'. To put the results of their study in simple terms: if tourists are not environmentally friendly as individuals, they are very unlikely to display ERB at a destination. If they do not already have a sense of ecological responsibility, they are not likely to harness any of the tools mentioned above in a personal attempt to display appropriate behaviour within a travel context.

Another way to view this dilemma of encouraging non-pro-environmental tourists to behave as such, could be to ask the tourists themselves which types of environmental behaviour should be encouraged by management to promote ERB within the context of a specific destination experience (Smith, Curtis & Van Dijk, 2010). This strategy relates to the concept of *prosumption*, where the consumer becomes a *prosumer* (Moutinho *et al.*, 2011b). Within this megatrend, corporations create goods, services and experiences with the help of experienced and creative consumers who share their thinking on what and how it should be produced. Evidence of this trend can be found in the variety of online platforms mentioned previously, where tourists are empowered to co-create their own responsible travel experiences. The concept of prosumption also links to *means-end theory*, which implies that products and services are in fact only the means toward a specifically desired end (Moutinho *et al.*, 2011b). This theory has been used within the tourism context to understand how tourists' values influence their evaluation of specific attributes of a tourism service/product (McDonald, Thyne & McMorland, 2008).

It can be argued that this concept links to the previously discussed hypothesis that ERB is strongly influenced by individual differences in people and that people tend to display consistent behaviour (either positive or negative) toward the environment when at home or away in a destination setting. Should a tourist (e.g. a sport event spectator) be an environmentally responsible individual in general, he/she will be less satisfied with the experience if there is no opportunity for him/her to display the desired behaviour (e.g. no recycling bins or recyclable food containers available at the event). The opposite will also be true: if the tourist is not an environmentally responsible individual, his/her evaluation of a satisfactory experience will not depend on the availability of for example recycling bins, or the fact that he/she has to walk over sensitive flora to view participants.

3.5.4 Sports participants moving toward responsible consumption

In contrast to what has been found in the field RT, there appears to be no such equivalent in sports literature with a strong focus on placing environmental responsibility within the hands of the consumer. Yet, the same principle applies that CSR strategies can be more effective if they are built on *customer-centric sustainability* (Sheth *et al.,* 2011:24). Kennett-Hensel *et al.* (2011) explain how CSR initiatives can contribute to the success of sports teams through better fan relationships. Their conceptual model defines successes in terms of higher consumption of media coverage, increased ticket and merchandise sales, and more favourable word-of-mouth – the most frequently applied measures. Even though CSR initiatives mentioned include environmental and conservation issues, there is no indication whether such actions lead to more ERB of the fans. It has been found that many sport consumers do not necessarily perceive a relationship between the sport industry and the environment (with the responsibility for sustainability falling on government). Those that do acknowledge this link often indicate that the sport industry's actions are not genuine (even dishonest) and minimal (Ngyen *et al.*, 2011). Ironically, sport has been proven as a vehicle through which to bring about behavioural and attitude change toward social issues (Filo, Funk & O'Brien, 2008; Sherry, Karg & O'May, 2011).

It is stated that the type of individuals that attend an event, as well as their level of awareness of environmental issues, will contribute to the environmental impact of the event (Ahmed *et al.*, 2008). Even though it is the duty of sports organisations and commercial operators to encourage positive environmental attitudes, "Environmental Education processes will only be effective if all those involved are willing to respect the restrictions and acquire knowledge of nature conservation issues" (Jagemann, 2003:[4]).

Similarly, Nguyen *et al.* (2011) state that even though sport entities are taking action to address environmental concerns, little is known about the attitudes and needs of consumers as a major stakeholder. In his meta-review of sports tourism research, Weed identifies a number of behavioural studies (2009:621-622). None of the studies mentioned have a specific focus on environmental attitudes or behaviour. Furthermore, the studies tend to focus on describing behaviour, as opposed to providing an explanation of the processes leading to the behaviour (Weed, 2009).

The difference in ERB between sport event spectators versus active participants is also not established. When choosing which of these two groups to focus on in this study, it is argued that spectators may have the greatest environmental impact because they are greater in number than the participants (Kurtzman & Zauhar, 2003), travelling to the event and spending time in the event's surrounding natural environment. The active participants are often guided by sporting codes of conduct and unofficial norms that develop among them (Fink & Smith, 2012), whereas such codes of environmental behaviour may be limited among spectators. In the case of outdoor events there is not always control over the number of spectators (Davies *et al*., 2010) – leading to difficulty in containing the environmental impact. Furthermore, spectators at outdoor events do not play the same significant role in the income model of event organisers as is the case with stadium spectators that bring income through ticket sales, refreshments and merchandise purchases within the stadium grounds (Szymanski, 2003). This may have added to the current situation where research is dominated by a focus on participants in the case of outdoor events.

A form of sports consumption that has been associated with environmentally conscious participants and nature-friendly practices is that of 'lifestyle sports; also referred to as "free sports", "alternative sports" and "fringe sports" (Brymer & Gray, 2010; Salome *et al*., 2013). It includes activities such as rock climbing, rafting, snowboarding, kayaking, surfing, and other sport where mismanaged mistakes or accidents can lead to death (Brymer & Gray, 2010; Salome *et al*., 2013). A number of sport studies have examined the attitudes of lifestyle sport participants toward the environment, possibly because these activities are undertaken in the outdoors and directly affected by climate change and pollution (Burtyn & Masucci, 2009; Salome *et al*., 2013). However, growth in the popularity of these activities has seen the associated use of the natural environments increasingly being scrutinized (Hinch & Higham, 2011; Salome *et al.*, 2013). In these sports nature is either viewed as something that needs to be conquered, or something that needs to be understood and joined forces with (Brymer & Gray, 2010). In some cases, such as the example of *Surfers against Sewage*, lifestyle sports participants actively display environmental concerns (Wheaton, 2007). Such display forms part of "environmentalism", which is defined as "a belief in and concern for the importance and influence of the environment within and between societies" (Jarvie, 2012:271).

The concerns of environmentalism and sport can include issues about loss of green space, to raising awareness, to anti-sport movements (such as the anti-golf movement), to questions about the sustainability and greening of sport. Jarvie (2012) identified radical and reformist approaches to environmentalism that can influence the way in which sport is consumed. These differences are displayed in Table 8. The reformist approach has been referred to as 'light green' and "involves putting a price on the environment in order to protect it, unless degrading it is more profitable", while the radical or 'dark green' approach takes on an eco-centric point of view where ecological problems are purely viewed from the point of nature (2012:273).

Though these approaches sound overarching and as viewed by a society or industry at large, the associated views will arguably also be present within individual sport consumers. Apart from a few lifestyle sport studies investigating the environmentalist approach of participants with the focus on corporeal experiences and embodiment in nature (such as Butryn & Masucci, 2009; Brymer, Downey & Gray, 2009; Horton, 2006; Ray, 2009), no studies could be found that test these among sport spectators as consumers.

Table 8: Radical and reformist approaches to environmentalism

Radical sport and the environment		Reformist sport and the environment	
Deep ecology	Based on ecocentrism, intrinsic value in nature. Sport is not above nature.	***Conservatism***	Preservationism, stewardship of nature. Sport as part of natural nurture management programmes would support the notion of sporting estates.
Social ecology	Looks to both humanism and ecocentrism.	***Free-market liberalism***	Market mechanisms and privatisation of the commons. The relationship between sport and environment is determined by the market.
Eco-socialism	Humanistic and socialist politics. Sport as humanitarian values.	***Social reformism***	Market intervention, e.g. environmental taxes, pollution rights plus voluntary agreements plus regulation.

Source: adapted from Jarvie (2012:272)

Consumer Behaviour in both the tourism and sport contexts has been well-researched and the number of articles in the field continues to grow. Where tourism presents a definite line of enquiry into ERB as a result of ecotourism, responsible tourism, alternative tourism and the likes, sport arguably still lacks such an equivalent. To determine how knowledge of ERB from other disciplines introduced earlier in the chapter has been applied in tourism and sport, the next section presents relevant studies in a summative format.

3.6 SUMMARY OF TOURISM AND SPORT STUDIES USING EXISTING ERB THEORIES OR MODELS

A vast amount of research within tourism studies has used existing theories and models of ERB to predict tourist behaviour in different contexts. To the contrary, only a limited number of articles were found that focus on testing factors underlying ERB in a sport consumption context. Table 9 provides a summary of tourism literature looking at ERB of consumers by stating the focus of the study, the specific factors tested, and the behavioural theory referred to. The studies include a variety of behavioural (tourist) settings, including nature-based and community-based, conferences, hotels, and restaurants. Subsequently, Table 10 provides a summary of sport literature looking at ERB of consumers by indicating the focus of the studies, behavioural theory referred to (where applicable) and the specific factors tested.

Both tables were ordered chronologically (descending) to determine whether there had been any shift in research focus over time. However, there appears to be no significant shift in theoretical approaches or factors tested. Rather, patterns were in most instances accounted for by the research interest of one/a group of authors (e.g. the work of Kim on green hotels or Dolnicar on market segmentation).

They also aimed to display those factors that have been tested most frequently through the indications (✓) made in the columns. It is evident that the scope of factors investigated in a tourism context is broader than in sport, with ‘activity level/choice’, ‘culture’, ‘destination attractiveness’, ‘destination selection’, ‘motives’, ‘perceived value’, ‘personal norms’, ‘place satisfaction’, ‘post-visit action’ and ‘satisfaction’ omitted in the case of sport. Four additional factors are, however, found in sport literature, namely ‘behavioural incentives’, ‘destination characteristics’, ‘faith in others’ and ‘subculture identification’. The latter is especially relevant given its previously stated importance in the sport consumer context.

Specific words chosen to represent factors are based on the researcher’s understanding of the factor and will be explained in Chapter 4. Note that within the studies mentioned below, they may have been labelled differently (with terms that imply the same meanings once reading the definitions given by the authors of the articles). In contrast to the tourism literature, it was found that very few studies from the sport domain explicitly tested factors identified in ERB literature (mentioned throughout the chapter) or aimed to apply and test existing models of ERB (indicated with *).

Table 9: Literature testing ERB factors in the tourism domain

Authors	Research focus	Factors tested																																	Behaviour theories (referred to or applied*)			
		Attitude	Activity level / choice	Behavioural costs	Behavioural intention	Connectedness to nature	Culture	Destination attractiveness	Destination selection	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Level of involvement	Motives (hedonic, goals)	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Perceived value	Personal norms	Place attachment	Place satisfaction	Political orientation	Post-visit actions	Pro-environmental habits	Responsibility attribution	Satisfaction	Socio-demographics	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Chiu, Lee and Chen (2014)	Drivers of ERB in ecotourism settings				✓											✓					✓								✓						✓	✓		
Wu, Huang, Liu and Law (2013)	Turning visitors' short-term ERB intentions into long-term behaviours			✓	✓					✓			✓													✓									✓*			✓
Ramkissoon, Smith and Weiler (2013)	The role of place attachment and satisfaction on ERB of tourists to national parks				✓																		✓	✓						✓			✓				✓	
Miao and Wei (2013)	Factors influencing willingness to act environmentally responsibly away from home (home vs hotel setting)				✓																✓					✓	✓									✓		
Mair and Laing (2013)	How to encourage ERB among attendees at a sustainability-focused event	✓			✓								✓																									✓
Lee, Jan and Yang (2013)	Theoretical overview of different forms and contexts of ERB				✓																						✓								✓	✓		
Lee, Barber and Tyrrell (2013)	Attendees' evaluation of green practices at a convention centre using importance-performance analysis	✓											✓																								✓	
Larsen and Guiver (2013)	The influence of tourists' perceptions of distance on their travel behaviour (carbon footprint)												✓																								✓	

Table 9: Literature testing ERB factors in the tourism domain (continued)

Authors	Research focus	Factors tested																																	Behaviour theories (referred to or applied*)			
		Attitude	Activity level / choice	Behavioural costs	Behavioural intention	Connectedness to nature	Culture	Destination attractiveness	Destination selection	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Level of involvement	Motives (hedonic, goals)	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Perceived value	Personal norms	Place attachment	Place satisfaction	Political orientation	Post-visit actions	Pro-environmental habits	Responsibility attribution	Satisfaction	Socio-demographics	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Kim, Njite and Hancer (2013)	Behaviour and associated emotions of consumers to select eco-friendly restaurants	✓			✓							✓		✓					✓												✓				✓*			
Ham and Han (2013)	The influence of guests' environmental concern on the formation of customer loyalty				✓										✓													✓										✓
Han and Kim (2013)	Factors influencing the behavioural (revisit) intention of green hotel guests	✓						✓						✓				✓	✓										✓		✓				✓*			
Song, Lee, Kang and Boo (2012)	The influence of environmentally friendly perceptions on festival visitors' behavioural intentions	✓			✓							✓			✓			✓		✓															✓*			
Perkins and Brown (2012)	The influence of nature-based tourists' values on their environmental attitude and commitment	✓			✓									✓																				✓		✓		
Mensah (2012)	The role of environmental education to encourage ERB in hotel guests				✓								✓																	✓					✓			
Cheng, Wu and Huang (2012)	The influence of place attachment on tourists' perceived destination attractiveness and ERB				✓			✓															✓														✓	
Kim, Palakurthi and Hancer (2012)	The influence of environmentally friendly programmes at hotels on intention to stay	✓			✓																																✓	
Weeden (2011)	Using the Schwartz Value Survey to measure responsible tourist motivation																																✓	✓		✓		

Table 9: Literature testing ERB factors in the tourism domain (continued)

Authors	Research focus	Factors tested																																	Behaviour theories (referred to or applied*)			
		Attitude	Activity level / choice	Behavioural costs	Behavioural intention	Connectedness to nature	Culture	Destination attractiveness	Destination selection	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Level of involvement	Motives (hedonic, goals)	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Perceived value	Personal norms	Place attachment	Place satisfaction	Political orientation	Post-visit actions	Pro-environmental habits	Responsibility attribution	Satisfaction	Socio-demographics	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Puhakka (2011)	Nature tourists to a national park					✓							✓		✓													✓									✓	
Mair (2011b)	Air travellers' voluntary carbon offset behaviour (segmenting the market)				✓																									✓							✓	
Lee (2011)	Place attachment, conservation commitment and recreation involvement affect ERB				✓											✓							✓															
Kim, Chang, Lee and Huh (2011)	Attitude toward green practices of hotels among generation Y guests	✓			✓																									✓							✓	
Hedlund (2011)	The impact of values, concern and willingness to make an economic sacrifice to protect the environment, on tourists' intention to buy ecologically sustainable tourism alternatives				✓										✓																			✓		✓*		
Choi (2011)	The influence of environmental attitude on perceived quality, value and satisfaction and the behavioural intention of festival visitors				✓									✓	✓																	✓						✓
Ballantyne, Packer & Falk (2011)	Changes in tourists' environmental awareness and attitudes as a result of experiences with nature	✓											✓														✓					✓					✓	
Mehmetoglu (2010)	Factors influencing willingness to act environmentally responsibly away from home (home vs holiday setting)				✓									✓	✓										✓		✓			✓				✓		✓		

Table 9: Literature testing ERB factors in the tourism domain (continued)

Authors	Research focus	Factors tested																																		Behaviour theories (referred to or applied*)			
		Attitude	Activity level / choice	Behavioural costs	Behavioural intention	Connectedness to nature	Culture	Destination attractiveness	Destination selection	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Level of involvement	Motives (hedonic, goals)	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Perceived value	Personal norms	Place attachment	Place satisfaction	Political orientation	Post-visit actions	Pro-environmental habits	Responsibility attribution	Satisfaction	Socio-demographics	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Mehmetoglu (2010a)	Environmental concern as a measure to define nature-based tourist segments	✓			✓									✓	✓							✓													✓	✓		
Kim and Han (2010)	Willingness to pay for a green hotel stay	✓			✓								✓	✓					✓	✓							✓				✓				✓*			
Lertwannawit and Anuwichanont (2011)	Tourists' expectations and perceptions toward management of environmental issues at a national park	✓											✓																								✓	
Kachel and Jennings (2010)	Tourists' environmental learning, values and travel experiences in relation to climate change (toward a research agenda)												✓																					✓			✓	
Han, Hsu and Sheu (2010)	The intentions of different hotel customers (based on pro-environmental habits) to visit a green hotel	✓																	✓								✓				✓				✓*			
Dolnicar (2010)	Identifying tourists with smaller environmental footprints														✓												✓	✓		✓				✓		✓		
Curtis *et al.* (2010)	The beliefs underlying the behavioural choices of visitors to national parks												✓	✓					✓												✓				✓			
Nawijn and Peters (2009)	The effect of forced 'green travel' (imposed by regulations) on the happiness of tourists			✓								✓																		✓			✓				✓	

Table 9: Literature testing ERB factors in the tourism domain (continued)

Authors	Research focus	Factors tested																																	Behaviour theories (referred to or applied*)			
		Attitude	Activity level / choice	Behavioural costs	Behavioural intention	Connectedness to nature	Culture	Destination attractiveness	Destination selection	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Level of involvement	Motives (hedonic, goals)	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Perceived value	Personal norms	Place attachment	Place satisfaction	Political orientation	Post-visit actions	Pro-environmental habits	Responsibility attribution	Satisfaction	Socio-demographics	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Dolnicar and Long (2009)	The environmentally responsible tourist in the general travel experience		✓		✓				✓																					✓							✓	
Dolnicar and Grün (2009)	Testing the heterogeneity among individuals and context to predict ERB	✓			✓									✓											✓		✓			✓		✓	✓				✓	
Dodds, Graci and Holmes (2010)	Comparing the levels of different environmental attitudes and concerns between visitors to two sites in Thailand				✓								✓															✓				✓						✓
Bergin-Seers and Mair (2009)	Green tourist segments in Australia	✓			✓																						✓									✓		
Ballantyne, Packer and Hughes (2009)	Tourists' support for conservation messages and sustainable management practices in wildlife tourism experiences	✓			✓								✓																								✓	
Andereck (2009)	Nature-based tourists' perceptions of ER innovations at tourism businesses.	✓																														✓					✓	
Luo and Deng (2008)	The NEP (New Environmental Paradigm) and nature based tourist motivation													✓	✓																	✓			✓			✓
Dolnicar and Leisch (2008a)	Tourists' patterns of obligation to protect the environment	✓												✓											✓		✓	✓		✓		✓	✓		✓			

Table 9: Literature testing ERB factors in the tourism domain (continued)

Authors	Research focus	Factors tested																																	Behaviour theories (referred to or applied*)			
		Attitude	Activity level / choice	Behavioural costs	Behavioural intention	Connectedness to nature	Culture	Destination attractiveness	Destination selection	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Level of involvement	Motives (hedonic, goals)	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Perceived value	Personal norms	Place attachment	Place satisfaction	Political orientation	Post-visit actions	Pro-environmental habits	Responsibility attribution	Satisfaction	Socio-demographics	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Wurzinger and Johansson (2006)	Environmental knowledge and concern among different groups of tourists (nature versus eco)	✓			✓								✓		✓												✓									✓		
Kim, Borges and Chon (2006)	Impact of environmental values on the motivations of tourists attending an environmentally oriented festival (FICA, Brazil)														✓																	✓				✓		
Lee and Moscardo (2005)	The influence of ecotourism resort experiences on environmental attitude and behavioural intention	✓			✓								✓	✓	✓													✓							✓			
Fairweather, Maslin and Simmons (2005)	Environmental values and response to eco-labels among international visitors to New Zealand				✓								✓		✓																				✓			
Böhler, Grischkat, Haustein and Hunecke (2005)	Encouraging environmentally sustainable holiday travel (focusing on air transport)	✓											✓																				✓		✓	✓		
Dolnicar (2004)	Characteristics of pro-environmental tourists as a lucrative niche segment				✓																									✓		✓	✓				✓	
Wearing, Cynn, Ponting and McDonald (2002)	Turning environmental concern into ecotourism purchases				✓								✓		✓													✓			✓				✓			

Juric, Cornwell and Mather (2002)	Development of a scale (Ecotourism Interest Scale) to identify tourists that will be attracted to eco-friendly activities				✓																									✓		✓	✓				✓	
Hudson and Ritchie (2001)	Differences in cross-cultural tourists' attitude toward the environment	✓			✓		✓				✓		✓																								✓	

Table 10: Literature testing ERB factors in the sport domain

Authors	Research focus	Factors tested																										Behaviour theories (referred to or applied*)			
		Attitude	Behavioural costs	Behavioural incentives (*)	Behavioural intention	Connectedness to nature	Destination characteristics (*)	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Faith in others (*)	Level of involvement	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Place attachment	Political orientation	Responsibility attribution	Socio-demographics	Subculture identification (*)	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Zafeiroudi and Hatzigeorgiadis (2014)	Validation of the Responsible Environmental Behaviour Scale in the Greek context among outdoor sport participants				✓					✓		✓										✓								✓	
Ong and Musa (2012)	The underwater ERB of scuba divers	✓			✓							✓	✓															✓			
Krugell and Saayman (2012)	Marathon runners' willingness to pay for a greener event				✓						✓							✓				✓								✓	
Stoddart (2011)	The *ecological irony* in the expressed environmental concern of skiers and their behaviour	✓			✓						✓		✓					✓												✓	
Ngyen *et al.* (2011)	An invesüigation to determine whether sports consumers (spectators) think that there is a relationship between the environment and sport										✓					✓					✓									✓	
Nathaniel (2011)	The factors encouraging ERB among ski resort visitors	✓	✓		✓		✓	✓			✓	✓	✓				✓	✓			✓	✓		✓			✓	✓	✓		
McCullough (2011); McCullough and Cunningham (2011)	Factors that will encourage greater participation in recycling activities among sport event spectators (basketball)	✓										✓					✓							✓				✓*			
Inoue (2011)	The influence of perceived creditability of sports organisation's environmental claims (CSR) on consumers	✓			✓								✓	✓							✓						✓	✓	✓		
Aday and Phelan (2011)	The extent to which fans (spectators) display ERB when travelling to watch basketball games and the perceived importance of sustainable practices of an arena			✓	✓						✓		✓												✓	✓				✓	

Table 10: Literature testing ERB factors in the sport domain (continued)

Authors	Research focus	Factors tested																										Behaviour theories (referred to or applied*)			
		Attitude	Behavioural costs	Behavioural incentives (*)	Behavioural intention	Connectedness to nature	Destination characteristics (*)	Ease of behaviour	Ecological identity	Emotions	Environmental awareness/knowledge	Environmental beliefs	Environmental concern	Faith in others (*)	Level of involvement	Past behaviour	Perceived behavioural control	Perceived consumer effectiveness	Place attachment	Political orientation	Responsibility attribution	Socio-demographics	Subculture identification (*)	Subjective norms	Travel motivation	Trip characteristics	Values	TPB	NAM / VBN	None mentioned in article	Other
Trendafilova (2011, 2008)	Golfers (participants) were encouraged to display ERB through environmental literature that appealed to their sense of ownership and attachment to the park in which they played			✓						✓				✓					✓		✓		✓					✓	✓		✓
Baldwin (2010)	The role of the community context in a campaign to promote pro-environmental behaviour through a local football club				✓						✓		✓										✓	✓						✓	
Ray (2009)	Adventure activities promote a connectedness and care for nature					✓			✓																					✓	
Butryn and Masucci (2009)	Cyborg athletes' experiences of nature				✓	✓			✓		✓	✓																			✓
Brymer, *et al.* (2009)	Extreme sports (participants) can lead to feelings of connection to nature and a desire to care for the natural world					✓			✓		✓																			✓	
Wysong, Trosien and Hancock (2008)	The attitudes of fans toward environmental practices at a sports venue	✓		✓								✓																		✓	
Thompson, Davidson and Hutson (2008)	The environmental perspectives of boulderers in a national park									✓	✓				✓				✓				✓							✓	
Filo *et al.* (2008)	The influence of social responsibility on sport tourists' attachment to a sports event										✓								✓								✓		✓		
Wheaton (2007)	Knowing the characters of the particular 'culture' (surfing) among participants can help manage environmental impacts	✓		✓				✓				✓		✓						✓			✓								✓
Horton (2006)	Environmentalism and cyclists				✓	✓			✓			✓	✓																		✓

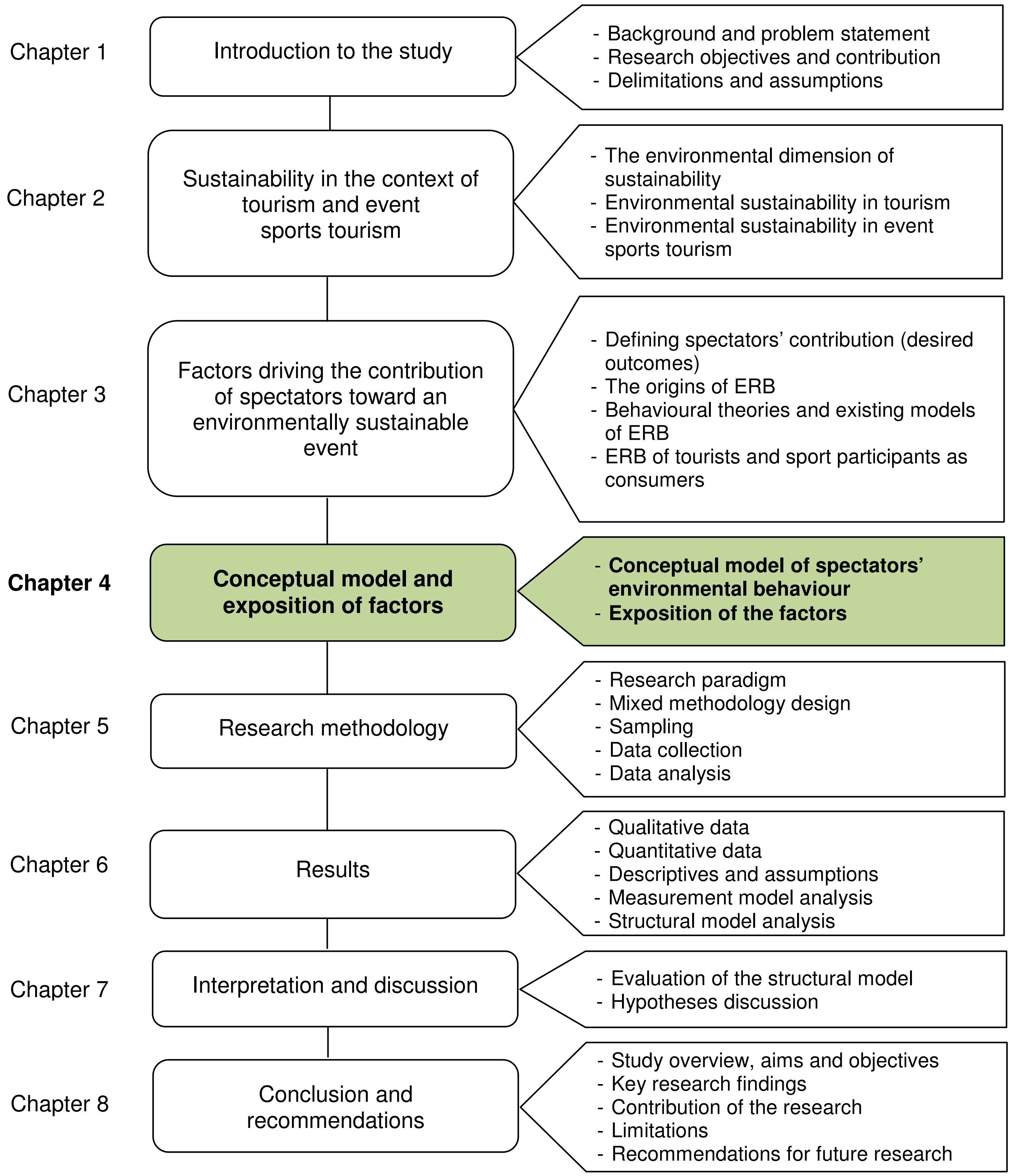
3.7 CONCLUSION

ERB is an established topic, with a number of models explaining the links among factors driving such behaviour. Two main approaches are taken, namely a rational approach depicted by the Theory of Planned Behaviour (Ajzen & Fishbein)), and pro-social approach based on the Norm-Activation-Model (Schwartz). Several researchers have developed models combining the two approaches in more comprehensive frameworks in an aim to include all the possible factors driving ERB. An extensive list of factors has been identified and includes *affective processes/feelings, attitude, awareness, beliefs, citizenship, collectivism, commitment, concern, consciousness/awareness, culture, ecological self, ethics, faith in others, knowledge, levels of involvement, locus of control/perceived consumer effectiveness, norms, PBC, personality, place identity, political orientation, responsibility attribution, risk perception, the role of consumer policy, sense of place, situational factors, skills and values.*

The chapter also identified literature in which the existing models of ERB or specific factors have been applied in tourism and sport studies. In contrast to what has been found in the field of responsible, eco, sustainable and alternative tourism, there appears to be no such equivalent in sports literature with a strong focus on placing environmental responsibility within the hands of the consumer. Behavioural theories from both tourism and sport that may be relevant with this study's context were also introduced. Important themes emerging from both the tourism and sport consumer studies include *motivation* (travel motivation / sports participation motivation / event attendance motivation)*, level of involvement* (in tourism equated to *travel careers), place attachment* and *sub-culture identification / social identity.* To investigate ERB effectively within this study's context, these constructs will be linked to ERB theory to develop the conceptual model to be tested empirically. Through this link the 'pure' ERB literature can support and further explain the knowledge from the tourism and sport studies. At the same time, the deeper understanding of the behaviour presented in the latter studies can place the constructs of ERB within the sports tourism context.

CHAPTER 4

CONCEPTUAL MODEL AND EXPOSITION OF FACTORS



4.1 INTRODUCTION

Discussion of the literature up to this point has defined the meaning of ERB and has identified a multitude of variables that could lead to such behaviour. Knowledge from different fields has been consulted in an effort to gain a holistic perspective on the topic. It has been indicated that the factors driving ERB differ amongst individuals and within different contexts and that there are two main approaches toward predicting behaviour. Chapter 4 aims to bring the relevant factors underlying ERB within the context of a sports event together into a conceptual model using the TPB as basis, but adding additional context-specific factors. The chapter starts off with a presentation of the model, followed by an exposition of each of the factors.

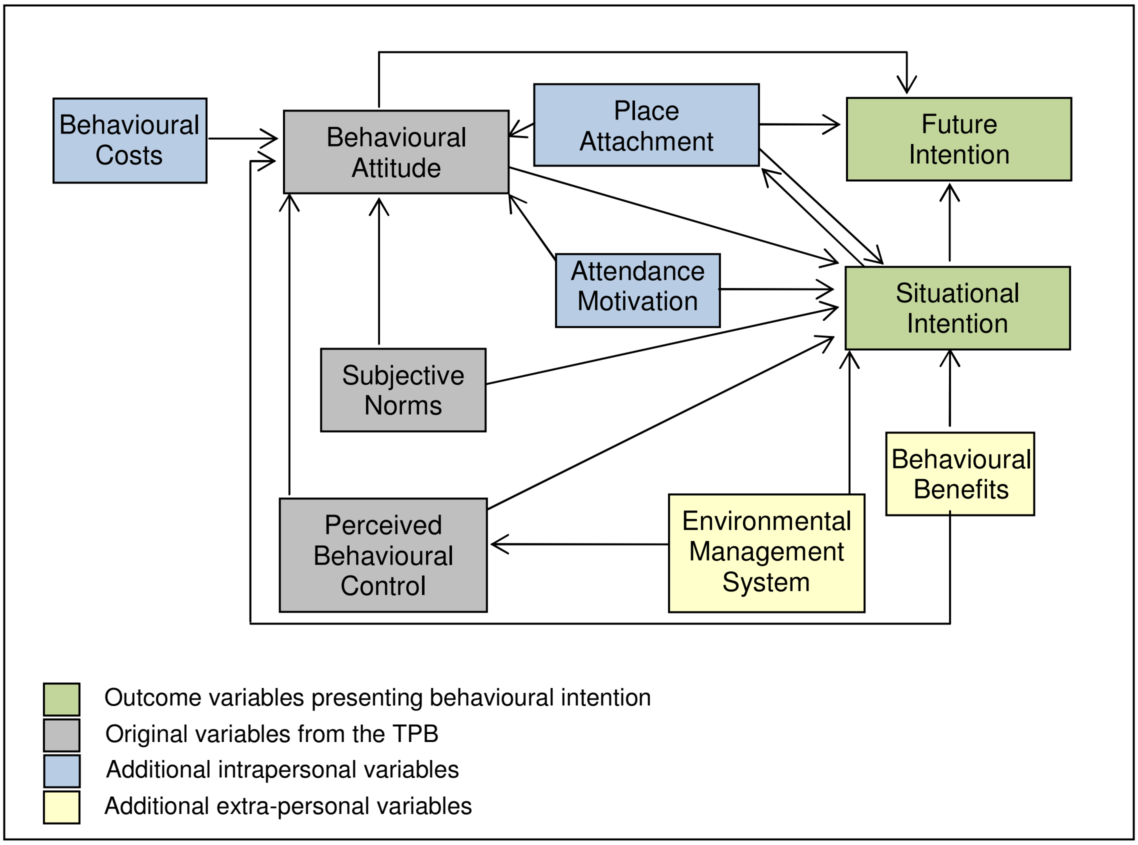
4.2 CONCEPTUAL MODEL OF SPECTATORS' ENVIRONMENTAL BEHAVIOUR

The conceptual model (Figure 24) is presented to depict the relationships between the most relevant factors driving ERB within the context of sports event spectating. The aim is to present a model depicting the most relevant factors that could assist owners and organisers of sports events to identify areas within their environmental management strategies that need change/alterations, in order to overcome the imminent attitude-behaviour gap by developing strategies targeting appropriate behavioural factors.

4.2.1 <u>Basic explanation of the model</u>

It is acknowledged that there are other models that have also been successfully proven to predict behaviour. These include models focusing on personal norms and values (such as the NAM and VBN), but also those focused on a more spontaneous, reactive view of behaviour such as the prototype/willingness model of Gibbons, Gerrard, Blanton and Russell (1998 in Ajzen, 2011). Several studies have undertaken testing a combination of two models (TBP and VBN) by using the factors identified in these models (for example Kaiser, Hübner & Bogner, 2006; López-Mosquera & Sánchez, 2012; Oreg & Katz-Gerro, 2006; Wall, Devine-Wright & Mill, 2007).

Figure 24: Conceptual model of ERB for sport event spectators



It was however decided to use the TPB as reference point, given the proven validity of the model and great number of studies that have successfully been able to add additional variables to the basic model (Ajzen, 2012; Nigbur, Lyons & Uzzell, 2010). Apart from one application of the TBP by McCullough and Cunningham (2011) to test the recycling intentions of basketball spectators, no other sport-related studies could be found that apply the model to predict ERB among sports participants[4]. Using the TBP within this context thus presents a contribution to the ERB literature in sport and sports tourism.

At the basis of the model stand the three main drivers: Behavioural Attitude (ATT), Subjective Norms (SJN) and Perceived Behavioural Control (PBC) on the outcome variable behavioural intention. Three kinds of 'beliefs' underlie the theory:

[4] Other sport studies using the TPB relate to intention to participate in sport (meta-review by Hagger, Chatzisarantis & Biddle, 2002), intentions to attend a sport event (Cunningham & Kwon, 2003; Kaplanidou & Gibson, 2010; Kaplanidou & Vogt, 2007), and career intentions of coaches (Sagas, Cunningham & Pastore, 2006).

a) Behavioural beliefs: beliefs about the outcomes of specific behaviour and evaluations of these outcomes; leading to a favourable/unfavourable attitude toward the behaviour.
b) Normative beliefs: beliefs about the normative expectations and actions of important others and the motivation to comply with these; leading to a perceived social pressure or a subjective norm.
c) Control beliefs: beliefs about the presence of factors that facilitate/hinder the performance of a behaviour and the perceived power over these factors; leading to PBC (from Ajzen, 2012).

Together these three factors lead to the formation of a behavioural intention, but there is also an interaction between them respectively. Behavioural intention stands as a central factor to the theory (Ajzen, 1991).

For the purposes of this study, behavioural intention is divided into two components, as explained at the beginning of Chapter 3. Spectators' STI and FTI are regarded as their main contributions to the sustainability of an event and these two factors form the outcome variables of the study. The value of testing the existing TBP drivers is that their relative contributions may differ in the study context. Previous studies have indicated the significance of the individual contributions to the prediction of behavioural intention may differ significantly in varied contexts. In other words, for some decisions one of the predictors may prove to carry more weight than the others (Ajzen, 2012; Klöckner & Blöbaum, 2011; Montaño & Kasprzyk, 2008). For example, intention to perform a specific behaviour may be primarily determined by attitude toward the behaviour, while another is largely determined by normative influence. Also, the intention to perform a specific behaviour may be under the influence of different factors across different populations. It is thus important to determine the relative importance of various factors in different contexts (Montaño & Kasprzyk, 2008).

Ajzen argues that other variables and processes that go beyond the TPB "can actually be accommodated within it, whereas others … can expand and enrich our understanding of human social behaviour" (Ajzen, 2011:1124). Importantly, five criteria have been given that should be met by any proposed additional variables. The variable should be:

- behaviour-specific, conforming to the principle of compatibility (possible to define and measure in terms of the target, action, context and timeframe);

- conceivable as a causal factor determining intention and action;
- conceptually independent of the theory's existing predictors;
- potentially applicable to a wide range of behavioural studies; and
- able to consistently improve prediction of intentions or behaviour (from Ajzen, 2011:1119).
-

The aim of this study is not to prove a proposed addition to the TPB, but rather to use it as a basis from which to test behaviour in a specific context.

The addition of factors into the model focuses on aspects that can provide insight from two perspectives: an 'intrapersonal' and 'extra-personal' perspective toward ERB. Apart from the three factors originating out of the TPB (ATT, SJN and PBC), the other three intrapersonal factors chosen Attendance Motivation (MOTV), PEA and Behavioural Costs (CST) have been selected because of their prominence in both sport and tourism literature and arguable relevance to the study context. The great variety of other person-related variables such as values, environmental beliefs, perceived consumer effectiveness, faith in others, and so forth most often provide further explanation/prediction to the factor 'attitude' (as indicated in the various behavioural models). Furthermore, the former group of person-related variables have been linked to ERB in numerous studies outside of sport and tourism, but also in (especially) tourism studies (refer to Table 9, Chapter 3). Therefore testing both MOTV and PEA as drivers of ATT toward ERB presents a contribution to sport and tourism theory.

Importantly, the performance of behaviour should not only be viewed as a function of personal variables, but also situational constraints (Tanner, 1999). To present the extra-personal perspective two factors related to the EMS have been added (factors that the spectators have no control over, but their presence or absence may have an influence on ERB intentions). PBC has been linked to an event specific factor, namely management system, to test the influence of the event's EMS on an individuals' behavioural control beliefs. One other event specific factor, Behavioural Benefits (BNFT), has also been included as a separate factor influencing STI. These links will be explained in succeeding discussions.

The definitions of the constructs included in the model are provided in Table 11. Constructs can be defined in two ways. Where constitutive definitions are used to explain constructs through other constructs, operational definitions translate concepts into tangible indicators through which they can be measured (Douglas, 2008; Saunders *et al.*, 2007). Table 11 gives the constitutive definitions whereby each construct is defined by means of other constructs, without specifying the actions necessary to measure them (Douglas, 2008).

Table 11: Constitutive definitions of the model constructs

Construct	Definition
INDEPENDENT VARIABLES	
Attendance Motivation	The set of needs and attitudes which predispose a person to attending a specific sports event (adapted from Kurtzman & Zauhar, 2005).
Behavioural Benefits	A combination of rewards and punishments aimed at increasing environmentally responsible behaviour (from Lee & Holden, 1999).
Behavioural Costs	Beliefs about the likely losses of scarce personal resources as a result of performing environmentally responsible behaviour while spectating (adapted from Lindenberg & Steg, 2007).
Environmental Management System	All efforts to minimise the negative environmental impacts of an event's processes and product throughout the entire event lifecycle (adapted from Yang *et al.*, 2011).
Place Attachment	Any positive or negative relationship that a person has with the location of the sports event or the specific sports event, creating an emotional bond with that place or event (adapted from Kyle, Graefe, Manning & Bacon, 2003).
Subjective Norms	The perceived social pressure to perform or not to perform environmentally responsible behaviour while spectating (adapted from Ajzen, 1991).
DEPENDENT VARIABLES	
Behavioural Attitude	An overall evaluation of environmentally responsible behaviour while spectating that is based on cognitive, affective, and behavioural information (adapted from Maio & Haddock, 2010:4).
Future Intention	The readiness to perform behaviour in a more or less pro-environmental direction before entering the behavioural setting in future (adapted from Ajzen, 1991 and Bonnes & Bonaiuto, 2002).
Perceived Behavioural Control	The extent to which a person feels able to enact environmentally responsible behaviour while spectating (adapted from Francis, Ecclis, Johnston, Walker, Grimshaw, Foy, Kaner, Smith, & Bonetti, 2004).
Situational Intention	The readiness to perform behaviour in a more or less pro-environmental direction within the behavioural setting (adapted from Ajzen, 1991 and Bonnes & Bonaiuto, 2002).

4.2.2 Additional comments on the layout and choice of factors

The majority of studies on the TPB only focus on behavioural intention, with very few studies actually measuring observable behaviour as a variable (Nigbur *et al.*, 2010). Due to the nature of the behavioural setting (outdoors, spread along a route) and the researcher's aim to conduct statistical analysis, it was decided to end the model of this study with behavioural intention (as opposed to the original TBP that ends with actual behaviour). Qualitative measures of behaviour such as observation would not suffice to answer the need for quantitative data. As there is furthermore no or limited control over spectators and numbers at outdoor events, no other quantifiable measure of actual behaviour could be established (such as for example investigating electricity meter readings to determine responsible behaviour of households). It is not unusual to explore ERB through measuring behavioural intention only (for example the vast amount of studies focusing on willingness to pay for greener products, summarised at the end of the previous chapter), even though there is much debate on the usefulness of measuring intention when given the disparity between behavioural intention and actual behaviour. Many studies find a weak relationship between intention and actual behaviour, with behavioural intention on average only explaining about 30% of actual behaviour (Bamberg & Möser, 2007). It is therefore not only important to focus on changing a person's behavioural intention, but to consider various factors that can have a direct impact on actual behaviour, such as situational factors (Bamberg, 2013). In the proposed model, such factors have nonetheless been linked to STI to determine their influence within the given context.

Furthermore, it may not always be necessary to include all the components of one of the existing models to deliver valid results. For example, Klöckner and Blöbaum (2011) tested an incomplete TPB model where attitude was not included. The behaviour was regressed on intentions and PBC, while intentions were regressed on social norms and PBC. Their results showed a good model fit with their data and even though attitude was not included as a predictor of intention, the model components explained 54% of the variation in behavioural intention. Kollmuss and Agyeman (2002:248) argue that the question of what shapes ERB is such a complex one that it cannot be visualised in one single framework or diagram. Certain statistical procedures may "punish" more complex models, because it is harder to achieve a good model fit (Klöckner & Blöbaum, 2011). Instead of looking for an integrated model, some authors suggest using models only in the domains where they perform best; thus matching the most applicable model to a specific domain (Steg & Vlek, 2009).

According to the TPB, demographic, personality, attitudinal and individual difference variables will only influence behaviour indirectly and should be considered as distal or external variables. It is regarded as a valid task to investigate the influence of such individual differences among various groups based on the external variables (Montaño & Kasprzyk, 2008:81). At the same time it is suggested that psychographic variables provide greater insight into behaviour than demographic variables, which “lack the explanatory power of the psychographic variables” (Straughan & Roberts, 1999:567). Distinctions based on demographic variables and trip characteristics have therefore been omitted from the model. Regarding the layout of the model, it has been stated that the distinctions and the hierarchy between the different influential factors are to some extent arbitrary (Kollmuss & Agyeman, 2002).

4.3 EXPLANATION OF THE MODEL AND FORMULATION OF HYPOTHESES

Each of the variables presented in the model will subsequently be discussed in terms of its definition, meaning and dimensions, reason for inclusion, as well as its possible interaction with the other variables. The relational hypotheses between the respective variables will also be stated.

4.3.1 Behavioural aspects to be measured (outcome variables)

At the beginning of Chapter 3 (Table 4) it was argued that the ‘contribution’ that the spectators could make toward more sustainable sports events can be divided into two aspects, namely the **STI** and **FTI** based on the most important aspects of an event’s EMS (Yang *et al.*, 2011). These two outcomes are the desired ERB.

Table 4: Aspects of situational behaviour to be measured

Environmental management component	Possible spectator behaviour	Situational Intention	Future Intention
Water management	Closing taps	✓	
	Refilling water bottles with tap water	✓	
	Not polluting natural water sources	✓	
Waste management	Making use of the ablution facilities provided	✓	
	Throwing rubbish in the bins provided	✓	
	Participating in recycling activities	✓	
	Picking up litter (during or after the race)	✓	
	Making a financial contribution toward an event's clean-up and recycling initiatives		✓
Energy management	Making use of public transport / car-pooling to reduce the carbon footprint of an event		✓
Protection of biodiversity	Parking cars in designated parking areas	✓	
	Staying within the designated viewing areas	✓	
	Respecting plants and animals	✓	
Aesthetics and noise pollution	Refraining from making noise	✓	
Information communication (encouragement)	Reading the information signs to guide behaviour	✓	
	Reading the event's environmental rules and regulations before actual attendance		✓
Management of non-compliance	Reporting inappropriate behaviour of other spectators	✓	
Marketing communication	Following an event's environmental initiatives in the media before deciding to return		✓
	Supporting a sustainable event's sponsors because of the association with responsible practices		✓

Source: taken from Greening the WSSD (2003), GSA (2006), Jagemann (2003), Kang and Stotlar (2011), Laing and Frost (2010), Lee and Holden (1999), Pearce (2005), Sahler (2007), Schmidt (2006), Responsible Traveller (2011)

There may also be extreme levels of environmental commitment that elicit intended future behaviour that are not necessarily preferred by the event organiser. These can include:

- signing a petition against an environmentally unsustainable event; and
- rather watching a sports event on television or over the internet to reduce the environmental impact of the event (adapted from Lee & Holden, 1999; Puczkó & Smith, 2012; Weed, 2010).

The actions listed above are not divided into any of the existing categories of general ERB defined by various authors (Lee, 2011), but are focused on actions that relate specifically to the sport event spectating context (as explained in Chapter 3). It is common practise for researchers in Environmental Psychology to create their own lists of behaviours according to the study focus. In such lists, consideration should be given to the true environmental impact of the activities; some activities may have a small effect, while others represent a significant reduction in environmental impact (Gatersleben, Steg & Vlek, 2002). Lee and Holden (1999), as well as Ramkissoon *et al.* (2013), also make a distinction between the ERB activities based on low-cost or low-effort and high-cost or high-effort implications for the individual. Low-cost activities will include things such as recycling, using biodegradable products and using alternative transport; while high-cost activities include membership of environmental groups, volunteering time, giving money to clean the environment, attending demonstrations or lobbying against negative environmental practices.

Important to note is that tourists (as consumers) may display a concern for environmental issues, but still be very reluctant to undertake any corrective actions that inconvenience them (Weaver, 2012). Similarly, Ballantyne *et al.* (2009) indicated that wildlife tourists are more inclined to perform 'low-level' commitment actions such as recycling, conserving water and energy, than performing actions associated with higher levels of commitment such as acting as volunteers and donating money to conservation organisations. This commitment is associated with a 'willingness to sacrifice' for the sake of the environment and represents an individual's decision to consider environmental well-being even at the expense of self-interest, effort or costs. People with higher levels of such commitment will display greater ERB (Davis, Le & Coy, 2011).

Behavioural outcomes can include purchase behaviour (or in this case the decision to attend the event), post-decision activities of the purchase behaviour (transport, activities undertaken while spectating), and post-experience behaviour (activities after attending the event) (adapted from Funk, 2008). ERB will arguably play a part of the sport consumption process to a greater or lesser extent during the different phases and it is therefore appropriate to undertake an investigation of not only the behavioural intention while in the setting, but also future intended behaviour, which will form part of the post-experience behaviour as well as the next event's purchase behaviour.

Should a spectator behave responsibly within the setting, it is not guaranteed that he or she will adopt such behaviour in the long term. Many studies have aimed to determine the impact of experiences in nature on environmental awareness and commitment (see Lee, 2011), and studying the role of recreation participation in natural settings on pro-environmental behaviour is a widely researched issue in recreation literature (Cottrell, 2003). Though studies have proven that on-site behaviour is impacted by pre-visit factors such as environmental knowledge, attitudes and habits, as well as on-site factors such as their travel motivations, few studies have focused on the post-visit stage to understand how environmental learning influences long-term adoption of ERB (Wu *et al*., 2013). Little evidence has been found that tourists are transforming to the principles of responsible consumption (Sharpley, 2012) or that they are aware of their own impacts (Pearce, 2011b). It has also been stated that responsible behaviour in one setting will not lead to other responsible behaviours, but that ERB is context-specific (Ajzen, 1991; Thogersen, 2004).

Nonetheless, it is argued that there should be some relationship between an individual's situational responsible behaviour and their future intended behaviour. Halpenny (2010) refers to this as a 'spill-over effect' and found that ERB in a visitor setting may encourage greater awareness and a tendency to display ERB in general. Though the researcher is not referring to the concept of a habit, it has been proven that past behaviour is a strong predictor of FTI (Ajzen, 2011; Han & Kim, 2013). Furthermore, it has been proven that sports events have the ability to change spectators' attitudes toward a social cause (Sherry *et al*., 2011) and that (sustainability focused) events can encourage ERB among attendants (Mair & Laing, 2013). Given the right encouragement after attendance, visitors could take up the desired behaviour in future. Wu *et al.* (2013) have found that post-visit adoption of environmental behaviour will depend on resources, the ease of behaviour and 'sunk cost'.

From this discussion, the following hypothesis is formulated to test the interaction of the two outcome variables[5]:

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[5] The relational hypotheses start at number 3 (H_3) as H_1 and H_2 is stated in terms of the structural model fit, discussed in section 5.9.8.3

H_3: Situational Intention positively influences Future Intention.

In the majority of cases, measurement of behaviour takes place in the form of self-reporting (Kraus, 1995). There are often large discrepancies between self-reported actions and actual behaviour, because people tend to report on their perceptions or beliefs about their behaviour rather than their actual behaviour, and because people give socially desirable answers (Gatersleben *et al.*, 2002). Though self-reporting is not the most desirable form of behavioural assessment, it does not make a study invalid or necessarily far from the truth (Grob, 1995). Some researchers have found that self-reporting will not consistently represent inaccuracy and that people are only slightly tempted to give socially desirable answers (Gatersleben *et al.*, 2002).

This self-reporting can arguably be equated to stating a readiness to perform the behaviour. When a series of behaviours have to be reported on, each situation has to be 'imagined' by the individual and then judged according to whether, given the opportunity, it will be done or not. This readiness to perform certain behaviour is known as behavioural intention (Ajzen, 1991). "This readiness to act can be operationalised by asking whether people intend to engage in the behaviour, expect to engage in the behaviour, are planning to engage in the behaviour, will try to engage in the behaviour, and indeed, whether they are willing to engage in the behaviour." These various expressions of behavioural readiness reflect the same underlying construct - intention (Ajzen, 2011:1122). Intentions are assumed to capture the motivational factors that influence behaviour and they indicate how hard a person is willing to try, or how much of an effort he/she is planning to make, in order to perform the behaviour. "As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance." (Ajzen, 1991:181).

4.3.2 The role of ATT

Attitude is a widely researched topic in social psychology and has been defined by several authors. Attitudes are multidimensional, comprising a number of interrelated constructs. Some researchers state that attitude is comprised of three components, namely affective (feelings), cognitive (knowledge or beliefs) and conative (intentions or behaviour) (Ong & Musa, 2012). Recent arguments have however theorised that feelings, beliefs and behaviour interact with attitudes as opposed to being parts thereof (Milfont & Duckitt, 2010). People's attitudes are based on available beliefs about the object. This belief is defined as "the subjective probability that the object has a certain attribute". Attitudes are acquired automatically and inevitably as beliefs are formed and as the subjective values assigned to an object's attributes become linked to the object (Ajzen, 2012:12).

For this study, attitude is defined as "an overall evaluation of an object that is based on cognitive, affective, and behavioral information" (Maio & Haddock, 2010:4). It involves an "evaluative judgement" about something and requires an individual to decide about liking/disliking or favouring/disfavouring something (an object, issue or person). Attitudes can differ in direction (positive versus negative) and strength (level of intensity of the emotion). It is this strength of attitudes that remains a primary research theme, because stronger attitudes are said to be more persistent over time, resistant to change, more likely to influence information processing and more likely to predict behaviour (taken from Maio & Haddock, 2010).

The TPB and other behavioural models include attitude as a precursor to behaviour and is stated to determine the direction of intended behaviour (Kraus, 1995). General attitudes do however not have a direct causal impact on specific behaviours (Ong & Musa, 2012) and it is therefore important to measure attitude related to specific behaviour. So, for instance, has general environmental attitude been directly linked to an individual's tendency to display ERB. Attitude towards the environment specifically is often referred to as 'environmental concern' (Ong & Musa, 2012), while environmental concern can in fact be expressed through beliefs, attitudes, intentions and behaviour (Hawcroft & Milfont, 2010). So, for example, have several studies used the New Environmental Paradigm (NEP) of Dunlap and Van Liere developed in 1978 (Dunlap & Van Liere, 2008) to measure environmental attitude, even though this instrument focuses on the 'beliefs' aspect of concern (environmental beliefs).

At the same time, it is not a guarantee that favourable behaviour will be displayed along with a favourable attitude – a phenomenon known as the attitude-behaviour gap (Blake, 1999; Gupta & Ogden, 2006; Kollmuss & Agyeman, 2002; Moreas *et al.*, 2012). Despite the numerous studies on ERB, there is still disagreement on the extent to which attitudes and concern predict behaviour (Mobley, Vagias & Deward, 2010). Within the TPB, attitude is indicated as only one of several other determinants of behaviour, with behavioural intention being a stronger predictor of actual behaviour than attitude (Nigbur *et al.*, 2010). Still, the influence of attitude cannot be ignored – as is evident in the large number of ERB studies that include attitude as a variable or use it as the main study focus (refer to Tables 9 and 10 at the end of Chapter 3).

It is therefore argued that the attitude spectators hold toward ERB while attending a sports event will influence their STI as well as their FTI.

H_4: Behavioural Attitude positively influences Situational Intention.
H_5: Behavioural Attitude positively influences Future Intention.

Environmental attitude is a latent construct which cannot be observed directly, but are mostly determined by using direct self-reporting methods (Milfont & Duckitt, 2010). For this study, the focus is on attitude toward specific ERB within a given behavioural setting. The aim is not to determine spectators' general attitudes toward the environment, but rather their attitude toward performing ERB while spectating at an event. The three popular scales, namely the Ecology Scale, the Environmental Concern Scale, and the NEP (Milfont & Duckitt, 2010), will therefore not be used as they focus on general environmental attitudes and not the attitude toward a specific behaviour. It is thus necessary to approach the measurement of attitude as suggested by Ajzen (2006). The attitude to be measured is the *attitude toward the behaviour*. It consists of two components, namely *instrumental* and *experiential* aspects. Instrumental aspects focus on whether the behaviour is perceived to achieve something, while experiential aspects focus on how it feels to perform the behaviour (Francis *et al.*, 2004).
As stated previously, an attitude is formed by cognitive, affective, and behavioural information, leading to an evaluative judgement about something. Even though the attitude to be measured is not an environmental attitude but a ATT, certain factors that have been linked to environmental attitude may be linked as they present the underlying cognitive, affective or behavioural information that could influence the ATT to be measure. Factors such as environmental beliefs, perceived consumer effectiveness and faith in others have been proven to link to environment-related attitudes. In this study additional influences will

not be tested and focus will be on adding sport and tourism specific factors that could influence behaviour, including CST, PEA, and MOTV.

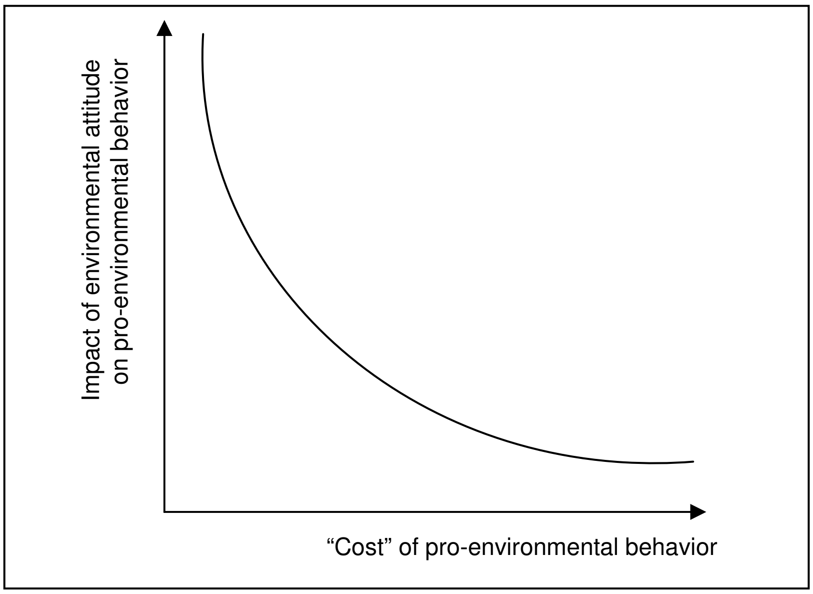
The impact of CST on ATT

According to the TPB, a range of behavioural beliefs underlie and lead to a given ATT (Ajzen, 2012), which in turn drives behavioural intention as a key determinant of actual behaviour. The ATTs reflect the overall evaluation of a behaviour based on beliefs about the likely costs and benefits of behaviour (Lindenberg & Steg, 2007). As a rational choice model, "the TPB assumes that individuals are typically motivated by self-interests, that is, they weigh expected cost and benefits of alternatives (e.g., money, time, social approval)" (Lindenberg & Steg, 2007:124). These 'motivations' are based on specific goal frames guiding an individual's actions, where the goal frame is defined as a focal goal together with its effects on cognitive processes (adapted from Lindenberg and Steg, 2007). The goals will govern "what people attend to, what knowledge and attitudes become cognitively most accessible, how people evaluate various aspects of the situation, and what alternatives are being considered" (Lindenberg & Steg, 2007:119).

Three goals have been identified as highly relevant to environmental behaviour: (i) 'hedonic' goals aimed at feeling better in that moment; (ii) 'gain' goals aimed at guarding and improving one's resources; and (iii) 'normative' goals aimed at acting appropriately. The TPB assumes that behaviour is driven by a gain goal-frame, where the individual will be sensitive to information about costs and benefits in terms of their personal scarce resources such as money, time and status (Lindenberg & Steg, 2007). At the same time, giving consideration to the main costs that could be tested within this study context, the loss of hedonic (pleasure) satisfaction is regarded as a key factor in preventing ERB choices among tourists; with financial compensations even being ignored if pleasure is endangered (Budeanu, 2007). It is stated that external barriers are also stronger than internal knowledge (such as environmental knowledge) and motivations in hindering tourists' ERB (Budeanu, 2007). This focus on gaining pleasure or avoiding things where pleasure is the cost, links to a hedonic goal frame (pleasure in the moment). For purposes of this study, CST are defined as beliefs about the likely losses of personal resources such as time, money and enjoyment as a result of performing ERB while spectating (adapted from Lindenberg & Steg, 2007).

Diekmann and Preisendoerfer (1992, in Kollmuss & Agyeman, 2002) illustrate how there is a direct negative relationship between a pro-environmental attitude and costs (Figure 25).

Figure 25: Low-cost high-cost model of pro-environmental behaviour



Source: Diekmann and Preisendoerfer (1992 in Kollmuss & Agyeman, 2002:152)

From this illustration it is clear that there is a direct link between ATT and CST. According to the TPB, a range of behavioural beliefs underlie and lead to a given ATT. It is therefore argued that, if a spectator believes performing ERB while spectating will cost him or her something, it will directly affect their ATT because of their hedonic goals.

The following hypothesis is stated:

H_6: Behavioural Costs negatively influence Behavioural Attitude.

Importantly, it is stated that people are mostly driven by more than one goal (Lindenberg & Steg, 2007). Where the negative costs of performing ERB during spectating may hinder a spectator in achieving his or her hedonic goals, the desire to gain rewards from an action (performing ERB) may at the same time speak to their gain goal-frame. This aspect of BNFT will be addressed as a separate factor of the model linked directly to STI.

4.3.3 The role of SJN

Norms are categorised by various terms including moral norms, personal norms, social norms and ecological norms, depending on the context in which they are being applied. Within the TPB (and this study), the term SJN as the second predictor of behavioural intention refers to norms as a social factor regarding "the perceived social pressure to perform or not to perform the behaviour" (Ajzen, 1991:188). Social norms can be defined as "rules and standards that are understood by members of a group, and that guide and/or constrain social behaviour without the force of laws" (Cialdini & Trost, 1998:152). Social norms influence personal norms, or an individual sense of obligation to engage in a particular action (Cameron, 2002). It fits in with the TPB's rational take on human behaviour, where it is argued that people act rationally in order to obtain favourable results (Iconaru, 2012). Social norms are also included in the NAM to predict behaviour (Klöckner & Blöbaum, 2011).

Underlying these subjective (or social) norms are normative beliefs which "are concerned with the likelihood that important referent individuals or groups approve or disapprove of performing a given behavior" (Ajzen, 1991:195). Several studies have proven that normative beliefs (the approval or disapproval of certain behaviour by a reference group) have an influence and can be a strong predictor of a person's intention to perform a specific behaviour (Iconaru, 2012), even though it has been stated that SJN is the weakest predictor in the TPB (Nigbur *et al.*, 2010).

Bicchieri's (2006) model of norms makes a distinction between moral and social norms; with the distinction being based on the reasons or conditions of compliance. Moral norms are followed *unconditionally* upon *emotional reactions.* Social norms are followed *conditionally* upon the satisfaction of *normative and empirical expectations:*

- *Normative expectations* refer to what one thinks others expect from you.
- *Empirical expectations* refer to what one has observed or knows about the behaviour of others in similar situations.

In his explanation of the TPB, Ajzen (2006) also makes this distinction, but uses different terms. He refers to normative expectations as *injunctive aspects*, and empirical expectations as *descriptive aspects.* Making this distinction between injunctive and descriptive norms has been suggested by several authors as a countermeasure against the weak predictive power of SJN on behaviour (Nigbur *et al.*, 2010).

For social norms to exist, there has to be a sufficient number of people that know that the norm exists and that share the same expectations (Bicchieri, 2006; Elster, 1999). Furthermore, there should be a sufficient number of people that have a conditional preference to comply with the norm (Bicchieri, 2006). Another feature of social norms is that they are enforced by *sanction* mechanisms directed at violators, where the fear of punishment can motivate people to comply with the norm. However, in the context of social norms, avoiding shame as the punishment is a greater motivation than material costs (Elster, 1999). This shame is not experienced automatically when violating a social norm, but will only occur when another person has observed the violation and expressed contempt. Therefore the activation of social norms depends strongly on the fact that the individual is “being observed by others” (Elster, 2009:196).

Behaviour often takes place in a social context, such as this study’s context of sport spectating. It is therefore likely that the behaviour of others will influence the behavioural decision of individuals (Biel & Thogersen, 2007). The extent of this influence will also vary according to the behavioural situation (Fishbein & Ajzen, 1975, in Iconaru, 2012). For example, a study by Goldstein, Cialdini and Griskevicius (2008) found that hotel guests were more encouraged to participate in an environmental conservation programme through signage that used descriptive norms (other guests are performing the behaviour), than signage that focused on environmental protection. Furthermore, normative appeals that described the behaviour of other individuals in the same setting (the same floor/room) proved to be even more effective. Similarly, McCullough (2011) found that seeing other spectators partaking in recycling and seeing famous sport stars participating in recycling, and hearing them make announcements to encourage recycling, had different effects on spectator recycling. McCullough and Cunningham (2011) also found SJN (other families at the tournament and significant others) and PBC (knowledge and time) as the greatest influences on spectators’ recycling intentions.

Based on these discussions, the following hypotheses are stated:

H_7: Subjective Norms positively influence Situational Intention.

H_8: Subjective Norms positively influence Behavioural Attitude.

4.3.4 <u>The role of PBC</u>

The concept that the performance of behaviour is linked to both motivation (intention) and ability (control) is not new and has been proven through extensive research (Ajzen, 2012). The addition of PBC is what distinguished the TBP from the initial TRA (Ajzen, 1991) and it has also been included in the (less rational) NAM model that focuses on norm activation (Klöckner and Blöbaum, 2011). Several studies have proven that PBC strongly relates to environmental behaviour (Lindenberg & Steg, 2007). In a study by Wall *et al.* (2007), combining the TPB and VBN, it has even found PBC as the only TBP predictor that significantly interacts with intention (excluding attitude and SJN).

PBC is defined as "The extent to which a person feels able to enact the behaviour." (Francis *et al.,* 2004:9). It consists of two aspects: (i) how much a person has control over performing the behaviour or *controllability,* and (ii) how confident a person feels about being able to perform or not perform the behaviour or *self-efficacy*. To assess controllability, people are asked whether performing the behaviour is up to them or whether factors beyond their control determine the behaviour. To assess self-efficacy, people are asked to report on how difficult it is to perform the behaviour and how confident they are about their ability to perform it (taken from Francis *et al*., 2004).

The resources and opportunities available to a person will influence the likelihood of performing behaviour. PBC will differ across situations and actions, as opposed to 'locus of control' which refers to a more general feeling of personal control over outcomes in life. It also differs from achievement motivation theory which refers to a person's perceived ability of achieving success through a given task. Importantly, PBC may not add to an accurate prediction of behaviour if a person has relatively little information about the behaviour; when requirements or available resources have changed; or when new and unfamiliar elements have entered into the situation (from Ajzen, 1991). More important than considering actual control, however, is the perception of such control where focus is on the perceived ease or difficulty to perform the behaviour (Ajzen, 1991). In tourism literature, for instance, it has been found that many tourists desire easy ways to turn their ERB intentions into actual behaviour (Wu *et al.*, 2013). Similarly, Bamberg (2013) found that the 'ease' aspect of PBC plays an important role in the intention to undertake behavioural changes in future.

According to the TBP, PBC can be a direct predictor of actual behaviour apart from operating through intention. Despite the strong evidence of this direct relationship, one cannot only consider the direct effect of PBC on actual behaviour, as the likelihood of performing behaviour will increase only to the extent that a person intends to perform the behaviour (Ajzen, 2012). The following hypothesis is stated:

H_9: Perceived Behavioural Control positively influences Situational Intention.
H_{10}: Perceived Behavioural Control positively influences Behavioural Attitude.

4.3.5 The role of the EMS

The important aspects of an event's EMS have been discussed in Chapter 3 and as part of the discussion on intention. To reiterate: along with each component of the EMS employed by the event organiser, there is arguably an element requiring cooperation and action by the event attendee. These will include aspects such as using transport provided, consuming products, creating waste, interacting with the landscape, creating noise, giving attention to (or ignoring) environment-related communication by the event organiser, etc. (Sahler, 2007; Yang *et al.,* 2011). Engagement of the visitor with the visitor setting (or behavioural setting) has also been highlighted as a critical part of the 'on-site experience' (Pearce, 2005).

The importance of tourists' skills required to perform the desired behaviour, are crucial to influencing behaviour; with the skills being a combination of knowledge and physical abilities. An important aspect of developing skills among tourists is the concept of 'interpretation' at tourist sites, where a person is guided in understanding the setting.

Interpretation is associated with mindfulness where people are developing new routines, paying attention and are open to learning (versus using existing routines, paying little attention and not learning anything new) (Pearce, 2005). Such 'interpretation' in a sport event context could arguably be equated to staff members/individuals that assist attendees with ERB activities (e.g. recycling), the provision of adequate directional signage, and the provision of environmental literature (Ballantyne *et al.*, 2009; McCullough, 2011; Mensah, 2012; Nathaniel, 2011; Trendafilova, 2011).

To test the impact of the design of an EMS on a spectator's intention to engage with the system, it is arguably important to mention characteristics of the aspects. For example, instead of asking how the availability of dustbins will encourage ERB, it may be meaningful to state it in terms of ease of access/availability and so doing places emphasis on the dimension of 'ease', which has been proven an important encourager (Ajzen, 1991, Wu *et al.*, 2013).

It is argued that an effectively designed EMS will have an impact on a spectator's willingness to undertake the desired ERB while spectating. The following hypothesis is stated:

H_{11}: Environmental Management System positively influences Situational Intention.

It is argued that the nature of the EMS design can also contribute to the perceived abilities of a spectator to perform the behaviour. This perceived ability has been defined as PBC or "The extent to which a person feels able to enact the behaviour." (Francis *et al.*, 2004). Despite the fact that PBC is a proven significant predictor of behaviour intention as well as actual behaviour, there may be factors that make it difficult to perform the behaviour. It can include internal factors such as a lack of required skills and resources, as well as external factors such as cooperation from other people. Many techniques have been used to increase PBC, including giving individuals a greater sense of self-efficacy or perception of behavioural control by providing them with the tools and resources needed to gain control over their behavioural performance (from Ajzen, 2012). It is therefore argued that the influence of an adequate EMS employed by an event organiser should be included in the model to test its influence on PBC. The following hypothesis is stated:

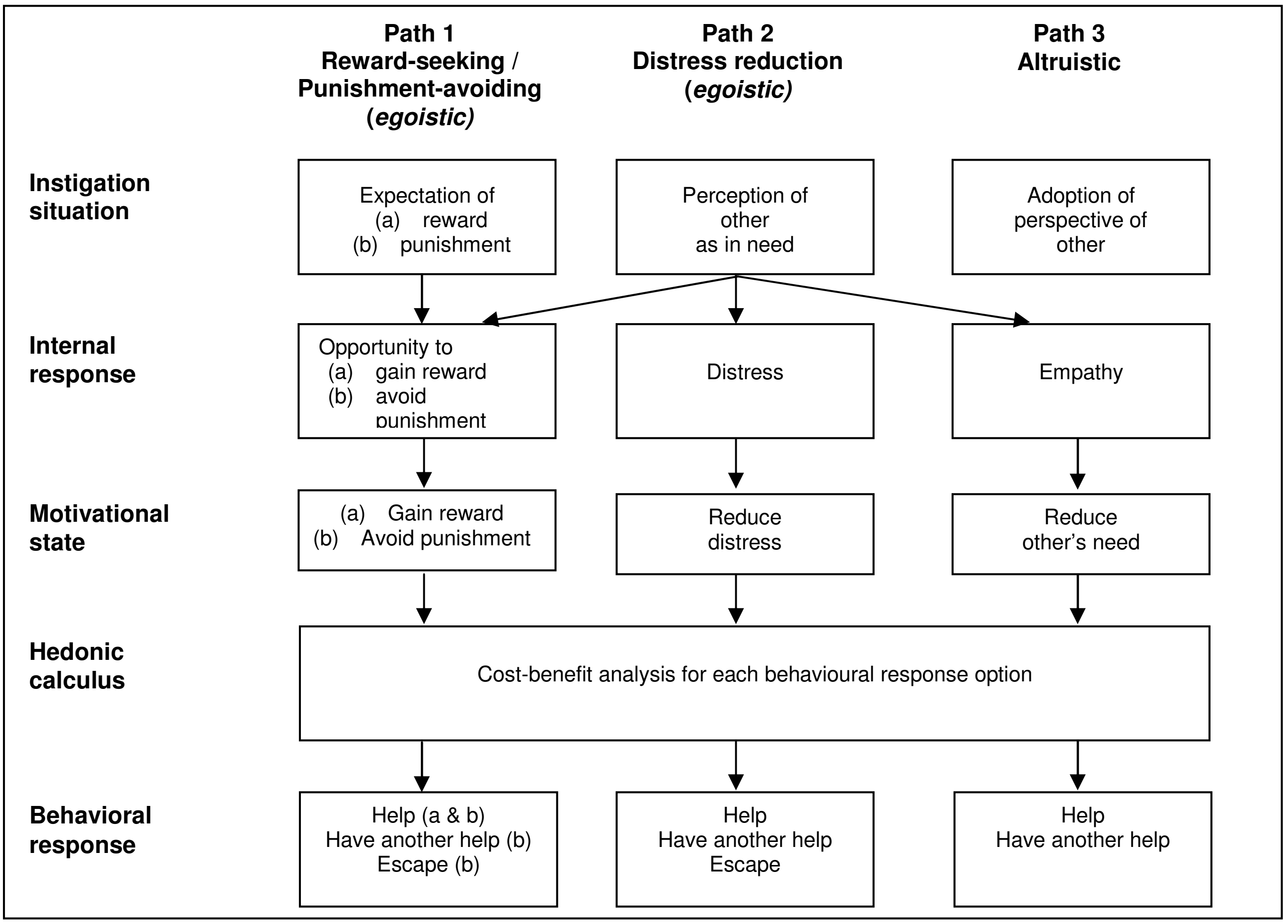
H_{12}: Environmental Management System positively influences Perceived Behavioural Control.

4.3.6 The influence of BNFT on STI

Increasing the costs of environmentally destructive behaviour through fines and fees are regarded as a possible mechanism to encourage ERB (Budeanu, 2007; Lee & Holden, 1999). Even though information tools are preferred above monetary measures (fines, taxes) to encourage ERB among tourists, the slow uptake of responsible products in the market raises questions about the effectiveness of focusing on the former as main strategy (Budeanu, 2007). As tourists are mostly driven by a need for pleasure during travels, it may prove effective to combine monetary punishments with more 'pleasurable' alternatives to encourage ERB. BNFT are therefore defined as a combination of rewards and punishments aimed at increasing ERB (from Lee & Holden, 1999).

Batson (1987 in Lee & Holden, 1999) propose three paths toward pro-social behaviour (such as ERB) (see Figure 26). Two of these paths are driven by egoistic values (focused on the self), while the third is driven by altruistic values (focused on others). Each path consists of a combination of instigating situations, a resultant internal response, a motivational state, a cost–benefit analysis of potential behavioural responses, and an appropriate behavioural response.

Figure 26: Seeking rewards/avoiding punishment as driver of ERB



Source: Batson (1987) adapted in Lee and Holden (1999:376)

The first path, which is the focus of this study, is activated by an individual's expectations of rewards (or punishments) as a result of performing (or not performing) a specific behaviour. Performing ERB is thus seen as an opportunity to gain rewards or avoid punishments. The rewards can include monetary, but also abstract aspects such as approval by the reference group and personal satisfaction. Punishments can similarly include monetary (fines), but also abstract aspects such as disapproval by the reference group (Lee & Holden, 1999). It is argued that within the TPB, the aspect of reference approval is contained in the factor 'Subjective Norms' and its relative importance was tested as such. Based on these discussions, it is argued that offering pleasurable incentives through monetary rewards could effectively be combined with the motivation to avoid fines or fees to test its influence on the ERB of spectators. The following hypotheses are stated:

H_{13}: Behavioural Benefits positively influence Situational Intention.

H_{14}: Behavioural Benefits positively influence Behavioural Attitude.

4.3.7 The role of PEA

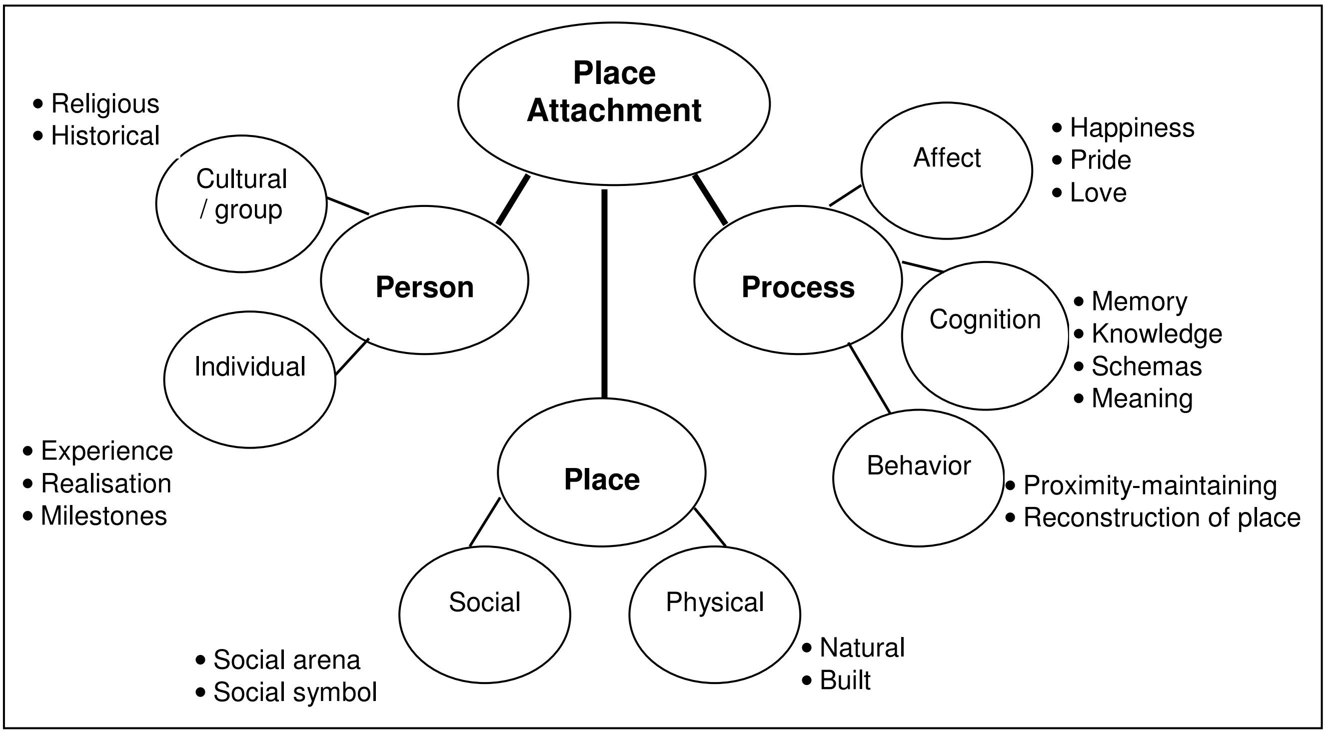
PEA is defined as any positive or negative relationship that a person has with the location of the sports event or the specific sports event, creating an emotional bond with that place or event (adapted from Kyle *et al.*, 2003). Because of the controversy regarding the definition and composition of PEA, it has turned into a multi-faceted and complex phenomenon in the literature (López-Mosquera & Sánchez, 2013; Ramkissoon *et al.*, 2013). PEA can be regarded as an attitude and the spatial setting will be the attitude object (the thing toward which the attitude is held) (Kyle, Graefe, Manning & Bacon, 2004). It has been the topic of studies in various branches of social sciences, including Environmental Psychology, Urban Studies, Leisure Sciences, Tourism, Ecology, and Economics. One of the most visible new trends in these studies is a growing interest in attachment to places other than permanent residences, such as leisure and recreation spaces. In this context of leisure and recreation, PEA is embodied in the emotions and feelings associated with a recreational setting (Lewicka, 2011).

Many leisure scholars have argued that PEA consists of two components, namely place identity (a symbolic or affective attachment to a place), and place dependence (related to the functionality of a place for a recreational activity) (see Lee, 2011; López-Mosquera & Sánchez, 2012). Hernández, Hidalgo, Salazar-Laplace and Hess (2007) make a distinction between PEA and place identity. They state that PEA is an affective bond that people establish with specific areas where they prefer to remain and where they feel comfortable and safe. Place identity, however, is defined as a component of personal identity where a person describes himself through an interaction with places, such as belonging to a specific place. They argue that PEA will form before place identity; in other words, you will form an emotional bond or preference for a place, before (or without) the place necessarily forming part of your personal identity. They do not explicitly focus on the functional aspect of place dependence. This same approach is taken by several other researchers that regard PEA and place identity as independent psychological person-place ties (López-Mosquera & Sánchez, 2013). Scannell and Gifford (2010) developed a tripartite model of

PEA (refer to Figure 27). The first dimension, 'person' deals with the individual that is attached: who he/she is, to what extent the attachment is based on individual or collectively held meanings. The second dimension, 'process' deals with the formation of this attachment: to what extent emotions (affect), thoughts (cognition) and behaviour play a role. The third dimension, 'place' focuses on the object of the attachment: the characteristics of the place that the individual is attached to.

The concept of 'place' is described as an entity that consists of two dimensions: physical and social. These two dimensions have different roles in the attachment process. For example, some people feel attached to a place because of social factors such as their neighbourhood or the religious meaning of a place; while others feel attached because of the physical aspects such as natural beauty, ability to offer recreational opportunities or a stimulating environment. In the latter case, PEA may develop because of a location allowing an individual to reach certain goals – especially in the context of recreational settings (such as facilitating the practise of a specific sporting code).

Figure 27: Tripartite model of PEA



Source: Scannell and Gifford (2010:2)

It is stated that one can expect locals and newcomers or visitors to have different reasons for attachment. Where locals feel attached because of community ties and social aspects, visitors (or tourists) should feel attached because of the environmental features (Lewicka, 2011) and satisfaction with the environmental quality (Chiu *et al.*, 2014; Ramkissoon *et al.*, 2013). Furthermore, the level of attachment of visitors may differ based on their level of involvement in the activity or experience. Gross and Brown (2008) explored different levels of attachment based on the levels of involvement in the recreational activities undertaken and found that, the closer a tourism experience is to an individual's lifestyle, the greater their emotional attachment to the area visited. An increase in the number of visitations to a place is also associated with higher levels of attachment (Snider, Hill, Luo, Buerger & Herstine, 2011). Furthermore, PEA may increase in the light of perceived benefits received through visitation (López-Mosquera & Sánchez, 2012) and the specific meaning attached to a place by the visitor (Wynveen, Kyle & Sutton, 2012).

PEA is important in the context of this study, as emotional attachment to a place has been linked to ERB by several leisure and tourism scholars, where this attachment is regarded as a vital consideration in natural resource management strategies (Lee, 2011; López-Mosquera & Sánchez, 2012; Ramkissoon *et al.*, 2013; Snider *et al.*, 2011). Different levels of PEA will lead to different levels of concern about the state of the natural resources in a specific setting (Kyle *et al.* 2004; Snider *et al.,* 2011). A heightened sense of PEA could lead to greater propensity to display ERB in a recreational setting (Halpenny, 2010; Ramkissoon *et al.*, 2013). Furthermore, Vaske and Kobrin (2001) found that by encouraging an individual's connection to a natural setting, it may be possible to facilitate the development of general ERB in everyday life. Kyle *et al.* (2003) found that place identity leads to a greater willingness to support recreation fees in a national park through desired attitude. López-Mosquera and Sánchez (2012) similarly found a significant, positive influence of PEA on willingness to pay. Studies in tourism have proven that, for nature-based tourists, there are psychological bonds between PEA and environmental commitment, and that commitment mediates the relationship between PEA and actual behaviour (Lee, 2011). In a sports context, it has been proven how golfers could be encouraged to display ERB through environmental literature that appealed to their sense of ownership and attachment to the park in which they played (Trendafilova, 2008). It has similarly been proven that, apart from an emotional connection, increased knowledge about a place increases the likelihood that an individual will display ERB in order to protect the place (Halpenny, 2010). The relationship between PEA and behavioural intention can thus run both ways; where a sense of attachment leads to greater desires to protect the setting, but also where greater commitment to the environment and its quality may lead to increased feelings of attachment.

In this study, focus will be on the consequences of PEA, as opposed to determining the predictions of PEA or arguing the various sub-dimensions. In other words, the researcher will not test the various reasons why a spectator is attached to a specific event or event location, but rather how this attachment influences other aspects of their behaviour. As the link between PEA and ERB has not been explored extensively through empirical research (Halpenny, 2010), addition of this factor makes a contribution to the literature.

The following hypotheses are stated:

H_{15}: Place Attachment positively influences Situational Intention.
H_{16}: Situational Intention positively influences Place Attachment.
H_{17}: Place Attachment positively influences Future Intention.
H_{18}: Place Attachment positively influences Behavioural Attitude.

4.3.8 The role of MOTV

The concept of MOTV or travel motivation has been introduced in Chapter 3 during the discussions of sports participants and tourists as consumers. A motivation is defined as "an internal factor that directs and integrates an individual's behavior" (Iso-Ahola, 1982). Applied in the tourism context, "Motivation to travel or to participate in some form of tourism might also be defined as that set of needs and attitudes which predispose a person to act in a specific goaldirected way" (Pizam in Kurtzman & Zauhar, 2005). The study of travel motivations and especially an understanding of changing motivations of tourists are regarded as key trends in tourism studies on consumer behaviour; with motivation forming part of the prominent models of tourism consumption (Pearce, 2011b; Moutinho *et al.*, 2011a:84). There are three frequently used theoretical frameworks to explain tourism motivation. Firstly, Maslow's needs of hierarchy model; secondly, Iso-

Ahola's dichotomous model (seeking/escaping and personal/interpersonal); and thirdly, Crompton's notion of disequilibrium looking at push-and-pull factors (Kim *et al.*, 2006). Events per se are also increasingly regarded as an important motivator of tourism activity and have become a significant part of destination marketing (Regan, Carlson & Rosenberger, 2012). Importantly, a single motive is rarely identified as the main reason for travel (Ottevanger, 2007).

Similar to tourism, the link between motivation and behaviour is a significant part of sport and sports tourism research (Hinch & Higham, 2011; Kurpis & Bozman, 2011; Russen & Kate, 2008), with several authors aiming to segment the sports tourism market through behaviouristic segmentation based on motivations (Kurpis & Bozman, 2011). Sport spectators and participants are classified in various ways based on main the purpose of the trip either being participanting or watching sports (Gammon & Robinson, 2003; Gibson, 2006; Hinch & Higham, 2011; Standeven & De Knop, 1999; Weed, 2009). Spectators themselves can further be divided into three categories: avid, frequent and casual, where each category will have different trip purposes. For example, where the avid spectator undertakes a trip in order to attend an event, a casual spectator's main trip motivation will be related to other factors such as the holiday destination. Frequent spectators, as the middle of the continuum, will be influenced by sport and tourism motivations. These different frequencies of attendance have also been linked to levels of involvement in sport, with spectators traveling primarily for the sport having consistent levels of involvement in sport (Kaplanidou & Havitz, 2010). In general there are three types of motives driving attendance: (i) motives related to being a fan of the sport; (ii) motives related to leisure preferences; and (iii) motives related to identification with the subculture of the sport at the event. The greatest differences are found between those travelling specifically to watch an event and those that attend casually (local residents or tourists who are actually visiting the location for other reasons than the event (Snelgrove, Taks, Chalip & Green, 2008).

While some classifications aim to be comprehensively drawn from theory, others focus on randomly selected subsets of motives (Kurpis & Bozman, 2011). Green and Jones (2005:165) argue that, even though these typologies can be useful tools, they have three main weaknesses: (i) individuals rarely fall perfectly within one of the categories and human behaviour is "over-simplified"; (ii) the dynamic nature of participation is not taken into account; and (iii) "the activity itself, rather than the meanings, norms and values of the individual undertaking the activity" is examined.

A great number of studies have looked at some of these underlying psychographic drivers of sport attendance, with several models developed such as the Sport Fan Motivation Scale of Wann (1995) (eustress, escapism, entertainment, aesthetic pleasure, group affiliation, family needs, potential economic gain, and self-esteem enhancement); the Motivation Scale for Sport Consumption by Trail and James (2001) (vicarious achievement, knowledge acquisition, drama, aesthetics, appreciation of athletes' skills, physical attraction to athletes, escape, family and social interaction); and the Sport Interest Inventory by Funk, Ridinger and Moorman (2003, 2004) (attraction, self-expression, centrality to lifestyle and risk). Smith and Stewart attempted to reduce the factors presented in the literature on sport consumption motivation to three underpinning dimensions (see Table 12).

Table 12: Key dimensions and motives of sport consumption behaviours

Dimension	Motive
Psychological	Eustress Escape Aesthetic pleasure Drama and entertainment
Socio-cultural	Family and social interaction Cultural connections
Social belonging	Tribal connections Vicarious achievement

<u>Source:</u> Smith and Stewart (2007)

The influence of personal values has also been researched extensively to understand the extent to which these values direct participation patterns (Kurtzman & Zauhar, 2005; Kurpis & Bozman, 2011). Fan and spectator attendance of sport events is closely linked to an individual's self-concept, whereby individuals use such events to strengthen their identities (King *et al.*, 2011). Kurtzman and Zauhar (2005) identified six personal orientations that could be transferred to sports tourism, including economical seeking luxury; intellectual seeking contests and developing skills; social seeking affiliation and interaction; political seeking status and power; complementary combining desires (e.g.

socialisation and skill appreciation); and travel personality characteristics (allocentric versus psychocentric as defined by Plog in 1974).

There are a number of sport attendance motives that are similar to tourism in general, such as escape from daily life and relaxation. At the same time there are also specific motivations applicable to sport such as competitiveness, desire to win and the need to share a special interest with other (similar) people (Weed & Bull, 2004). Apart from internal drivers such as escapism, relaxation, self-exploration, entertainment and socialisation, there are also external factors such as the destination itself or the event location (from Ottevanger, 2007). This myriad of motives driving sport consumption reiterates the complexity of gaining a clear understanding of this aspect. However, this study does not aim to identify the key motives of sport spectatorship or to corroborate a specific typology. Rather, the study focuses on determining how the various MOTVs could or could not be linked to the individual's tendency to display ERB. Budeanu (2007) argued that studies are needed to gain understanding of the interaction between tourist motivations and environmental values in order to promote a balanced set of tourism-related and sustainability-oriented motivations.

The link between travel motivations and ERB specifically has been explored in a number of tourism studies, especially in the context of ecotourism and nature-based tourism (Dodds *et al.,* 2010; Juric *et al.*, 2002; Luo & Deng, 2008). Dolnicar and Matus (2008) and Dolnicar (2006) conducted meta-reviews of studies focusing on green tourists as a viable market segment and identified travel motivation as one of the possible categories (others include trip characteristics, socio-demographics, willingness to spend money on green products, activity preferences, and environmental awareness). Kim *et al.* (2006) explored the motivations of attendees at an environmentally-oriented event (family togetherness, socialisation, site attraction, festival attraction and escape from routine), and found differences between the environmental concern groups (Low NEP group, Middle NEP group, High NEP group). Andereck (2009) found that tourists who were strongly motivated by nature-based experiences, had higher levels of awareness of environmentally responsible practices employed by hosts. Similarly, Choi (2011) found that visitors' environmental attitude plays an important role in their perception of a nature-based festival's quality, value and ability to satisfy attendance needs.

Importantly, the motivations and needs of the tourists may be in direct contrast to conscious consumption. As indicated by Budeanu (2007), a range of possible environmental impacts may accrue along the travel journey of an individual, where behavioural choices will be based on the relative importance of the underlying motivations (pro-environmental versus pleasure/convenience/price for example). Tourists travel to destinations where they perceive the greatest potential to satisfy their needs (e.g. escapism, seeking, and socialisation). Importantly, travelling to natural settings may easily be confused with an individual's willingness to protect these settings. The natural environment is often a motivation for people to travel, yet the reasons for visiting these environmental features do not indicate that tourists would act to protect it (Budeanu, 2007). To the contrary, Dodds *et al.* (2010) compared visitor motivations with important destination features of tourists to two marine parks. Despite the main travel motivations being relaxation, holiday and the beach, the three main features of importance were environment-related, including aesthetics, cleanliness of the beaches and protection of the marine environment. Therefore, nature-based visitor motivation may not be the only motivation that can be linked to environmental awareness as an important precursor to ERB.

Attending sport as a main travel motivation could arguably be explored to determine links with ERB and the importance of the natural setting for sport spectators. Apart from the study by Aday and Phelan (2011) testing the perceived importance of sustainable practices of an arena, no other studies could be found that look at spectator MOTVs and their propensity to display ERB. Including the reason for attending the event among spectators could therefore arguably contribute to explaining additional variability in predicting ATT and STI. The following hypotheses are stated:

H_{19}: Attendance Motivation influences Situational Intention.
H_{20}: Attendance Motivation influences Behavioural Attitude.

4.4 CONCLUSION

Chapter 4 aimed to present a conceptual model of ERB that will be relevant to the context of sport event spectating. As evident from the preceding literature discussion, a broad range of factors could influence an individual to display ERB. It was, however, argued that the model developed for this study should focus on factors specifically relevant to the sport spectator's context. The aim was to present a model depicting the most relevant factors that could assist owners and organisers of sports events to identify areas within their environmental management strategies that need change/alterations, in order to overcome the imminent attitude-behaviour gap by developing strategies targeting appropriate behavioural factors.

It was explained that the TPB would be used as reference point, given the proven validity of the model and great number of studies that have successfully been able to add additional variables to the basic model, as well as the gap in sport and sports tourism literature applying the model to test ERB. This decision fits in with suggestions by other authors to use models only in the domains where they perform best and matching the most applicable model to a specific domain. It is acknowledged that ERB is such a complex issue that it cannot be visualised in one single framework or diagram. It was also considered that statistical procedures to test the model may later be hindered by an overly complex model; thereby strengthening the need to make a selection of the most relevant factors.

The addition of factors into the model focused on aspects that can provide insight from two perspectives: an 'intrapersonal' and 'extra-personal' perspective toward ERB. The intrapersonal perspective is represented by factors unique to the individual: ATT, CST (the behavioural belief underlying ATT), SJN, PBC, MOTV and PEA. The extra-personal perspective is represented by two factors related to the management system, namely EMS and BNFT. Each of the variables was discussed in terms of its definition, meaning and dimensions, reason for inclusion, as well as their possible interaction with the other variables.

To test whether such a distinction is relevant and also to verify the factors that have been chosen for inclusion, a qualitative research technique, the Delphi method, will be used. This technique will enhance the model development process by gaining expert opinions of all the possible factors that could influence spectators' ERB. This can serve to verify the findings from the literature, but also assist in identifying the most relevant factors within the context. The decision to include or exclude certain factors may thereby be supported. To test the refined proposed model after the insight gained from the Delphi, quantitative research will be undertaken through the collection of data amongst sport event spectators. The chosen research methodology will be discussed in the next chapter.

CHAPTER 5

RESEARCH METHODOLOGY

Chapter 1	Introduction to the study	- Background and problem statement - Research objectives and contribution - Delimitations and assumptions
Chapter 2	Sustainability in the context of tourism and event sports tourism	- The environmental dimension of sustainability - Environmental sustainability in tourism - Environmental sustainability in event sports tourism
Chapter 3	Factors driving the contribution of spectators toward an environmentally sustainable event	- Defining spectators' contribution (desired outcomes) - The origins of ERB - Behavioural theories and existing models of ERB - ERB of tourists and sport participants as consumers
Chapter 4	Conceptual model and exposition of factors	- Conceptual model of spectators' environmental behaviour - Exposition of the factors
Chapter 5	**Research methodology**	- **Research paradigm** - **Mixed methodology design** - **Sampling** - **Data collection** - **Data analysis**
Chapter 6	Results	- Qualitative data - Quantitative data - Descriptives and assumptions - Measurement model analysis - Structural model analysis
Chapter 7	Interpretation and discussion	- Evaluation of the structural model - Hypotheses discussion
Chapter 8	Conclusion and recommendations	- Study overview, aims and objectives - Key research findings - Contribution of the research - Limitations - Recommendations for future research

5.1 INTRODUCTION

The aim of the chapter on methodology is to provide a detailed explanation of the manner in which the researcher conducted empirical research to achieve the research objectives. It elaborates on the theoretical and philosophical assumptions underlying the research and indicates how these affected the methods chosen (Saunders, *et al.*, 2007). The chapter introduces the research paradigm of pragmatism and indicates how mixed methodology is suitable within this philosophy where both positivism and interpretivism plays a role. The broad research design is explained, indicating how the research started off with a form of inductive reasoning to explore underlying constructs through qualitative research using the Delphi technique. It then proceeds to explain the deductive reasoning process, where quantitative research was used to describe and explain the relationships between constructs through the use of a structured, self-administered, survey questionnaire. The sampling and data collection processes of each phase are explained. The overall aim of the empirical research was to test specific hypotheses derived from the literature and the qualitative research phase, based on quantitative data collected through standardised and adapted instruments (after Leedy & Ormrod, 2005). Structural equation modelling (SEM) was chosen as the primary methodological approach to confirm the hypotheses in the proposed theoretical model.

5.2 RESEARCH PARADIGM AND BROAD DESIGN

It is argued that social and behavioural studies, such as the proposed study, will benefit most from research conducted within a combination of qualitative and quantitative research paradigms. Such a combination can be found within the paradigm of *pragmatism,* where it is argued that “quantitative methods are not necessarily positivist, nor are qualitative techniques necessarily hermeneutic” (Onwuegbuzie & Leech, 2005:377). This paradigm is deemed to be appropriate for the topic under investigation in this study. As Hobson (2006:283) argues, exploring environmental sustainability practices through a pragmatist lens “enables a tentative re-envisioning of environmental responsibility”. Weed (2011a) argues that a study of the relationship between sport and tourism will not benefit from the dominance of a particular paradigm, such as positivism which dominated sport and tourism studies in the first five years of the 21st century. In his meta-review of sports tourism research, Weed (2009) classifies the increasing heterogeneity of methodologies, methods and techniques within the field as a "healthy state of affairs for the field" (Weed, 2009 in Weed, 2011a:102).

Pragmatism ascribes to the philosophy that the research question should drive the methodology chosen and that it is best served by integrating methods within a single study, because both quantitative and qualitative research techniques are needed to gain a more complete understanding of a phenomenon (Onwuegbuzie & Leech, 2005). Pragmatism enables a researcher to use qualitative research to inform the quantitative portion of a study (and vice versa) and also to combine the "macro and micro levels" of a research issue (Onwuegbuzie & Leech, 2005). The research design of the study is summarised in Table 13, based on eight different descriptors (after Cooper & Schindler, 1998:130-134).

Table 13: Broad research design

Descriptor	Option	Motivation
Degree of crystallisation	Formal study	The study aimed to answer specific research questions by following precise procedures and data source specifications. Even though there were some elements of exploration (literature and Delphi), the study is not regarded as a pure exploratory study.
Method of data collection	Interrogation/ communication	The researcher directly posed questions to the subjects and collected their responses by impersonal (self-completion questionnaire) communication means.
Researcher control of variables	Ex post facto	The researcher did not control any of the variables through manipulation (experimentation).
Main purpose of the study	Exploration, description and explanation	The study firstly aimed to seek new insights into a phenomenon and to ask questions based on the literature review and qualitative data (Delphi). The study then aimed to find out "the *who, what, where, when* and *why"* of environmental behaviour amongst sport event spectators (Cooper & Schindler, 1998:132). Quantitative survey data was used to portray an accurate profile of the environmental behaviour of sport event spectators. Because such description is most often merely regarded as a means to an end, the study proceeded with explanations of the relationships between the variables (tested through higher level statistics) (from Saunders *et al.*, 2007).

Table continues on the next page…

Table 13: Broad research design (continued)

Time dimension	Cross-sectional	Even though the research was conducted at different times (different cycling races), it was only carried out once (one point in time) for each event.
Topical scope	Statistical study	The study was designed to capture a population's (sport spectators) characteristics by making inferences from a representative sample's characteristics.
Research environment	Field conditions	The research took place under actual environmental conditions (at cycling races).
Subjects' perceptions	No deviation from everyday routine	Subjects (sport spectators) did not experience deviations being made by the researcher to their normal spectator behaviour.

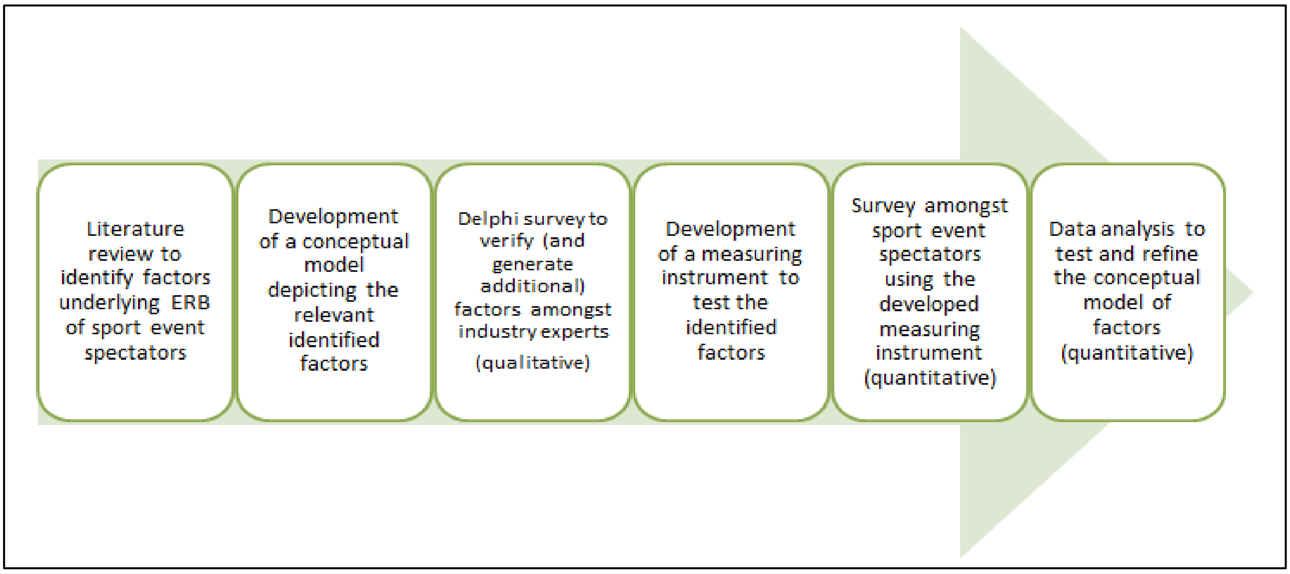
The study involved *basic research*, as the intention of the study was to expand the level of knowledge of the factors underlying the ERB of sport event spectators, and not to provide answers to a specific research (or business) problem within a specific organisation. The study will at best result in 'universal principles' related to such behaviour, presenting findings that are of value to society in general (Saunders *et al*., 2007).

5.3 MIXED METHOD RESEARCH

Based on the literature reviewed, it is apparent that an extensive range of factors underlie and influence the environmental behaviour of individuals. There are also a number of validated research instruments that already measure certain constructs within responsible environmental behaviour. Furthermore, the focus of the research necessitated the researcher to include knowledge from various disciplines. It was therefore necessary to refine a set of factors that would be most applicable within the context of the study (event sports tourism). For this reason it was necessary to include the opinions of experts in the various fields (to be discussed in section 5.4) to identify constructs that were most relevant, as it would not be possible (due to time and data limitations) to test all the possible factors (of which some may be less applicable within this context). The researcher employed *mixed methodology* by combining a qualitative with a quantitative research technique. This decision influenced the choice of data collection and analysis procedures (Saunders *et al.*, 2007).

The first phase of the study followed a limited inductive approach to gain an understanding of the research context and possible meanings attached to the environmental behaviour of individuals. The second phase followed a strong deductive approach, where the study moved the researcher from theory to data; the collection of quantitative data; implementation of controls to ensure the validity of data; and an effort to select appropriately sized samples to generalise conclusions (Saunders *et al.*, 2007). Figure 28 depicts the research process.

Figure 28: Mixed method research process



This mixed method approach is in line with the research paradigm of pragmatism and an exploratory study, such as this study which concurs with the characteristics of such a study within the paradigm. Due to the combination of methods, the researcher was able to use one method to verify findings from another method (Onwuegbuzie & Leech, 2005).

5.4 QUALITATIVE RESEARCH THROUGH THE DELPHI METHOD

Qualitative research and hermeneutics (study of text) consist of an "array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world" (Van Maanen, 1979:520). Such research starts with general research questions and ends with tentative answers or hypotheses (Leedy & Ormrod, 2005). The focus is not on the quantity of information gathered, but rather on its quality and richness (Decrop, 2004). For this study, the Delphi technique was chosen as a method to rigorously capture qualitative data during the initial exploratory phase (Skulmoski, Hartman & Krahn, 2007).

5.4.1 Rationale for choosing the Delphi technique

The Delphi technique was used to verify and expand on the set of constructs emerging from the literature study, in order to generate and choose a more specific set of constructs to be tested empirically (Saunders *et al.*, 2007). This technique is one of the most well established means of collecting the opinions of experts and of gaining consensus between experts on unknown factors underlying an issue. The rationale for using the Delphi technique is that it would enable the researcher to involve potential participants that are spread geographically to interact 'virtually' without having to meet face to face (Garrod & Fyall, 2005). This technique has also been used by researchers with a similar research theme. For example, Green, Hunter and Moore's (1990) assessment of the environmental impact of tourism development; Miller's (2001) development of a set of indicators for sustainable tourism; and Mallen *et al.*'s (2010) study on environmental sustainability awareness of sport facility managers.

The four key features that have to be present to regard the procedure as Delphi include anonymity, iteration, controlled feedback and statistical aggregation of group responses (Rowe & Wright, 1999). A major advantage over other techniques is that the opinions expressed anonymously stem from the individual, without external influence from peers or a group (Green *et al.*, 1990). Each idea can be considered on the basis of merit alone as opposed to possible invalid criteria (Rowe & Wright, 1999). The iterative nature of the technique also creates a means to avoid 'snap', once-off judgements on a complex issue (Garrod & Fyall, 2005), as participants have the opportunity to change their opinions and judgement without any fear of 'losing face' before other group members (Rowe & Wright, 1999). Between each iteration (round), group members are provided with the opinions of the other (anonymous) group members, usually through a simple statistical summary of the group response. By using knowledgeable participants the content validity of the data is increased, while the use of successive iterations increases the concurrent validity (Hasson, Keeney & McKenna, 2007).

Problems associated with the Delphi technique include failure to appreciate the importance of the task. Often uncertainty about what is being asked of the person or a lack of experience in performing the task, may lead to the variations in the results obtained. Furthermore, inappropriate choice of participants may lead to opinions that are not grounded in experience or that lack consistency (Ayton, Ferrell & Stewart, 1999). It is argued that these problems can be avoided through a well-developed sampling technique where the most appropriate participants are included that have expert knowledge of the task at hand.

5.4.2 <u>Sampling of Delphi participants</u>

Qualitative research is most often characterised by a non-random selection of data sources, or purposive sampling. Individuals or objects are selected because they have the potential to yield the most information about the topic (Leedy & Ormrod, 2005; Saunders, *et al.* 2007) or based on their unique characteristics, experiences, attitudes or perceptions (Cooper & Schindler, 2008). Delphi participants should furthermore have the capacity and willingness to participate; sufficient time to participate; and the necessary communication skills (Skulmoski *et al.*, 2007).

The researcher applied heterogeneous or maximum variation sampling with the aim to include different (heterogeneous) individuals into the sample in order to get the maximum variety of opinions or perspectives. This technique fits in with the initial exploratory aim of the study, as any emerging patterns would probably be of particular interest and likely to represent the key factors that had to be included and tested in the quantitative questionnaire (after Saunders *et al.*, 2007). Sample selection criteria (Saunders, *et al.*, 2007) were developed for the qualitative component to ensure a portfolio of information-rich participants for the Delphi expert panel. The sample included both academics and practitioners/consultants from four broad groups (fields of specialisation) and the aim was to at least solicit response from both participant groups and across all four fields of specialisation:

- sports management/leisure;
- tourism/event tourism/sports tourism;
- sustainable/responsible tourism; and
- environmental psychology/environmental studies/sustainability studies.

Selection criteria for academics included that they:

- are informed academics and recognised experts in the particular field;
- have published at least one article on the particular topic in any of the major relevant journals (Miller, 2001); and
- have published recently (at least within the last 5 years).

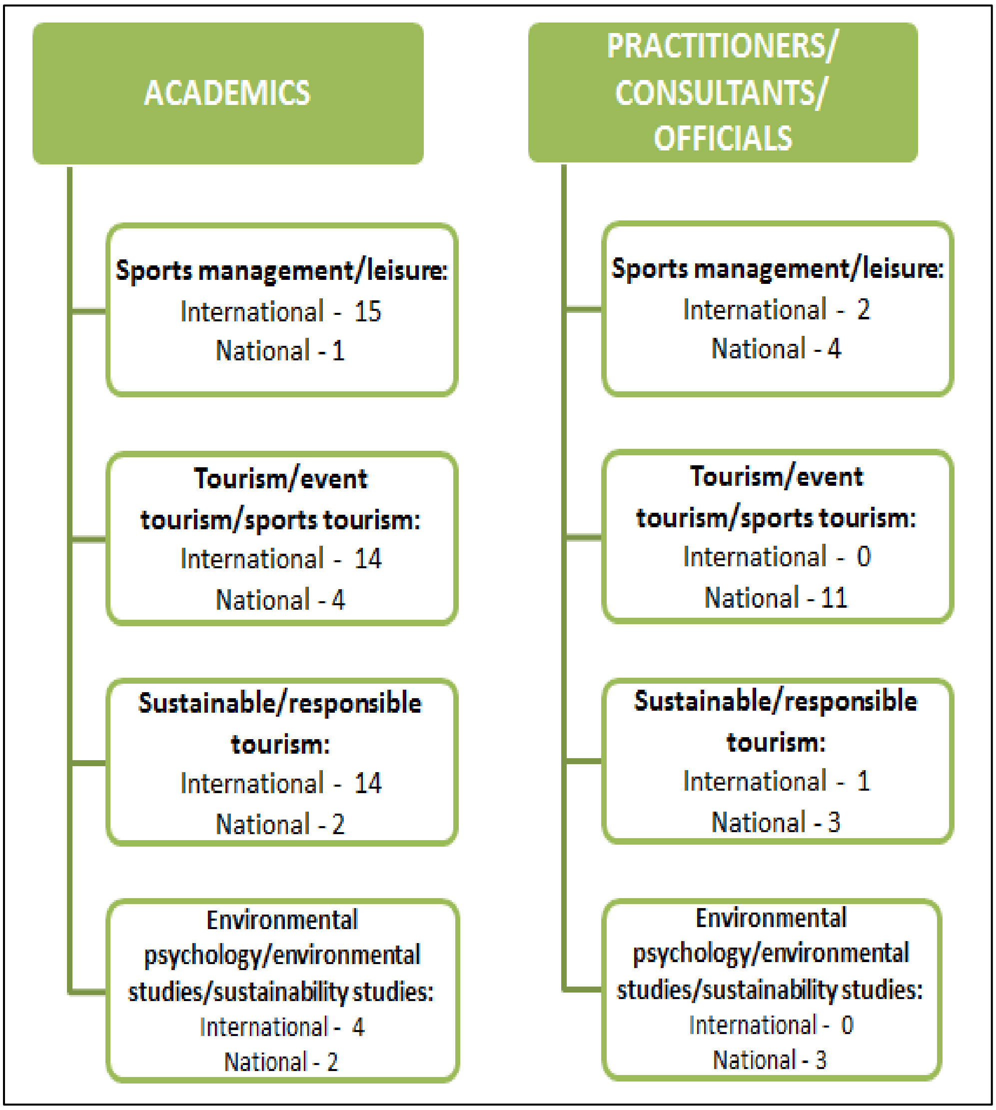
Selection criteria for practitioners/consultants include that they:

- are informed/experienced individuals in the particular field;
- hold at least a senior executive or managerial position (Mallen *et al*., 2011); and
- are active as practitioners/consultants/officials (public sector).

Regarding the sample sizes, Saunders *et al.* (2007:226) state that, for the technique of purposive sampling, "... the issue of sample size is ambiguous ... there are no rules". Sample size is dependent on the research question and objectives – "... what you need to find out, what will be useful, what will have credibility and what can be done within your available resources ..." (Patton in Saunders *et al.,* 2007). There is much debate over the ideal or correct sample size for a Delphi study as there is little empirical proof that the number of participants will influence the reliability or validity of the consensus process (Douglas, 2008, Skulmoski *et al*., 2007). In a study conducted by Miller (2001) to develop a set of indicators for sustainable tourism, a two-round Delphi survey of tourism researchers was conducted. An initial set of 74 researchers were identified, with a 73% response rate of 54 responses being achieved. A study by Mallen *et al.* (2010) focused on industry experts as opposed to Miller's focus on academic experts. A three-round (iterations) survey was conducted and 31 out of the 102 invited candidates participated. It is argued that the Delphi group size does not depend on statistical power, but rather on the dynamics of the group to arrive at consensus. Therefore a panel of 10 to 18 experts can be regarded as sufficient (Okoli & Pawlowski, 2004).

For the first round, a total of 77 participants were identified (refer to Figure 29). These included international as well as local individuals. The Delphi technique is synonymous with high levels of panel attrition (drop-out of members), which may result in the findings being biased in favour of the remaining active panel members (Hsu & Sandford, 2007). The researcher aimed to overcome this by ensuring that the response did not require participants to invest a lot of time in the formulation of their responses, and to set realistic return deadlines. Respondents' commitment to participate in the multi-round Delphi can be inferred by the round-by-round response rate (that will be provided in the subsequent discussion) (Skulmoski *et al.*, 2007) which is in line with other Delphi studies explored in the literature.

Figure 29: Profile of the sample of experts identified for the Delphi



5.4.3 Data collection of the Delphi survey

The first round of the Delphi procedure is usually unstructured, allowing the experts freedom to identify and elaborate on issues (Rowe & Wright, 1999). For this study the questions were more focused and structured to guide participants towards a specific goal (Skulmoski *et al.*, 2007). A response sheet was initially designed containing three broad headings: ‘spectator specific factors’, ‘industry and event specific factors’, and ‘external factors’. Pretesting was done to ensure the reliability of the Delphi survey (Okoli & Pawlowski, 2004). The research supervisor indicated that it was necessary to add ‘other’ to allow for any comments by the participants. Two other researchers with experience in Delphi research were also approached and concurred that a broader question format should be taken for the first round, given the context of the research being situated within several disciplines (refer to Appendix A for a copy of the first round response sheet).

The selected sample of experts from the various disciplines was contacted through e-mail to solicit participation in the study. A letter of invitation accompanied the response sheet for the first round (refer to Appendix A). By conducting the Delphi via e-mail, the anonymity of respondents is preserved (Garrod & Fyall, 2005). A total of 18 participants (12 academics and 6 practitioners) responded, yielding a 23% response rate. Participants were asked to list all the factors that they regard as having an influence on the ERB of sport event spectators; under the broad headings of ‘spectator specific factors’, ‘industry and event specific factors’, ‘external factors’ and ‘other’. The independently generated response sheets were then analysed in order to compile a set of factors in an unedited and non-attributable format, without changing the intended meaning given by participants (Saunders *et al.*, 2007). Content analysis was used to analyse the data based on constructs identified in the literature. Additional factors mentioned were matched to the most appropriate constructs. Care was taken not to ‘mould’ the data by providing inaccurate feedback to participants for the sake of delivering a desired outcome (Hsu & Sandford, 2007). By consolidating the factors into sets, a structured questionnaire was developed through which the participants’ opinions could be collected in a quantitative manner (Rowe & Wright, 1999).

The sets of factors were returned to the participants for a 2nd round, where they were given an opportunity to comment on the factors by indicating (on a 4-point scale with 1 = no influence and 4 = significant influence) the extent to which they view each of the factors listed as having an influence on individual behaviour (after Green *et al.*, 1990) (refer to Appendix B for a copy of the second round response sheet). The responses delivered scale data that was used to 'quantitise' the qualitative data to present basic descriptive statistics (Rowe & Wright, 1999; Saunders *et al.*, 2007). Quantifying the qualitative data in this manner has also been used by Green *et al.* (1990) and Miller (2001) in a similar manner. This round included a total of 13 participants (5 practitioners and 8 academics), yielding a 76% response rate.

Regarding the number of iterations, it is stated that the number of rounds is variable and seldom goes beyond two rounds (Row & Wright, 1999). The purpose of the Delphi procedure in this study was to ensure that the list of factors identified in the literature that would be tested in the quantitative questionnaire was exhaustive (theoretical saturation), and it was therefore not necessary to get consensus amongst the experts (Skulmoski *et al.*, 2007). The second round proved sufficient to fulfil the aim of identifying the most important factors as weighted by the experts through the structured question format. This weighting would be useful to indicate factors that could be excluded from the quantitative questionnaire if required (considering the desired length of a survey questionnaire). Test-retest reliability was not regarded as relevant for the Delphi method as the researcher expected respondents to revise their responses in the consecutive rounds (Okoli & Pawlowski, 2004:19).

5.5 QUANTITATIVE RESEARCH THROUGH A SPECTATOR SURVEY

Where the qualitative research discussed up to now aimed to describe and understand the factors underlying environmental behaviour of sport spectators in general, the quantitative component served to answer questions about relationships among the factors, with the purpose of explanation and prediction that can be generalized to the population. To collect the data, it was decided to focus on the sport of cycling and the spectators at these outdoor events. Furthermore, the decision was made to undertake a survey by means of a self-completion questionnaire. The questionnaire measured each variable through standardized and adapted measurement instruments mostly derived from the literature. This section continues to explain the chosen quantitative methodology.

5.5.1 <u>Rationale for undertaking a spectator survey at cycling events</u>

The results of the Delphi technique were presented as a paper at the Leisure Studies Association Conference in Edinburgh, 17 – 19 July 2012. At the time of the presentation the researcher still intended to include four different sporting codes (cycling, running, swimming, triathlons) to add the dimension of a sport sub-culture as influencing factor. After discussions with experts in the audience, it became clear that this approach would add extreme complexity to the quantitative data and that it would prove more appropriate to choose one sporting code where a division between 'sub-cultures' could be tested. Based on various factors, as discussed below, the researcher opted for cycling where there is a distinct difference between road and mountain bike athletes and events.

Cycling has become synonymous with environmental responsibility, healthy living and carbon free transport (Aldred, 2010; Cupples & Ridley, 2008). Cycling has also experienced a revival as leisure, recreation and tourism activity, with bicycle tourism being named as an environmentally sustainable niche market (Lamont, 2009). It is claimed that cycling is one of the fastest growing sports in South Africa (Cycling South Africa, 2012). As stated by Phil Liggett, television commentator and often referred to as 'the voice of cycling':

> *"During the 30 years of the [Cape Argus] Cycle Tour [1978 – 2008], cycling as both a sport and a pastime has become more popular everywhere, from Australia to Andorra and from Cape Town to Canada. But it is in South Africa, particularly, that this pastime has grown out of all proportion. In 2007, a Cycle Tour winner, Robbie Hunter became the first South African rider to win a stage in the Tour de France. Now that is progress!"* (Wills, 2009:11).

By April 2013 there were already 15 897 members of Cycling South Africa; 12547 male and 3350 female (Cycling South Africa, 2013). The sport has a visible place on the country's national events calendar and is considered as important for inclusion in the national Sports Tourism Strategy (Pillay, 2012). The national federation of cycling in South Africa, Cycling SA, is rated as one of the top tier 1 category sporting codes by South African Sports Confederation and Olympic Committee (SASCOC). This implies that the Federation is in a healthy state and will be supported through public funds, which should result in growth of the sport (Mountainbiker.co.za, 2013). Mountain bike racing in particular has seen exponential growth in the number and distribution of events across the country. By 2012 there were already over 300 events registered, with the race calendar expanding in terms of the number and type of events (mtbonline.co.za, 2012).

Cycling races attract large crowds and often cover areas of natural beauty, with spectators spread along the route of the race. Races mostly occur outdoors where there is less control over the environmental behaviour of the spectators than is the case with gated events where facilities are provided on the specific grounds/stadium. Spectators have a big environmental impact, travelling to the event and spending time in the event's surrounding natural environment. The active participants (cyclists) are often guided by sporting codes of conduct and unofficial norms that develop among them (Fink & Smith, 2012), whereas such codes of environmental behaviour may be limited among spectators. The cyclists are arguably also focused on the sporting activity, not necessarily the environment surrounding the event and do not engage with the environmental setting in the same manner and extent as the spectators, who often interpret the space as a leisure setting. Furthermore, spectators at outdoor events do not play the same significant role in the income model of event organisers as is the case with stadium spectators that bring income through ticket sales, refreshments and merchandise purchases within the stadium grounds (Szymanski, 2003). This may have added to the current situation where research is dominated by a focus on participants in the case of outdoor events.

Research indicates that studies on behaviour should ideally be conducted within the behavioural setting in order to obtain accurate representations of the behaviour (Belk, 1975). It was thus deemed important to conduct research on spectators' behaviour while being in the setting, as opposed to other forms where there is a time and distance gap such as through an email/online survey sent after attending a race.

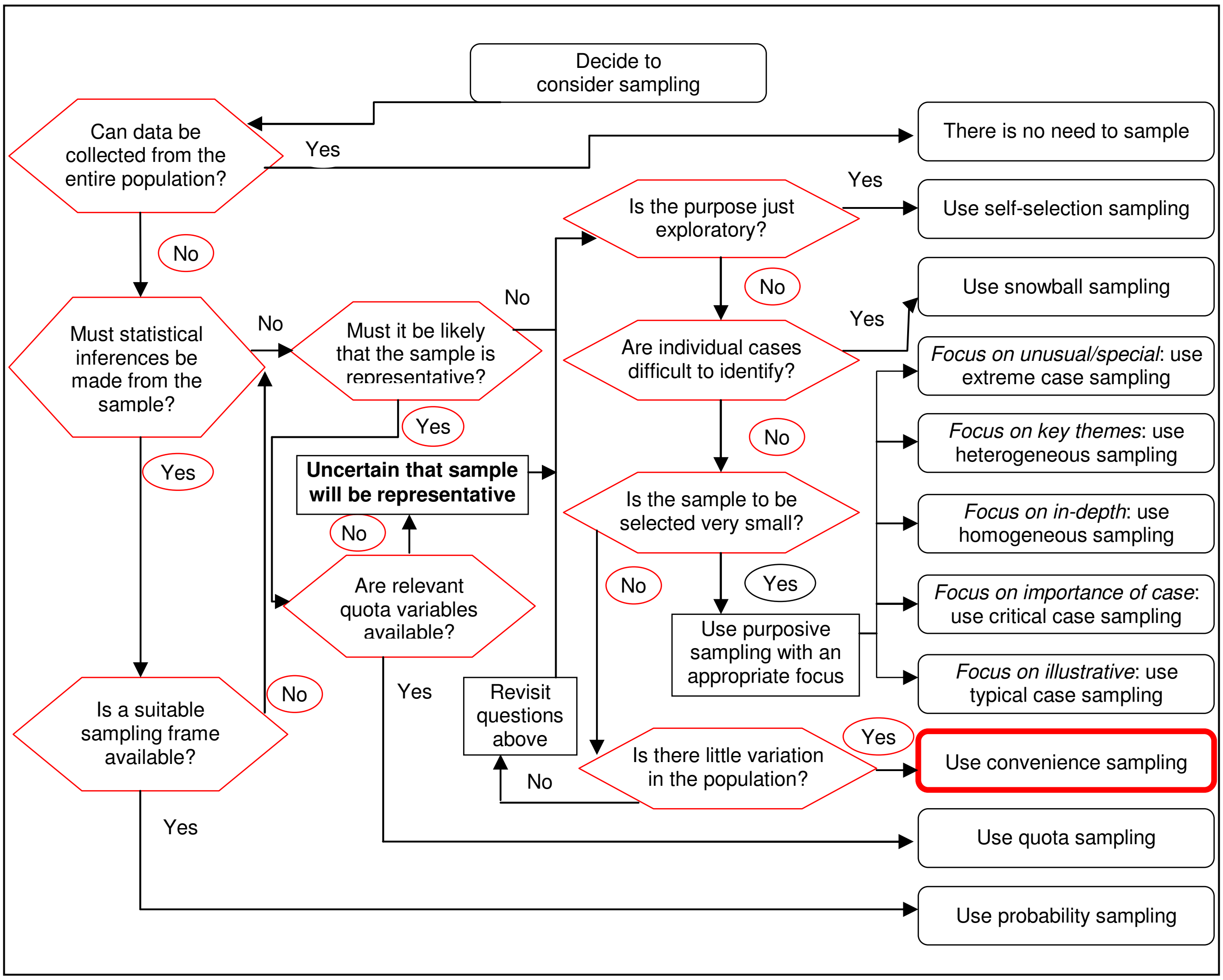
The characteristics of surveys support the objectives of this study. Firstly, surveys are the most commonly used tools to gather information in order to describe, compare or explain knowledge, attitudes or behaviour, such as the focus of this study. Secondly, the purpose of asking questions in the survey is to produce comparable information across many individual spectators so that this information can be generalised to the relevant population of cycling spectators (Keyton, 2011). Thirdly, the survey allows collection of large amounts of data on the varied factors of environmental behaviour. Fourthly, surveys are perceived as authoritative by people in general, and the study purpose is also easier to explain to, and understood by the spectators (Saunders *et al.*, 2007).

5.5.2 <u>Sampling of spectators for the survey</u>

Because the aim of deductive research is to make inferences to a wider population, it is important to ensure that the sample is representative. In this study, the empirical research was however similar to a market survey and in such cases the sampling frame is usually not known (Saunders *et al.*, 2007). In such a case non-probability sampling has to be employed as it is not probable that every person in the population has an equal chance to be included in the sample. As there are a number of sampling techniques associated with non-probability sampling, it was necessary to select the most appropriate method in an attempt to represent the total population. Figure 30 presents a technique to select an appropriate non-probability sampling technique. The researcher indicated (with circles) how the sequence was followed, with a written explanation provided after the figure.

Firstly, data could not be collected from the entire population, but statistical inferences had to be made from the sample in order to test hypothesised relationships. Secondly, there was no suitable sampling frame available as none of the event organisers could provide the researcher with definite spectator numbers. Thirdly, the sample had to be representative of the population, but there were no quota variables available as the number of spectators at the various events differ each year. It was thus uncertain whether the sample will be representative of the population. Fourthly, the purpose of the study was not just exploratory, but also descriptive and explanatory; it would not be difficult to identify individual cases (spectators gathered in one location); and the sample to be selected had to be big due to the intent to make statistical inferences. Lastly, there would be variation in the population (gender, age, travel companions, place of origin) and therefore it was appropriate to employ *convenience sampling*.

Figure 30: Selecting a non-probability sampling technique



Source: Saunders *et al*., (2007:227)

Even though it has been indicated as the most appropriate sampling technique, given the context of the study, the quality of the research would be affected by using convenience sampling, as the likelihood of the sample being representative of the population is very small (Saunders *et al*., 2007). The researcher aimed to address this quality issue by employing certain countermeasures.

Firstly, a form of heterogeneous or maximum variation sampling was used to include different (heterogeneous) individuals (spectators) into the sample.

- Fieldworkers were trained to approach individuals from different genders, ages and ethnic groups.
- Fieldworkers avoided handing out the questionnaires to a group of people sitting/standing together, in order to avoid interdependence of cases (where one spectator could influence/coerce another).
- Fieldworkers were spread along the area of the start/finish lines of the races as far as possible.

Furthermore, fieldworkers approached individuals (spectators) that were in an apparent 'relaxed state', either being seated or standing relaxed (not waiting for cyclists coming in to finish), to encourage quality and completeness of the questionnaires. In addition, an extent of quota sampling was employed, where the initial aim was to get equal quotas from each type of cycling event (road versus mountain bike) (taken from Leedy & Ormrod, 2005).

As will be discussed in section 5.9.3, the final number of usable questionnaires was 1034. The suitability of this sample size is based on statistical probability, and in this study the focus was on attaining a large enough sample to allow inferential statistics for hypothesis testing. Sample size is to a lesser extent governed by the size of the total population from which the sample is drawn (Saunders *et al.*, 2007). As indicated earlier, there were no researched estimates available and unofficial estimates would most likely be inaccurate as attendance estimation of free-to-view events in public spaces lacks scientific rigour (Davies *et al.*, 2010). A large sample size (statistically regarded as more than 30), such as the one achieved in this study, is a countermeasure for the lack of representation inherent to convenience sampling. It has been proven that larger sample sizes increase the chance of normal distribution of the data due to the "central limit theorem" (Saunders *et al.*, 2007:211), and normal distribution is one of the assumptions of inferential statistics. In instances where statistical techniques require a minimum number of cases for categories (such as demographics and trip characteristics), data can be recoded into broader categories, insignificant categories can be dropped from the analysis, or the relevant non-parametric test alternatives can be used.

It is stated that by using structured questionnaires to undertake a face-to-face survey, there is increased confidence that the desired individuals have indeed responded and a more limited chance that their answers would have been contaminated or distorted by the interviewer (Saunders *et al.*, 2007). The next section explains the development of such an instrument and elaborates on the suitability of the structured questionnaire as the chosen quantitative research tool.

5.6 DEVELOPMENT OF A QUESTIONNAIRE FOR THE SPECTATOR SURVEY

A self-completion questionnaire was developed based on the results of the literature review and Delphi survey (refer to Appendix C for a copy of the final research instrument). Given the challenges with gaining a representative sample discussed previously, it was important to consider the most effective format in which to design the survey questionnaire to increase the validity of the collected data.

5.6.1 Rationale for choosing a self-completion questionnaire

A self-completion method was chosen as self-administered surveys improve anonymity (Keyton, 2011). This increased anonymity was important due to the potential 'exposure' that spectators could feel when answering questions on behaviour. They could feel that they were being asked about behaviour, but also being 'checked up' that they were actually doing what they were stating; or that respondents could negatively expect the fieldworker to confront them on specific answers given. Fieldworkers were trained to step back and allow the respondents personal space while they were completing the questionnaires, thereby aiming to increase respondents' feelings of comfort to give accurate, honest answers and avoid "social desirability" responses (Keyton, 2011:162).

Self-completion is also regarded as appropriate to use in the case of long response sets (Keyton, 2011). There are no set guidelines regarding the feasible length of a self-completion questionnaire and the decision should be guided by the survey location (Saunders *et al.*, 2007). In this study the questionnaire length was determined by the need to include the most comprehensive set of factors to be tested statistically. This issue was addressed through purposive sampling of respondents (explained earlier) and by the fieldworkers properly introducing themselves, the study and the task at hand before gaining the individuals' consent to participate.

A disadvantage of self-completion questionnaires is that respondents may have difficulty in interpreting the instructions or the questions (Keyton, 2011). The researcher addressed this issue through pre-testing of the questionnaire, developing clear instructions for each question and ensuring that fieldworkers were familiar with the questions and could answer respondents' questions. Furthermore, the questions were kept to the same format (Likert-type scales) and in the same direction (negative to positive) as far as possible. This formatting also served to encourage full completion of the lengthy questionnaire by simplifying the questions and only including the minimum number of open-ended questions.

5.6.2 <u>Designing the measurement instruments</u>

A measurement is a descriptive tool that allows the researcher to evaluate what is described; with the numbers used as measurement having no value until they are given meaning by the researcher. When something is measured, the aim is to describe it in some standardised format and accuracy is imperative, because it serves as the foundation of the statistical analyses and subsequent interpretations. By standardising or operationalising variables three types of comparisons can be made, namely comparisons among individuals, among studies using the same measure, and among similar measures (Keyton, 2011). This study focused on comparisons among individuals using the same variables.

Before explaining how questions were developed, it is necessary to operationalise the variables. Where constitutive definitions are used to explain constructs through other constructs, operational definitions translate concepts into tangible indicators through which they can be measured (Douglas, 2008; Saunders *et al.,* 2007). Where Table 11 in Chapter 4 provided the constitutive definitions, Table 14 gives the operational definitions developed for this study by stating the activities or operations necessary to measure them.

Table 14: Operational definitions of the constructs

CONSTRUCT	DEFINITION
INDEPENDENT VARIABLES	
Attendance Motivation	The combination of factors serving as motivations for attending the cycling event. Measured as *sport interest* (specific sport is the focus), *self-expression* (supporting riders and sharing accomplishments), *centrality* (socialisation and bonding as part of lifestyle), and *attraction* (elements inherent to the event).
Behavioural Benefits	The influence of receiving benefits on the individual's behaviour. Measured in terms of monetary rewards (positive reinforcement) and avoiding prosecution (negative reinforcement).
Behavioural Costs	The influence of suffering losses on the individual's behaviour. Measured in terms of enjoyment, time and ability to watch the race.
Environmental Management System	The influence of aspects of the event's environmental management system on the individual's behaviour. Measured in terms of ablution facilities, recycling bins, access to drinking water, demarcated viewing areas, information about the event's EMS, information about the event's environment, directional signage, assistance with recycling.
Place Attachment	Preference for the specific event and location above alternatives, and having a special connection to the specific event and location.
Subjective Norms	Beliefs about what other spectators expect of the individual and will feel toward him/her in terms of ERB.
DEPENDENT VARIABLES	
Behavioural Attitude	Direct measure of attitude, stating the *instrumental* (behaviour achieves something) and *experiential* (what it feels like to perform the behaviour) perceptions regarding ERB at the event.
Future Intention	The possibility that a range of environmentally responsible actions will be taken in future, including informing himself/herself of the rules/regulations before attending; reading up on the event's practices before deciding to support again; and taking extreme actions such as signing a petition against the event or rather restrain from attending for the sake of the environment.
Perceived Behavioural Control	The individual believing that he/she has the resources in terms of time and skills available to perform environmentally responsible behaviour, and also that the decision is up to him/her to behave responsibly.
Situational Intention	The possibility that a range of environmentally responsible actions will occur in the behavioural setting. Measured in terms of water, waste, soil, fauna/flora and noise and ranging from easy to more difficult/requiring greater commitment.

It is stated that the analysis of sport participant motivation should ideally involve both qualitative and quantitative data; where the qualitative data will elicit in-depth understanding, while the quantitative data will assist in reducing the dimensionalities of spectator types and lead to a better understanding of the structure underlying the data (Rohm, Milne & McDonald, 2006). The aim was to statistically test as many of the identified constructs as possible within the questionnaire. Taking the length of the instrument into consideration, the researcher included the minimum number of qualitative (open-ended) questions. Because of the decision to restrict the data to predominantly quantitative measures, it was important to ensure that the most appropriate types of data (discrete versus continuous) would be collected to allow for meaningful statistical analyses. It was decided to collect continuous (interval and ratio) data where possible, as this would increase the variability and strength, allowing more advanced relational statistics (Leedy & Ormrod, 2005). The data set also included nominal and ordinal data. Table 15 depicts the question formats used, along with the theme of the question or the constructs tested within the question.

Table 15: Question formats used

Question format	Question nr	Question theme / construct tested
Simple categorical questions (closed)	9	Gender
	10	Highest qualification
Likert-type scales (closed)	1	Attendance Motivation
	2	Place Attachment
	3	Perceived Behavioural Control
	4	Subjective Norms (4.1, 4.4, 4.9, 4.11, 4.15, 4.19)
		Environmental Management System (4.2, 4.3, 4.6, 4.10, 4.12, 4.13, 4.16, 4.17)
		Behavioural Costs (4.5, 4.18, 4.20)
		Behavioural Benefits (4.7, 4.8, 4.14)
	5	Situational Intention
	6	Future Intention
Semantic differential scale (closed)	7	ATT
Open-ended questions	8	Age
	16	Length of stay
Semi-structured questions (categorical including 'other')	11	Language
	12	Place of origin
	13	Travel company
	14	Transport used
	15	Accommodation used (if overnighting)

A rating scale yields "a single score that indicates both the direction and intensity of a person's attitude" (Henerson, Morris & Fitz-Gibbon, 1987:84). A rating scale should be able to distinguish between respondents with a favourable versus an unfavourable answer, usually by including a sufficient number of scale points. For this study, Likert-type scales containing four scale points were used throughout most of the questions, with the labels of each category included to increase reliability and validity (Krosnick, 1999:544). The researcher opted not to include a middle value ('not sure' / 'don't know') as people often perceive the middle of the scale as the 'normal' or 'typical' value and "are biased toward placing themselves near that point, regardless of the labels used to define it" (Krosnick, 1999:544). By leaving out a 'middle value', the researcher intended to compel respondents to make a choice. When interpreting the data of these scales, it is important to consider that people will evaluate what the 'most desirable' or appropriate response would be based on the point descriptors, and then opt to choose the first scale point on that side of the scale (Schwarz, Hippler, Deutsch & Strack, 1985). This well-known occurrence of "overreporting of admirable attitudes and behaviors" is known as social desirability bias (Krosnick, 1999:545).

For questions 4 the scale was decreased to three points, as it was thought to be difficult for respondents to distinguish between more points on the two question themes (encouragement of ERB) (after Saunders *et al.*, 2007). The decision to change question 4 from a four to a three-point scale will also be addressed in section 5.7.1.

The semantic differential scale was chosen for question 7, as this scale is a good way to measure respondents' overall perceptions of an issue. A list of paired opposite adjectives are presented on a seven-point scale continuum to describe a single idea. Respondents then indicate a place on the scale between the descriptive words that best expresses their attitude regarding the idea (Saunders *et al.*, 2007).

Table 16 indicates the literature from which some of the questionnaire's scales were derived. In many instances the researcher used tested scale items. As many of the original scales included large sets of items to test the related construct, it was decided to include only those scale items that had obtained the greatest factor loadings (retaining at least three items per factor) in the factor analyses (where applicable) conducted by the original researchers, or where used in a reduced format by other researchers. This was done to increase the internal reliability of the questions; however, the researcher also conducted her own factor analyses to confirm the scales within the study context (as will be discussed in Chapter 6). Furthermore, some of the item statements were formulated negatively (reverse scored) to counter acquiescent bias (when the respondent turns over into an 'automated' mode and agrees to all the positive statements) and extreme response bias (where the respondent chooses the most extreme rating and provides it to many or all of the scale items). In this study, this could lead to over-reporting of positive attitudes toward and good practices of ERB. This phenomenon is well-documented in studies where the character of the cultural reference groups may guide a person to give either more socially acceptable answers (in collective cultures), or to have freedom to give individualistic answers (Smith, 2004).

Table 16: Literature references for scales used in the questionnaire

Attendance Motivation	Dolnicar and Leisch (2008b); Funk, Ridinger and Moorman (2004); Smith and Stewart (2007)
Behavioural Attitude	Kim and Han (2010)
Behavioural Benefits	Nathaniel (2011)
Behavioural Costs	Lindenberg and Steg (2007), Budeanu (2007)
Environmental Management System	Nathaniel (2011), McCullough (2011)
Future Intention	Laing and Frost (2010), Lee (2011), Lee & Holden (1999), Puczkó and Smith (2012), Weed (2010)
Perceived Behavioural Control	Kim and Han (2010), McCullough and Cunningham (2011)
Place Attachment	Lee (2011)
Situational Intention	Greening the WSSD (2003), GSA (2006), Jagemann (2003), Kang and Stotlar (2011), Lee and Holden (1999), Pearce (2005), Sahler (2007), Schmidt (2006), Responsible Travellers (2011)
Subjective Norms	Nathaniel (2011), McCullough (2011)

The Department of Statistics at the University of Pretoria ensured that the design of the questionnaire was suitable for data analysis. Some of the scales were given at a 5-point level and some on a 7-point level (based on the literature) and it was suggested to change all the scales to 4-point as explained previously. Question 4 on 'encouragement' and discouragement' was initially presented as two sets of questions as per the literature (Nathaniel, 2011), but it was recommended to combine these into one question. Other suggestions included minor sentence reconstruction; minimising the number of reverse coded items to simplify answering; including scale headings where the researcher initially opted for end category labels; changing demographic questions from open to categorical format; and rearranging question flow to place questions using the same scale descriptors (e.g. 'agree/disagree') successively.

Due to the sensitive nature of demographic information, these questions were included at the end of the survey (Keyton, 2011). Although ethnic background has proven to influence attitudes toward environmental awareness (Jones & Rainey, 2006; Kalof, Dietz, Guagnano & Stern, 2000; Sheppard, 1995; Whittaker, Segura & Bowler, 2005), it was decided not to ask respondents their ethnic grouping purely because of the negative associations with such classifications in the South African context. Moreover, respondents could feel offended if something as 'socially desirable' as environmental responsibility were being tested based on their ethnic background and could have increased social desirability bias within the data. The researcher rather opted to ask for respondents' home language as an indication of cultural background; as done by other researchers in the South African context (Saayman & Saayman, 2012; Streicher, 2009; Tassiopoulos & Haydam, 2008)

The organisers of one of the events requested the researcher to omit three of the items of Question 6 related to intended future behaviour regarding cycling events. They felt that these questions would 'wake sleeping dogs' and could create negative sentiments or suspicion among individuals. This request led to a set of missing values in the final data set. Implications for data analysis are addressed in section 5.9.3.1.

5.7 ADMINISTERING THE RESEARCH INSTRUMENT

5.7.1 Pre-testing of the questionnaire

It was important to determine the validity of the primary data collection instrument, in other words "the extent to which the instrument measures what it is actually intended to measure" (Leedy & Ormrod, 2005:92). The draft questionnaire was tested at the MTN OFM Classic in Bloemfontein. This race is regarded as the biggest cycle race in central South Africa, hosted in 2012 for the 12th time, and an official seeding event for many professional cyclists (Guide Book Publications, 2011a). The event website did not contain any pages specifically dedicated to spectators in the form of providing a code of conduct. The pre-test survey was conducted amongst spectators at both the mountain bike event on Saturday, 3 November, and the road event on Sunday, 4 November 2012. Three fieldworkers administered the questionnaires on clipboards at and around the finish lines of both races. The road race started and ended at the Free State Stadium, from where it ran through large parts of the city, out along national roads (N1 and N8) and provincial roads, and through areas with smallholdings. Visible environmental management elements at the finish line included portable ablution facilities and volunteers picking up litter. The mountain bike race started and ended on a section of property adjacent to the Windmill Casino complex, running into an undeveloped area with smallholdings in the west of Bloemfontein. Visible environmental management elements at the finish line included cardboard dustbins, while visitors had to make use of the ablution facilities in the complex. The respondents surveyed in the pre-test were similar to those that would be included in the main survey and fieldworkers used the same process to identify willing participants. The final sample included a total of 20 respondents from the road race and 16 respondents from the mountain bike race.

The pre-test indicated logistical issues that would have to be considered for the main survey. Some participants complained about the length of the questionnaire and participants standing at the finish line waiting for a particular rider in most cases did not want to participate. The researcher initially aimed to stay for the entire day until cut-off time, but after four hours it became difficult to identify spectators as the crowd filled up with cyclists that had completed the race. Participants gave positive feedback on the question format and content and there were no questions indicated as being difficult to understand. The researcher therefore decided to proceed with utilisation of the instrument for the main survey, with no structural changes to the instrument. This would allow for the data collected at the pre-test to be included in the final data set.

Concerns with one question only emerged after the first main event (Momentum 94.7 Mountain Bike Race). The fieldworkers of the mountain bike event indicated that respondents were struggling to answer Question 4: "Things that will ENCOURAGE or DISCOURAGE you from undertaking environmentally responsible actions at this cycling event". The 4-point Likert-type scale had two options (1 – strongly discouraging, 2 – discouraging) to indicate discouragement by certain factors, with two options (3 – encouraging, 4 – strongly encouraging) to indicate encouragement by certain factors (after Nathaniel, 2011). Participants were finding it difficult to indicate an option on the more complex items, especially those that have been reverse scored. After consultation with the study leader and a statistical consultant, it was decided to change the scale to a 3-point scale, starting with 'not at all encouraging' as the negative statement and then moving to the two positive statements ('to some extent encouraging' and 'very encouraging'); thereby stating all the options in terms of encouragement. The scale format was changed without changing the meaning (encouragement versus discouragement) and used as such for the remainder of the survey. Implications for the data analysis are discussed in section 5.9.3.1.

5.7.2 Conducting the survey at the main events

Although survey research is undertaken within a given context, the focus is not on gaining a rich understanding of the context through the collection of extensive data on all the situational factors (Saunders *et al*., 2007). The individual events will briefly be introduced to give background to the context; however, only limited additional data is presented to describe each event (as opposed to extensive data that would be presented with case study research). The aim of this study was not to make comparisons between the behaviour of spectators at the different events as case studies, but rather to use events in different locations to get as much heterogeneity in the sample of individuals within the broader population of cycling spectators. Furthermore, this study did not aim to make comparisons between spectators' behaviour and the subsequent success or failure of the different environmental practices being employed at the respective events. Nevertheless, these contexts are useful once the data has been analysed and the findings related to certain factors influencing behaviour need to be explained.

The main survey was conducted at five[6] cycling events across South Africa (refer to Figure 31). The aim was to include events that:

- have been hosted for at least five years;
- take place in different parts of the country; and
- have the potential to attract local and international participants.

The chosen events were hosted in Gauteng, the Free State, Eastern Cape and Western Cape. These provinces are also the top four regions in terms of membership numbers of Cycling South Africa (Cycling South Africa, 2013). Three of the five races (Momentum

[6] Due to the fixed times of the events and financial constraints, the researcher could not expand the survey beyond these chosen events. Four of the six events (including the pre-test event) had a road as well as a mountain bike race, simplifying logistics and saving costs.

94.7, Pick ‘n Pay Cape Argus and Absa Cape Epic) are listed amongst the top ten cycle races in the country (Guide Book Publications, 2011b).

Figure 31: Location of events where the survey was conducted

- MTN OFM Classic (pre-test) (November 2012); mountain bike and road race
- Momentum 94.7 Cycle Challenge (November 2012); mountain bike and road race
- Value Logistics Fast One Cycle Race (January 2013); road race
- Herald Volkswagen Cycle Tour (February 2013); mountain bike and road race
- Cape Argus Pick ‘n Pay Cycle Tour (March 2013); mountain bike and road race
- Absa Cape Epic (March 2013); mountain bike race

Fieldworkers were trained in basic fieldwork skills, as well as familiarised with the instrument and study context before each event. Due to cost implications the researcher could not retain the same individuals throughout the duration of the survey period and new fieldworkers had to be recruited in the different event locations. The main benefit derived from this, was that these fieldworkers were found to be knowledgeable of the event setup and surrounding area, thereby making it easier for the researcher to find her way to the different locations.

The event owners of each event were contacted via email to get permission to undertake the survey during the event (refer to Appendix D for a copy of the request, as well as correspondence between the event owners and the researcher).

5.7.2.1 The Momentum 94.7 Cycle Challenge

The Momentum 94.7 Cycle Challenge is regarded as one of the most celebrated sport events in South Africa, with 2012 being its 16th year in the running and attracting nearly 27 000 cyclists for the road race. The event has a 'Ride for a Purpose' campaign that encourages riders to raise funds for a charity or to support a good cause. Upon entry of the race, cyclists enter for this campaign and should their 'purpose' be chosen (based on the motivational note they wrote at entry), the event sponsors pay out an amount of R50 000 to the chosen charity. Though the event website did not contain any pages specifically dedicated to spectators in the form of providing a code of conduct, spectating points were suggested and a biodiversity park along the route indicated as a point of interest.

The survey was conducted at both the mountain bike event on Sunday, 11 November and the road event on Sunday, 18 November 2012. Ten fieldworkers at the mountain bike event and eight at the road event administered self-completion questionnaires on clipboards at and around the finish line. Both the road and mountain bike races started and ended in the grounds of the Waterfall Country Estate. Visible environmental management elements included portable (temporary) ablution facilities, volunteers picking up litter and cardboard dustbins. Cycle Challenge Sunday (as the day of the road race is known) is synonymous with extensive road closures throughout the city of Johannesburg, as the route runs through the city, past historic landmarks in the city centre, through suburbs and then on to a long stretch of national road (N14). The route of the mountain bike race fell mostly within the extensive undeveloped terrain of the Waterfall Country Estate (cyclechallenge.co.za, 2012). The final sample of 384 included a total of 233 respondents from the road race and 151 respondents from the mountain bike race[7].

5.7.2.2 The Value Logistics Fast One Cycle Race

The Value Logistics Fast One Cycle Race serves as a seeding event for many professional cyclists and also forms part of a newly launched national cycling tour, Tour de Richelieu (southafrica.info, 2012). Proceeds generated by the race are shared with community organisations, which benefits 11 social upliftment projects. The event website does not contain any pages specifically dedicated to spectators in the form of providing a code of conduct (thefastone.org, 2013). The survey was conducted on Sunday, 27 January 2013. The race started and ended at the Midvaal Racetrack, where five fieldworkers administered questionnaires at and around the finish line. There were no visible environmental management elements along the start or finish lines and visitors had to make use of the facilities in a central building (house) used as the registration point. The final sample included a total of 37 respondents.

5.7.2.3 The Herald VW Cycle Tour

The Herald VW Cycle Tour is the second oldest national classic in South Africa, running for the 28th time in 2013, and also forms part of a newly launched national cycling tour, Tour de Richelieu (southafrica.info, 2012). The event website did not contain any pages specifically dedicated to spectators in the form of providing a code of conduct. Emphasis is placed on contributions that are made by the event to an educational initiative (social upliftment project) involving local schools (heraldcycletour.co.za, N.d.). The survey was conducted at both the mountain bike event on Saturday, 2 February and the road event on Sunday, 3 February 2013. Six fieldworkers at the mountain bike event and eight at the road event administered questionnaires at and around the finish line. The mountain bike race started and ended at the Addo Polo Club, with sections of the route running adjacent to the Addo Elephant National Park and through the Zuurberg Mountains. Visible

[7] The totals exclude unusable questionnaires that were omitted from the data analysis.

environmental management elements at the finish line included municipal dustbins and portable ablution facilities. The road race started and ended at Hobie Beach, heading out on a main road running along the sea, with a section along the Cape Recife Local Authority Nature Reserve, before turning inland to return through farms and smallholdings. Spectators at the finish line had to make use of municipal facilities along the beachfront or at the Boardwalk Casino Complex. The final sample of 164 respondents included a total of 112 respondents from the road race and 52 respondents from the mountain bike race.

5.7.2.4 The Cape Argus Pick 'n Pay Cycle Tour and Mountain Bike Challenge

The Cape Argus Pick 'n Pay Cycle Tour road race is regarded as the world's biggest timed cycle race and is a highlight on the national cycling calendar. What started out as 525 riders setting off around the Cape Peninsula in 1978 to protest over the lack of facilities for cyclists on public roads, has become a flagship event attracting some 35 000 cyclists and an estimated economic injection of R350 million for the City of Cape Town annually. The event requires major road closures and thousands of city residents set up camp on the pavements to cheer the riders on. Due to the continued growth of the event, organisers have had to maintain a series of balances, including that between the event and the environment (Wills, 2008). Several sections of the route run through the Table Mountain National Park, which forms part of the Cape Floral Kingdom World Heritage Site. Though this open-access park is faced with visitor management issues on a daily basis (Shroyer, Kilian & Jackelman, 1998), the increase in visitor numbers during the cycle tour adds an additional burden to the fragile natural landscape. The event is also one of the City of Cape Town's most challenging traffic management scenarios (Jones & Van Wyngaardt, 2005). The race supports a great number of charities, with proceeds going to the two main beneficiaries, the Rotary Club of Claremont and Pedal Power Association. who runs a number of social upliftment projects. Similar to the Momentum 94.7, riders are encouraged to raise funds for a charity or to support a good cause. Sixty two charities benefited from the 2013 race, with two of these being for environmental causes (WWF and Race for the Rhino) (cycletour.co.za, 2013a). The event website does not contain any pages specifically dedicated to spectators in the form of providing a code of conduct. The race rules and regulations are directed to the participants and two rules state not littering along the route and not smoking on the route (accept in designated areas) (cycletour.co.za, 2013b).

The equally successful Cape Argus Pick 'n Pay Mountain Bike Challenge celebrated its 12th year in 2013. It is regarded as one of the largest mountain bike events in South Africa and runs over two days. In 2013 the event was hosted (started and finished) on the Boschendal Wine Estate for the 11th time. The route runs through this and neighbouring estates. Similar to the road race, the race rules and regulations are directed to the participants and two rules state not littering along the route and not smoking on the route (accept in designated areas) (mtbchallenge.co.za, 2013).

The survey was conducted at the mountain bike challenge on Sunday, 3 March and the road race on Sunday, 10 March 2013. Three fieldworkers at the mountain bike event and 14 fieldworkers at the road race administered questionnaires at and around the finish line area. For the road race, this included a 3km stretch leading to the finish line[8]. Visible environmental management elements at the finish line of the mountain bike race included portable ablution facilities, volunteers picking up and collecting litter, as well as a tank with drinking water to refill water bottles. Visible environmental management elements at the finish line of the road race included portable ablution facilities, municipal dustbins and volunteers picking up litter. Spectators spread along the 3km stretch had to make use of municipal facilities along the beachfront. The final sample of 306 respondents included 254 from the road race and 52 from the mountain bike challenge.

5.7.2.5 The ABSA Cape Epic

The ABSA Cape Epic is regarded as the largest full-service mountain bike stage race in the world and celebrated its 10th year in 2013. The eight day race covers a distance of 698km and is completed by 1200 riders in teams of two. To give an indication of the popularity of the race: early bird entries for the 2014 race sold out in 34 seconds (cape-epic.com, 2011a). It attracts athletes both nationally and from abroad, with the route

[8] Unfortunately, some of the main spectator points along the route could not be accessed due to logistical reasons.

covering areas of pristine natural beauty. The routes cover rugged terrains via gravel, farm, buck and forestry roads and run through unspoilt fynbos vegetation. The event website contains a spectator guide with directions to the various spectator points where they are encouraged to show their support to passing participants. The guide contains a paragraph "Keep it tidy" that asks of spectators not to litter or smoke along the route as it runs "through some pristine environments: and the organisers would like to be "invited back". Also, that the race runs through Cape Nature property where specific access rules apply (cape-epic.com, 2011c). The company ethos states that the event "will work closely with legal and environmental authorities to make the Absa Cape Epic a sustainable success on the global mountain biking circuit" (cape-epic.com, 2011b). The survey was conducted amongst spectators during stage 4 (Tulbagh to Wellington, 21 March) and stage 5 (Wellington circular route, 22 March). Three fieldworkers administered questionnaires at and around the finish/starting line area. Visible environmental management elements included municipal dustbins, volunteers picking up litter and portable ablution facilities. The final sample included a total of 107 respondents.

Up to this point, the data collection instruments and techniques have been discussed. The aim of data collection was to obtain data that can be used to achieve the research objectives and answer the research questions. As the aim of the study was to describe and explain a number of very specific phenomena (factors underlying ERB), it was important to state explicitly which statistical procedures would be done, in what manner and to what aim. The next logical step would therefore be to refer back to the hypothesised statements of the main relationships that were to be tested.

5.8 HYPOTHESES

A hypothesis is "a tentative, educated guess or proposition about the relationship between two or more variables" stating the nature of the relationship. Relational hypotheses explain the connection between two variables with respect to a specific factor and can be either correlational (they occur together in a specific way) or explanatory (they influence each other in a specific way) (Cooper & Schindler, 2008:43). Correlational hypotheses can either be directional (one-tailed), stating the nature and direction of the relationship between the variables by proposing that one will be more or less than the other, or non-directional (two-tailed) stating that a difference will occur without stating the direction (Keyton, 2011:9).

As discussed in Chapter 4, the following hypotheses were developed for this research study:

H_3: Situational Intention positively influences Future Intention.

H_4: Behavioural Attitude positively influences Situational Intention.

H_5: Behavioural Attitude positively influences Future Intention.

H_6: Behavioural Costs negatively influence Behavioural Attitude.

H_7: Subjective Norms positively influence Situational Intention.

H_8: Subjective Norms positively influence Behavioural Attitude.

H_9: Perceived Behavioural Control positively influences Situational Intention.

H_{10}: Perceived Behavioural Control positively influences Behavioural Attitude.

H_{11}: Environmental Management System positively influences Situational Intention.

H_{12}: Environmental Management System positively influences Perceived Behavioural Control.

H_{13}: Behavioural Benefits positively influence Situational Intention.

H_{14}: Behavioural Benefits positively influence Behavioural Attitude.

H_{15}: Place Attachment positively influences Situational Intention.

H_{16}: Situational Intention positively influences Place Attachment.

H_{17}: Place Attachment positively influences Future Intention.

H_{18}: Place Attachment positively influences Behavioural Attitude.

H_{19}: Attendance Motivation influences Situational Intention.

H_{20}: Attendance Motivation influences Behavioural Attitude.

Table 17 provides an outline of the questions in the questionnaire that will be used to test the various hypotheses.

Table 17: Questions used to test hypotheses

Constructs	Question nr	Hypotheses
Attendance Motivation	1	H_{18}, H_{19}
Behavioural Attitude	7	H_4, H_5, H_6, H_8, H_{10}, H_{14}, H_{17}, H_{19}
Behavioural Benefits	4 (4.7, 4.8, 4.14)	H_{13}, H_{14}
Behavioural Costs	4 (4.5, 4.18, 4.20)	H_6
Environmental Management System	4 (4.2, 4.3, 4.6, 4.10, 4.12, 4.13, 4.16, 4.17)	H_{11}, H_{12}
Future Intention	6	H_3, H_5, H_{16}
Perceived Behavioural Control	3	H_9, H_{10}, H_{12}
Place Attachment	2	H_{15}, H_{16}, H_{17}
Situational Intention	5	H_3, H_4, H_7, H_9, H_{11}, H_{13}, H_{15}, H_{18}
Subjective Norms	4 (4.1, 4.4, 4.9, 4.11, 4.15, 4.19)	H_7, H_8

Hypotheses not only guide the research process, but also the data analysis process as it assists in the choice of appropriate statistical techniques. When testing hypotheses it is important to consider that they are always tentative and even when statistical support is found, is never considered absolute (Leedy & Ormrod, 2005).

The results of the hypotheses tests will be presented in Chapter 6.

5.9 DATA ANALYSIS

After data has been collected, it still has to be given meaning through systematic interpretation. The different techniques used to explain the qualitative and quantitative data respectively, are now described as background to Chapter 6 where they will be applied to obtain interpretable results.

5.9.1 Qualitative data analysis

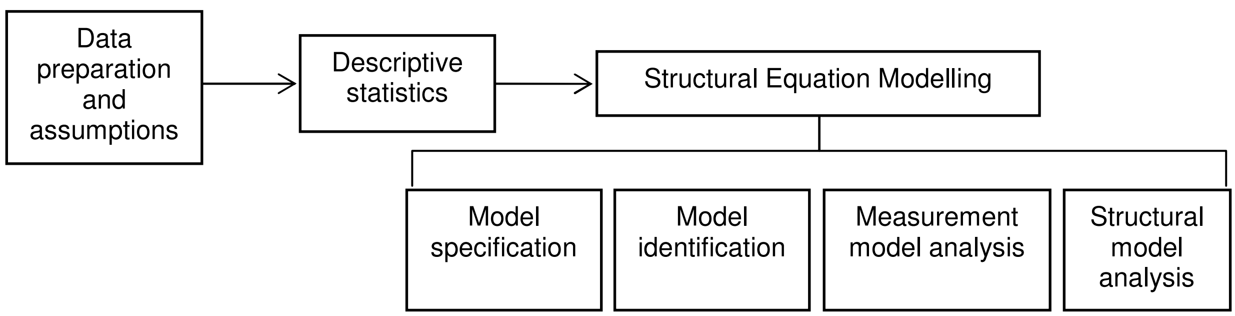
Data in qualitative research can range from a single word to a lengthy essay. In this study micro-level evidence was collected, in other words, answers to specific questions from specific individuals (Keyton, 2011). Content analysis is the most basic method of analysing message content, providing the researcher with a quantitative method of examining responses. It is used to measure the occurrence of identifiable elements within the message (in this case text) and was therefore applicable to use for identifying the factors underlying environmental behaviour as provided by the Delphi participants (Keyton, 2011).

The content analysis process includes (1) selecting the text to be analysed, (2) selecting categories and units by which to analyse the text, (3) resolving differences in opinion on coding, (4) selecting a sample if all the data cannot be analysed, (5) coding the messages, (6) interpreting the coding, and (7) reporting the results (Keyton, 2011). In this study, all the completed response sheets were analysed. It was important to look at the responses of each participant as a whole to get a sense of what it contained (Leedy & Ormrod, 2005). Content categories were mostly based on the literature and aimed to cover all the possible occurrences without placing responses (units) into more than one category.

5.9.2 Quantitative data analysis

Where qualitative data analysis focuses on giving meaning to the text, the quantitative data analysis aims to make inferences that could be generalised to the population. This is done through "computationable procedures that allow the researcher to find patterns and meaning in numerical data (Leedy & Ormrod, 2005:245). To do data analysis in a meaningful manner, it is important to provide a clear, logical rationale for the procedures used. Discussion of the data analysis takes place in the following order:

Figure 32: Data analysis discussion



5.9.3 Data preparation and assumptions

Data was prepared for analysis in the SPSS (version 21) statistical software programme. As the survey was conducted with a paper-based questionnaire, data was captured manually after each event. The researcher captured two thirds of the questionnaires, while two assistants captured the remainder. To increase data quality, 103 questionnaires (10%) were double-checked (every 10th questionnaire on the complete dataset) for incorrect inputs. It was a valuable exercise working with the data to understand how respondents approached the questions and a few possible misinterpretations or biased completion of questions were identified:

- Question 11: some respondents indicated more than three responses for 'home language', almost as if answering the question in terms of 'indicate all the languages that you can speak'. This necessitated changes to the coding of responses (more detail will follow in Chapter 6).
- Question 12: some respondents indicated more than one place of origin and were then captured as missing values. The open response ('please specify') for 'another province' allowed the researcher to verify whether the respondent did indeed fall into the category of 'other province', as some respondents indicated this option when they actually originated from the same province but a town/city further away than the 'neighbouring town/city'. The researcher evaluated such cases individually and placed the response into the most relevant category, based on the geographic location of the town/city according to a map.
- Questions 13 and 14: some respondents indicated more than one option, necessitating changes to the coding of responses (more detail will follow in Chapter 6).

The researcher had to decide at what level and 'quality' of completion a questionnaire should be discarded. In the case where respondents only completed a few questions, the questionnaire would be retained if at least three questions were completed in full, along with the demographic section. In the end a total of 1099 questionnaires were administered of which 65 were discarded and 1034 retained.

As agreed with the event organisers, the researcher prepared executive summaries of the findings after each event (refer to Appendix E for an example). Running the basic descriptive statistics for these reports assisted in identifying problems in the dataset. These types of statistics are also regarded as the first step in data analysis, as will subsequently be discussed.

SEM as the main data analysis procedure chosen for the study, is reliant on a number of statistical assumptions. It is necessary for the researcher to ensure confidence and credibility of the data obtained. The assumptions include linearity of all relationships (collinearity), normality of the data, data measured on interval or ratio scales (continuous), convergence history (discriminant and convergent validity of variables), random sampling, sample size and missing values, as well as independence of error (Reisinger & Movondo, 2007 in Nunkoo & Ramkissoon, 2011). Some of these aspects (random sampling and data measured on continuous scales) formed part of the earlier research data collection design process. Three aspects, namely sample size and missing values, as well as outliers, are discussed as part of the data preparation process. Normality of the data is also discussed in this section, but results from the tests for normality are presented along with the discussion of the descriptive statistics. Other aspects (convergence history, collinearity and independence of the error) are tested as part of the SEM process.

5.9.3.1 Sample size and missing values

How large a sample should be is a function of the variation in the population parameters and the estimating precision needed by the researcher (Cooper & Schindler, 2008). The sample size will have a direct effect on the type of statistical analyses that can be performed. Factor analysis (FA), as a major procedure in SEM, is regarded as a 'large sample' (N > 300) procedure, even though strict rules regarding sample size for FA are no longer upheld. The majority of researchers use an item ratio to determine the desired sample size, with five respondents for each item (5:1) being the most popular (Costello & Osborne, 2005). Using such criteria, this study would require a sample of 380 respondents (according to a 5:1 item ratio, with 76 items). It is argued, however, that the necessary sample size depends on different aspects such as the level of communality of the variables and the level of overdetermination of the factors. Where communalities are high and factors are well-determined (with six or seven indicators per factor), it may be possible to achieve reliable results with a small sample (N<100). On the other hand, low communalities and a large number of weakly determined factors would require a very large sample (N>500) (MacCallum, Widaman, Zhang & Hong, 1999).

Despite having a large sample of respondents (1034) in this study, the number of available responses (data) per item will be influenced by missing values. Due to the change of Question 4 from a 4- to 3-point scale, there were quite a number of missing values in the dataset for this question, as all the responses based on the 4-point scale were omitted. In addition, the exclusion of three items from Question 6 (upon request of the event organiser) also led to missing values. Apart from these two distinct sets of values, the data set revealed random distribution of missing data throughout the data set. Because missing values can negatively affect the overall picture and interpretation of results, the researcher needs to decide how to deal with missing values. The options available include the available case method (deleting incomplete cases listwise or pairwise); single-imputation method (replacing missing values with a single calculated score such as the mean or a regression-based substitution); model-based imputation (using the structure in the data to generate a score); and the Maximum Likelihood (ML) estimation (partitioning cases into subsets, each with the same pattern of missing observations) (Kline, 2011). In this study ML was used in the case of random missing values. However, in instances were data is not missing in a random pattern (for example Question 4, Question 5, Question 6 and Question 7), ML could not be used. Missing data can also indicate more abstract issues. For example, no responses could indicate that people did not understand the question, that it was perceived to be difficult to complete (e.g. in the case of Question 7 with a semantic differential scale), or that it would be unflattering to answer (e.g. in the case of Question 5).

ML is used for the analysis of most SEMs. “The term maximum likelihood describes the statistical principle that underlies the derivation of parameter estimates; the estimates are the ones that maximize the likelihood (the continuous generalization) that the data (the observed covariance) were drawn from this population.” (Kline, 2011:154). Importantly, normality is assumed for the population distribution of the endogenous (dependent) variables and it can only be used in the case of continuous dependent variables.

5.9.3.2 Outliers

Outliers are scores that are different from the rest (usually regarded as three standard deviations beyond the mean) (Kline, 2011). Outliers were identified by inspecting frequency distributions and the descriptive statistics. Outliers were found to be a result of data entry error or the failure to specify a missing data code.

5.9.3.3 Normality (univariate and multivariate)

Estimations in SEM assume multivariate normality, meaning that all the individual univariate distributions are normal, the joint distribution of any pair of the variables is bivariate normal, all bivariate scatterplots are linear, and the distribution of residuals is homoscedastic (Kline, 2011). Multivariate normality can be tested with Mardia's (1985) test and the Cox-Small test (1978), but these tests are limited by the fact that even a slight deviation from normality can become statistically significant in a large sample. It is therefore common practice to look for multivariate non-normalities by inspecting the univariate distributions (Kline, 2011).

Univariate normality can be explored by looking at skewness and kurtosis, which show the shape of the distribution around the mean as either being asymmetrical above or below the mean (skewness), or with heavy tails and high peaks or vice versa (kurtosis). These distributions can be inspected through graphical displays such as histograms, stem-and-leaf plots, p-p plots or box-plots (Kline, 2011). A more standardised measure is to use the skew index (SI) and the kurtosis index (KI). The sign of SI indicates the direction of the skew (positive or negative). SI = 0 indicates a symmetrical distribution and SI > 3.0 is extremely skewed. The KI also indicates the direction of kurtosis (positive or negative). KI = 0 indicates a normal distribution and KI > 8.0 is regarded as extreme kurtosis.

The Kolmogorov-Smirnov test was also used to determine normality of the distribution (used in the case of a large sample). A p value of <0.05 indicates that there is only a 5 per cent probability that the two distributions (sample versus population) differ only as a result of chance; or that there is a 95 per cent certainty that the distributions differ as a result of other factors (Saunders *et al.*, 2007). If the value is thus $p > 0.05$, the data is normal. These descriptive statistics were generated for each scale.

In the case of non-normal distribution of data, the data has to be transformed through converting the original scores to new ones that may be more normally distributed. There are various techniques available to do such transformations such as logarithmic transformations, Box-Cox (1964) transformations, or by using the robust maximum likelihood (RML) estimations (Kline, 2011). In this study, RML was used.

5.9.4 Measures of central tendency and variability (descriptive)

A starting point in data exploration is to understand what the data looks like in terms of the points of central tendency and the amount of variability. To determine the central tendency the following were used: (1) arithmetic means (average scores) for continuous data with normal distributions; (2) medians (score that has an equal number of scores above and below it) for continuous data with skewed distributions; and (3) modes (frequencies of occurrence) for nominal and ordinal (discrete) data. To describe the variability (the spread of data around the mean) of the continuous data, the following were used: (1) the range (lowest and highest scores) for the ratio data; (2) standard deviations (the observed differences between the individual and mean scores; with the value averaged) for the interval data. Variance (standard deviation squared) was also calculated as part of the inferential statistical procedures (Leedy & Ormrod, 2005).

Measuring central tendency and variability is merely the first step in data analysis and the researcher still has to interpret and give meaning thereto. It was thus appropriate to undertake inferential statistics to explain the reasons behind obtained results and to test theoretical hypotheses (Leedy & Ormrod, 2005).

5.9.5 Structural equation modelling (inferential)

In line with the research objectives and stated hypotheses, structural equation modelling (SEM) was chosen as the primary statistical technique. An external SEM expert was involved in interpreting the data. The term SEM does not refer to a single statistical technique, but rather a range of related procedures and is also known as covariance structure analysis, covariance structure modelling or analysis of covariance structures. It is related to general linear modelling techniques such as ANOVA and multiple regression, but offers more flexibility in the types of analyses that can be conducted. It can be viewed as confirmatory, because a researcher aims to prove that a hypothesised model is supported by the data. In most instances the initial model is not supported and the researcher has to modify the hypotheses and test the model again. The aim of this 'model generation' process is threefold: (i) to discover a model that makes theoretical sense; (ii) that is reasonably parsimonious; (iii) and that corresponds to the data as closely as possible (from Kline, 2011). Though SEM is not a new statistical technique, its use in tourism research started recently (Nunkoo & Ramkissoon, 2011; Nusair & Hua, 2010).

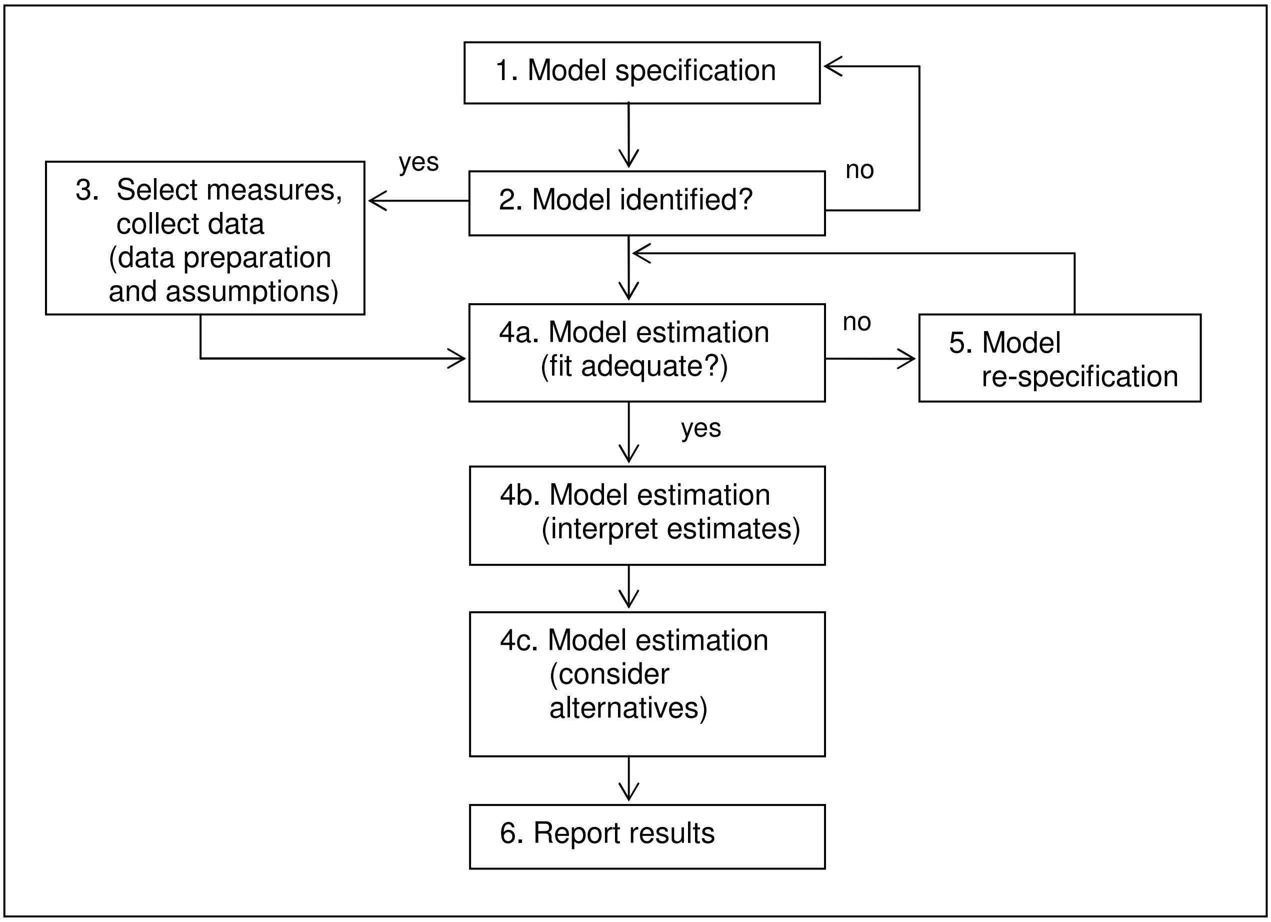
SEM can measure the influence of multiple dependent and independent variables at a time (Nunkoo & Ramkissoon, 2011). In SEM a substantive theory in a hypothesised model is tested through empirical data; with the advantage that SEM can test all the hypothesised relationships simultaneously. At the heart of SEM is sound theoretical knowledge of the research area, because the entire process, from the specification of the initial model to modification of the model, must be guided by domain knowledge. SEM is also dependent on sound measurement scales with good reliability and validity scores (Kline, 2011).

Advantages of SEM include that the technique accounts for the measurement error (additional measures not contained in the latent variables) which could inflate the estimate of the prediction of the relationship (Nunkoo & Ramkissoon, 2011). Furthermore, SEM has the ability to analyse both observed and latent variables; where the observed (manifest) variables are the collected data and the latent variables (hypothesised constructs or factors) are the explanatory variables not directly measurable. The observed variables become the indicators that indirectly measure the factor/construct (Kline, 2011). For example, the observed variables will be the three items (questions) stated in the questionnaire and the latent variable will be the factor that it represents, such as attitude or PBC. The independent variables are known as the exogenous variables and the dependent variables as the endogenous variables (Kline, 2011). SEM also allows the estimation of models integrating both micro- and macro-perspectives, where the micro-level phenomena are evaluated within macro-level contexts. While a macro-level perspective allows a researcher to focus on collective responses and ignore variations that may exist at the individual level, a micro-level perspective gives recognition to the differences across individuals (Nunkoo & Ramkissoon, 2011). Combining these two levels is ideal for the aim of this study to understand both wider as well as individualised factors that can encourage ERB among spectators.

There are a number of disadvantages to SEM. Firstly, even though SEM examines the correlations among variables in order to identify possible causal relationships (Leedy & Ormrod, 2005), SEM cannot in general prove a definite cause-and-effect relationship (Keyton, 2011:238, Kline, 2011). SEM does not fare well in testing large models with too many unexpected relationships not predicted/hypothesised by the researcher; thereby not being useful for exploratory research. It is a complex method with different interlinking steps. The interpretation of the fit indices also present a challenge to researchers, as there are many alternatives and there is little agreement on what indices to use or what constitutes an acceptable fit. Furthermore, SEM cannot model categorical variables such as demographics, which are regarded as valuable in tourism research (Nunkoo & Ramkissoon, 2011).

The stages in the SEM process are indicated in Figure 33. A SEM analysis can also be summarised in two phases. Firstly, a measurement model is evaluated at the hand of Confirmatory Factor Analysis (CFA). Both construct reliability and item reliability are tested, as well as construct validity using convergent and discriminant validity. Secondly, a structural model is evaluated. The overall model fit is evaluated using goodness-of-fit indices, model parameters are tested and correlations between variables are explored (Nusair & Hua, 2010).

Figure 33: Flowchart of the basic steps of SEM



Source: adapted from Kline (2011:92)

The remainder of the discussion is done at the hand of Kline's diagram.

5.9.6 Model specification

Model specification as the first step, is the representation of the research hypotheses in the form of a structural equation model. This step was completed in Chapter 4 where the conceptual model of the study was presented. Model specification is regarded as the most important step, because results from the later steps assume that the initial model was in fact correct (Kline, 2011). In the hypothesised model, multiple-indicator measurements are used, meaning that more than one observed measure is used to measure the same construct. It is important that a latent variable (factor/construct) should be defined accurately, meaning that the manifest variables (indicators) that define the latent variable are strongly related to one another. If one indicator is poorly correlated to the others, it implies that the latent variable will also be poorly defined, leading to model misspecification (Kline, 2011; Nunkoo & Ramkissoon, 2011). In the hypothesised model, directionalities or effect priorities are also indicated. These directionalities correspond to the researcher's hypotheses and indicate which variable (e.g. X) is stated to cause which other variable (e.g. Y). It is not to say that other factors may not also cause Y, and such additional corresponding direct effects are also added into the model (Kline, 2011).

5.9.7 Model identification

A model is identified if it is theoretically possible for the computer to derive a unique estimate for every model parameter. Only an identified model can be estimated and evaluated in the CFA. The requirements necessary for a model to be identified are (i) the model degrees of freedom must be at least zero ($df_M > 0$), and (ii) every latent variable must be assigned a scale. If there are more data points than parameters to be estimated, the model is considered 'over-identified'. When the number of data points is less than the number of parameters, the model is considered 'under-identified' or underdetermined. In the case where there are only a single factor with three indicators and no parameter constraints, it is called a just-identified or just-determined model and implies zero degrees of freedom (Kline, 2011).

Because error (residual) terms in SEM can be presented in model diagrams as latent variables, each error term requires a scale. To scale error terms, unit loading identification (ULI) is used. This means that the unstandardized residual path coefficient is fixed to equal the constant 1.0. To scale factors, unit variance identification (UVI) is used. This means that the variance of the latent variable (factor variance) is constrained to 1.0. Both these methods generally result in the same overall fit of the model (Kline, 2011).

5.9.8 Measurement model analysis

The measurement model has to be tested for robustness on an item and factorial level through dimensionality (validity) and reliability analyses (Nusair & Hua, 2010).

5.9.8.1 Dimensionality analysis (validity)

The original scale items of the measuring instrument had to be assessed for uni-dimensionality or validity to ensure that they were appropriate for measuring that which they were stated to measure (Nusair & Hua, 2010). Dimensionality analysis can be conducted with two techniques: item-intercorrelations and exploratory factor analysis.

Item-intercorrelations

Before analysing a sample correlation matrix to determine dimensionality, it has to be determined whether it is appropriate for factor analysis. Two recognised techniques include Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO). Bartlett's test of sphericity determines whether the sample correlation matrix originated from "a multivariate normal population in which the variables of interest are independent"; while the KMO gives an indication of whether a particular variable belongs to the set of variables psychometrically (Dzuiban & Shirkey, 1974:358). The combined criteria for these two tests were used as (p < .05) for the Bartlett's test (significance) and a KMO of > 0.60 (after Tabachnick & Fidell, 2007).

Exploratory factor analysis (EFA)

Factor analysis allows the researcher to identify patterns among the variables to discover if an underlying combination of the original variables (a factor) can summarise the original set (Cooper & Schindler, 2008). It reveals any latent variables (factors) that cause the manifest (measured) variables to covary (move together) (Costello & Osborne, 2005).

EFA was conducted for each of the sub-scales. It is a widely used statistical technique in the social sciences. Principal Components Analysis (PCA) is similar to EFA, but PCA is only a data reduction technique that does not identify underlying structures caused by latent variables. EFA does not require a prior hypothesis about factor-indicator correspondence or even the number of factors, because all indicators are allowed to load on every factor (even though a certain number of factors can be requested based on theory). Furthermore, EFA does not have a unique set of parameter estimates (Kline, 2011).

There are a number of techniques that can be used to extract factors, including unweighted least squares, generalised least squares, maximum likelihood, principal axis factoring, alpha factoring and image factors. Of these, maximum likelihood (ML) is regarded as the best choice for normally distributed data and principal axis factoring (PAL) for significantly non-normal data (Costello & Osborne, 2005). In this study ML was used as the extraction method. Chin (1998, in Nusair & Hua, 2010) indicated that the standardised loading for each item should be > .70, even though a value of 0.50 is still acceptable. Costello and Osborne (2005) as well as Floyd and Widaman (1995) state that a factor loading of 0.30 could also still be considered.

In some cases the factor loadings (correlation coefficients) are not informative by not showing clearly to which factor a specific variable loads. In such cases rotation can be performed through orthogonal or oblique methods (Cooper & Schindler, 2008). An EFA solution can be rotated in countless number of ways, with the researcher aiming to select one that provides clarity to the factor interpretation. A parsimonious result will be a solution of factors that exhibit a simple structure, where each factor explains the highest possible amount of variance without overlapping sets of indicators (Kline, 2011). In this study Promax with Kaizer normalisation was used.

Once the factors have been extracted, the researcher has to decide how many factors to retain. Again different techniques are available of which Kaiser's criterion of the Eigenvalue = > 1.0 is the most used, though not regarded as the most accurate. To substantiate the Kaiser criterion, a scree test can be used. This technique involves examining the graph of the eigenvalues (Catell's scree plot) and looking for a natural 'bend or break point' in the data where the curve flattens. The number of data points above this point indicates the number of factors to retain (Costello & Osborne, 2005). Both these techniques were used in this study.

All items that presented poor model estimates or showed cross-loading in the EFA were deleted from the scale.

Table 18 provides a summary of the minimum acceptable criteria for assessing the dimensionality of the scales through the EFA:

Table 18: Minimum acceptable criteria to evaluate dimensionality of the measurement models through EFA

Factor loadings	Eigenvalues	Percentage variance explained
>0.30	Absolute value >1.0	Percentage of overlapping variance explained by item

Uni-dimensionality is a prerequisite for the calculation of Cronbach's Alpha. For this reason, the dimensionality of each scale was confirmed before moving on to the reliability analysis.

5.9.8.2 Reliability analysis

Reliability is assessed at two levels: item reliability and construct reliability. For construct reliability, also referred to as internal consistency, Cronbach's Alpha coefficients were used (the degree to which responses are consistent across the items within a measure. Cronbach's Alpha coefficient of > .70 is regarded as acceptable for individual sub-scales, though lower levels of score reliability can be tolerated in latent variable methods (Kline, 2011). An additional measure along with Cronbach's Alpha, is an investigation of the corrected item-total correlations. Items with poor item total correlations (<0.25) were considered for exclusion to increase the reliability of the scale (Kline, 2011).

Table 19 provides a summary of the minimum acceptable criteria with which the internal consistency is evaluated:

Table 19: Minimum acceptable criteria with which to evaluate internal consistency of the measurement model

Cronbach alpha per scale	Corrected item-total correlation	Cronbach alpha if item deleted
$\alpha>0.70$	$\alpha\geq0.25$	If an increase was noted, item was considered for deletion

After establishing the validity and reliability of the model items, the model is estimated at the hand of CFA that entails two steps: model fit (using fit indices) and model parameters.

5.9.8.3 Model fit – Confirmatory Factor Analysis

Model fit means determining how well the model explains the data. The overall model fit is evaluated by examining the extent to which the theoretical model is supported by the sample data. A substantial amount of theory exists on model fit indices and it is suggested to use different measures to evaluate the measurement model (Hallman, Müller & Feiler, 2012; Nusair & Hua, 2010). If there is not a good fit with the data, the researcher first returns to the first step of model specification to re-specify the theoretical model (Kline, 2011).

Absolute fit and close fit

The model chi-square evaluates the overall model (exact) fit. The null hypothesis states that the model fits the population data perfectly. Large chi-square values (significant at $p<0.05$) correspond to poor fit and rejection of the null hypothesis, while small chi-square values (insignificant at $p>0.05$) indicates good fit and acceptance of the null hypothesis (Kline, 2011). The model chi-square test has its limitations. Some authors argue that an exact-fit hypothesis is implausible, as perfection is not the usual standard for testing statistical models (rather only a close approximation) (Kline, 2011).

The Root Mean Square Error of Approximation (RMSEA) is a measure of the error of approximation in the population and is used to test the model for close fit. It is scaled as a badness-of-fit index where a value of zero indicates the best fit (Kline, 2011). Similar to the chi-square, significant RMSEA values ($p<0.05$) indicate rejection of the null hypothesis of good fit, and insignificant values ($p>0.05$) indicate acceptance of a close fit and acceptance of the null hypothesis. RMSEA values of < .08 are acceptable; < .05 is good; larger than .10 is poor (Kline, 2011). Consider that a small number of items tend to be closer to 1. It has recently been stated that setting an absolute cut-off for the RMSEA is not advisable and that the confidence interval (CI) displays a range of values within a certain level of confidence (Hallman *et al.*, 2012). A critique against the RMSEA is that it tends to over-reject true models for small samples (N<250) and worsens as the number of variables in the model increases (Iacobussi, 2010). It is therefore meaningful to use the

RMSEA along with the Standardised Root Mean Residual Square (SRMR – explained in the next section).

Approximate/incremental fit indices

Absolute fit indices examine the overall model fit to the data, while approximate indices compare the model's proposed fit to a baseline model. The baseline model assumes no correlation between variables (poor fit) (Nunkoo & Ramkissoon, 2011).

The Comparative Fit Index (CFI) is an incremental fit index that measures the relative improvement in the fit of the researcher's model over that of a baseline model. The CFI depends on the same distributional assumptions as the RMSEA (Kline, 2011). This index is regarded as relatively robust to small errors of estimation. Therefore change in the CFI is noteworthy, as it is commonly used in the literature and is regarded as the recommended index to report because it shows promise in identifying non-invariance (or a lack of invariance) in the data across different groups of respondents (French & Finch, 2006). Another fit index, the Tucker-Lewis Index (TLI) also measures the complete covariation of the data. Both the TLI and CFI are interpreted where a value of > .90 is a well-fitting model; 0.00 indicates no fit and 1 indicates a perfect fit (Iacobucci, 2010). The Standardised Root Mean Residual Square (SRMR) is a measure of the mean absolute covariance residual. Perfect model fit is indicated by SRMR = 0, with higher values indicating worse fits. The threshold of SRMR for acceptable fit is $\leq$ .08 (Kline, 2011).

Table 20 provides a summary of the acceptable ranges of fit of the indices applied:

Table 20: Goodness of fit indices used

Absolute fit indices	
Chi-square (exact fit)	Large values correspond to poor fit
p-value for X^2	A non-significant value (p>0.05) indicates acceptance of the null hypothesis (exact fit)
RMSEA (close fit)	Values <0.05 indicate good fit Values between 0.05 and 0.08 indicate reasonable fit Values between 0.08 and 0.10 indicate mediocre fit Values >0.10 indicate poor fit
p-value for RMSEA	A non-significant value (p>0.05) indicates acceptance of the null hypothesis (close fit)
Incremental fit indices	
CFI	Values >0.90 indicate good fit
TLI	Values >0.90 indicate good fit
SRMR	Values $\leq$ .08 indicate good fit

The null and alternative hypotheses to evaluate fit are listed below.

$H0_1$: The model fits the data exactly

Ha_1: The model does not fit the data exactly

$H0_2$: The model has close fit to the data

Ha_2: The model does not have close fit to the data

5.9.8.4 Model parameters – Confirmatory Factor Analysis

After establishing the model fit, it is necessary to examine the model parameters, which is regarded as the starting point for SEM. As opposed to EFA that does not require a prior hypothesis about factor-indicator correspondence or the number of factors, CFA analyses a stated measurement model, where both the number of factors and their correspondence with the indicators are explicitly specified (Kline, 2011; Nunkoo & Ramkissoon, 2011). Standard CFA models have the following characteristics (Kline, 2011:112):

- Each indicator is a continuous variable represented as having two causes – a single factor that the indicator is supposed to measure, and all other unique sources of influence (omitted causes) represented by the error term.
- The measurement errors are independent of each other and of the factors.
- All associations between the factors remain unanalysed (the factors are assumed to covary).

The effect indicators that are chosen to specify a factor should measure something in common (e.g. the three items related to SJN). This is known as uni-dimensional measurement. If one indicator loads onto more than one factor or its error term covaries with that of another indicator, it is known as multidimensional measurement. Uni-dimensional measurements are the desired option as such models offer more precise tests of the convergent and discriminant validity. A minimum number of two indicators per factor are required in models where there are two or more factors, though more than two are desirable to avoid specification errors and other problems in the analysis (Kline, 2011). For this study, Maximum Likelihood extraction method was used.

The same parameters were examined for the individual sub-scales, the endogenous (dependent) and exogenous (independent) measurement models and the structural model. The following parameters were utilised to evaluate the construct validity of the models: the residuals, the standardised factor loadings, and the R^2 variance (Kline, 2011):

- Standardised factor loadings: loading of the indicators on their respective factors indicating convergent validity. 0.0 – 0.03 is unacceptable; 0.3 – 0.5 is the minimum acceptable level; 0.5 – 0.9 is satisfactory. The factor loadings are typically the focus of a CFA and yield information on the size and direction of the association between the latent and observed variables. Both standardised and unstandardised loadings are reported (Kline, 2011).
- Standardised residual variances (error variance): indicating the variance in the item due to error. Smaller values are preferred (Kline, 2011). The results are interpreted as standardised z-scores, and conservative alpha levels ($-2.58 > z > 2.58$ for large samples) must be applied to determine statistical significance (Field, 2009).
- R^2 values (common variance): indicating the amount of true variance in the item as a result of the latent variable. Larger values are preferred, with a minimum acceptable level of ≥ 0.25 (at least 25% of the variance is explained) (Kline, 2011).

Table 21 presents the minimum acceptable criteria for the CFA model parameters:

Table 21: Minimum acceptable criteria for model parameters via CFA

Factor loadings		Standardised residuals		R^2
$\lambda > 0.50$	$p < 0.05$	$-2.58 > z > 2.58$	$p < 0.05$	$R^2 \geq 0.25$

5.9.8.5 Total endogenous and exogenous measurement models

Once the scales of all the variables (endogenous and exogenous) were analysed in terms of their measurement and structural dimensions, the total endogenous and total exogenous measurement models had to be analysed. The total endogenous measurement model includes all the endogenous (dependent) variables, while the total exogenous measurement model includes all the exogenous (independent) variables.

Analysis at this level focused on the model fit, model parameters and latent factor correlations. The same measures and criteria were used as previously to determine model fit (explained in 5.9.8.3) and the model parameters (explained in 5.9.8.4).

The additional analysis of the latent factor correlations is an extremely important step in increasing the validity of the study findings. The aim is to test the levels of collinearity between variables. Collinearity occurs when separate variables actually measure the same thing. To detect collinearity, three techniques can be used: (i) squared multiple correlation; (ii) tolerance; and (iii) variance inflation factor (Kline, 2011). Correlations >.80 are regarded as extremely high and problematic, but are however a situation often found in studies using SEM (Garson, 2012:44; Grewal, Cote & Baumgartner, 2004). SEM models are not necessarily robust against multicollinearity problems, and should a model include such a situation it has to be considered that it may lead to large standard errors and weakened predictive power. It leads to an increase in the change of Type II errors – falsely concluding that there is not a relationship between variables when in fact there is one (Garson, 2012; Grewal *et al.*, 2004). Perfectly correlated variables cannot be used together in the structural model analysis as it leads to infinite standard errors and indeterminant coefficients (Garson, 2012). In cases where perfect correlations were found between variables at the total exogenous/endogenous measurement model level, it would be necessary to remove variables from the structural model for further analysis.

5.9.9 Structural model analysis

Once the process has been followed to assess the measurement and structural aspects of the measurement model, the researcher can proceed with analysis of the structural model. This model incorporates the hypothesised structural linkages presented in Chapter 4, indicating the linear relationships between the latent variables. Analysis of the structural model takes into consideration the changes made to the underlying scales, as well as to the structural elements at measurement model level. The first step in this part of the analysis is to undertake model modification or refinement of the initial hypothesised model.

5.9.9.1 Model modification/refinement

In this step, if the variance–covariance matrix estimated by the model does not adequately reproduce the sample variance–covariance matrix, the model can be refined and retested if the model is identifiable (Nusair & Hua, 2010). This step entails re-examining the initial theoretical model to find an equivalent model that explains the data just as well as the initial model, but with a different configuration or hypothesised relationships. As there are mostly an infinite number of equivalent versions, it is necessary for the researcher to explain why the preferred model should be retained in favour of a statistically significant equivalent (Kline, 2011).

After model modification, analysis of the complete SEM model is undertaken. It entails a combination of CFA and path analysis.

5.9.9.2 Model parameters and fit

Following model modification, the next step is to estimate the parameters of the structural model (Nusair & Hua, 2010). CFA was again used to evaluate the integrity of the final model. A CFA was conducted on the revised scales to confirm the measurement integrity of the scales. The refined scales were then assessed for improvements to model fit (at the hand of RMSEA, CFI, TLI and SRMR). The same criteria was used as set for evaluation of the measurement model (refer to section 5.9.8.3 and 5.9.8.4).

5.9.9.3 Path analysis / correlations

After the structural model has been tested and finalised, the next step is to identify causal relationships between the latent variables through path analysis. Path analysis is similar to MR and uses correlation analysis to determine the extent to which correlations between variables are consistent with those predicted by the researcher. These relationships are denoted as gamma- and beta-path coefficients, and are interpreted in terms of the direction of the relationship (positive/negative), statistical significance, and effect size (Kline, 2011). The structural paths were examined toward the aim of empirically confirming the theoretical conceptual model presented in Chapter 4. To interpret the correlations, the guidelines suggested by Field (2009) were followed. Accordingly, r = 0.10 to 0.30 is a small effect size; r = 0.30 to 0.50 shows a medium effect size; and r $\geq$ 0.50 indicates a large effect size.

The first consideration was the extent to which the data fit the proposed model ($H0_1$, Ha_1, $H0_2$ and Ha_2). Thereafter the proposed relationships (H_3 to H_{20}) were tested for theoretical and practical significance. Proposed hypotheses were either confirmed or disconfirmed based on the size and direction of the relationship as well as the statistical significance (which was set at the $p < .05$ level). Importantly, the null hypothesis or statistical hypothesis is tested, which is usually the opposite of the theoretical hypothesis (that which the researcher wishes to prove). If the null hypothesis is incorrectly rejected it is known as a Type I error; while incorrect acceptance of the null hypothesis is a Type II error. To avoid these errors and thereby increasing the power of the tests, the researcher had to have used a large sample size, ensured the validity and reliability of the measures and used parametric rather than nonparametric statistics where possible (from Leedy & Ormrod, 2005).

5.10 CONCLUSION

This chapter started off with a description of the research paradigm and explained how pragmatism is served through the decision to take a mixed-method approach. The qualitative Delphi technique was discussed as a precursor to the quantitative survey, using

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a self-completion questionnaire. Sampling for both the research phases was discussed, explaining the rationale behind the choice and also the implications that these choices will have on the data quality and usability. Development of both the quantitative and qualitative research instruments were explained, with elaboration on the scales and items used in the quantitative instrument, as this will influence the possibilities for data analysis. Administering of the survey questionnaire was described and background was provided to each main event to give context to the behavioural setting. Lastly, the proposed data analysis techniques were explained as basis for the results to be discussed in Chapter 6.

CHAPTER 6

RESULTS

Chapter 1	Introduction to the study	- Background and problem statement - Research objectives and contribution - Delimitations and assumptions
Chapter 2	Sustainability in the context of tourism and event sports tourism	- The environmental dimension of sustainability - Environmental sustainability in tourism - Environmental sustainability in event sports tourism
Chapter 3	Factors driving the contribution of spectators toward an environmentally sustainable event	- Defining spectators' contribution (desired outcomes) - The origins of ERB - Behavioural theories and existing models of ERB - ERB of tourists and sport participants as consumers
Chapter 4	Conceptual model and exposition of factors	- Conceptual model of spectators' environmental behaviour - Exposition of the factors
Chapter 5	Research methodology	- Research paradigm - Mixed methodology design - Sampling - Data collection - Data analysis
Chapter 6	**Results**	**- Qualitative data - Quantitative data - Descriptives and assumptions - Measurement model analysis - Structural model analysis**
Chapter 7	Interpretation and discussion	- Evaluation of the structural model - Hypotheses discussion
Chapter 8	Conclusion and recommendations	- Study overview, aims and objectives - Key research findings - Contribution of the research - Limitations - Recommendations for future research

6.1 INTRODUCTION

Chapter 5 provided an overview of the mixed methodology applied in the study. Chapter 6 shares the results obtained from both the qualitative and quantitative research components. It starts off with the Delphi technique results and how it influenced the factors chosen for inclusion in the hypothesised model. Thereafter the results of the quantitative component are presented, starting off with an overview of the data analysis process, followed by a discussion of the assumptions for SEM, descriptive statistics, dimensionality analyses and reliability of the subscales, and analysis of the measurement models.

6.2 RESULTS OF THE QUALITATIVE RESEARCH COMPONENT

6.2.1 Results from the first Delphi round

The first round of the Delphi delivered qualitative data in the form of key words and sentences. A total of 37 factors were identified under the spectator specific category. These were grouped under demographic, psychographic, and personal environmental orientation. Twenty factors were identified under the event/industry specific category, including aspects related to the EMS, environmental design, communication, post-event activities, environmental philosophy, environmental reputation, staffing, enforcing rules/regulations, importance of the environment for the event, nature of the event, and temporal factors. Twelve external factors were identified, including aspects related to government support, the host community/country and area, event partners, role models, event sponsorship and society in general.

6.2.2 Results from the second Delphi round

The exhaustive lists of factors were returned in the second round to be rated according to the perceived level of influence, (1 = no influence; 4 = significant influence), thereby 'quantitising' the qualitative data to present basic descriptive statistics (Saunders *et al.*, 2007:146). Participants were also given the opportunity to give any additional comments including the chosen grouping of the factors.

Scores generated from the Delphi 2nd round were analysed using the statistical programme SPSS. The major statistics used in Delphi studies are measures of central tendency (means, median and mode) and level of dispersion (standard deviation) (Hasson, Keeney & McKenna, 2007:1012).

The following three tables (21 – 23) show the aggregate responses to all of the factors mentioned within the three broad categories (spectator specific, event/industry specific and external factors). The factors are listed in descending order based on their relative importance (mean scores). The relative level of agreement on each corresponding factor is also indicated by the standard deviation (Leedy & Ormrod, 2005:p.263), where a score closer to 0 indicates a higher level of agreement (closer to the mean) (Cooper & Schindler, 2008).

As can be seen in Table 22, under the spectator specific factors related to demographics, level of education gained the highest rating (*m*=3.20), followed by age (*m*=2.90) that also achieved the highest level of agreement amongst experts (std.dev.=0.568). Under psychographic factors, spectators' personality as well as their level of involvement in sport through their association with the subculture of the sport achieved the highest ratings (*m*=2.90 respectively). Under spectator specific factors, the sub-category of personal environmental orientation achieved much higher ratings on individual factors, with the individual's ethics and values related to personal responsibility toward the environment and attitude both receiving the highest ratings (*m*=3.90 respectively). These two factors also achieved the highest level of agreement amongst experts (std.dev.=0.316), the strongest score within the category overall. Overall, it can be seen that personal environmental orientation is regarded as the most important category when it comes to spectator specific factors.

Table 22: Spectator specific factors

	Mean	Std. Dev.
Spectator specific factors: Demographics		
Education	3.20	.789
Age	2.90	.568
Affluence	2.60	.843
Ethnicity	2.60	1.265
Origin	2.44	.726
Travel Companion	2.44	.726
Occupation	2.30	.675
Gender	2.30	1.160
Spectator specific factors: Psychographic		
Personality	2.90	.738
Level of Involvement - identification with subculture	2.90	.876
Socialisation	2.80	.789
Self-identity	2.60	.843
Level of Involvement - love for sport	2.60	1.174
Level of Involvement - team attachment	2.60	.699
Level of Involvement - frequency of attending	2.60	.699
Level of Involvement - motivation for attending	2.60	.843
Spectator specific factors: Personal environmental orientation		
Ethics/Value - responsible for environment	3.90	.316
Attitude	3.90	.316
Awareness - need for protection	3.80	.422
Ethics/Value - responsible toward others	3.80	.422
Knowledge	3.67	.707
Level of environmental education	3.60	.699
Awareness - individuals have to act	3.60	.699
Habit	3.60	.699
Awareness - sport affects environment	3.50	.850
Place attachment	3.50	.527
Love for nature	3.40	.843
Level of commitment	3.40	.699
Behavioural consequences - ease & time	3.40	.699
Risk - personal suffering	3.30	.823
Risk - sport suffering	3.30	.823
Behavioural consequences - costs	3.20	.789
Perceived control	3.10	.738
Belief in others	3.00	.667
Behavioural consequences- rewards	2.90	.876
Behavioural consequences - punishment	2.90	.876
Behavioural consequences - chance of getting caught	2.70	.675

Within the category of event and industry specific factors that will influence the individual spectator's behaviour (refer to Table 23), the two factors with the highest ratings also achieved the highest levels of agreement amongst experts. Firstly, being the EMS put in place by the event owner/organiser (*m*=3.90; std.dev.=0.316); secondly, the environmental design, forming part of the behavioural setting (Belk, 1975), that includes the manner in which such an EMS is set up to facilitate utilisation.

Table 23: Event/industry specific factors

	Mean	Std. Dev.
EMS in place	3.90	.316
Environmental design	3.80	.422
Enforcement - effective communication of rules	3.60	.699
Environment-related communication - environmental programme	3.40	.699
Enforcement - perceived effectiveness or rules	3.40	.699
Environment-related communication - signage	3.30	.675
Environment- related communication - host environment	3.30	.823
Environmental philosophy of the event owner	3.30	.823
Importance of nature for event	3.30	.675
Environment-related communication - advertising	3.20	.632
Environmental reputation of the particular event	3.20	.789
Staffing	3.20	.422
Enforcement - positive rewards	3.10	.738
Environment-related communication - consequences	3.00	.943
Post-event activities	2.90	1.101
Environmental reputation - event organiser disclosure	2.90	.738
Enforcement - negative consequences	2.90	.738
Environmental reputation - event organiser greenwash	2.80	.919
Nature of the event	2.70	.949
Temporal factors	2.00	.816

In the category labelled as 'external factors' (refer to Table 24), the environmental ethos of the host community (local residents) and the example set by sports role models achieved the highest ratings (*m*=3.10 respectively).

Table 24: External factors

	Mean	Std. Dev.
Host community - ethos residents	3.10	.876
Sports role models	3.10	.994
Event Partners (tourism industry)	3.00	.816
Mass Media - environmental communication	3.00	1.054
Mass Media - advocacy by popular figures	3.00	.816
Host area - infrastructure	2.90	1.101
Host area - aesthetics	2.90	1.101
Event Partner - sponsor	2.90	.876
Event Partner - environmental agencies	2.80	.632
Mass Media - environmental community online	2.70	.823
Host community - government laws	2.40	.843
Host community - government support	2.30	.949

Should all of these factors be combined and ranked according to their mean scores (perceived level of importance), the result will be as follows:

Table 25: Most important factors identified across all categories

	Mean	Std. Dev.
1. Ethics/Value - responsible for environment	3.90	.316
2. Attitude	3.90	.316
3. EMS in place	3.90	.316
4. Awareness - need for protection	3.80	.422
5. Ethics/Value - responsible toward others	3.80	.422
6. Environmental design	3.80	.422
7. Knowledge	3.67	.707
8. Level environmental education	3.60	.699
9. Awareness - individuals have to act	3.60	.699
10. Habit	3.60	.699

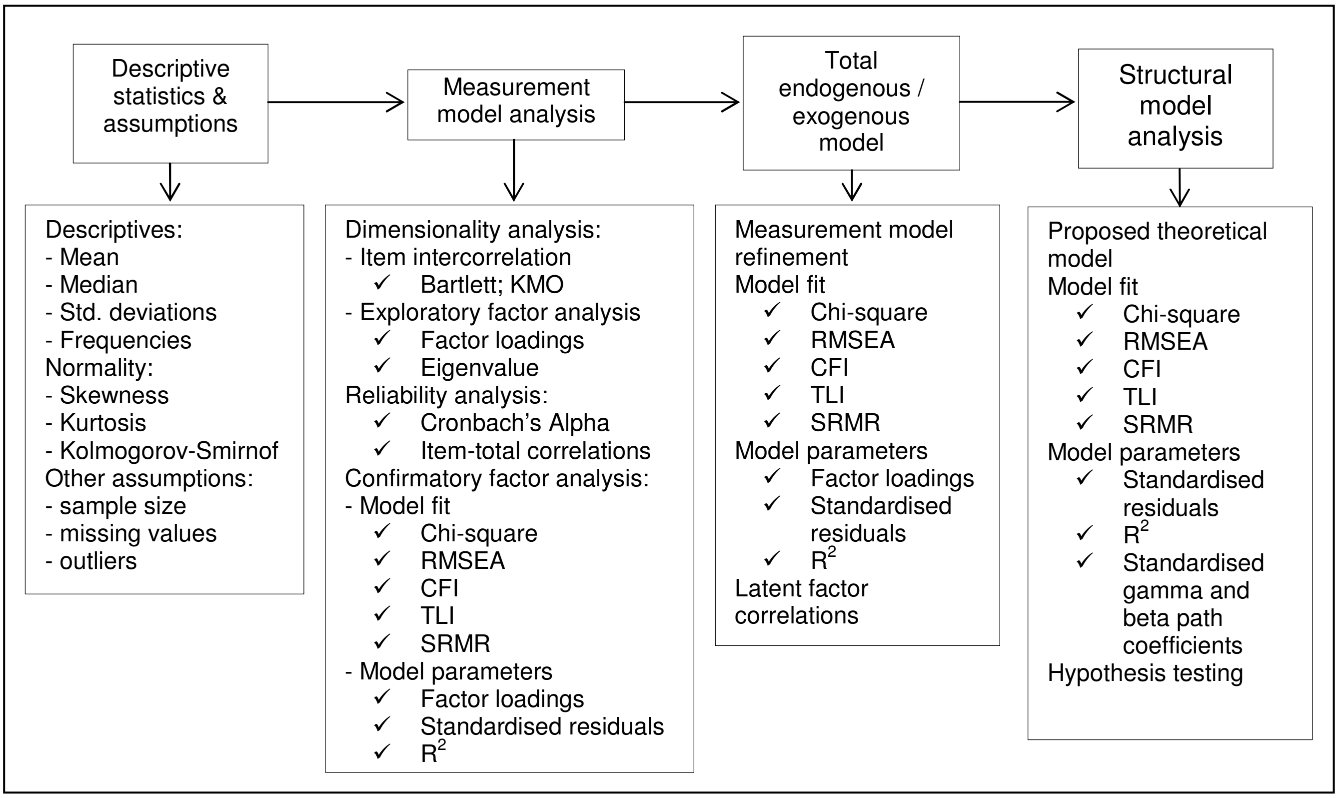
The most important factors are perceived to be personal ethics/values related to the individual's sense of responsibility toward the environment; attitude toward the environment; the EMS in place; the individual's awareness of the need to protect the environment; personal ethics/values regarding responsibility toward others; the environmental design present at the event; the individual's knowledge of environmental issues; their (previously obtained) level of environmental education; the individual's awareness of the fact that individuals have to act to address global environmental issues; and lastly habits in place in the individual's daily life. Demographic spectator specific factors and external factors fall outside of the top 10 priority list. This coincides with the literature from Environmental Psychology and Consumer Behaviour proposing that psychographic variables provide greater insight into behaviour than demographic variables.

Appendix F provides a summary of the complete set of factors mentioned by the Delphi participants. Though the wording of the factors used by the participants did not always correspond to literature, the researcher aimed to link the factors to ERB factors as identified in the literature. The table highlights the factors identified through the Delphi process that correspond to the factors that have been included in the conceptual model (Chapter 4). It was decided to retain the model as is without inclusion of additional factors. Three factors omitted from the 'top 10 list' include personal values, environmental beliefs and environmental awareness. As previously stated (Chapter 4), the researcher acknowledges the importance of personal values as a component of ERB (as indicated in the NAM and VBN theories). However, it is excluded as a construct as the TPB was chosen as reference point, given the proven validity of the model and the proposed contribution to the literature in sport and sports tourism through applying this model. 'Environmental awareness' and 'environmental beliefs' have been used and proven as predictors in various ERB-related studies, especially to predict environmental attitudes. However, in the current model the attitude being measured is not a general environmental attitude, but a specific ATT (after Ajzen, 2012). The influence of 'habit' has been proven by a number of authors (Han & Kim, 2013) and it has been indicated by Ajzen (2011) that the frequency of past behaviour could be used to explain behaviour after the original TPB model variables have been accounted for, even though it is not part of the original version of the TPB (Klöckner & Blöbaum, 2011). For the sake of parsimony of the model and subsequent statistical testing (Klöckner & Blöbaum, 2011; Kollmuss & Agyeman, 2002), it was decided to exclude these variables. Importantly, the table indicates that all of the constructs included in the model have been mentioned by the respondents and could therefore be regarded as relevant to the study.

6.3 RESULTS OF THE QUANTITATIVE RESEARCH COMPONENT

This section presents the results from the quantitative data analysis process as described in Chapter 5. It starts off with a description of the sample profile obtained during the surveys. It then presents the data analysis in two sections: firstly the measurement linkages (measurement model analysis) and secondly the structural linkages (structural model analysis). The measurement linkages are done separately for the endogenous measurement model (dependent variables) and the exogenous measurement model (independent variables). Figure 34 depicts the order, indicating the statistical techniques or tests forming part of each section. Under each of the measurement models, the individual factors are discussed in totality (descriptive statistics, dimensionality analysis, EFA and CFA) up until the point of total endogenous/exogenous model analysis.

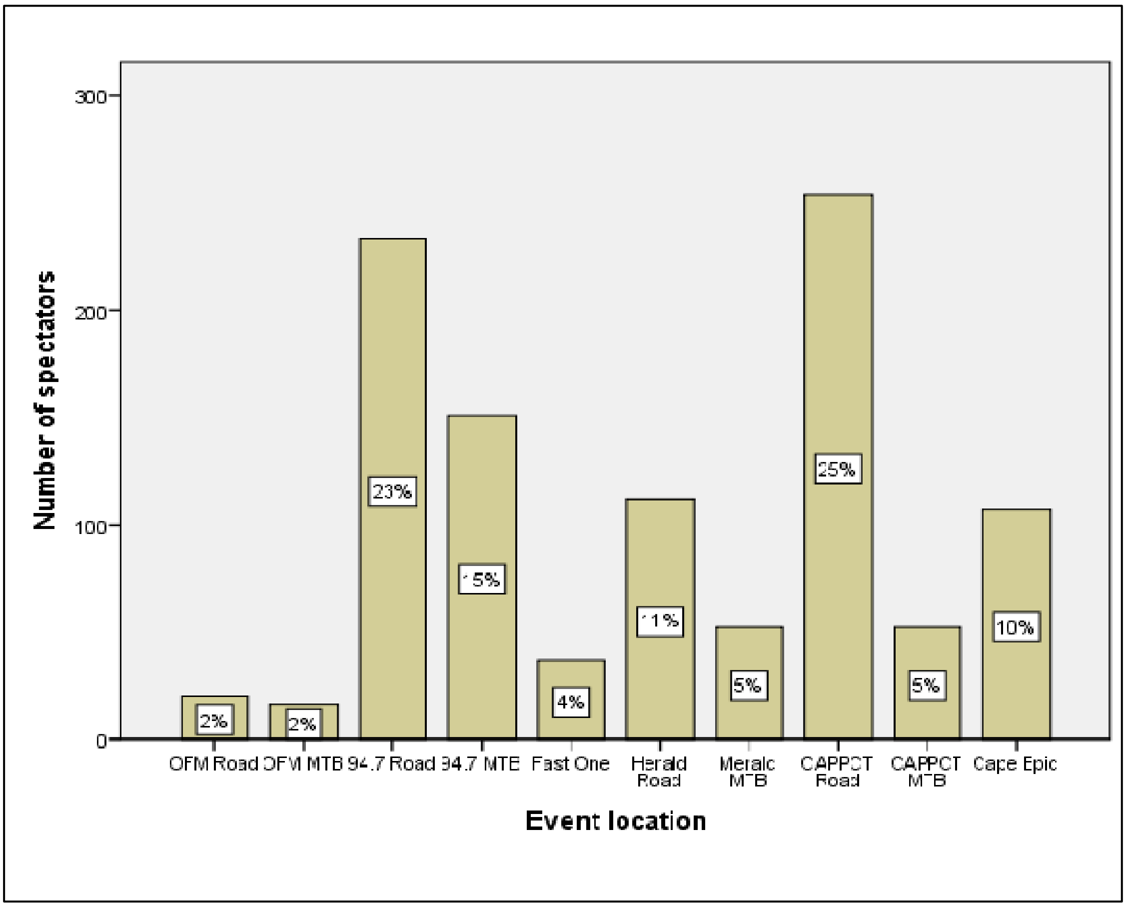
Figure 34: Order of the quantitative data results



6.3.1 <u>Sample profile</u>

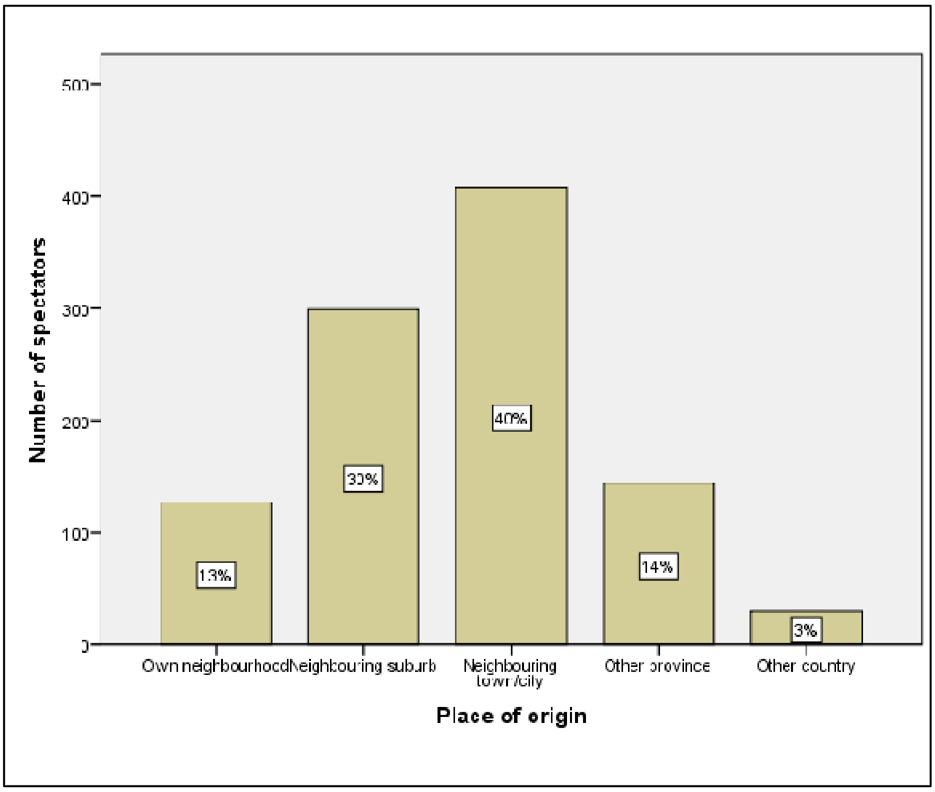
A total sample of 1034 spectators took part in the survey; 656 from the road races and 378 from the mountain bike races. Figure 35 indicates the number of participants for each of the events. The variance in the amount of spectators corresponds with the size of the different events, where the Cape Argus Pick 'n Pay Cycle Tour and the Momentum 94.7 Cycle Challenge are the two largest events in the country. As explained in Chapter 5, the aim was not to get an equal quota from the different events, but rather to get a mixed portfolio of respondents from events across the country.

Figure 35: Number of spectators per event (N=1013)



Of the 1013 participants indicating their gender, 35% (352) were male and 65% (661) female. The average age of respondents was 36 years, with the youngest participant being 14 and the oldest 69 years. Figure 36 presents the place of origin of the participants. The greatest majority (42.3%) stated that the event took place in their neighbourhood (the area where they live), followed by participants originating from neighbouring towns or cities (40.5%). Far fewer participants undertook extensive travelling to attend the event, with 14.3% originating from other provinces than the one in which the event was being held and only 3% originating from other countries. These countries included Argentina (1), Botswana (1), Brazil (1), Germany (2), Italy (3), Lesotho (1), New Zealand (1), Oman (1), Russia (1), Singapore (1), Spain (1), Switzerland (1), UK (3), USA (5) and Zimbabwe (1).

Figure 36: Place of origin of participants (N=1008)



The home languages of participants are indicated in Figure 37. The majority (41.4%) indicated English as their home language, followed by Afrikaans (39.4%), Afrikaans and English (6.9%)[9], one of the African languages (10.3%) and other (2.3%). In terms of level of education (Figure 38), the great majority (65.3%) had a tertiary level qualification (diploma, national certificate, degree or postgraduate degree). 29% had a Grade 12 qualification (completed school) while 5.7% had only completed primary school as highest qualification (consider that 52 participants were of the ages 14 to 17).

[9] A substantial number of participants indicated both languages and it was decided to create a category for Afrikaans and English combined.

Figure 37: Home language of participants (N=1005)

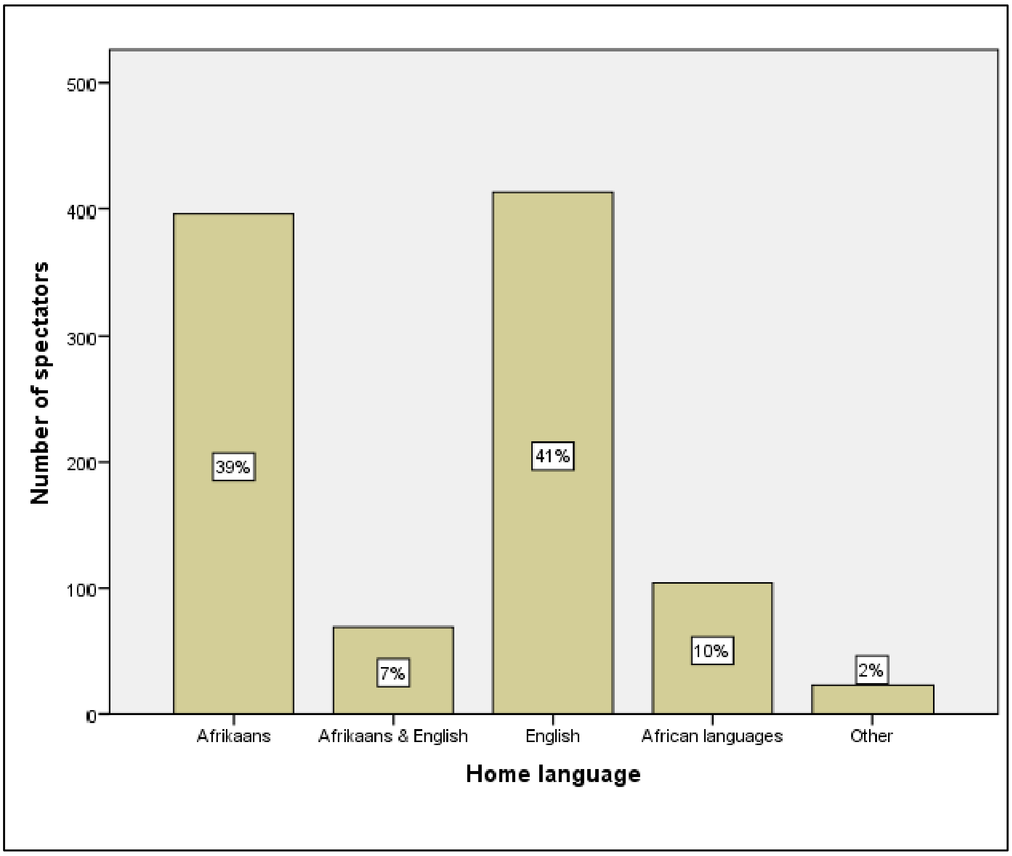
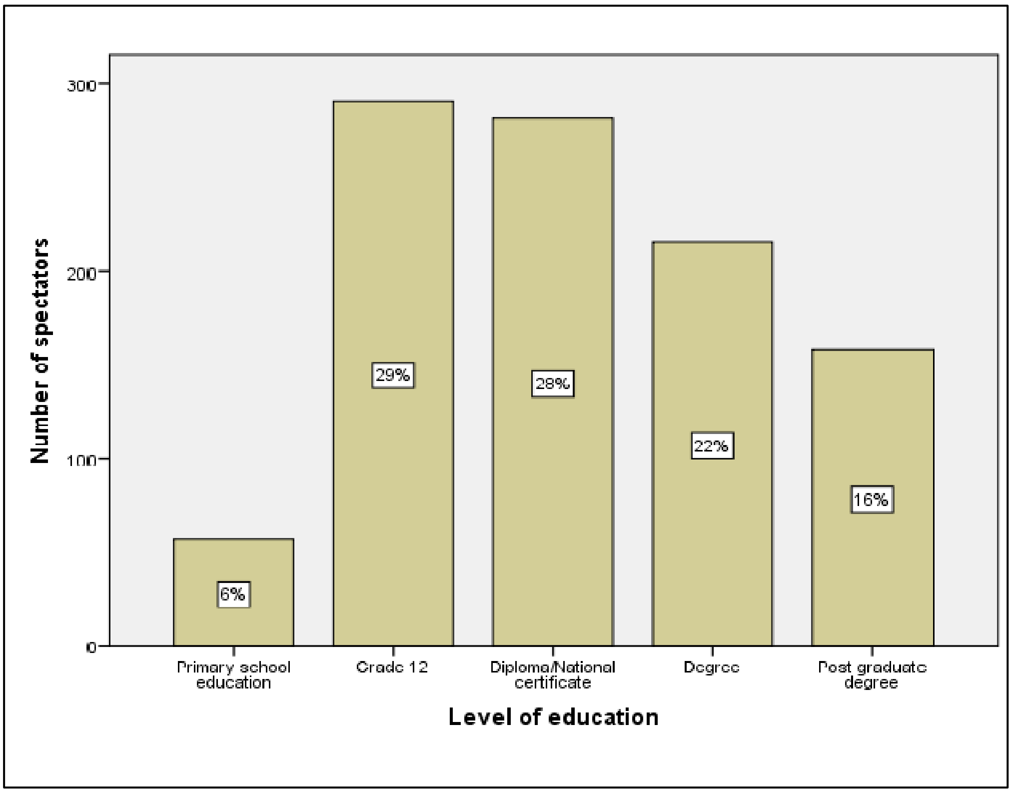


Figure 38: Level of education of participants (N=1004)



The great majority of participants (68.3%) did not stay over in the area (N=328), with only 31.7% staying over. The average length of stay was 3 days, with 1 day being the shortest and 23 days being the longest. In terms of the travel companions (see Table 26), participants indicated a range of different combinations of the different options given in the multiple choice set. The most significant combination was ‘friends and family’ and was therefore coded as a separate category. The range of other smaller combinations was coded together as ‘unique combinations’. The majority of participants attended the events along with friends (51.5%), followed by family (19.9%) or friends and family (14%). A few participants attended alone (4.8%) or as part of an official cyclist support team (4.1%). A very small number attended along with other members of a sports club (1.1%), with work colleagues or as part of an educational group (0.6% respectively).

Table 26: Travel companions of the participants

Travel company	Frequency	%
Friends	516	51.5
Family	199	19.9
Friends & family	140	14.0
Alone	48	4.8
Cyclist support team	41	4.1
Unique combinations	35	3.5
Sports club	11	1.1
Work colleagues	6	.6
Educational group	6	.6
Total (N)	**1002**	**100.0**

As indicated in Table 27, private motor vehicles were by far the most popular form of transport among participants (84%). Other options ranged from walking (3.9%), rental vehicles (3.8%), airplane (3.5%), bus (2.1%), train (1.1%), bicycle (0.8%) and taxi (0.8%).

Table 27: Transport used by participants

Mode of transport	Frequency	%
Group sharing private vehicle	528	52.9
Alone private vehicle	311	31.1
Walking	39	3.9
Airplane	35	3.5
Group sharing rental vehicle	27	2.7
Bus	21	2.1
Alone rental vehicle	11	1.1
Train	11	1.1
Bicycle	8	.8
Taxi	8	.8
Total (N)	**999**	**100.0**

6.3.2 <u>Measurement models</u>

This section contains the statistical analyses depicted in Figure 34. It is divided into two sections, with the first section focusing on the endogenous variables and the second section on the exogenous variables. Each factor is discussed in totality (descriptive statistics, dimensionality analysis, EFA and CFA) up until the point of total endogenous/exogenous model analysis.

6.3.2.1 Endogenous measurement model

This section focuses on the endogenous (dependent) variables STI, FTI, ATT and PBC.

6.3.2.1.1 Situational Intention (STI)

This section starts off with the descriptive statistics as a summary of the data, exploring what the data looks like in terms of the points of central tendency and the amount of variability (Leedy & Ormrod, 2005). The descriptive statistics also assist as a means to ensure that there is no violation of the basic assumptions underlying the chosen statistical analysis techniques (Nunkoo & Ramkissoon, 2011). It then continues with the dimensionality analysis, EFA and CFA.

Descriptive statistics

Descriptive statistics for the STI scale are indicated in Table 28.

As indicated in Table 28, item STI 3 (“Throw my rubbish in the bins provided”) displayed the highest mean score (3.88). The lowest mean score (2.45) was found for item STI 6 (“Volunteer to pick up litter after the race”). The majority of the items displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale (“definitely”) above the mean (Kline, 2011). STI 3 had extreme skewness (-4.181), while STI6 was the only positively skewed item (0.99), corresponding to their respective positions as highest and lowest scoring means.

Table 28: Descriptive statistics for the STI Scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
STI1	5.1	828	206	3.64	4.00	.683	-2.028	3.730
STI2	5.2	828	206	3.57	4.00	.672	-1.435	1.365
STI3	5.3	828	206	3.88	4.00	.435	-4.181	19.575
STI4	5.4	828	206	3.67	4.00	.676	-2.163	4.409
STI5	5.5	828	206	3.06	3.00	.864	-.603	-.388
STI6	5.6	828	206	2.45	2.00	.918	.099	-.809
STI7	5.7	828	206	2.69	3.00	.931	-.087	-.917
STI8	5.8	828	206	2.79	3.00	1.095	-.373	-1.187
STI9	5.9	828	206	3.36	4.00	.945	-1.339	.677
STI10	5.10	828	206	3.66	4.00	.721	-2.192	4.198
STI11	5.11	828	206	3.22	4.00	1.011	-1.027	-.225
STI12	5.12	828	206	3.51	4.00	.673	-1.317	1.557

* The high number of missing values may be due to the fact that respondents avoid answering questions that would be unflattering (sharing their behaviour), or due to the fact that the question was presented later in the questionnaire, leading to fatigue and disinterest of the respondents (Krosnick, 1999).

Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the Situation Intention scale is presented in Table G.1 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Dimensionality analysis (EFA)

A KMO value of 0.792 ($p < 0.05$) was reported for the STI Scale. Table 29 provides the initial Eigenvalues of the STI scale.

Table 29: Total variance explained: Initial Eigenvalues: STI

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.167	26.395	26.395	2.485	20.708	20.708
2	2.238	18.646	45.041	1.701	14.176	34.884
3	.998	8.318	53.360			
4	.942	7.853	61.212			
5	.753	6.276	67.488			
6	.743	6.193	73.681			
7	.705	5.876	79.557			
8	.560	4.670	84.227			
9	.547	4.556	88.783			
10	.505	4.210	92.993			
11	.461	3.838	96.831			
12	.380	3.169	100.000			

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.

As can be seen in Table 29, two factors with Eigenvalues greater than one were detected. The first factor emerged with an Eigenvalue of 3.167 and explained 20.7% of the common variance. A secondary factor emerged with an Eigenvalue of 2.238 and explained an additional 14.2% of the common variance. In total, the two factors accounted for approximately 35% of the total common variance. Inspection of the scree plot (Figure H.1, Appendix H) also suggested that two factors probably underlay the intercorrelations between items in the STI measure. Subsequently the rotated pattern matrix was investigated to observe which items loaded saliently on each of the two factors.

Upon investigation of the pattern matrix (Table 30), the items STI9 (“Trample on plants to get a better view of the race”) and STI11 (“Make loud music or other noise to add to the event atmosphere”) proved problematic with negative factor loadings.

Theoretically these items need to be reverse scored because they are negatively worded. However, in the EFA results these items did not report positive factor loadings after the items were reversed. This result can in part be explained by the inability of respondents to encode the negatively worded items. Brown (2006) notes that negatively worded items often load on secondary factors which may be more representative of statistical artefacts rather than true factors. It was therefore decided to delete these two items.

Table 30: Pattern matrix: STI

	Factor	
	1	2
STI1	.668	
STI2	.625	
STI3	.640	
STI4	.420	
STI5	.292	.575
STI6		.798
STI7		.673
STI8		.324
STI9R	.379	-.446
STI10	.478	
STI11R	.382	-.357
STI12	.469	

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

After deleting these two items, the remaining items were subjected to a second round of EFA. Even though the results improved somewhat, two Eigen values with values greater than one were still extracted. The first factor emerged with an Eigenvalue of 3.159 and explained 24.7% of the common variance. A secondary factor emerged with an Eigenvalue of 1.706 and explained an additional 12.9% of the common variance. In total, the two factors accounted for a total 38% of the total common variance (see Table 31). Inspection of the scree plot (Figure H.2, Appendix H) also indicated two factors.

Table 31: Total variance explained: Initial Eigenvalues: STI – items removed

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.159	31.594	31.594	2.470	24.699	24.699
2	1.706	17.059	48.654	1.289	12.893	37.591
3	.987	9.874	58.528			
4	.744	7.441	65.969			
5	.739	7.386	73.355			
6	.723	7.232	80.587			
7	.556	5.560	86.147			
8	.539	5.389	91.536			
9	.463	4.634	96.170			
10	.383	3.830	100.000			

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.

The rotated pattern matrix (Table 32) was investigated to identify the salient factor loadings of the various items.

Table 32: Factor loadings onto a two-factor solution: STI

	Factor	
	1	**2**
STI1	.682	
STI2	.622	
STI3	.694	
STI4	.436	
STI5	.205	.596
STI6		.864
STI7		.680
STI8		.311
STI10	.490	
STI12	.433	

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

Costello and Osborne (2005) and Floyd and Widaman (1995) state that factors with a loading of at least above .30 can be retained with EFA. Even though some of the items had a low factor loading (STI4, STI8, STI10 and STI12), it was decided to retain these factors. The convergence into two factors correspond to ERB literature indicating lower and higher cost activities, where the low-cost activities require less sacrifice and effort from the individual (Lee & Holden, 1999). It has been indicated that tourists are more inclined to perform 'low-level' commitment actions such as recycling or conserving water and energy, than performing actions associated with higher levels of commitment such as acting as volunteers and donating money to conservation organisations (Ballantyne *et al.,* 2009). Individuals with a higher level of commitment or 'willingness to sacrifice' for the sake of the environment may consider environmental well-being at the expense of self-interest, effort or costs (Davis *et al.*, 2011). Thus STI1, 2, 3, 4, 10 and 12 represent Low-cost STI, whereas items STI5, 6, 7 and 8 seem to present High-cost STI.

Based on the factor loadings onto two factors, it appears that there is a difference in the perceived costs or efforts to perform the various activities. STI was therefore split up into two factors, as set out in Table 33.

Table 33: Two factors emerging for STI

Factor 1	Factor 2
New label: Low-cost STI	**New label: High-cost STI**
STI1: Stay within the designated viewing areas	STI5: Picking up other people's litter
STI2: Read the information signs to guide behaviour	STI6: Volunteering to pick up litter after the race
STI3: Throw rubbish in the bins provided	STI7: Reporting inappropriate behaviour of other spectators
STI4: Make use of the ablution facilities provided	STI8: Refilling a water bottle with tap water (instead of simply buying a new one)
STI10: Park car only in designated parking areas	
STI12: Take note of the natural environment	

For the rest of the analyses these two factors were deemed unique, yet related factors of the same construct.

Reliability analysis: Low-cost STI

Low-cost STI reported (Table 34) a satisfactory alpha coefficient of 0.728, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and none of the individual items would make a significant improvement to the overall alpha coefficient in the case of deletion. Therefore no items were further deleted.

Table 34: Item-total statistics for Low-cost STI

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
STI1	.531	.670
STI2	.549	.664
STI3	.549	.683
STI4	.379	.716
STI10	.422	.705
STI12	.415	.705

Note: STI9 and STI11 were removed after the EFA

Reliability analysis: High-cost STI

High-Cost STI reported (Table 35) an alpha coefficient of 0.678 which did not strictly adhere to the minimum acceptable criteria of 0.70 adopted for this study. However, the coefficient was approaching 0.70 and all of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011). For this reason it was decided to retain all the items at this stage of analysis. However, STI8 proved to be potentially problematic since the deletion of the item would increase the alpha coefficient to 0.755. This potentially problematic item was retained at this stage of the analysis to determine how it performed in the remainder of the analyses. However, the item was flagged as potentially problematic.

Table 35: Item-total statistics for High-cost STI

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
STI5	.502	.589
STI6	.612	.512
STI7	.518	.574
STI8	.264	**.755**

Note: STI9 and STI11 were removed after the EFA

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory factor analysis: Low-cost STI

CFA is explained on two levels. Firstly, on a global level through investigation of the fit indices and residual analysis. Secondly, on a narrow level through investigation of the model parameters (standardised factor loadings, residual variances, R^2 values).

Table 36 displays the goodness of fit statistics for Low-cost STI.

Table 36: Goodness of Fit Statistics for Low-cost STI

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
17.410	9	.042	6.563	.038	.739	[.007 .065]	.866	.777	.052

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA and SRMR were indicative of a good fitting model. However, both the CFI and TLI did not adhere to the minimum acceptable cut off criteria. The CFI value approached the normative 0.90 level, but the TLI value deviated considerably from the 0.90 level. Considered collectively, the fit indices suggest that the theoretical model fits the data adequately, yet not satisfactory.

Table 37 presents the model parameters for Low-Cost STI. As indicated in Table 37, all standardised factor loadings were statistically significant (p < 0.05) and ranged between 0.475 and 0.667, achieving the acceptable level of .30 (Kline, 2011). STI1 displayed the highest residual variance (0.744). All R^2 values were above the cut-off value of 0.25 accept for the seemingly problematic STI (0.226). It was decided not to remove this item, but to flag it as problematic.

Table 37: Model parameters for Low-Cost STI

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
STI 1	1.270*	0.475*	0.774*	0.226
STI 2	1.957*	0.583*	0.660*	0.340*
STI 3	2.147*	0.626*	0.608*	0.392*
STI 4	1.663*	0.616*	0.621*	0.379*
STI 10	2.283*	0.667*	0.555*	0.445*
STI 12	1.135 *	0.602*	0.637*	0.363*

Note: * $p < 0.05$

The Low-cost STI scale thus displayed satisfactory model fit and was therefore retained for the purposes of specifying the structural model.

Confirmatory factor analysis: High-cost STI

Table 38 displays the goodness of fit statistics for High-cost STI.

Table 38: Goodness of Fit Statistics for High-cost STI

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
-	-	-	-	-	-	-	-	-	0.066

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Although the model converged, the chi-square was negative and could not be computed. Resultantly none of the fit indices could be computed accept for the SRMR. This indicates construct related problems with the sub-scale. More specifically, MPLUS issued a warning of singularity in the covariance matrix, which restricted the calculation of the Satorra Bentler chi-square. The model parameters for the scale also proved problematic (see Table 39).

As indicated in Table 39, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.494 and 0.868, achieving the acceptable level of .30 (Kline, 2011). STI5 and STI6 displayed the highest standardised residual values (0.755 and 0.718

respectively). All R^2 values were above the cut-off value of 0.25 accept for STI5 which was not statistically significant (p = 0.071). The R^2 value of STI6 was also not statistically significant (p = 0.182).

Table 39: Model parameters for High-Cost STI

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
STI 5	2.337*	0.494*	0.755*	0.245
STI 6	1.606*	0.531*	0.718*	0.282
STI 7	2.882*	0.796*	0.367	0.633*
STI 8	2.189*	0.868*	0.247	0.753*

Note: * $p < 0.05$

From this analysis, it is evident that the sub-scale High-cost STI proved problematic. Firstly, model fit is a prerequisite for interpreting model parameters. Secondly, the model parameters also indicated a number of problematic items. For this reason, it was decided to delete the entire High-Cost STI sub-scale and not consider it further for inclusion in the structural model, although the construct has significant theoretical value in the current study.

6.3.2.1.2 Future Intention (FTI)

This section starts off with the descriptive statistics of the FTI scale as a summary of the data. It then continues with the dimensionality analysis, EFA and CFA.

Descriptive statistics

Descriptive statistics for the FTI scale are indicated in Table 40.

As indicated in Table 40, both items FTI 1 ("Read through the event's rules and regulations before actual attendance") and FTI7 ("Buy more products of the event sponsoring companies, because they support this environmentally friendly event") displayed the highest mean score (3.00). The lowest mean score (2.17) was found for item FTI4 ("Rather watch the race on television or over the internet in order to reduce the environmental impact of the event"). All the items except FTI4 displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale ("definitely") above the mean (Kline, 2011).

Table 40: Descriptive statistics for the FTI Scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
FTI1	6.1	804	230	3.00	3.00	.932	-.576	-.601
FTI2	6.2	804	230	2.57	3.00	.859	-.055	-.641
FTI3	6.3	804	230	2.73	3.00	.956	-.279	-.856
FTI4	6.4	804	230	2.17	2.00	.959	.267	-.981
FTI5	6.5	804	230	2.47	2.00	.930	-.011	-.862
FTI6	6.6	804	230	2.64	3.00	1.014	-.235	-1.037
FTI7	6.6	804	230	3.00	3.00	.837	-.632	-.058

* The missing values were due to one event owner requesting the omission of items from the questionnaire (explained in Chapter 5).

Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the Situation Intention scale is presented in Table G.2 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Dimensionality analysis (EFA)

A KMO value of 0.788 ($p < 0.05$) was reported with regard to the FTI scale. Table 41 provides the initial Eigenvalues of the FTI scale.

Table 41: Total variance explained: Initial Eigenvalues: FTI

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.954	42.205	42.205	2.399	34.270	34.270
2	1.148	16.399	58.604	.619	8.844	43.114
3	.743	10.617	69.221			
4	.659	9.412	78.633			
5	.573	8.189	86.822			
6	.496	7.087	93.909			
7	.426	6.091	100.000			

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.

As indicated in Table 41, two factors emerged with Eigenvalues greater than one. Factor 1 had an Eigenvalue of 2.954 and explained 34.3% of the common variance. Factor 2 had an Eigenvalue of 1.148 and explained an additional 8.8% of common variance. In total these two factors explained approximately 43% of the total common variance. Upon inspection of the scree plot (Figure H.3, Appendix H), two factors also emerged.

Upon investigation of the pattern matrix (Table 42), the items FTI4 ("Rather watch the race on television or over the internet in order to reduce the environmental impact of the event") and FTI5 ("Follow the event's environmental initiatives in the media before deciding to return next year") proved problematic, as they appeared to load onto an additional factor. These two items represented the most extreme forms of environmental commitment where event attendance would be forfeited for the sake of the environment. It was decided to remove these two items.

Table 42: Pattern matrix: FTI

	Factor	
	1	2
FTI1	.752	
FTI2	.788	
FTI3	.489	
FTI4		.666
FTI5		.698
FTI6	.390	
FTI7	.597	

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

A second round of EFA was conducted (refer to Table 43). After removal of FTI4 and FTI5, one factor with an Eigenvalue of 2.570 emerged and explained approximately 40% of the total common variance. The scree plot (Figure H.4, Appendix H) also indicated one factor. The pattern matrix indicated that all the remaining items loaded onto one factor with factor loadings larger than .30 (Costello & Osborne, 2005; Floyd & Widaman, 1995).

Table 43: Initial Eigenvalues: FTI - items removed

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.570	51.390	51.390	1.989	39.776	39.776
2	.756	15.127	66.518			
3	.686	13.712	80.229			
4	.563	11.258	91.487			
5	.426	8.513	100.000			

Note: Extraction Method: Maximum Likelihood.

The FTI scale was thus regarded as uni-dimensional after removal of FTI4 and FTI5.

Reliability analysis

FTI reported (Table 44) a satisfactory alpha coefficient of 0.755, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient.

Table 44: Item-total statistics for FTI

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
FTI1	.539	.705
FTI2	.613	.681
FTI3	.483	.726
FTI6	.433	.747
FTI7	.566	.698

Note: FTI4 and FTI5 was removed after the EFA

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory Factor Analysis

Table 45 displays the goodness of fit statistics for FTI.

Table 45: Goodness of Fit Statistics for FTI

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
23.638	5	0.000	6.018	0.082	0.035	[.053 .114]	.521	.042	.099

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Both the RMSEA and SRMR were above the desired level for good fit, with the SRMR reaching the level of poor model fit. Both the CFI and TLI were also below the desired value for good fit (0.9), with the TLI having an exceptionally bad result. As such, one could describe the fit as poor.

Table 46 provides the model parameters for FTI.

Table 46: Model parameters for FTI

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
FTI1	.0826*	.306*	.906*	.094
FTI2	1.532*	.363*	.868*	.132
FTI3	1.163*	.283*	.920*	.080
FTI6	3.054*	.760*	.423*	.577*
FTI7	2.926*	.743*	.448*	.552*

Note: * $p < 0.05$

As indicated in Table 46, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.283 and 0.760. Only the factor loadings of FTI3 ("Make use of public transport or car-pooling to reduce the carbon footprint of the event") (.283) did not achieve the acceptable level of .30 (Kline, 2011). FTI3 also displayed the highest residual variance value (0.920). Only the R^2 values of FTI6 and FTI6 were above the cut-off value of 0.25, with FTI3 (.080) displaying the lowest value. It was decided to remove FTI3 in order to achieve a better model fit and a second round of CFA was conducted.

Confirmatory Factor Analysis – additional items removed

Table 47 displays the goodness of fit statistics for FTI after the additional removal of FTI3.

Table 47: Goodness of Fit Statistics for FTI – additional items removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
4.533	2	0.1037	9.274	0.044	0.473	[.000 .100]	.904	.712	.054

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Both the RMSEA and SRMR were indicative of a good fitting model. The CFI was also above the cut-off value for good fit, while the TLI was below the desired value for good fit (0.9). The FTI scale was thus regarded as a good fitting model after the removal of FTI3.

Table 48 provides the model parameters for FTI after the additional removal of FTI3.

Table 48: Model parameters for FTI – additional items removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
FTI1	.719*	.267*	.929*	.071
FTI2	1.360*	.322*	.896*	.104*
FTI6	3.111*	.774*	.401*	.599*
FTI7	2.991*	.759*	.424*	.576*

Note: * $p < 0.05$

As indicated in Table 48, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.267 and 0.774. The standardised factor loadings for FTI1 (0.267) did not achieve the acceptable level of .30 (Kline, 2011). FTI1 also displayed the highest residual variance value (0.929). The R^2 values for FTI1 (.071) and FTI2 (.104) did not achieve the cut-off value of 0.25. It was decided not to remove FTI1 and FTI2, but to flag the items as problematic.

The FTI scale thus displayed satisfactory model fit and was therefore retained for the purposes of specifying the structural model.

6.3.2.1.3 Behavioural Attitude (ATT)

Descriptive statistics

Descriptive statistics for the ATT scale are indicated in Table 49.

As indicated, item ATT1 ("Important") displayed the highest mean score (5.93). The lowest mean score (5.30) was found for item ATT7 ("Convenient"). All the items displayed negative skewness, meaning that scores tend to cluster at the higher end (positive descriptors) of the response scale above the mean (Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the ATT scale is presented in Table G.3 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Table 49: Descriptive statistics for the ATT scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
ATT1	7.1	811	223	5.93	6.00	1.276	-1.402	2.097
ATT2	7.2	811	223	5.63	6.00	1.370	-1.206	1.440
ATT3	7.3	811	223	5.52	6.00	1.439	-1.116	1.103
ATT4	7.4	811	223	5.36	6.00	1.502	-.943	.466
ATT5	7.5	811	223	5.54	6.00	1.622	-1.290	1.081
ATT6	7.6	811	223	5.64	6.00	1.599	-1.360	1.250
ATT7	7.7	811	223	5.30	6.00	1.517	-1.065	.900
ATT8	7.8	811	223	5.82	6.00	1.568	-1.676	2.334

* The high number of missing values may be due to the fact that the question on STI was presented later in the questionnaire, leading to fatigue and disinterest of the respondents. Or it may be due to respondents viewing the question as difficult as a result of the question format (Krosnick, 1999).

Dimensionality analysis (EFA)

Dimensionality analysis for ATT started with the KMO and Bartlett's test. A KMO value of 0.917 ($p < 0.05$) was reported. Table 50 provides the initial Eigenvalues of the ATT scale.

Table 50: Total variance explained: Initial Eigenvalues: ATT

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.303	58.926	58.926	5.000	55.552	55.552
2	1.003	11.147	70.072	.581	6.450	62.002
3	.859	9.549	79.622			
4	.492	5.462	85.083			
5	.365	4.052	89.135			
6	.346	3.843	92.978			
7	.246	2.737	95.715			
8	.225	2.495	98.210			
9	.161	1.790	100.000			

Note: Extraction Method: Maximum Likelihood.

As indicated in Table 50, two factors emerged with Eigenvalues greater than one. Factor 1 had an Eigenvalue of 5.303 and explained 55.6% of the common variance. Factor 2 had an Eigenvalue of 1.003 and explained an additional 6.5% of the common variance. In total these two factors explained approximately 62% of the total common variance. Inspection of the scree plot (Figure H.5, Appendix H) also suggested those two factors. Since the first factor explained the majority of the total common variance (58.9%) and the second factor explained only marginal additional variance, it may suggest that the scale is uni-dimensional. The rotated pattern matrix (Table 51) was investigated to gain a clearer perspective of the salient loadings.

Table 51: Pattern matrix: ATT

	Factor	
	1	2
ATT1		.577
ATT2		.993
ATT3	.296	.590
ATT4	.556	.287
ATT5	.896	
ATT6	.963	
ATT7	.617	.262
ATT8	.844	

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

Upon investigation of the pattern matrix, it appeared that ATT1 (“important”), ATT2 (“enjoyable”) and ATT3 (“desirable”) loaded onto the second factor. The author was unable to theoretically link these specific three items, as they presented a mix of experiential (ATT2 and ATT3) and instrumental (ATT1) aspects (Francis *et al.,* 2004) similar to the rest of the scale items which did not deliver separate loadings onto the two aspects (experiential and instrumental), but loaded onto one factor. It was decided not to remove these items. However, these items were flagged as problematic.

Reliability analysis

ATT reported (Table 52) a satisfactory alpha coefficient of 0.92, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011). Again ATT1 and ATT2 proved problematic as there would be an improvement to the overall alpha coefficient upon deleting these two items. However, it was decided not to delete the items, but flag them as problematic.

Table 52: Item-total statistics for ATT

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ATT1	.578	**.929**
ATT2	.650	**.925**
ATT3	.775	.916
ATT4	.767	.916
ATT5	.794	.914
ATT6	.836	.911
ATT7	.794	.914
ATT8	.804	.913

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory Factor Analysis

Table 53 indicates the goodness of fit statistics for ATT. Both the RMSEA and SRMR were above the desired level of good fit (.08), with the RMSEA displaying an exceptionally poor fit. Both the CFI and TLI were also below the desired value for good fit (0.9), with the TLI displaying especially poor fit. In considering the construct validity of the ATT scale, poor fit was therefore evident.

Table 53: Goodness of Fit Statistics for ATT

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
193.00	20	0.000	1.504	.116	0.000	[.101 .131]	.332	.065	.091

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Table 54 provides the model parameters for ATT.

Table 54: Model parameters for ATT

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
ATT1	1.400*	.240*	.942*	.058
ATT2	4.475*	.702*	.508*	.492
ATT3	3.640*	.688*	.526*	.474
ATT4	1.936*	.464*	.785*	.215
ATT5	1.433*	.219*	.952*	.048
ATT6	1.760*	.156*	.976*	.024
ATT7	2.440*	.247*	.939*	.061
ATT8	1.425*	.133*	.982*	.018

Note: * $p < 0.05$

All the standardised factor loadings were statistically significant and ranged between .133 and .702. The factor loadings of ATT1 (.240), ATT5 (.219), ATT6 (.156) and ATT8 (.133) did not achieve the acceptable level of .30 (Kline, 2011). ATT6 (.976) and ATT8 (.982) also displayed the highest standardised residual variances. Only the R^2 values of ATT2 and ATT3 were above the cut-off value of 0.25, with ATT6 (.024) and ATT8 (.018) displaying the lowest values. It was decided to remove ATT6 and ATT8 to achieve a better model fit.

Confirmatory Factor Analysis – items removed

Table 55 indicates the goodness of fit statistics for ATT with the removal of items ATT6 and ATT8.

Table 55: Goodness of Fit Statistics for ATT – items removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
13.599	9	0.1373	1.5558	0.028	0.883	[.000 .057]	.955	.925	.027

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Both the RMSEA and SRMR were indicative of a good fit. Both the CFI and TLI were also above the desired value for good fit (0.9). In considering the construct validity of the ATT scale, good fit was therefore evident.

Table 56 provides the model parameters for ATT with the removal of items ATT6 and ATT8.

Table 56: Model parameters for ATT – items removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	Estimate	Estimate	Estimate	Estimate
ATT1	1.322*	.226*	.949*	.051
ATT2	4.604*	.722*	.479*	.521*
ATT3	3.657*	.692*	.522*	.478*
ATT4	1.879*	.450*	.797*	.203*
ATT5	1.334*	.204*	.958*	.042*
ATT7	2.198*	.223*	.950*	.050*

Note: * $p < 0.05$

As indicated in Table 56, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.204 and 0.722. ATT1 ("Important") (.226), ATT5 (" Wise") (.204) and ATT7 ("Convenient") (.223) did not achieve the acceptable level of .30 (Kline, 2011). ATT5 (.958) displayed the highest standardised residual values. Only ATT2 ("Enjoyable") and ATT3 ("Desirable") had R^2 values above the cut-off value of 0.25. It was decided to remove the problematic items ATT1, ATT5 and ATT7 and a third round of CFA was conducted (refer to Table 57 and Table 58).

Table 57: Goodness of Fit Statistics for ATT – additional items removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
0.000	0	0.000	1.000	0.000	0.000	[.000 .000]	1.00	1.00	0.000

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Since only three items remained to operationalise the construct, it was expected to find a just-identified CFA model with perfect fit (Kline, 2011). The construct validity of the ATT scale could therefore not be considered proven. However, the strength and significance of the model parameters can be investigated further.

Table 58: Model parameters for ATT – additional items removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
ATT2	4.281*	.671*	.549*	.451*
ATT3	3.966*	.750*	.437*	.563*
ATT4	1.845*	.442*	.805*	.195*

Note: * $p < 0.05$

As indicated in Table 58, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.442 and 0.750, achieving the acceptable level of .30 (Kline, 2011). ATT4 displayed the highest residual variance value (0.805). The R^2 value for ATT4 (.195) did not achieve the cut-off value of 0.25. It was decided not to remove ATT4, but to flag the item as problematic.

The ATT thus displayed satisfactory overall model fit and was therefore retained for the purposes of specifying the structural model.

6.3.2.1.4 Perceived Behavioural Control (PBC)

Descriptive statistics

Descriptive statistics for the PBC scale are indicated in Table 59.

Table 59: Descriptive statistics for the PBC scale

Item	Q nr.	*N:* Valid	*N:* Missing	Mean	Median	Std. Deviation	Skewness	Kurtosis
PBC1	3.1	982	52	3.43	4.00	.706	-1.241	1.551
PBC2	3.2	982	52	3.34	3.00	.675	-.935	1.360
PBC3	3.3	982	52	3.07	3.00	.713	-.458	.116

As indicated in Table 59, item PBC1 ("It is up to me to decide to behave in an environmentally responsible manner at this event") displayed the highest mean score (3.43). The lowest mean score (3.07) was found for item PBC3 ("I have the resources, time and opportunities to undertake ERB during this event"). All the items displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale ("strongly agree") above the mean (Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the PBC scale is presented in Table G.4 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005) and any missing values were dealt with through Maximum Likelihood estimation (Kline, 2011).

Dimensionality analysis (EFA)

Analysis for PBC started with the KMO and Bartlett's test. A KMO value of 0.626 ($p < 0.05$) was reported. Table 60 provides the initial Eigenvalues of the PBC scale.

Table 60: Total variance explained: Initial Eigenvalues: PBC

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.707	56.915	56.915	1.109	36.957	36.957
2	.729	24.313	81.228			
3	.563	18.772	100.000			

Note: Extraction Method: Maximum Likelihood.

As indicated in Table 60, one factor emerged with an Eigenvalue of 1.707 and explained approximately 37% of the total common variance. The scree plot (Figure H.6, Appendix H) also clearly indicated a one factor solution. Upon inspection of the factor matrix (Table 61), only PBC3 loaded slightly below the desired level of >.50. It was decided not to remove the item. However, it was flagged as potentially problematic.

Table 61: Factor matrix: PBC

	Factor
	1
PBC1	.553
PBC2	.747
PBC3	.495

Note: Extraction Method: Maximum Likelihood.

The PBC scale was therefore regarded as uni-dimensional, and therefore no additional items were considered for deletion.

Reliability analysis

PBC reported (Table 62) an unsatisfactory alpha coefficient of 0.618, thus not achieving the cut-off of value of .70 (Kline, 2011). This low alpha level may be ascribed to the limited number of items in the scale (Costello & Osborne, 2005). Due to the low alpha level, the internal consistency reliability of the scale is low and any linkages to or from this construct should be interpreted with a degree of caution. However, the scale approached the .70 level. All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 62: Item-total statistics for PBC

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PBC1	.413	.539
PBC2	.490	.430
PBC3	.382	.584

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory Factor Analysis

Table 63 indicates the goodness of fit statistics for PBC. The data analysis programme gave an initial warning regarding the residual covariance matrix, with problems involving item PBC2.

Table 63: Goodness of Fit Statistics for PBC

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
0.000	0	0.000	1.000	0.000	0.000	[.000 .000]	1.00	1.00	0.000

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Since only three items are used to operationalise the construct, it was expected to find a just-identified CFA model with perfect fit (Kline, 2011). The construct validity of the PBC scale could therefore not be considered proven. However, the strength and significance of the model parameters can be investigated further.

Table 64 provides the model parameters for PBC.

Table 64: Model parameters for PBC

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
PBC1	0.211*	0.215*	0.954*	0.046
PBC2	1.181*	1.040*	-0.081	Undefined
PBC3	0.399*	0.346*	0.880*	0.120

Note: * $p < 0.05$

The standardised factor loading for PBC1 (“It is up to me to decide to behave in an environmentally responsible manner at this event”) (0.215) did not achieve the acceptable level of .30 (Kline, 2011). PBC2 (“I am confident that if I want to, I can perform environmentally responsible behaviour at this event”) displayed a negative residual, meaning that the standard error of the parameter estimate is so large that no interpretation seems plausible (Kline, 2011). PBC1 displayed the highest standard residual variance

(0.954). Only the R^2 value of PBC3 ("I have the resources, time and opportunities to undertake environmentally responsible behaviour during this event") was above the cut-off value of 0.25. Analysis of this scale presented what is known as an inadmissible solution or a Heywood case and can be the result of specification error, non-identification of the model, outliers, a combination of a small sample size and only two indicators per factor, bad start values or extremely low or high population correlations. Such a solution indicates an unstable measurement that is not suitable for inclusion in a structural model (Kline, 2011).

Given the contentious model fit, and the instability of the measurement indicated by the model parameters, it was decided to exclude the Perceived Behavioural Scale from further analyses and inclusion in the structural model. It is, however, acknowledged that PBC forms a significant theoretical part of the study as the hypothesised model is based on the TPB with PBC as one of the main drivers. Still, an incomplete TPB model could still produce a good model fit with the data in the final structural model, even with the exclusion of one of the main drivers (after Klöckner & Blöbaum, 2011).

Up to this point, the analyses have focused on the individual scales and items of the dependent variables separately. The next step before analysis of a proposed structural model is to explore the dependent variables collectively from a measurement perspective. In other words, the total endogenous measurement model (the aspects of the model related to the dependent variables) has to be considered.

6.3.2.2 Total endogenous measurement model

Before overall model fit and parameters can be tested, it is necessary to make the necessary refinements to the various scales based on the results of the previous item and factorial analyses. Once all the scales have been refined ('cleared' of poor items), the overall model fit, model parameters and latent factor correlations of the total endogenous (and exogenous) measurement models is an important prerequisite for the testing of the structural relationships in the total SEM model.

6.3.2.2.1 Measurement model refinement

Before measurement of the total endogenous model commences, it is important to summarise all the refinements that have been made to the individual scales. Based on the preceding analyses, the following refinements were made:

STI

The following reverse coded items were removed after the EFA:

- STI9 - "Trample on plants to get a better view of the race".
- STI11 - "Make loud music or other noise to add to the event atmosphere".

STI was then split into two factors: Low-cost STI and High-cost STI (refer to Table 33).

Table 33: Two factors emerging for STI

Factor 1	Factor 2
New label: Low-cost STI	**New label: High-cost STI**
STI1: Stay within the designated viewing areas	STI5: Picking up other people's litter
STI2: Read the information signs to guide behaviour	STI6: Volunteering to pick up litter after the race
STI3: Throw rubbish in the bins provided	STI7: Reporting inappropriate behaviour of other spectators
STI4: Make use of the ablution facilities provided	STI8: Refilling a water bottle with tap water (instead of simply buying a new one)
STI10: Park car only in designated parking areas	
STI12: Take note of the natural environment	

After the CFA, it was decided to exclude High-Cost STI from further analyses and inclusion into the structural model as the factor had poor model fit.

FTI

The following items were removed after the EFA:

- FTI4 – "Rather watch the race on television or over the internet in order to reduce the environmental impact of the event".
- FTI5 - "Follow the event's environmental initiatives in the media before deciding to return next year".

The following item was removed after the CFA:

FTI3 – “Make use of public transport or car-pooling to reduce the carbon footprint of the event”.

ATT

The following items were removed after the CFA:

- ATT1 – “Important”
- ATT5 – “Wise”
- ATT6 – “Necessary”
- ATT7 – “Appropriate”
- ATT8 – “Positive”

PBC

After the CFA, it was decided to exclude PBC from further analyses and inclusion into the structural model as the factor had poor model fit and proved to be unstable.

Once these items had been removed, the total endogenous measurement model could be tested. It consisted of Low-cost STI, FTI and ATT.

6.3.2.2.2 Model fit

The goodness of fit statistics for the total endogenous measurement model are presented in Table 65.

Table 65: Goodness of fit statistics for the total endogenous measurement model

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
169.22	62	0.000	3.514	.052	.355	[.043 .061]	.630	.535	.100

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA indicated reasonable model fit, while the SRMR was above the desired level of .08. Both the CFI and TLI were below the desired value for good fit (0.9). Reasonable fit was therefore evident for the total endogenous measurement model.

6.3.2.2.3 Model parameters

Table 66 provides the model parameters for the three endogenous variables within the total endogenous measurement model.

Table 66: Model parameters for the total endogenous measurement model

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
		Low-Cost STI		
STI 1	1.000	.476*	.773*	.227*
STI 2	1.517*	.575*	.669*	.331*
STI 3	1.659*	.616*	.620*	.380*
STI 4	1.295*	.611*	.627*	.373*
STI 10	1.811*	.674*	.546*	.454*
STI 12	.911	.615*	.621*	.379*
		FTI		
FTI1	1.000	.331*	.890*	.110
FTI2	1.744*	.375*	.859*	.141
FTI6	3.380	.751*	.436*	.564*
FTI7	3.237	.734*	.462*	.538*
		ATT		
ATT2	1.000	.685*	.530*	.470*
ATT3	.890*	.736*	.459*	.541*
ATT4	.422*	.442*	.805*	.195*

Note: * $p < 0.05$

As can be seen from Table 66, all the standardised factor loadings were statistically significant and ranged between .331 and .751, achieving the acceptable level of .30 (Kline, 2011). FTI1 displayed the highest standard residual variance (0.890). The R^2 values for STI1 (0.227), FTI1 (.110), FTI2 (.141) and ATT4 (.195) did not achieve the cut-off value of 0.25.

The total endogenous measurement model therefore displayed mediocre model fit. However, considering the fit indices and model parameters collectively, the measurement model did report adequate levels of congruence with the empirical data, and it was therefore deemed permissible to include the total endogenous measurement model in specifying the structural model.

6.3.2.2.4 Latent factor correlations

The last step in evaluating the total endogenous measurement model is to test the correlations between the individual latent variables. This entails exploring the covariances and intercorrelations between the respective scales. The correlations between the three dependent variables, Low-cost STI, FTI and ATT are evaluated.

Correlations investigate both the strength and direction of the relationship. To interpret the correlations the guidelines suggested by Field (2009) were followed. Accordingly, r = 0.10 to 0.30 is a small effect size; r = 0.30 to 0.50 shows a medium effect size; and r $\geq$ 0.50 indicates a large effect size.

Table 67 presents the latent factor correlations for the total endogenous measurement model.

Table 67: Estimated correlation matrix for the latent variables of the endogenous measurement model

	ATT	FTI	Low-cost STI
ATT	1.000		
FTI	**0.023**	1.000	
Low-cost STI	-0.110*	**0.332**	1.000

Note: * $p < 0.05$; Non-significant correlations are in boldface

In line with the theory and expected outcomes, there is a small positive correlation between ATT and FTI; as well as a medium positive correlation between Low-cost STI and FTI. The small negative correlation between ATT and Low-cost STI was the only statistically significant correlation. This negative relationship is different to what was predicted. However, it can be explained by the theory as the attitude-behaviour gap (Blake, 1999) between positively expressed attitudes and actual manifestation of behaviour or behavioural intention is a known phenomenon in behavioural literature.

6.3.2.3 Exogenous measurement model

This section focuses on the exogenous (independent) variables CST, SJN, EMS, PEA, MOTV and BNFT.

6.3.2.3.1 Behavioural Costs (CST)

Descriptive statistics

Descriptive statistics for the CST scale are indicated in Table 68.

Table 68: Descriptive statistics for the CST scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
CST1	4.5	710	324	2.08	2.00	.731	-.121	-1.120
CST2	4.18	710	324	2.01	2.00	.795	.007	-1.374
CST3	4.20	710	324	1.88	2.00	.769	.203	-1.284

* Missing values as a result of scale changes were discussed in section 5.7.1, Chapter 5

CST were stated as negative statements and therefore the interpretation of the means should be changed. As indicated in Table 67, item CST3 ("Actions that will take up a lot of my time") displayed the lowest mean score (1.88); meaning that it was the least encouraging factor (or the highest perceived cost). The highest mean score (2.08) was found for item CST1 ("Actions that interfere with my ability to enjoy myself"); meaning the least of the three perceived costs. Only CST2 displayed positive skewness, meaning that the scores tend to cluster at the lower end of the response scale ("not at all encouraging") below the mean (Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the CST scale is presented in Table G.5 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Dimensionality analysis (EFA)

Analysis for CST started with the KMO and Bartlett's test. A KMO value of 0.657 ($p < 0.05$) was reported. Table 69 provides the initial Eigenvalues of the CST scale.

Table 69: Total variance explained: Initial Eigenvalues: CST

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.883	62.751	62.751	1.353	45.116	45.116
2	.645	21.497	84.248			
3	.473	15.752	100.000			

Note: Extraction Method: Maximum Likelihood.

As indicated in Table 69, one factor emerged with an Eigenvalue of 1.883 and explained approximately 45% of the total common variance. The scree plot (Figure H.7, Appendix H) also clearly indicated one factor. Inspection of the factor matrix (Table 70) indicated satisfactory factor loadings of >.50 onto the factor.

Table 70: Factor matrix: CST

	Factor
	1
CST1	.548
CST2	.756
CST3	.694

Note: Extraction Method: Maximum Likelihood.

The CST scale was thus regarded as uni-dimensional, and therefore no additional items were considered for deletion.

Reliability analysis

CST reported (Table 71) a satisfactory alpha coefficient of 0.703, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 71: Item-total statistics for CST

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CST1	.455	.688
CST2	.567	.550
CST3	.541	.585

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory Factor Analysis

Table 72 provides the goodness of fit statistics for CST.

Table 72: Goodness of Fit Statistics for CST

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
0.000	0	0.000	1.000	0.000	0.000	[0.000 0.000]	1.00	1.00	0.000

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Since only three items are used to operationalise the construct, it was expected to find a just-identified CFA model with perfect fit (Kline, 2011). The construct validity of the CST scale could therefore not be considered proven. However, the strength and significance of the model parameters can be investigated further.

Table 73 provides the model parameters for CST.

Table 73: Model parameters for CST

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	Estimate	Estimate	Estimate	Estimate
CST1	0.753*	0.312*	0.903*	0.097*
CST2	1.220*	0.689*	0.525*	0.475*
CST3	1.394*	0.647*	0.581*	0.419*

Note: * $p < 0.05$

As indicated in Table 73, the standardised factor loadings were statistically significant and ranged between 0.312 and 0.689; achieving the acceptable level of .30 (Kline, 2011). CST1 displayed the highest standardised residual value (0.903). All R^2 values were above the cut-off value of 0.25 except for the seemingly problematic CSTI (0.097). It was decided not to delete the item, but to flag it as problematic.

The CST scale thus displayed satisfactory overall model fit and was included for the purposes of specifying the structural model.

6.3.2.3.2 Subjective Norms (SJN)

Descriptive statistics for the SJN scale are indicated in Table 74.

Table 74: Descriptive statistics for the SJN scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
SJN1	4.1	698	336	2.62	3.00	.549	-1.086	.171
SJN2	4.4	698	336	2.17	2.00	.753	-.292	-1.188
SJN3	4.9	698	336	2.48	3.00	.620	-.758	-.417
SJN4	4.11	698	336	2.06	2.00	.798	-.108	-1.420
SJN5	4.15	698	336	2.20	2.00	.821	-.426	-1.300
SJN6	4.19	698	336	2.65	3.00	.539	-1.171	.452

* Missing values as a result of scale changes were discussed in section 5.7.1, Chapter 5

As indicated in Table 74, item SJN6 ("Seeing the cyclists being environmentally responsible") displayed the highest mean score (2.65). The lowest mean score (2.06) was found for item SJN4 ("Being frowned upon if I go out of my way to be too environmentally responsible"). All the items displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale ("very encouraging") above the mean

(Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the SJN scale is presented in Table G.6 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Dimensionality analysis (EFA)

Dimensionality analysis for SJN started with the KMO and Bartlett's test. A KMO value of 0.636 ($p < 0.05$) was reported. Table 75 provides the initial Eigenvalues of the SJN scale.

Table 75: Total variance explained: Initial Eigenvalues: SJN

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.895	31.578	31.578	1.212	20.195	20.195
2	1.362	22.693	54.270	.766	12.773	32.968
3	.786	13.098	67.369			
4	.722	12.031	79.399			
5	.684	11.400	90.799			
6	.552	9.201	100.000			

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.

As indicated in Table 75, two factors emerged with an Eigenvalue greater than one. The first factor had an Eigenvalue of 1.895 and explained 20.1% of the common variance. The second factor had an Eigenvalue of 1.362 and explained an additional 21.8% of the common variance. Together these two items explained approximately 33% of the total common variance. The scree plot (Figure H.8, Appendix H) also indicated two factors emerging from the data.

Upon investigation of the pattern matrix (Table 76), the items SJN4 and SJN5 proved problematic, with only these two items loading onto the second factor. This result can in part be explained by the inability of respondents to encode the negatively worded items. Brown (2006) notes that negatively worded items often load on secondary factors which may be more representative of statistical artefacts rather than true factors. It was therefore decided to delete these two items.

Table 76: Pattern matrix: SJN

	Factor	
	1	2
SJN1	.497	
SJN2	.320	-.291
SJN3	.664	
SJN4R		.577
SJN5R		.711
SJN6	.470	

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

A second EFA was run omitting SJN4 and SJN5. The results (Table 77) delivered one factor with an Eigen value of 1.728 explaining 25% of the total common variance (see Table x). The remaining items (SJN1, SJN2, SJN3 and SJN6) loaded onto one factor above >3.0 (after Costello & Osborne, 2005; Floyd & Widaman, 1995). The scree plot (Figure H.9, Appendix H) also indicated one factor.

Table 77: Total variance explained: Initial Eigenvalues: SJN – items removed

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.728	43.210	43.210	1.008	25.203	25.203
2	.862	21.541	64.751			
3	.748	18.691	83.442			
4	.662	16.558	100.000			

Note: Extraction Method: Maximum Likelihood

The SJN scale was thus regarded as uni-dimensional after the removal of SJN4 and SJN5.

Reliability analysis

SJN reported (Table 78) an unsatisfactory alpha coefficient of 0.544, not achieving the cut-off of value of .70 (Kline, 2011). Due to the low alpha level, the internal consistency reliability of the scale is low and any linkages to or from this construct should be interpreted with caution. All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011). The deletion of SJN2 presented a slight improvement to the alpha coefficient. However, it was decided not to delete the item, but to flag it as problematic.

Table 78: Item-total statistics for SJN

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SJN1	.337	.469
SJN2	.270	.545
SJN3	.410	.400
SJN6	.331	.474

Note: SJN4 and SJN5 was removed after the EFA

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory factor analysis

Table 79 indicates the goodness of fit statistics for SJN.

Table 79: Goodness of Fit Statistics for SJN

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
4.801	2	0.090	1.612	0.047	0.446	[0.000 0.102]	.967	.901	0.019

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA and SRMR indicated good fit. Both the CFI and TLI were also above the desired value for good fit (0.9). In considering the construct validity of the SJN scale, good fit was therefore evident.

Table 80 provides the model parameters for the SJN scale. As indicated in Table 80, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.297 and 0.853. SJN6 (0.297) (“Seeing the cyclist being environmentally responsible”) did not achieve the acceptable level of .30 (Kline, 2011). SJN6 also displayed the highest standardised residual value (0.912). The R^2 values for SJN1 (0.228) and SJN6 (0.008) were below the cut-off value of 0.25. It was decided not the remove these items, but to flag them as problematic.

Table 80: Model parameters for SJN

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
SJN1	0.619*	0.477*	0.772*	0.228*
SJN2	1.493*	0.853*	0.272	0.728*
SJN3	1.386*	0.683*	0.534*	0.466*
SJN6	0.357*	0.297*	0.912*	0.088

Note: * $p < 0.05$

The SJN scale thus displayed satisfactory model fit and was therefore retained for the purposes of specifying the structural model.

6.3.2.3.3 Environmental Management System (EMS)

Descriptive statistics

Descriptive statistics for the EMS scale are indicated in Table 81.

Table 81: Descriptive statistics for the EMS scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
EMS1	4.2	752	282	2.57	3.00	.592	-1.008	.014
EMS2	4.3	750	284	2.60	3.00	.591	-1.194	.407
EMS3	4.6	732	302	2.38	2.00	.596	-.370	-.680
EMS4	4.10	735	299	2.73	3.00	.510	-1.729	2.129
EMS5	4.12	731	303	2.37	2.00	.624	-.458	-.658
EMS6	4.13	740	294	2.74	3.00	.510	-1.836	2.530
EMS7	4.16	734	300	2.53	3.00	.592	-.825	-.251
EMS8	4.17	736	298	2.48	3.00	.632	-.792	-.350

* Missing values as a result of scale changes were discussed in section 5.7.1, Chapter 5

As indicated in Table 81, item EMS6 ("Conveniently located recycling bins") displayed the highest mean score (2.74). The lowest mean score (2.37) was found for item EMS5 ("Receiving information about the natural environment in which the event takes place"). All the items displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale ("very encouraging") above the mean (Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the EMS scale is presented in Table G.7 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Dimensionality analysis (EFA)

Dimensionality analysis for EMS started with the KMO and Bartlett's test. A KMO value of 0.807 ($p < 0.05$) was reported. Table 82 provides the initial Eigenvalues of the EMS scale.

Table 82: Total variance explained: Initial Eigenvalues: EMS

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.016	37.705	37.705	2.323	29.034	29.034
2	.981	12.263	49.968			
3	.919	11.489	61.458			
4	.771	9.637	71.095			
5	.723	9.040	80.135			
6	.616	7.700	87.835			
7	.522	6.523	94.359			
8	.451	5.641	100.000			

Note: Extraction Method: Maximum Likelihood.

As indicated in Table 82, one factor emerged with an Eigenvalue of 3.016 and explained approximately 29% of the total common variance. The scree plot (Figure H.10, Appendix H) also clearly indicated a one factor solution. Inspection of the factor matrix (Table 83) indicated that all the items loaded onto the one factor. EMS1, EMS2, EMS4 and EMS6 loaded slightly below the desired value of .50, but still at an acceptable level for EFA (Costello & Osborne, 2005).

Table 83: Factor matrix: EMS

	Factor
	1
EMS1	.461
EMS2	.409
EMS3	.564
EMS4	.496
EMS5	.620
EMS6	.484
EMS7	.585
EMS8	.646

Note: Extraction Method: Maximum Likelihood.

The EMS scale was therefore regarded as uni-dimensional, and therefore no additional items were considered for deletion.

Reliability analysis

EMS reported (Table 84) a satisfactory alpha coefficient of 0.762, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 84: Item-total statistics for EMS

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EMS1	.418	.744
EMS2	.379	.751
EMS3	.479	.733
EMS4	.435	.741
EMS5	.521	.725
EMS6	.420	.744
EMS7	.496	.730
EMS8	.530	.724

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory factor analysis

Table 85 indicates the goodness of fit statistics for EMS.

Table 85: Goodness of Fit Statistics for EMS

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
126.03	20	0.000	5.147	0.091	0.000	[.076 .106]	.704	.586	0.101

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA was indicative of a mediocre fit and the SRMR indicated poor fit. Both the CFI and TLI were below the desired value for good fit (0.9). In considering the construct validity of the EMS scale, poor fit was therefore evident and the construct validity not beyond suspicion. This suggested that the model had to be revised to improve the model fit for use in the SEM.

Table 86 provides the model parameters for EMS.

Table 86: Model parameters for EMS

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	Estimate	Estimate	Estimate	Estimate
EMS1	1.052*	0.661*	0.563*	0.437*
EMS2	0.983*	0.587*	0.656*	0.344*
EMS3	1.398*	0.799*	0.362*	0.638*
EMS4	1.642*	0.877*	0.231*	0.769*
EMS5	1.084*	0.781*	0.390*	0.610*
EMS6	0.940*	0.723*	0.477*	0.523*
EMS7	0.663*	0.265*	0.930*	0.070*
EMS8	0.487*	0.370*	0.863*	0.137*

Note: * $p < 0.05$

As indicated in Table 86, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.265 and 0.877. EMS7 ("Clearly market viewing areas") (0.265) did not achieve the acceptable level of .30 (Kline, 2011). EMS7 also displayed the highest standard residual value (0.930). All R^2 values were above the cut-off value of 0.25 except for the seemingly problematic EMS7 (0.070) and EMS8 (0.137).

In order to address the poor model fit and unsatisfactory model parameters, it was decided to remove EMS7 and EMS8. A second round of CFA was conducted.

Confirmatory factor analysis – items removed

Table 87 indicates the goodness of fit statistics for EMS after the removal of EMS7 and EMS8.

Table 87: Goodness of Fit Statistics for EMS – items removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
67.567	9	0.000	5.297	.101	.000	[.079 .124]	.774	.623	.078

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Both the RMSEA and SRMR were indicative of mediocre fit after removal of the items. Both the CFI and TLI were below the desired value for good fit (0.9). Although not all the indices were indicative of good fit, most of the indices improved significantly with the deletion of the two items.

Table 88 provides the model parameters for EMS after the removal of EMS7 and EMS8.

Table 88: Model parameters for EMS – items removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	Estimate	Estimate	Estimate	Estimate
EMS1	1.061*	.666*	.556*	.444*
EMS2	.986*	.589*	.653*	.347*
EMS3	1.402*	.800*	.359*	.641*
EMS4	1.664*	.889*	.210*	.790*
EMS5	1.070*	.771*	.405*	.595*
EMS6	0.925*	.711*	.494*	.506*

Note: * $p < 0.05$

As indicated in Table 88, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.666 and 0.889, achieving the acceptable level of .30 (Kline, 2011). EMS2 displayed the highest standard residual value (0.653). All R^2 values were above the cut-off value of 0.25.

The refined EMS scale thus displayed poor model fit. However, since all the standardised factor loadings were strong, it was decided not to delete more items from the measure.

6.3.2.3.4 Place Attachment (PEA)

Descriptive statistics

Descriptive statistics for the PEA scale are indicated in Table 89.

Table 89: Descriptive statistics for the PEA scale

Item	Q nr.	*N:* Valid	*N:* Missing	Mean	Median	Std. Deviation	Skewness	Kurtosis
PEA1	2.1	983	51	2.34	2.00	.943	.151	-.866
PEA2	2.2	983	51	2.66	3.00	.982	-.259	-.932
PEA3	2.3	983	51	2.44	2.00	.962	.059	-.950

As indicated in Table 89, item PEA2 ("I have a special connection to attending this cycling race") displayed the highest mean score (2.66). The lowest mean (2.34) score was found for item PEA1 ("I am very attached to visiting this place specifically"). The majority of the items displayed positive skewness, meaning that scores tend to cluster at the lower end of the response scale ("strongly disagree") below the mean (Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the PEA scale is presented in Table G.8 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005). Any missing values were dealt with through Maximum Likelihood estimation (Kline, 2011).

Dimensionality analysis (EFA)

Dimensionality analysis for PEA started with the KMO and Bartlett's test. A KMO value of 0.676 ($p < 0.05$) was reported. Table 90 provides the initial Eigenvalues of the PEA scale.

Table 90: Total variance explained: Initial Eigenvalues: PEA

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.981	66.046	66.046	1.495	49.823	49.823
2	.579	19.296	85.342			
3	.440	14.658	100.000			

Note: Extraction Method: Maximum Likelihood.

As indicated in Table 90, one factor emerged with an Eigenvalue of 1.981 and explained approximately 50% of the total common variance. The scree plot (Figure H.11, Appendix H) also clearly indicated a one factor solution. Inspection of the factor matrix (Table 91) also indicated satisfactory factor loadings >.50 onto the one factor (see Table x).

Table 91: Factor matrix: PEA

	Factor
	1
PEA1	.663
PEA2	.637
PEA3	.806

Note: Extraction Method: Maximum Likelihood.

The PEA scale was therefore regarded as uni-dimensional, and therefore no additional items were considered for deletion.

Reliability analysis

PEA reported (Table 92) a satisfactory alpha coefficient of 0.742, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 92: Item-total statistics for PEA

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PEA1	.549	.678
PEA2	.534	.696
PEA3	.621	.593

Table 93 indicates the goodness of fit statistics for PEA.

Table 93: Goodness of Fit Statistics for PEA

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
0.000	0	0.000	1.000	0.000	0.000	[.000 .000]	1.00	1.00	0.000

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Since only three items are used to operationalise the construct, it was expected to find a just-identified CFA model with perfect fit (Kline, 2011). The construct validity of the PEA scale could therefore not be considered proven. However, the strength and significance of the model parameters can be investigated further.

Table 94 provides the model parameters for PEA.

Table 94: Model parameters for PEA

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
PEA1	0.614*	0.653*	0.573*	0.427*
PEA2	0.671*	0.672*	0.548*	0.452*
PEA3	0.780*	0.806*	0.350*	0.650*

Note: * $p < 0.05$

As indicated in Table 94, the standardised factor loadings were statistically significant and ranged between 0.653 and 0.806. All R^2 values were above the cut-off value of 0.25.

The PEA scale thus displayed satisfactory model fit and was therefore retained for the purposes of specifying the structural model.

6.3.2.3.5 Attendance Motivation (MOTV)

Descriptive statistics

Descriptive statistics for the MOTV scale are indicated in Table 95.

Table 95: Descriptive statistics for the MOTV scale

Item	Q nr.	*N:* Valid	*N:* Missing	Mean	Median	Std. Deviation	Skewness	Kurtosis
MOTV1	1.1	918	116	2.77	3.00	.863	-.203	-.662
MOTV2	1.2	918	116	2.80	3.00	.790	-.419	-.103
MOTV3	1.3	918	116	3.15	3.00	.740	-.692	.411
MOTV4	1.4	918	116	3.47	4.00	.794	-1.470	1.457
MOTV5	1.5	918	116	2.81	3.00	.875	-.404	-.475
MOTV6	1.6	918	116	3.30	3.00	.832	-1.141	.777
MOTV7	1.7	918	116	3.30	3.00	.775	-1.042	.813
MOTV8	1.8	918	116	3.37	3.00	.698	-1.022	1.094
MOTV9	1.9	918	116	3.46	4.00	.680	-1.247	1.693
MOTV10	1.10	918	116	3.27	3.00	.767	-.945	.663
MOTV11	1.11	918	116	3.27	3.00	.758	-.786	.104
MOTV12	1.12	918	116	2.86	3.00	1.030	-.457	-.961
MOTV13	1.13	918	116	2.81	3.00	.971	-.354	-.876
MOTV14	1.14	918	116	1.96	2.00	1.007	.690	-.702

As indicated in Table 95, item MOTV4 ("Support a specific rider/team of riders") displayed the highest mean score (3.47). The lowest mean score (1.96) was found for item MOTV14 ("I happened to be in the area"). The majority of the items displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale ("strongly agree") above the mean (Kline, 2011), accept for MOTV14 which displayed positive skewness ("strongly disagree"). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the MOTV scale is presented in Table G.9 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005). Any missing values were dealt with through Maximum Likelihood estimation (Kline, 2011).

Dimensionality analysis (EFA)

Dimensionality analysis for MOTV started with the KMO and Bartlett's test. A KMO value of 0.883 ($p < 0.05$) was reported. Table 96 provides the initial Eigenvalues of the MOTV scale.

Table 96: Total variance explained: Initial Eigenvalues: MOTV

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.102	36.445	36.445	4.614	32.956	32.956
2	1.650	11.788	48.232	.983	7.025	39.981
3	1.403	10.024	58.256	.915	6.536	46.517
4	.913	6.523	64.779			
5	.746	5.328	70.107			
6	.621	4.437	74.544			
7	.598	4.269	78.813			
8	.519	3.710	82.523			
9	.509	3.634	86.157			
10	.453	3.237	89.394			
11	.428	3.059	92.452			
12	.410	2.927	95.379			
13	.335	2.390	97.769			
14	.312	2.231	100.000			

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.

As indicated in Table 96, three factors emerged with Eigenvalues greater than one. The first factor had an Eigenvalue of 5.102 and explained 33% of the common variance. A secondary factor emerged with an Eigenvalue of 1.650 and explained an additional 7% of the common variance. A third factor emerged with an Eigenvalue of 1.403 and explained an additional 6.5% of the common variance. In total these three factors explained approximately 47% of the total common variance. Upon inspection of the scree plot (Figure H.12, Appendix H), three factors were also visible.

Upon investigation of the pattern matrix (Table 97), MOTV6 ("Spend time with family"), MOTV7 ("Spend time with friends), MOTV 8 ("The friendly, family atmosphere"), MOTV9

("Spend time outdoors"), MOTV10 ("For relaxation") and MOTV11 ("For excitement") loaded onto the first factor. MOTV1 ("Cycling is my favourite sport"), MOTV2 ("Learn more about the sport of cycling"), MOTV3 ("Share a feeling of accomplishment with the riders") and MOTV 5 ("Meet other people with similar interests as myself") appeared to load onto the second factor. MOTV12 ("To escape the reality of my daily life"), MOTV13 ("It is free entertainment") and MOTV14 ("I happened to be in the area") appeared to load onto a third factor. The last two items were extreme motivations and did not fit theoretically with MOTV12. MOTV4 ("Support a specific rider/team of riders") also appeared problematic, cross-loading onto two factors.

Table 97: Pattern matrix: MOTV

	Factor		
	1	2	3
MOTV1		.762	
MOTV2		.820	
MOTV3		.598	-.225
MOTV4	.337		-.465
MOTV5		.434	
MOTV6	.680		-.200
MOTV7	.736		
MOTV8	.819		
MOTV9	.823		
MOTV10	.711		
MOTV11	.573		
MOTV12	.338		.439
MOTV13	.280		.557
MOTV14			.527

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

It was decided to remove MOTV4, MOTV12, MOTV13 and MOTV14. After removing these items, a second EFA was conducted and the results indicated two factors. Factor 1 had an Eigenvalue of 4.477 and explained 39.8% of the common variance. Factor 2 had an Eigenvalue of 1.412 and explained an additional 9.1% of the common variance. In total these two factors explained approximately 49% of the total common variance (see Table 98). The scree plot (Figure H.13, Appendix H) also indicated two factors.

Table 98: Total variance explained: Initial Eigenvalues: MOTV – items removed

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.477	44.768	44.768	3.980	39.795	39.795
2	1.412	14.121	58.889	.910	9.096	48.891
3	.804	8.043	66.932			
4	.708	7.078	74.010			
5	.540	5.405	79.414			
6	.518	5.184	84.598			
7	.453	4.529	89.126			
8	.430	4.295	93.422			
9	.338	3.385	96.806			
10	.319	3.194	100.000			

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.

The rotated pattern matrix (Table 99) indicated the factor loadings onto the two factors, with only MOTV5 and MOTV11 cross-loading. It was decided to retain these items within the factors where they had the strongest loadings. All of the factor loadings were above the desired level of .50, except for MOTV 3 (.496) and MOTV5 (.483), yet was still acceptable for EFA (Costello & Osborne, 2005).

Table 99: Rotated pattern matrix: MOTV

	Factor	
	1	2
MOTV1		.719
MOTV2		.843
MOTV3		.496
MOTV5	.216	.483
MOTV6	.599	
MOTV7	.682	
MOTV8	.762	
MOTV9	.813	
MOTV10	.729	
MOTV11	.589	.229

Note: Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Factor loadings lower than 0.20 were blanked out to facilitate ease of interpretation.

As indicated in Chapter 4, MOTV is a complex phenomenon and has been explored by numerous researchers from both the tourism and sports market. Several authors have aimed to segment the sports tourism market through behaviouristic segmentation based on motivations (Kurpis & Bozman, 2011). A great number of authors have also identified underlying psychographic drivers of sport attendance, with several models developed such as the Sport Fan Motivation Scale of Wann (1995) (eustress, escapism, entertainment, aesthetic pleasure, group affiliation, family needs, potential economic gain, and self-esteem enhancement); the Motivation Scale for Sport Consumption by Trail and James (2001) (vicarious achievement, knowledge acquisition, drama, aesthetics, appreciation of athletes' skills, physical attraction to athletes, escape, family and social interaction); and the Sport Interest Inventory by Funk *et al.* (2003, 2004) (attraction, self-expression, centrality to lifestyle and risk).

For this study a combination of the Sport Interest Inventory by Funk *et al.* (2003), the categories developed by Smith and Stewart (2007) and tourist motivations identified by Dolnicar and Leisch (2008b) were used to encapsulate the broad range of possible psychological drivers of sport consumption motivation. Upon interpreting the factor loadings of the items however, it appeared that the opinion of Snelgrove *et al.* (2008) is supported. They postulated that in general, there are three types of motives driving attendance: (i) motives related to being a fan of the sport; (ii) motives related to leisure preferences; and (iii) motives related to identification with the subculture of the sport at the event. They stated that the greatest differences will be found between those travelling specifically to watch an event and those that attend casually (local residents or tourists who are actually visiting the location for other reasons than the event. Returning to the factor items, MOTV6, MOTV7, MOTV8, MOTV9, MOTV10 and MOTV11 relate to various aspects around leisure preferences:

- MOTV6 and MOTV7 are regarded as leisure preferences in tourism, but also belong to the centrality-to-life factor identified by Funk *et al.* (2004).
- MOTV 8 to MOTV11 form part of the 'attraction' factor identified by Funk *et al.* (2004), the 'psychological' dimension by Smith and Stewart (2007) and the leisure motivations by Dolnicar and Leisch (2008). This category is typical to sports tourism motivations where one finds similar general motivations such as excitement and relaxation (Weed & Bull, 2004).

MOTV1, MOTV2, MOTV3 and MOTV5 relate to aspects around the sport itself:

- MOTV1 and MOTV2 focus on the interest in sport (which was a factor identified by Funk *et al.*, 2004).
- MOTV3 focuses on self-expression through the sport (another factor identified by Funk *et al.*, 2004).
- MOTV5 focuses on centrality-to-life and belonging needs met through the sport (a factor identified by Funk *et al.*, 2004 and Smith & Stewart, 2007).

Looking at the substantive content of the items that cluster together, a central theme in the first cluster is thus related to Leisure MOTV, whilst the second cluster relates to Sport MOTV. The two factors emerging for MOTV are as follows:

Table 100: Two factors emerging for MOTV

Factor 1	**Factor 2**
New label: Leisure MOTV	**New label: Sport MOTV**
MOTV6: Spend time with family	MOTV1: Cycling is my favourite sport
MOTV7: Spend time with friends	MOTV2: Learn more about the sport of cycling
MOTV8: The friendly, family atmosphere	MOTV3: Share a feeling of accomplishment with the riders
MOTV9: Spend time outdoors	MOTV5: Meet other people with similar interests as myself
MOTV10: For relaxation	
MOTV11: For excitement	

For the rest of the analyses these two factors were deemed unique, yet related factors of the same construct.

Reliability analysis: Leisure MOTV

Leisure MOTV reported (Table 101) a satisfactory alpha coefficient of 0.854, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 101: Item-total statistics for Leisure MOTV

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
MOTV6	.531	.853
MOTV7	.628	.832
MOTV8	.710	.818
MOTV9	.688	.822
MOTV10	.675	.823
MOTV11	.637	.830

Note: MOTV4, MOTV12, MOTV13 and MOTV14 removed after the EFA

Reliability analysis: Sport MOTV

Sport MOTV reported (Table 102) a satisfactory alpha coefficient of 0.747, thus achieving the cut-off of value of .70 (Kline, 2011). All of the corrected item-total correlations were $\geq$ 0.25 (Kline, 2011) and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 102: Item-total statistics for Sport MOTV

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
MOTV1	.564	.676
MOTV2	.624	.644
MOTV3	.495	.714
MOTV5	.494	.718

Note: MOTV4, MOTV12, MOTV13 and MOTV14 removed after the EFA

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory factor analysis: Leisure MOTV

Table 103 indicates the goodness of fit statistics for the Leisure MOTV subscale. Both the RMSEA and SRMR indicated poor fit. Furthermore, both the CFI and TLI were below the desired value for good fit (0.9). In considering the construct validity of the Leisure MOTV scale, poor fit was therefore evident and the construct validity not beyond suspicion. This suggested that the model had to be revised to improve the model fit for use in the SEM.

Table 103: Goodness of Fit Statistics for Leisure MOTV

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
633.20	39	0.000	1.510	0.154	0.000	[0144 .165]	.569	.503	0.218

Note. MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Table 104 provides the model parameters for Leisure MOTV.

Table 104: Model parameters for Leisure MOTV

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
MOTV6	0.462*	0.547*	0.701*	0.299*
MOTV7	0.489*	0.636*	0.596*	0.404*
MOTV8	0.544*	0.744*	0.446*	0.554*
MOTV9	0.549*	0.761*	0.421*	0.579*
MOTV10	0.536*	0.702*	0.507*	0.493*
MOTV11	0.541*	0.692*	0.522*	0.478*

Note: * $p < 0.05$

As can be seen in Table 104, all the standardised factor loadings achieved the cut-off value of 0.30 (Kline, 2011). MOTV6 ("Spend time with family") displayed the highest standardised residual value (0.701). All of the R^2 values were above the cut-off value of 0.25.

Given the poor model fit, it was decided to remove MOTV6 and MOTV7 as the items that displayed the lowest standardised factor loadings, in an attempt to improve model fit. A second round of CFA was conducted.

Confirmatory factor analysis: Leisure MOTV – items removed

Table 105 indicates the goodness of fit statistics for the Leisure MOTV scale after the removal of MOTV6 and MOTV7.

Table 105: Goodness of Fit Statistics for Leisure MOTV – items removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
10.675	2	0.005	2.764	.082	.103	[.039 .134]	.977	.930	0.027

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Both the RMSEA and SRMR indicated good fit, with the RMSEA only slightly above the desired level of .08 at .082. Both the CFI and TLI also indicated good fit. In considering the construct validity of the Leisure MOTV scale, good fit was therefore evident after the removal of MOTV6 and MOTV7.

Table 106 provides the model parameters for Leisure MOTV.

Table 106: Model parameters for Leisure MOTV – items removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
MOTV8	0.495*	0.678*	0.540*	0.460*
MOTV9	0.558*	0.772*	0.403*	0.597*
MOTV10	0.562*	0.737*	0.457*	0.543*
MOTV11	0.578*	0.739*	0.454*	0.546*

Note: * $p < 0.05$

As can be seen in Table 106, all the standardised factor loadings exceeded the cut-off value of 0.30 (Kline, 2011). All of the R^2 values were above the cut-off value of 0.25.

The Leisure MOTV scale thus displayed good model fit and was therefore retained for the purposes of specifying the structural model.

Confirmatory factor analysis: Sport MOTV

Table 107 provides the goodness-of-fit statistics for the Sport MOTV sub-scale.

Table 107: Goodness of Fit Statistics for Sport MOTV

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
5.478	2	0.064	1.462	0.052	0.384	[.000 .106]	.991	.973	.017

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA indicated reasonable fit and SRMR indicated good fit. Both the CFI and TLI were above the desired value for good fit (0.9). In considering the construct validity of the Sport MOTV scale, good fit was therefore evident.

Table 108 provides the model parameters for Sport MOTV.

Table 108: Model parameters for Sport MOTV

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
MOTV1	0.592*	0.678*	0.540*	0.460*
MOTV2	0.621*	0.769*	0.408*	0.592*
MOTV3	0.442*	0.589*	0.652*	0.348*
MOTV5	0.527*	0.584*	0.659*	0.341*

Note: * $p < 0.05$

As indicated in Table 108, all standardised factor loadings were statistically significant ($p < 0.05$) and ranged between 0.584 and 0.769, exceeding the cut-off value of 0.30 (Kline, 2011). MOTV5 displayed the highest standardised residual value (0.659). All R^2 values were above the cut-off value of 0.25.

The Sport MOTV scale thus displayed satisfactory model fit and was therefore retained for the purposes of specifying the structural model.

6.3.2.3.6 Behavioural Benefits (BNFT)

Descriptive statistics

Descriptive statistics for the BNFT scale are indicated in Table 109.

Table 109: Descriptive statistics for the BNFT Scale

Item	Q nr.	*N:* Valid	*N:* Missing*	Mean	Median	Std. Deviation	Skewness	Kurtosis
BNFT1	4.7	724	310	2.23	2.00	.743	-.391	-1.106
BNFT2	4.8	727	307	2.09	2.00	.803	-.155	-1.435
BNFT3	4.14	729	305	2.39	3.00	.717	-.724	-.753

* Missing values as a result of scale changes were discussed in section 5.7.1, Chapter 5

As indicated in Table 109, item BNFT3 ("Knowing that I will be prosecuted and/or given a fine if I don't comply" – avoiding punishment as benefit) displayed the highest mean score (2.39). The lowest mean score (2.09) was found for item BNFT2 ("Receiving cash for every bag of litter that I hand in after the race"). All the items displayed negative skewness, meaning that scores tend to cluster at the higher end of the response scale ("very encouraging") above the mean (Kline, 2011). Non-normality of the data was also indicated by the Kolmogorov-Smirnov test results, with $p < 0.05$ reported for all the items. The frequency distribution of the BNFT scale is presented in Table G.10 of Appendix G. The sample size was adequate for FA (Costello & Osborne, 2005).

Dimensionality analysis (EFA)

Dimensionality analysis for BNFT started with the KMO and Bartlett's test. A KMO value of 0.613 ($p < 0.05$) was reported. Table 110 provides the initial Eigenvalues of the BNFT scale.

Table 110: Total variance explained: Initial Eigenvalues: BNFT

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.561	52.017	52.017	.861	28.700	28.700
2	.768	25.616	77.633			
3	.671	22.367	100.000			

Note: Extraction Method: Maximum Likelihood.

As indicated in Table 110, one factor emerged with an Eigenvalue of 1.561 and explained approximately 29% of the total common variance. The scree plot (Figure H.14, Appendix H) also indicated a one factor solution. Inspection of the factor matrix (Table 111) indicated that INCV1 and INCV2 loaded slightly below the desired value of .50, but still at an acceptable level for EFA (Costello & Osborne, 2005).

Table 111: Factor Matrix: BNFT

	Factor
	1
BNFT1	.488
BNFT2	.630
BNFT3	.475

Note: Extraction Method: Maximum Likelihood.

The BNFT scale was therefore regarded as uni-dimensional, and therefore no additional items were considered for deletion.

Reliability analysis

BNFT reported (Table 112) an unsatisfactory alpha coefficient of 0.539, thus not achieving the cut-off of value of .70 (Kline, 2011). This low alpha level may be ascribed to the limited number of items in the scale (Costello & Osborne, 2005). Due to the low alpha level, the internal consistency reliability of the scale is low and any linkages to or from this construct should be interpreted with caution. All of the corrected item-total correlations were $\geq$ 0.25 and the deletion of none of the individual items would make a significant improvement to the overall alpha coefficient. Therefore no items were considered for deletion at this stage.

Table 112: Item-total statistics for BNFT

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
BNFT1	.337	.458
BNFT2	.387	.376
BNFT3	.330	.470

After completing the dimensionality and reliability analysis, the researcher could proceed to the CFA for both factors.

Confirmatory factor analysis

Table 113 indicates the goodness of fit statistics for BNFT.

Table 113: Goodness of Fit Statistics for BNFT

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
0.000	0	0.000	1.000	0.000	0.000	[.000 .000]	1.00	1.00	0.000

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Since only three items are used to operationalise the construct, it was expected to find a just-identified CFA model with perfect fit (Kline, 2011). The construct validity of the BNFT scale could therefore not be considered proven. However, the strength and significance of the model parameters can be investigated further.

Table 114 provides the model parameters for BNFT.

Table 114: Model parameters for BNFT

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	Estimate	Estimate	Estimate	Estimate
BNFT1	1.314*	0.719*	0.483*	0.517*
BNFT2	0.720*	0.560*	0.686*	0.314*
BNFT3	1.623*	0.965*	0.069	0.931*

Note: * $p < 0.05$

As indicated in Table 114, the standardised factor loadings were statistically significant and ranged between 0.560 and 0.965, exceeding the cut-off of 0.30 (Kline, 2011). BNFT2 displayed the highest value (0.686). All R^2 values were above the cut-off value of 0.25.

The BNFT scale thus displayed satisfactory model fit and was therefore retained for the purposes of specifying the structural model.

Up to this point, the analyses have focused on the individual scales and items of the independent variables separately. The next step before analysis of a proposed structural model is to explore the dependent variables collectively from a measurement perspective. In other words, the total exogenous measurement model (the aspects of the model related to the dependent variables) has to be considered.

6.3.2.4 Total exogenous measurement model

Before overall model fit and parameters can be tested, it is necessary to make the necessary refinements to the various scales based on the results of the previous item and factorial analyses. Once all the scales have been refined ('cleared' of poor items), the overall model fit, model parameters and latent factor correlations of the total exogenous (and endogenous) measurement models is an important prerequisite for the testing of the structural relationships in the total SEM model.

6.3.2.4.1 Measurement model refinement

Before measurement of the total exogenous model commences, it is important to summarise all the refinements that have been made to the individual scales. Based on the preceding analyses, the following refinements were made:

SJN

The following reverse coded items were removed after the EFA:
- SJN4 - "Being frowned upon if I go out of my way to be too environmentally responsible".
- SJN5 – "Knowing that no one else is being environmentally responsible".

EMS

The following items were removed after the CFA:

- EMS7 – "Clearly marked viewing areas".
- EMS8 – "People that assist me with the recycling activities".

MOTV

The following items were removed after the EFA:

- MOTV4 – "Support a specific rider/team of riders".
- MOTV12 – "To escape the reality of my daily life".
- MOTV13 – "It is free entertainment".
- MOTV14 – "I happened to be in the area".

MOTV then split into two factors: Leisure MOTV and Sport MOTV.

Table 100: Two factors emerging for MOTV

Factor 1	Factor 2
New label: Leisure MOTV	**New label: Sport MOTV**
MOTV6: Spend time with family	MOTV1: Cycling is my favourite sport
MOTV7: Spend time with friends	MOTV2: Learn more about the sport of cycling
MOTV8: The friendly, family atmosphere	MOTV3: Share a feeling of accomplishment with the riders
MOTV9: Spend time outdoors	MOTV5: Meet other people with similar interests as myself
MOTV10: For relaxation	
MOTV11: For excitement	

The following items were removed after the CFA:

- MOTV6 – "Spend time with family".
- MOTV7 – "Spend time with friends".

Once these items had been removed, the total exogenous measurement model could be tested. It consisted of CST, SJN, EMS, PEA, Leisure MOTV, Sport MOTV and BNFT.

6.3.2.4.2 Model fit

The goodness of fit statistics for the total exogenous measurement model are presented in Table 115.

Table 115: Goodness of fit statistics for the total exogenous measurement model

Chi-square test of model fit				**RMSEA**			**CFI/TLI**		**SRMR**
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
1431.6	303	0.000	1.721	.076	.000	[.072 .080]	.743	.702	.071

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

Both the RMSEA and SRMR indicated good fit. However, the CFI and TLI were below the desired level of good fit (.90). In considering the construct validity of the total exogenous measurement model, satisfactory fit was therefore evident.

6.3.2.4.3 Model parameters

Table 116 provides the model parameters for the six exogenous variables within the total exogenous measurement model.

As indicated in Table 116, the standardised factor loadings were statistically significant and ranged between 0.263 and 0.856. The factor loading of CST3 (.263) did not achieve the cut-off of 0.30 (Kline, 2011). CST3 also displayed the highest residual variance (0.931). The R^2 values of CST2 (.110), CST3 (.069), SJN1 (.114), SJN6 (.098) and BNEFT3 (.294) were below the cut-off value of 0.25. At the individual item level, CST3 displayed a satisfactory factor loading in the CFA. Only at the global level did it not achieve the cut-off of .30. In order not to have only two items to operationalise CST, it was decided to retain the problematic item CST3.

Table 116: Model parameters for the total exogenous measurement model

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
		CST		
CST1	1.000	.787*	.381*	.619*
CST2	.309*	.331*	.890*	.110*
CST3	.299*	.263*	.931*	.069*
		SJN		
SJN1	1.000	.338*	.886*	.114*
SJN2	3.061*	.767*	.411*	.589*
SJN3	3.714*	.802*	.357*	.634*
SJN6	.858*	.312*	.902*	.098*
		EMS		
EMS1	1.000	.741*	.452*	.548*
EMS2	.892*	.628*	.606*	.394*
EMS3	1.259*	.847*	.282*	.718*
EMS4	1.329*	.837*	.300*	.700*
EMS5	.862*	.733*	.463*	.537*
EMS6	.714*	.647*	.581*	.419*
		PEA		
PEA1	1.000	.704*	.505*	.495*
PEA2	1.040*	.690*	.524*	.476*
PEA3	1.080*	.739*	.454*	.546*
		Leisure MOTV		
MOTV8	1.000	.678*	.540*	.460*
MOTV9	1.100*	.754*	.431*	.569*
MOTV10	1.136*	.737*	.457*	.543*
MOTV11	1.194*	.757*	.428*	.572*
		Sport MOTV		
MOTV1	1.000	.670*	.550*	.450*
MOTV2	.980*	.711*	.495*	.505*
MOTV3	.770*	.601*	.639*	.361*
MOTV5	.994*	.645*	.584*	.416*
		BNFT		
BENFT1	1.000	.856*	.268*	.732*
BENFT2	.877*	.815*	.335*	.665*
BENFT3	.445*	.542*	.706*	.294*

Note: * $p < 0.05$

6.3.2.4.3 Latent factor correlations

The last step in evaluating the total exogenous measurement model is to test the correlations between the individual latent variables. This entails exploring the covariances and intercorrelations between the respective scales; as opposed to the discussions thus far that have focused on an item level. The correlations between the seven independent variables, CST, SJN, EMS, PEA, leisure MOTV, sport MOTV and BNFT were evaluated.

Correlations investigate both the strength and direction of the relationship. To interpret the correlations, the guidelines suggested by Field (2009) were followed. Accordingly, r = 0.10 to 0.30 is a small effect size; r = 0.30 to 0.50 shows a medium effect size; and r $\geq$ 0.50 indicates a large effect size.

Table 117: Estimated correlation matrix for the latent variables of the exogenous measurement model

	1	2	3	4	5	6	7
(1) CST	1.000						
(2) SJN	1.036*	1.000					
(3) EMS	1.105*	1.010*	1.000				
(4) PEA	0.215*	0.219*	0.209*	1.000			
(5) Leisure MOTV	**0.046**	**0.084**	0.101*	0.398*	1.000		
(6) Sport MOTV	0.147*	0.166*	0.120*	0.698*	0.593*	1.000	
(7) BNFT	0.983*	0.844*	0.959*	0.184*	0.060*	0.135*	1.000

Note: * $p < 0.05$; Non-significant correlations are in boldface

As can be seen from Table 117, there is a perfect correlation between SJN and EMSs (1.010), as well as SJN and CST (1.036). SJN is often regarded as the weakest predictor in the TPB (Nigbur *et al*., 2010) and it is closely linked to several other related factors such as personal values and moral norms (Cameron, 2002; Bicchieri', 2006) not tested in this study. Because a structural model cannot be fitted with perfectly correlated latent variables (Kline, 2011) that lead to infinite standard errors and indeterminant coefficients (Garson, 2012), it was decided to exclude SJN instead of EMS due to the specific relevance of EMS to the study context. Theoretical and practical implications of the high correlation found between the two variables will be discussed in Chapter 7.

Confirmatory factor analysis: total exogenous measurement model – SJN scale removed

After the removal of SJN, a second round of CFA was conducted on the total exogenous measurement model. Table 118 indicates the fit indices, Table 119 the model parameters and Table 120 the latent factor correlations.

Table 118: Goodness of fit statistics for the total exogenous measurement model – SJN removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
948.90	215	1.602	0.000	.073	.000	[.068 .078]	.801	.765	.063

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA and SRMR indicated good fit. However, both the CFI and TLI were below the desired level of .90. The fit indices thus indicated satisfactory model fit.

As can be seen from Table 119, all the standardised factor loadings were statistically significant and ranged between .265 and .854. The standardised factor loadings for CST3 (.265) did not achieve the cut-off value of .30 (Kline, 2011). CST3 (.930) also displayed the highest standard residual variances. The R^2 values for CST2 (.107) and CST3 (.070) also did not achieve the cut-off value of 0.25. As explained previously (section 6.3.2.4.3), the problematic item CST3 would be retained. At the individual item level, CST3 displayed a satisfactory factor loading in the CFA. Only at the global level did it not achieve the cut-off of .30. In order not to have only two items to operationalise CST, it was decided to retain the problematic item CST3.

Table 119: Model parameters for the total exogenous measurement model – Subjective Norms removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
		CST		
CST1	1.000	.789*	.377*	.623*
CST2	.305*	.328*	.893*	.107*
CST3	.300*	.265*	.930*	.070*
		EMS		
EMS1	1.000	.704*	.504*	.496*
EMS2	.910*	.609*	.629*	.371*
EMS3	1.331*	.852*	.275*	.725*
EMS4	1.415*	.847*	.283*	.717*
EMS5	.921*	.744*	.447*	.553*
EMS6	.784*	.676*	.544*	.456*
		PEA		
PEA1	1.000	.704*	.505*	.495*
PEA2	1.040*	.690*	.524*	.476*
PEA3	1.080*	.739*	.454*	.546*
		Leisure MOTV		
MOTV8	1.000	.678*	.540*	.460*
MOTV9	1.098*	.753*	.433*	.567*
MOTV10	1.137*	.738*	.456*	.544*
MOTV11	1.195*	.757*	.426*	.574*
		Sport MOTV		
MOTV1	1.000	.671*	.549*	.451*
MOTV2	.979*	.711*	.494*	.506*
MOTV3	.767*	.599*	.641*	.359*
MOTV5	.993*	.645*	.584*	.416*
		BNFT		
BENFT1	1.000	.854*	.271*	.729*
BENFT2	.879*	.816*	.335*	.665*
BENFT3	.449*	.545*	.702*	.298*

Note: * $p < 0.05$

The correlations between the six independent variables, CST, EMS, PEA, leisure MOTV, sport MOTV and BNFT were evaluated. To interpret the correlations, the guidelines suggested by Field (2009) were followed. Accordingly, r = 0.10 to 0.30 is a small effect size; r = 0.30 to 0.50 shows a medium effect size; and r $\geq$ 0.50 indicates a large effect size.

In the initial statistical output, the programme gave a warning of a high correlation between latent variables and specifically mentioned CST and EMSs. Table 120 presents the latent factor correlations for the total exogenous measurement model.

Table 120: Estimated correlation matrix for the latent variables of the exogenous measurement model – SJN removed

	CST	EMS	PEA	Leisure MOTV	Sport MOTV	BNFT
CST	1.000					
EMS	1.097*	1.000				
PEA	0.214*	0.204*	1.000			
Leisure MOTV	**0.046**	0.100*	0.398*	1.000		
Sport MOTV	0.147*	0.117*	0.699*	0.593*	1.000	
BNFT	0.980*	0.962*	0.184*	**0.060**	0.135*	1.000

Note: * $p < 0.05$; Non-significant correlations are in boldface

As can be seen from Table 120, there is a perfect correlation between CST and EMSs (1.097). This correlation makes theoretical sense, as it is participation or use of the system that creates the perceived costs (costs in time, enjoyment and ability to watch the race). Respondents thus perceived the EMS and costs to be highly related. Because a structural model cannot be fitted with perfectly correlated latent variables (Kline, 2011) that lead to infinite standard errors and indeterminant coefficients (Garson, 2012), it was decided to exclude CST from further inclusion in the structural model. It is argued that the inclusion of EMS is of greater relevance to the study context.

The extreme correlation between EMS and BNFT (0.962) is also noted. Correlations >.80 are regarded as extremely high and problematic, but are however a situation often found in studies using SEM (Garson, 2012:44; Grewal, Cote & Baumgartner, 2004). SEM models are not necessarily robust against multicollinearity problems, and should a model include such a situation (such as in this study) it has to be considered that it may lead to large standard errors and weakened predictive power. It leads to an increase in the change of Type II errors – falsely concluding that there is not a relationship between variables when in fact there is one (Garson, 2012; Grewal *et al.*, 2004). Taking these effects into consideration, it was decided to retain BNFT for inclusion in the model.

Confirmatory factor analysis: total exogenous measurement model – CST scale removed

After the removal of CST, a third round of CFA was conducted on the total exogenous measurement model. Table 121 indicates the fit indices, Table 122 the model parameters and Table 123 the latent factor correlations.

Table 121: Goodness of fit statistics for the total exogenous measurement model – CST removed

Chi-square test of model fit				RMSEA			CFI/TLI		SRMR
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
765.8	160	0.000	1.412	.077	.000	[.071 .082]	.816	.782	.058

Not: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

The RMSEA and SRMR indicated good fit. However, both the CFI and TLI were below the desired level of .90. The fit indices thus indicated satisfactory model fit.

As can be seen from Table 122, all the standardised factor loadings were statistically significant and ranged between .581 and .869, exceeding the cut-off value of .30 (Kline, 2011). All the R^2 also achieved the cut-off value of 0.25.

The total exogenous measurement model thus displayed good model fit after the removal of the SJN and CST scales and was suitable for testing the structural model.

Table 122: Model parameters for the total exogenous measurement model – Behavioural Costs removed

	Unstandardised factor loadings	Standardised factor loadings	Standardised residual variances	R-Square
Item	**Estimate**	**Estimate**	**Estimate**	**Estimate**
		EMS		
EMS1	1.000	.651*	.576*	.424*
EMS2	.940*	.581*	.662*	.338*
EMS3	1.362*	.806*	.351*	.649*
EMS4	1.570*	.869*	.245*	.755*
EMS5	1.060*	.791*	.374*	.626*
EMS6	.915*	.729*	.468*	.532*
		PEA		
PEA1	1.000	.703*	.506*	.494*
PEA2	1.042*	.691*	.523*	.477*
PEA3	1.082*	.739*	.454*	.546*
		Leisure MOTV		
MOTV8	1.000	.677*	.542*	.458*
MOTV9	1.100*	.753*	.432*	.568*
MOTV10	1.139*	.738*	.455*	.545*
MOTV11	1.197*	.757*	.426*	.574*
		Sport MOTV		
MOTV1	1.000	.669*	.553*	.447*
MOTV2	.983*	.711*	.494*	.506*
MOTV3	.770*	.599*	.641*	.359*
MOTV5	1.000*	.647*	.581*	.419*
		BNFT		
BENFT1	1.000	.840*	.295*	.705*
BENFT2	.894*	.816*	.335*	.665*
BENFT3	.484*	.579*	.665*	.335*

The correlations between the five remaining independent variables, EMS, PEA, leisure MOTV, sport MOTV and BNFT were evaluated (refer to Table 123). To interpret the correlations, the guidelines suggested by Field (2009) were followed. Accordingly, r = 0.10 to 0.30 is a small effect size; r = 0.30 to 0.50 shows a medium effect size; and r $\geq$ 0.50 indicates a large effect size.

Table 123: Estimated correlation matrix for the latent variables of the total Exogenous measurement model – CST removed

	EMS	PEA	Leisure MOTV	Sport MOTV	BNFT
EMS	1.000				
PEA	.194*	1.000			
Leisure MOTV	.100*	.398*	1.000		
Sport MOTV	.110*	.699*	.594*	1.000	
BNFT	.969*	.185*	**.062**	.137*	1.000

Note: * $p < 0.05$; Non-significant correlations are in boldface

The correlations were in line with the theory and expected outcomes, and included:

- Small positive (and significant) correlations PEA and EMS; Leisure MOTV and EMS; Sport MOTV and EMS; as well as BNFT and PEA and Sport MOTV respectively (interestingly, there was an insignificant and very small correlation between BNFT and Leisure MOTV).
- A positive medium correlation between Leisure MOTV and PEA.
- Large positive correlations between Sport MOTV and PEA; Sport MOTV and Leisure MOTV; BNFT and EMS. The large correlation between the two types of motivation can be ascribed to the two factors measuring the same underlying construct of MOTV. The correlation between BNFT and EMS may be ascribed to the fact that the benefits (receiving cash for litter picked up; receiving discount on public transport; and avoiding prosecution/fines) are all benefits that arise from the EMS set by the event owner. In other words, these are benefits that are created by (determined by) the event organisers and stated as such through relevant communication. As explained previously (discussion of Table 120), an extremely high correlation of .969 is regarded as problematic (Garson, 2012; Grewal *et al.*, 2004). Taking the effects of such multicollinearity into consideration, it was decided to retain BNFT for inclusion in the model.

The results and discussion thus far have focused on the descriptive statistics, item and factorial level measurement model analyses of the total endogenous and exogenous measurement models. Through these results and process of refinement, the construct validity of the measurement models has been established. As a result the structural model can now be evaluated.

6.3.3 <u>The structural model</u>

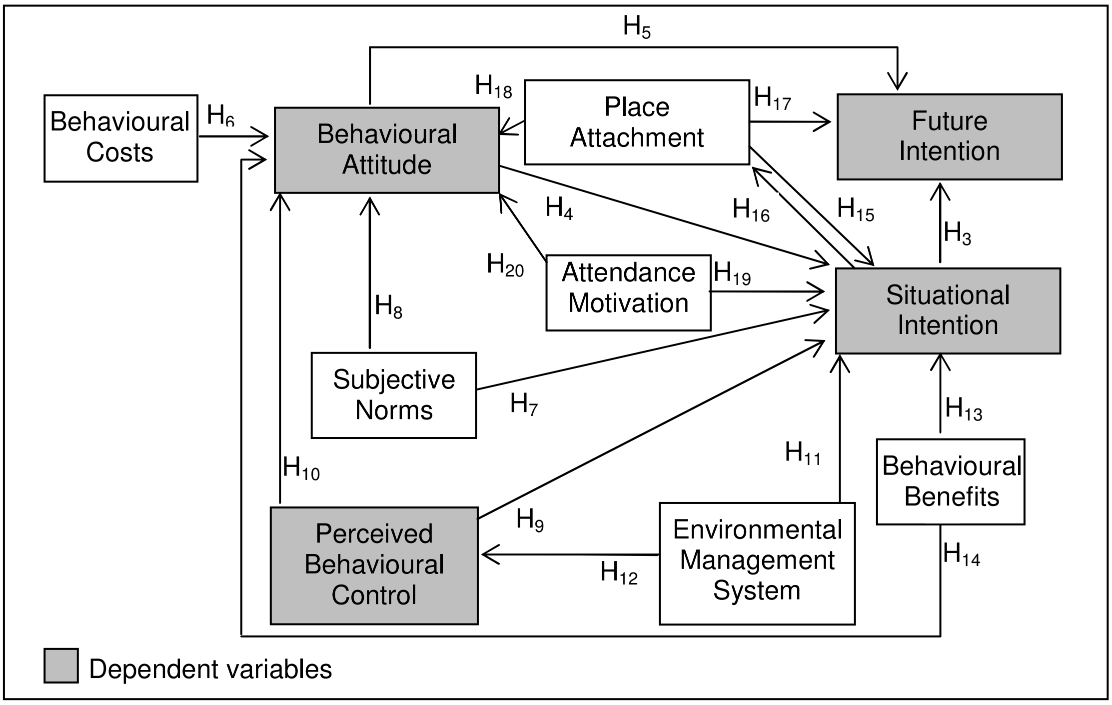
The last part of the SEM process involves the confirmatory factor analysis (model fit and parameters) of the refined theoretical model. It also includes evaluation of the study hypotheses and reported commonalities.

6.3.3.1 Proposed theoretical model

As discussed in Chapter 4, a range of hypotheses were developed for this study to depict the factors influencing the ERB of sport event spectators. These hypotheses served as the foundation from which to structure the proposed theoretical model. A rigorous process of analyses and refinements of the measurement models lead to a refined measurement model that can be empirically assessed through SEM. The aim of analysing the overall structural model and structural linkages between the variables is to determine whether the initial theorised relationships (hypotheses) were supported by the data collected in the study.

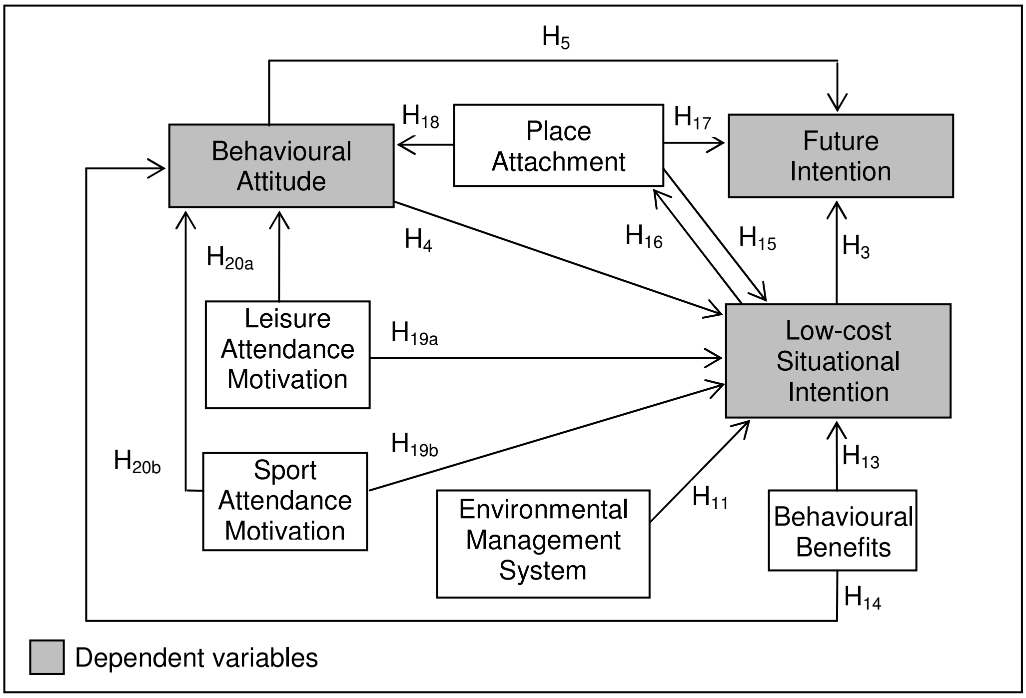
Figure 39 depicts the original proposed structural model as presented in Chapter 4, along with the hypotheses. Figure 40 depicts the refined model (overall structural model) indicating the variables and relationships (along with the relevant hypotheses) that remained for the final analysis after the statistical refinement process described up to this point. The changes from the original model include the exclusion of SJN, PBC and CST; the split of MOTV into two factors (Leisure MOTV and Sport MOTV), as well as the split of STI into two factors (Low-cost STI and High-cost STI, of which the latter was excluded based on measurement concerns). These changes were made based on methodological and theoretical considerations as presented in this chapter.

Figure 39: Proposed structural model with hypothesised linkages



As indicated in Figure 40, both H_{19} and H_{20} had to be split into two sub-hypotheses to accommodate the split of MOTV into two factors. Due to the exclusion of SJN, PBC and CST, the following hypotheses could not be tested: H_6, H_7, H_8, H_9, H_{10} and H_{12}.

Figure 40: Refined structural model with remaining hypothesised linkages



6.3.3.2 Model fit

The following overarching model-directed hypotheses were formulated to test the fit of the model with the data:

$H0_1$: The model fits the data exactly

Ha_1: The model does not fit the data exactly

$H0_2$: The model has close fit to the data

Ha_2: The model does not have close fit to the data

To test these hypotheses, the model chi-square and fit indices were evaluated. Table 124 indicates the goodness of fit statistics for the refined structural model.

Table 124: Goodness of fit statistics for the total exogenous measurement model – CST removed

Chi-square test of model fit				**RMSEA**			**CFI/TLI**		**SRMR**
Value	Degrees of freedom	P value	Scaling correction factor for MLR	Estimate	P value RMSEA (p<.05)	90% CI	CFI	TLI	Value
2457.9*	843	0.000	1.442	.055	.001	[.052 .057]	.712	.692	.064

Note: MLR = Robust maximum likelihood; RMSEA = Root mean square error of approximation; CI = confidence interval; CFI = Comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardised root-mean-square residual.

As indicated in Table 124, both the RMSEA and SRMR indicated good model fit. The CFI and TLI values were below the desired level (>0.9). However, considered collectively, the model showed adequate, yet not good fit to the empirical data.

As discussed in Chapter 5 (section 5.9.9.3), model fit evaluates the extent to which the theoretical model is supported by the sample data, and it can be approached by investigating exact/absolute fit, as well as close fit .

The hypothesis of perfect fit was formulated as follows:

$H0_1$: The model fits the data exactly

Ha_1: The model does not fit the data exactly

The model chi-square evaluates the overall model for exact fit. As indicated in Table 124, a large Satorra-Bentler chi-square of 2457.967* with a significant p-value (*p*=0.000) was reported, resulting in rejection of the null hypothesis of exact fit (and acceptance of the alternative hypothesis). By implication, the refined theoretical model does not fit the empirical data exactly. Importantly, some researchers argue that the exact fit hypothesis is implausible in many applications of SEM as ‘perfection’ is not the usual standard for testing statistical models (Kline, 2011). For this reason, the null hypothesis of close fit is also examined.

The hypothesis of close fit was formulated as follows:

$H0_2$: The model has close fit to the data
Ha_2: The model does not have close fit to the data

The RMSEA is a measure of the error of approximation in the population and is used to test the model for close fit. As indicated in Table 124, the RMSEA reported a statistically significant p-value (*p*=0.001), resulting in rejection of the null hypothesis of close fit (and acceptance of the alternative hypothesis). This implies that the structural model does not fit the data closely.

Importantly, it is stated that the decision of acceptance or rejection of exact or close fit does not by itself determine whether to reject the model or to retain it. It is not guaranteed that a model with apparent ‘acceptable’ overall fit will explain the observed associations between certain pairs of variables within the model (Kline, 2011). Even though it provides preliminary evidence against a model, there are various other factors that should be taken into consideration such as the data distribution (normality) and also the sampling distribution (random). Sample size also plays a role in magnifying any model-data discrepancies in the case of large samples, such as in this study. In such instances even small discrepancies could be large enough to trigger a statistically significant test result. In such instances the failed test (statistically significant value of the model chi-square) may be as a result of sample size and it may be possible to retain the model (Kline, 2011).

The model test statistics (model chi-square) should always be viewed along with the approximate fit indexes (such as the RMSEA and SRMR). At the same time these indexes also have their limitations and should be viewed as providing qualitative or descriptive information about model fit only. It has, for example, been argued that the specified thresholds should not be regarded as “golden rules”, where the decision to accept or reject a model is based on the results of a singular fit statistic (Kline, 2011). Rather, it is suggested that the range of indexes are used as complementary information (Iacobucci, 2010; Kline, 2011). To conclude, considering all the fit indices, the model did not fit the data well, but good enough to interpret the model parameters.

The results of the model parameter estimates as an additional measure are presented next.

6.3.3.3 Model parameters

The path coefficients, or statistical estimates of the direct relationships between latent variables, are interpreted as regression coefficients (Kline, 2011). At this level, the focus is on the paths between the various exogenous and endogenous variables in the model as depicted in the hypotheses. Gamma values (γ) are calculated for relationships between an independent variable and a dependent variable, while beta values (β) are calculated for relationships between a dependent and a dependent variable (Iacobucci, 2009).

Table 125 presents the regression coefficients of the structural model. Indicated is the related hypothesis, along with the unstandardised gamma and beta values to indicate statistical significance (after Kline, 2011). The level of statistical significance is indicated by an asterisk (*$p < 0.05$).

Table 125: Gamma and beta parameters for the refined structural model

Hypothesis	β Unstandardised
H_3	1.057*
H_4	-1.107
H_5	.002
Hypothesis	**γ Unstandardised**
H_{11}	-.342
H_{13}	-.145
H_{14}	-1.136
H_{15}	-6.637
H_{16}	2.443*
H_{17}	.211
H_{18}	11.884
H_{19a}	.073
H_{19b}	6.929*
H_{20a}	.620
H_{20b}	-8.434

Note: * $p < 0.05$

As shown in Table 125, three of the hypothesised relationships showed statistical significance. These include H_3 (Low-cost STI and FTI), H_{16} (Low-cost STI and PEA) and H_{19b} (Sport MOTV and Low-cost STI). All three these relationships were positive.

Once the model parameters have been considered, the hypotheses related to the proposed relationships between the variables in the structural model can be investigated.

6.3.3.4 Hypothesis testing

Based on the parameters presented in Table 125, the various hypothesised relationships (H_3 to H_{20}) between the variables could be tested.

Table 126 presents the complete set of initially hypothesised relationships, including the linkages depicted in the proposed theoretical model (Chapter 4). It indicates whether the hypothesis could be tested (due to model refinements) and also gives the final evaluation of each tested hypothesis.

Three aspects are important when considering the empirical validation of substantive hypotheses, namely the direction of the relationship (indicated by positive or negative relationships); and the strength and statistical significance of the relationship (indicated by the magnitude and statistical significance of the estimated parameters). When considering the strength of the relationships between latent variables, the guidelines proposed by Field (2009) were followed. Accordingly, r = 0.10 to 0.30 is indicative of a small effect size; r = 0.30 to 0.50 shows a medium effect size; and r $\geq$ 0.50 indicates a large effect size. The Model R^2 values add additional insight into the effect size, and it is relevant for this analysis as the refined structural model contains instances where more than one variable is linked to the dependent variables (Kline, 2011).

Table 126: Empirical evaluation of hypotheses

Unstandardised β	Evaluation	Accepted/Rejected
H_3: Situational Intention positively influences Future Intention.		
1.057*	A significant positive relationship is indicated, with a large effect size.	**Accepted**
H_4: Behavioural Attitude positively influences Situational Intention.		
-1.107	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_5: Behavioural Attitude positively influences Future Intention.		
.002	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
Unstandardised γ	**Evaluation**	**Accepted/Rejected**
H_6: Behavioural Costs negatively influence Behavioural Attitude.		
Due to Behavioural Costs being excluded from the structural model as a result of a high correlation with Environmental Management System, this linkage could not be tested.		
H_7: Subjective Norms positively influence Low-cost Situational intention*.		
Due to Subjective Norms being excluded from the structural model as a result of a high correlation with Environmental Management System, this linkage could not be tested.		
H_8: Subjective Norms positively influence Behavioural Attitude.		
Due to Subjective Norms being excluded from the structural model as a result of a high correlation with Environmental Management System, this linkage could not be tested.		
H_9: Perceived Behavioural Control positively influences Low-cost Situational Intention.		
Due to Perceived Behavioural Control being excluded from the structural model as a result of measurement concerns, this linkage could not be tested.		
H_{10}: Perceived Behavioural Control positively influences Behavioural Attitude.		
Due to Perceived Behavioural Control being excluded from the structural model as a result of measurement concerns, this linkage could not be tested.		
H_{11}: Environmental Management System positively influences Low-cost Situational Intention.		
-.342	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{12}: Environmental Management System positively influences Perceived Behavioural Control.		
Due to Perceived Behavioural Control being excluded from the structural model as a result of measurement concerns, this linkage could not be tested.		
H_{13}: Behavioural Benefits positively influence Low-cost Situational Intention.		
-.145	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{14}: Behavioural Benefits positively influence Behavioural Attitude.		
-1.136	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected

Table continues on the next page

Table 126: Empirical evaluation of hypotheses (continued)

Unstandardised γ	Evaluation	Accepted/Rejected
H_{15}: Place Attachment positively influences Low-cost Situational Intention.		
-6.637	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{16}: Situational Intention positively influences Place Attachment.		
2.443*	A significant positive relationship is indicated, with a large effect size.	**Accepted**
H_{17}: Place Attachment positively influences Future Intention.		
.211	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{18}: Place Attachment positively influences Behavioural Attitude.		
11.884	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{19a}: Leisure Attendance Motivation influences Low-cost Situational Intention.		
.073	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{19b}: Sport Attendance Motivation influences Low-cost Situational Intention.		
6.929*	A significant positive relationship is indicated, with a large effect size.	**Accepted**
H_{20a}: Leisure Attendance Motivation influences Behavioural Attitude.		
.620	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected
H_{20b}: Sport Attendance Motivation influences Behavioural Attitude.		
-8.434	The relationship was not statistically significant and no empirical support was found for the proposed linkage.	Rejected

*Note: due to measurement concerns, the newly identified sub-factor of STI, high-cost situational intention, was excluded from the structural model and all hypothesised relationships with STI only refer to low-cost STI.

As indicated in Table 126, only three of the hypothesised relationships proved to be statistically significant. These include H_3 (the positive relationship between Low-cost STI on FTI); H_{16} (the positive relationship between Low-cost STI on PEA); and H_{19b} (the positive relationship between Sport Attendance Motivation and Low-cost STI). While the positive effect of Low-cost STI on PEA was hypothesised, it was somewhat unexpected given that there was no significant relationship in the opposite direction (PEA on Low-cost STI).

6.4 CHAPTER SYNTHESIS

The results of the empirical research component were presented in this chapter. It followed the data analysis process as outlined in Chapter 5. Structural equation modelling was the main statistical technique employed and the associated series of analyses was conducted to test a final refined structural model. Each of the phases is summarised briefly in the subsequent sections.

6.4.1 Descriptive statistics and statistical assumptions

The data analysis process started off with the descriptive statistics, including the frequencies, means, medians and standard deviations across all the instrument questions and for each individual subscale. Calculation of the skewness and kurtosis revealed negatively skewed data for the majority of the scale items. As SEM requires normal distribution of data, skewness was accounted for with Robust Maximum Likelihood (RML). Missing values also had to be accounted for. The data set contained two types of missing data, namely randomly missing data (no pattern established) and non-random missing data (a pattern exists for the absence of data). Maximum likelihood was used to estimate missing values in the case of randomly missing data. However, this technique could not be used in the case of non-random missing data. In such cases, missing values could not be replaced and this led to lower N-values for certain questions. Reasons for non-random missing data were accounted for in each instance.

6.4.2 Measurement model analysis

Analysis of the measurement models entailed a series of statistical techniques. The measurement analyses were done separately for the endogenous measurement model (dependent variables) and the exogenous measurement model (independent variables). Under each of the measurement models, the individual factors were discussed in totality up until the point of total endogenous/exogenous model analysis. Analysis started off (using the SPSS 21 International Version programme) by considering the dimensionality of the data to determine internal consistency of the scales. KMO measure of sampling adequacy and Bartlett's tests of sphericity delivered satisfactory results in most instances, and indicated that the data were suitable for factor analysis. Restricted exploratory factor analysis was conducted to determine the dimensionality of the subscales. Maximum Likelihood method of extraction was used, along with Promax with Kaiser Normalisation as method of rotation where appropriate. To identify the number of emerging factors, Kaiser's Eigenvalues and visual inspection of Catell's scree plots were used. Two of the variables that split into two distinct factors (STI and MOTV) were given new labels and used as such in the remainder of the analyses. Problematic items were removed in instances where deletion would still leave a minimum of three items to operationalise the variable. In other instances where deletion was not possible, problematic items were flagged as such. After completion of the dimensionality analysis, reliability of the scales was established at the hand of Cronbach's Alpha coefficients and by inspecting the item-intercorrelations. Where necessary and possible, additional items were removed to improve the reliability of the scales. In most instances, the refined scales delivered satisfactory Cronbach's Alpha coefficients, while any problematic items and scales were flagged as such.

Once the dimensionality and reliability of the scales were established, the researcher proceeded with the CFA using MPlus Version 7.11. CFA is explained on two levels. Firstly, on a global level through investigation of the fit indices and residual analysis. Secondly, on a narrow level through investigation of the model parameters (standardised factor loadings, residual variances, R^2 values). Goodness of fit of the various scales was evaluated at the hand of Satorra-Bentler chi-square, RMSEA, CFI, TLI and SRMR, using a number of cut-off criteria. Results either indicated good or satisfactory model, or problematic issues with fit indicating concerns for construct validity. If a scale had unacceptable or poor fit, the model parameters were inspected to determine whether the scale could be retained for inclusion in the structural model. The CFA process resulted in the removal of two scales (variables) from the structural model (PBC and High-Cost STI).

The measurement model analysis concluded with consideration given to the total endogenous and total exogenous measurement models. Again the fit indices and model parameters were inspected to determine whether any items had to be removed to improve construct validity. At the total measurement model level, correlations between the variables were also evaluated at the hand of established guidelines. As perfectly correlated variables cannot be used together in the structural model analysis, two variables had to be removed from the structural model for further analysis (SJN and CST).

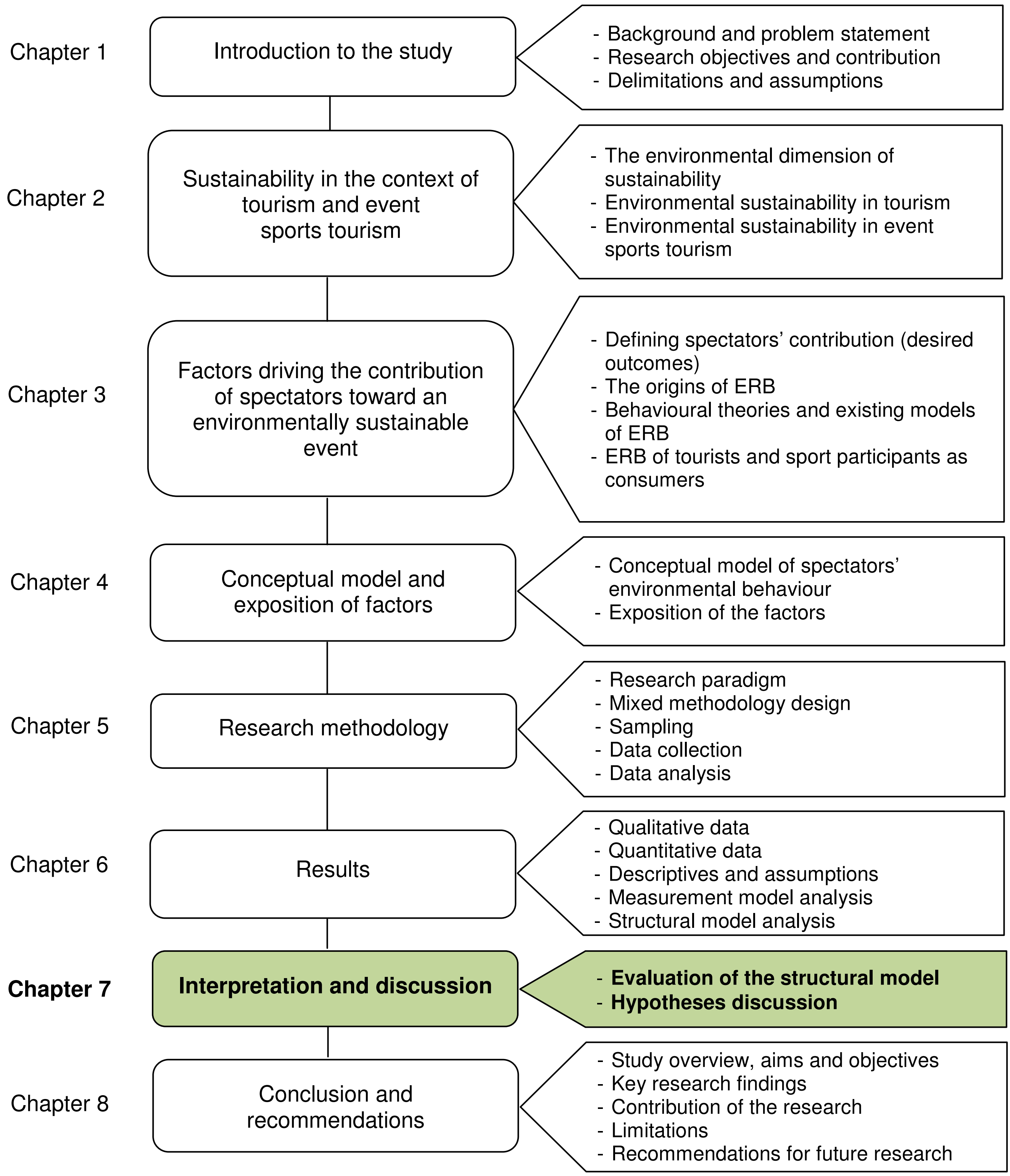
6.4.3 <u>Structural model analysis</u>

Through the measurement model analysis process, the original proposed theoretical model had to be refined to accommodate exclusion of variables. This refined structural model was then subjected to evaluation of fit, evaluating H_1 and H_2. The structural model failed to display exact or absolute fit (H_1), but did display close fit (H_2). Thereafter, the remaining hypothesised relationships between the dependent and independent variables (the structural paths in the model) were considered by inspecting the model parameters and commonalities. Three of the proposed relationships were supported based on the statistical outputs, namely the relationships between Low-cost STI and FTI, between Sport MOTV and Low-cost STI, as well as between Low-cost STI and PEA.

The next chapter focuses on integration, interpretation and discussion of the results presented in this chapter.

CHAPTER 7

INTERPRETATION AND DISCUSSION



7.1 INTRODUCTION

The primary aim of the study was to develop and test a structural model depicting the factors driving ERB among sport event spectators. This overall aim was supported by a literature study and two-phased empirical research component. The previous chapter presented the results of the empirical research component, including the Delphi survey among experts and the self-completion questionnaire survey among cycling race spectators. The aim of this chapter is to interpret and integrate these results with the literature base presented in Chapter 2 and Chapter 3, in order to answer the overall research question.

7.2 EVALUATION OF THE STRUCTURAL MODEL

7.2.1 Model fit of the structural model

The overall fit of the structural model with the data was evaluated at the hand of goodness of fit indices and relevant model parameters. Statistical support was found for the measurement and structural components of the proposed theoretical model. However, the support was not unambiguous. While the model fit of the measurement components were acceptable but not satisfactory, only a few of the path coefficients were statistically corroborated. It was, however, stated that the decision of acceptance or rejection of exact or close fit does not by itself determine whether to reject the model or to retain it (after Kline, 2011).

7.2.2 Model refinements

The changes from the original proposed structural model included the exclusion of SJN, PBC and CST, the split of MOTV into two factors (Leisure MOTV and Sport MOTV), as well as the split of STI into two factors (Low-cost STI and High-cost STI, of which the latter was excluded based on measurement concerns). These changes were made based on methodological and theoretical considerations as presented in this chapter. A number of items were also deleted from the various remaining scales due to measurement concerns.

7.2.3 Model parameters

As indicated in Table 126, three of the hypothesised relationships were confirmed through the statistical results. These include H_3 (Low-cost STI and FTI), H_{16} (Low-cost STI and PEA) and H_{19b} (Sport MOTV and Low-cost STI). All three these relationships were positive. Eleven of the hypotheses (H_4, H_5, H_{11}, H_{13}, H_{14}, H_{15}, H_{17}, H_{18}, H_{19a}, H_{20a} and H_{20b}) were not supported by the data. Six of the hypotheses (H_6, H_7, H_8, H_9, H_{10} and H_{12}) could not be tested due to the hypothesised relationships being linked to variables that have been excluded for the structural model analysis during the process of model refinement. The remainder of this chapter focuses on the results of the confirmed, unsupported and excluded hypotheses, with the aim to explain the statistical findings in relation to the theoretical knowledge presented in the literature.

7.3 HYPOTHESES DISCUSSION

The results of the hypotheses will now be discussed in the same numerological order in which the hypotheses had been stated in Chapter 4. Discussions are based on the data analysis process in Chapter 6 and reference is made to specific aspects of the analysis where appropriate.

7.3.1 The relationship between STI and FTI

Before evaluating the relationships between STI and FTI, it is necessary to refer back to the EFA conducted during the measurement model analysis.

7.3.1.1 The split of STI into two factors

Before evaluating the hypothesised relationship between STI and FTI, it is necessary to return to the EFA of STI conducted during the measurement model analysis. At this level of analysis, it became clear that STI split up into two factors (refer to Table 33).

Table 33: Two factors emerging for STI

Factor 1	Factor 2
New label: Low-cost STI	**New label: High-cost STI**
STI1: Stay within the designated viewing areas	STI5: Picking up other people's litter
STI2: Read the information signs to guide behaviour	STI6: Volunteering to pick up litter after the race
STI3: Throw rubbish in the bins provided	STI7: Reporting inappropriate behaviour of other spectators
STI4: Make use of the ablution facilities provided	STI8: Refilling a water bottle with tap water (instead of simply buying a new one)
STI10: Park car only in designated parking areas	
STI12: Take note of the natural environment	

The convergence into two factors corresponds to ERB literature indicating lower and higher cost activities, where the low-cost activities require less sacrifice and effort from the individual (Lee & Holden, 1999). It has been indicated that tourists are more inclined to perform 'low-level' commitment actions such as recycling, conserving water and energy, than performing actions associated with higher levels of commitment such as acting as volunteers and donating money to conservation organisations (Ballantyne *et al.,* 2009). Individuals with a higher level of commitment or 'willingness to sacrifice' for the sake of the environment may consider environmental well-being at the expense of self-interest, effort or costs (Davis *et al.*, 2011).

Reliability analysis of the High-cost STI subscale reported an alpha coefficient of 0.678, which did not strictly adhere to the minimum acceptable criteria but could be accepted, as it was approaching 0.70 and all of the corrected item-total correlations were > 0.25 (Kline, 2011). However, in the CFA analysis, it was evident that the sub-scale proved problematic and it was decided to delete the entire High-Cost STI sub-scale and not consider it further for inclusion in the structural model. As a result all hypotheses related to STI refer to Low-cost STI.

7.3.1.2 The relationship between STI and FTI

It was hypothesised that STI would positively influence FTI:

H_3: Situational Intention positively influences Future Intention.

Statistical support was found for this relationship.

It was argued that, should a spectator behave responsibly within the setting, it is not guaranteed that he or she will adopt similar behaviour in the long term. Nonetheless, there should be some relationship between an individual's situational responsible behaviour on their future intended behaviour. The findings thus support existing researchers within both tourism and sport that have indicated that ERB in a visitor or sport event setting could have the potential to encourage greater awareness and a tendency to display ERB in the future (Cottrell, 2003; Halpenny, 2010; Lee, 2011; Mair & Laing, 2013; Sherry *et al.,* 2011).

Little evidence has been found that tourists are transforming to the principles of responsible consumption (Sharpley, 2012) or that they are aware of their own impacts (Pearce, 2011b). It has also been stated that responsible behaviour in one setting will not lead to other responsible behaviours, but that ERB is context-specific (Ajzen, 1991; Thogersen, 2004). The findings could thus not be assumed to indicate an uptake of ERB in general, but would specifically relate to the event spectating context and even just to a specific event. In other words, spectators that display higher STI during spectating at an event, may also display higher FTIs in relation to that event.

In terms of the intended future behaviour, 'reading through the rules and regulations before attending' and 'supporting the event sponsoring company' had the highest mean scores, in other words, the most likely to be performed. At the opposite end, 'rather watching the race on television or over the internet in order to reduce the environmental impact of the event' and 'following the event's environmental initiatives in the media before deciding to return next year', did not load onto the FTI scale. These two items represented the most extreme forms of environmental commitment, where event attendance would be forfeited for the sake of the environment. These two items also had the lowest mean scores, in other words, the least likely to be performed. This coincides with the sports literature, stating that being at the actual event remains a key component of sport spectator behaviour (Weed, 2010). Even if a spectator thus should have higher levels of environmental awareness and concern, he or she is not likely to give up actual attendance of the event for the sake of the environment. Importantly though, one of the future intended behaviours also included spectators signing a petition against the event if it became known that the event had a negative impact on the environment.

Given the right encouragement after attendance, visitors could take up the desired behaviour in future. Wu *et al.* (2013) have found that post-visit adoption of environmental behaviour will depend on resources, the ease of behaviour and 'sunk cost'. This places a responsibility in the hands of event owners or managers to facilitate the process and make it easy for past spectators to engage in the desired future behaviours (such as reading the rules and regulations before attending; making a financial contribution towards the event's clean-up and recycling initiatives, and supporting the event sponsoring company). This ease is especially important when considering that the actions described in the FTI scale can all be classified as high-cost ERB actions (Lee & Holden, 1999; Ramkissoon *et al.*, (2013) and that even though individuals may display a concern for environmental issues, they will still be reluctant to undertake any corrective actions that inconvenience them (Weaver, 2012).

7.3.2 <u>The effect of ATT on STI and FTI</u>

It was hypothesised that ATT would have a positive influence on both STI and FTI:

H_4: Behavioural Attitude positively influences Situational Intention.
H_5: Behavioural Attitude positively influences Future Intention.

No statistical support was found for these two hypotheses.

ATT is one of the original predictors of ERB in the TPB. Not only the TPB, but also other behavioural models include attitude as a precursor to behaviour, and it is stated to determine the direction of intended behaviour (Kraus, 1995). In this study, attitude related to the specific behaviour (performing ERB while spectating) was measured as opposed to general attitudes toward the environment (after Ong & Musa, 2012). In most of the existing studies within tourism, one of the popular scales such as the Ecology Scale, the Environmental Concern Scale, or the NEP is often used to measure general environmental attitudes. However, this study took the measurement approach suggested by Ajzen (2006), where attitude measurement consists of two components including the *instrumental* and *experiential* aspects (also explained in Francis *et al.,* 2004).

Within the TPB, attitude is indicated as only one of several other determinants of behaviour. Attitudes are multidimensional, comprising a number of interrelated constructs, and researchers are continuously debating the components and functions thereof (Maio & Haddock, 2010; Milfont & Duckitt, 2010; Ong & Musa, 2012). Because of this complexity, several studies have proven that favourable behaviour will not necessarily be displayed along with a favourable attitude – a phenomenon known as the attitude-behaviour gap (Blake, 1999; Gupta & Ogden, 2006; Kollmuss & Agyeman, 2002; Moreas *et al.*, 2012). The findings of this study seemingly concur with the existing literature that still debates the extent to which attitudes and concern predict behaviour (Mobley *et al.*, 2010). The hypothesis test indicated a negative relationship. Though this relationship was not statistically significant, it does provide an interesting perspective that people may even display opposite ATTs and Intentions. In other words, they may have a positive attitude but a negative behavioural intention, or they could display a negative attitude but still end up holding a positive behavioural intention (not feeling positive about the behaviour but still willing to undertake it).

The latter could be an interesting line of investigation when taking into consideration additional factors that come into play between attitude and behaviour (as suggested in the ERB models by Blake, 1999; Klöckner & Blöbaum, 2011; Kollmuss & Agyeman, 2002; Montaño & Kasprzyk, 2008; Milfont *et al.,* 2010). Additional variables specific to the sport spectating context could be included to increase the predictive power of ATT. For example, level of involvement in an activity has been proven to mediate the relationship between ATT and actual behaviour (Gupta & Ogden, 2006). This may in turn be as a result of the relationship between recreation involvement and PEA (Kyle *et al.*, 2003).

Apart from the theoretical explanation of the insufficient conclusive statistical results, it should also be noted that there were measurement concerns with the ATT scale. Even though the scale reported a satisfactory Cronbach's Alpha coefficient (indicating reliability) and satisfactory model fit, a total of five of the eight items had to be removed during the EFA and CFA to achieve acceptable model fit. The lack of statistical support for H_4 and H_5 may therefore be attributable to some extent to measurement aspects and should be tested in subsequent studies. It could also be that the scale is not equivalent in the South African context. Future studies should explicitly test the cross-cultural suitability of the scale in the South African context.

7.3.3 <u>The effect of CST on ATT</u>

It was hypothesised that CST would negatively influence ATT:

H_6: Behavioural Costs negatively influence Behavioural Attitude.

This hypothesis could not be tested due to the variable CST being excluded from the structural model analysis. The scale had a satisfactory Cronbach's Alpha coefficient (indicating reliability) and also displayed satisfactory model fit. However, during the analysis of the total exogenous measurement model, an extremely high correlation was indicated between CST and EMSs. Because a structural model cannot be fitted with highly correlated latent variables (Kline, 2011), it was decided to exclude CST from further inclusion in the structural model. It was argued that the inclusion of EMSs would be of greater relevance to the study context. As a result, the influence of CST could not be tested as a predictor of ATT even though it has previously been proven that there is a direct negative relationship between a pro-environmental attitude and costs (Diekmann & Preisendoerfer, 1992 in Kollmuss & Agyeman, 2002).

For purposes of this study, CST were defined as beliefs about the likely losses of personal resources such as time, money and enjoyment as a result of performing ERB while spectating (adapted from Lindenberg & Steg, 2007). In line with the rational approach taken in the TPB, it was argued that individuals are motivated by self-interest and driven by different goal sets, including 'hedonic' goals (aimed at feeling better in the moment) and 'gain' goals (aimed at guarding and improving one's resources), and that both these sets could apply within the study context. Individuals will thus be sensitive to information about costs and benefits in terms of their personal scarce resources such as money, time and status (Lindenberg & Steg, 2007), as well as the loss of hedonic (pleasure) satisfaction (Budeanu, 2007).

Despite the inability to test the relationship between CST and ATT, something remains to be said about the high correlation between CST and EMS. The high correlation indicates that respondents did not make a clear distinction between CST and EMS. By implication, individuals automatically associate participation in / use of an EMS and its facilities as costly to them in terms of time, ability to watch a race and enjoy themselves. This finding emphasises the need to ensure effective design of facilities to ensure ease of use and thereby minimising the perceived negative costs associated with the behaviour. This coincides with the content presented in Pearce's (2005) tripartite sustainability embedded place model for tourist sites, indicating that successful site management is essential to guide behaviour and include legal measures, infrastructure design (physical layout) and visitor education. It furthermore reinforces Weaver's (2012) view that tourists (as consumers) are "superficial environmentalists" who are 'concerned' but very reluctant to undertake any corrective actions that inconvenience them. Should EMS be left out of the model, the effect of CST on STI could be tested to determine which set of motives (hedonic versus gain goal versus normative) has the greatest influence in the context (also refer to the discussion on SJN in section 7.3.4).

7.3.4 <u>The effect of SJN on STI and ATT</u>

It was hypothesised that SJN would positively influence STI and ATT:

H_7: Subjective Norms positively influence Situational Intention.
H_8: Subjective Norms positively influence Behavioural Attitude.

These hypotheses could not be tested due to the variable SJN being excluded from the structural model analysis. The scale displayed an unsatisfactory Cronbach's Alpha coefficient, indicating low internal consistency reliability of the scale. Still, the scale displayed satisfactory model fit and suitability for inclusion in the structural model. However, in the analysis of the total exogenous measurement model, an extremely high correlation was indicated between SJN and EMSs. Because a structural model cannot be fitted with highly correlated latent variables (Kline, 2011), one of these variables had to be removed. SJN is often regarded as the weakest predictor in the TPB (Nigbur *et al.*, 2010) and it is closely linked to several other related factors such as personal values and moral norms (Bicchieri, 2006; Cameron, 2002; Milfont *et al.*, 2010) not tested in this study. Due to the specific relevance of EMS to the study context (managerial perspective), it was therefore decided to exclude SJN instead of EMS.

Social norms were defined as “rules and standards that are understood by members of a group, and that guide and/or constrain social behaviour without the force of laws” (Cialdini & Trost, 1998:152). Social norms influence personal norms, or an individual sense of obligation to engage in a particular action (Cameron, 2002). SJN is one of the main predictor variables in the TPB and has been proven to be directly linked to ATT and Behavioural Intention (Bamberg and Möser, 2007; Klöckner & Blöbaum, 2011; Milfont *et al.*, 2010; Montaño & Kasprzyk, 2008). Even though the relationships between SJN, ATT and STI could not be tested, something remains to be said regarding the high correlation between SJN and EMS.

The high correlation between the two variables indicates that respondents did not make a clear distinction between SJN and EMS. This may indicate that individuals refer directly to the available facilities (EMS system) to guide their behaviour. In other words, what is offered in terms of EMS facilities is regarded as ‘being the right thing to do’. It is stated that, for social norms to exist, there has to be a sufficient number of people that know that the norm exists and that share the same expectations (Bicchieri, 2006; Elster, 1999). Furthermore, there should be a sufficient number of people that have a conditional preference to comply with the norm (Bicchieri, 2006). If there is no clear social norm to guide behaviour, the individual will turn to a different set of norms. Instead of people feeling obligated to perform an action as a result of seeing others doing it (injunctive norms), they may revert to other sub-goals within their own normative goal frame, where a person performs an action because he/she feels it is the right thing to do. In this instance the role of personal norms (doing what is right according to oneself) becomes more important than injunctive norms (doing what is right according to others) or descriptive norms (doing what one observes other people doing) (from Lindenberg & Steg, 2007).

This finding reiterates the challenge being presented to event owners to understand that the system they have in place, may be the 'norms' for spectators. It enforces existing literature stating that successful site management is essential to guide behaviour (Pearce, 2005). Whether use of the system facilities is undertaken out of a desire to please others or be accepted by others (injunctive and descriptive norm), or whether it is done to please one's own beliefs (personal norm), is a matter that requires further investigation. The scale that was used to measure this construct, specifically focused on injunctive and descriptive SJN (believing other spectators and the cyclists act responsibly; seeing other spectators and cyclists acting responsibly; knowing that other spectators want him/her to act responsibly; being admired for acting responsibly). However, it cannot be assumed that personal norms did not play a role.

Subsequent testing of SJN within the proposed model may require removal of EMS. It would then be appropriate to strengthen the predictive power of SJN through the addition of social aspects of behaviour, including social and self-identities (Nigbur *et al.*, 2010). This could include aspects such as subculture identification (a person's identification with the subculture of the sport as an influencer of the relative importance of SJN) (after Trendafilova, 2011; Wheaton, 2007). It could also mean making a clear distinction and testing the influence of different types of norms as explained above (after Lindenberg & Steg, 2007). This could be linked further to wider theories of motives, where normative motives may carry a different weight than hedonic (pleasure seeking) or gain goal (protecting one's resources) motives within a certain setting (Miao & Wei, 2013). By understanding which set of motives (normative, hedonic or gain goal) has the greatest effect on STI, it will be possible to adapt communication strategies to encourage ERB using the most appropriate message framing (Cheng, Woon & Lynes, 2011).

7.3.5 <u>The effect of PBC on STI and ATT</u>

It was hypothesised that PBC would positively influence STI and ATT:

H_9: Perceived Behavioural Control positively influences Situational Intention.

H_{10}: Perceived Behavioural Control positively influences Behavioural Attitude.

These hypotheses could not be tested due to the variable PBC being excluded from the structural model analysis based on measurement concerns with the scale.

During the CFA process, the PBC scale proved to have contentious model fit, as well as instability of the measurement indicated by the model parameters. It was therefore decided to exclude the Perceived Behavioural Scale from further analyses and inclusion in the structural model. It is, however, acknowledged that PBC forms a significant theoretical part of the study, as the hypothesised model is based on the TPB with PBC as one of the main drivers. Still, an incomplete TPB model could still produce a good model fit with the data in the final structural model, even with the exclusion of one of the main drivers (after Klöckner & Blöbaum, 2011).

The addition of PBC is what distinguished the TBP from the initial TRA (Ajzen, 1991) and it has also been included in the (less rational) NAM model that focuses on norm activation (Klöckner and Blöbaum, 2011). Several studies have proven that PBC strongly relates to environmental behaviour (Lindenberg & Steg, 2007). In a study by Wall *et al.* (2007) combining the TPB and VBN, it has even found PBC as the only TBP predictor that significantly interacts with intention (excluding ATT and SJN).

The lack of statistical support for H_9 and H_{10} may therefore be attributable to some extent to measurement aspects and should be tested in subsequent studies. It could also be that the scale is not equivalent in the South African context. Future studies should explicitly test the cross-cultural suitability of the scale in the South African context.

7.3.6 <u>The effect of EMS on STI and PBC</u>

It was hypothesised that EMS would positively influence STI:

H_{11}: Environmental Management System positively influences Situational Intention.

No statistical support was found for this hypothesis. This finding was surprising, given the relative importance accounted to the EMS of an event to make it more sustainable.

EMS was added into the basic TPB model to make it more context-specific. Several authors have argued that situational factors as part of the behavioural setting (Belk, 1975) play a direct role in the performance of ERB (for example Hines *et al.*, 1986 and Fietkau & Kessel, 1981 in Kollmuss & Agyeman, 2002). Blake (1999) specifically referred to 'practicality' or concrete constraints that may prevent a person from adopting ERB, even if he or she has a favourable attitude or intention (e.g. lack of time, capacity, information, encouragement and facilities).

It was therefore argued that the presence of certain facilities would have an impact on spectators' intention to display ERB. These would include aspects such as the availability of public transport provided, waste management, interaction with the landscape, creating noise, giving attention to (or ignoring) environment-related communication by the event organiser, etc. (Sahler, 2007; Yang *et al.,* 2011). As previously mentioned, Pearce (2005) also referred to the importance of site management to guide behaviour. To test the impact of the design of an EMS on a spectator's intention to engage with the system, it was argued that mention should be made of the characteristics of the aspects. For example, instead of asking how the availability dustbins will encourage ERB, it would be more meaningful to state it in terms of ease of access/availability and so doing places emphasis on the dimension of 'ease', which has been proven an important encourager (Ajzen, 1991, Wu *et al*., 2013).

Even though no statistical support could be found to corroborate the relationship, it does not detract from the importance of an EMS and its effective design to ensure sustainability of an event. It should also be considered that, even though the scale reported a satisfactory Cronbach's Alpha coefficient (proving reliability), the CFA displayed poor model fit. By implication, any linkages to and from the variable should be interpreted with a degree of caution.

It was furthermore hypothesised that EMS would positively influence PBC:

H_{12}: Environmental Management System positively influences Perceived Behavioural Control.

This hypothesis could not be tested due to the variable Perceived Behavioural Control being excluded from the structural model analysis based on measurement concerns with the scale (as previously explained).

It was argued that the nature of the EMS design could contribute to the perceived abilities of a spectator to perform the behaviour. This perceived ability has been defined as PBC or "The extent to which a person feels able to enact the behaviour." (Francis *et al.*, 2004). Despite the fact that PBC is a proven significant predictor of behavioural intention as well as actual behaviour, there may be factors that make it difficult to perform the behaviour. As a result, many techniques have been used to increase PBC including giving individuals a greater sense of self-efficacy or perception of behavioural control by providing them with the tools and resources needed to gain control over their behavioural performance (from Ajzen, 2012). It was therefore argued that the influence of an adequate EMS on PBC should be included in the model to test its influence.

Given that EMS did not prove to have a significant influence on STI, the additional influence on PBC could have added some explanation to the extent in which the management system increased an individual's perceived feelings of control to perform the behaviour. This could in turn have strengthened the predictive power of EMS. It could be useful to explore this hypothesis relationship in future research.

7.3.7 <u>The effect of BNFT on STI and ATT</u>

It was hypothesised that BNFT would positively influence STI and ATT:

H_{13}: Behavioural Benefits positively influence Situational Intention.
H_{14}: Behavioural Benefits positively influence Behavioural Attitude.

No statistical support was found for these two hypotheses.

BNFT were defined as a combination of rewards and punishments aimed at increasing ERB (from Lee & Holden, 1999). As tourists are mostly driven by a need for pleasure during travels (Budeanu, 2007), it may prove effective to combine monetary punishments with more 'pleasurable' alternatives to encourage ERB. Performing ERB would thus be seen as an opportunity to gain rewards or avoid punishments. The rewards can include monetary, but also abstract aspects such as approval by the reference group and personal satisfaction. Punishments can similarly include monetary (fines), but also abstract aspects such as disapproval by the reference group (Lee & Holden, 1999). However, the findings of this study (non-significant statistical results for the relationships) appear to corroborate the views of Budeanu (2007) that hedonic (pleasure) satisfaction is regarded as a key factor in preventing ERB choices among tourists; with financial compensations even being ignored if pleasure is endangered. Miao and Wei (2013) also found that hedonic motives act as the strongest predictor of ERB in a hotel setting (above normative and 'gain goal' motives). It appears that the costs associated with the behaviour could override the perceived benefits in preventing spectators from performing ERB.

As stated earlier, this relationship between CST and BNFT could be an interesting avenue of future research. It is argued that there will be a difference in the relative importance of CST versus BNFT as factors influencing STI. As previously explained, people are mostly driven by more than one goal (Lindenberg & Steg, 2007). Where the negative costs of performing ERB during spectating (loss of pleasure and ability to watch the race) may hinder a spectator in achieving his or her hedonic goals, the desire to gain rewards from an action (performing ERB) may at the same time speak to their gain goal-frame. It is stated that, in the case of 'high cost' behaviour, people are more likely to display ERB if the benefits exceed the costs, thereby activating the gain goal-frame (Lindenberg & Steg, 2007). However, performing ERB while spectating (throwing away rubbish in the bins; using the ablution facilities provided; staying within designated viewing areas, etc.) are not regarded as 'high cost' activities. Such activities will include volunteering time, joining an environmental group, and giving money for an environmental cause (Lee & Holden, 1999). Given the relative importance of pleasure associated with sport spectatorship and travelling (hedonic goal-frame), the relationship between these two variables could thus be tested in subsequent studies.

In this study, hedonic goals were tested through CST, but its effect on Behavioural Intention could not be tested as the variable was removed from the model for further analyses (see the discussion in section 7.3.3). Gain goal motives were tested through BNFT, but no significant relationship was found between the variable and STI (see the discussion in section 7.3.7).

At the same time it is important to consider that, even though the BNFT scale displayed satisfactory model fit, it reported an unsatisfactory Cronbach's Alpha coefficient. As a result, the internal consistency reliability of the scale was low and any linkages to and from the variable should be interpreted with caution. The lack of statistical support for H_{13} and H_{14} may therefore be attributable to some extent to measurement aspects and should be tested in subsequent studies.

7.3.8 The relationship between PEA, STI, FTI and ATT

It was hypothesised that PEA would positively influence STI, FTI and ATT:

H_{15}: Place Attachment positively influences Situational Intention.
H_{17}: Place Attachment positively influences Future Intention.
H_{18}: Place Attachment positively influences ATT.

No statistical support was found for these three hypotheses.

This finding was very surprising, given the numerous studies that have indicated PEA as a vital consideration in natural resource management strategies (Halpenny, 2010; Kyle *et al.* 2004; Lee, 2011; López-Mosquera & Sánchez, 2013; Ramkissoon *et al.*, 2013; Raymond, Brown & Weber, 2010; Snider *et al.*, 2011). Yet, Scannell and Gifford (2010) indicate that research findings on the topic of PEA's contribution to pro-environmental behaviour are inconsistent.

PEA was defined as the emotions and feelings associated with a recreational setting (Lewicka, 2011). It was argued that PEA would not only positively influence a spectator's

STI (after Kyle *et al.,* 2003; Halpenny, 2010; Ramkissoon *et al.*, 2013), but also their FTI which, in the case of this study, is related to high-cost ERB (after López-Mosquera & Sánchez, 2013). As people with strong attachments are more inclined to act as resource stewards and more likely to adopt a proactive role in management of the setting (Kyle *et al.*, 2003), it was argued that they would also have a more positive ATT.

PEA is a complex phenomenon consisting of various components (such as depicted in the tripartite model of PEA by Scannel and Gifford, 2010 or the three-pole and four-dimensional model by Raymond *et al.*, 2010). Many leisure scholars have argued that PEA consists of two components, namely place identity (a symbolic or affective attachment to a place that defines who we are), and place dependence (related to the functionality of a place for a recreational activity or to fulfil a certain purpose) (Lee, 2011; López-Mosquera & Sánchez, 2013; Raymond *et al.*, 2010). Hernández, Martin, Ruiz & Hidalgo (2010) made a distinction between PEA and place identity, and argued that PEA will form before place identity; in other words, you will form an emotional bond or preference for a place, before (or without) the place necessarily forming part of your personal identity.

With only three items used to operationalise the construct in this study, it could imply that the scale did not effectively represent the construct. Resultantly, it was not possible to make a distinction between various dimensions such as place identity, place dependence, nature bonding, social bonding and so forth. Given that different relationships have been found between the respective constructs and the dependent variable (such as ERB), it would arguably have been measured more effective as a predictor of ERB if the scale had been more comprehensive. Such a distinction through sub-scales may have delivered interesting results, especially considering that the greatest majority of respondents originated from the neighbourhood in which the event took place, followed by participants originating from neighbouring towns or cities. It is stated that one can expect locals and newcomers or visitors to have different reasons for attachment. Where locals feel attached because of community ties and social aspects, visitors (or tourists) should feel attached because of the environmental features (Lewicka, 2011) and satisfaction with the environmental quality (Chiu *et al.*, 2014; Ramkissoon *et al.*, 2013).

Given the complex nature of PEA, it may have been necessary to include other factors into the model that could enhance the explanatory power of PEA. One example is that of environmental commitment, which has been proven as a mediator between PEA and actual behaviour (Lee, 2011). Another example is a sense of ownership (as attachment) that could increase the display of ERB (Trendafilova, 2008). Furthermore, the level of attachment of visitors may differ based on their level of involvement in the activity or experience (Gross & Brown, 2008; Snider *et al.*, 2011).

It was also hypothesised that STI would positively influence PEA:

H_{16}: Situational Intention positively influences Place Attachment.

Statistical support was found for this relationship. This finding was also surprising, given the fact that the reverse relationship (PEA and STI) did not prove to be significant.

It was argued that the relationship between PEA and behavioural intention could run both ways; where a sense of attachment leads to greater desires to protect the setting, but also where greater commitment to the environment and its quality may lead to increased feelings of attachment. It has been indicated that visitors feel attached because of the environmental features (Lewicka, 2011) and satisfaction with the environmental quality (Chiu *et al.*, 2014; Ramkissoon *et al.*, 2013). Assessment of environmental quality plays an important part in an individual's relationship with an environment and creates preferences for a specific setting above other alternatives (Giuliani and Scopelliti, 2009; Raymond *et al.*, 2010).
Validation of this hypothesis may emphasise the need of individuals to maintain their surroundings as part of their self-identity, or their pride in a setting such as depicted in Scannell and Gifford's (2010) tripartite model. It is stated that individuals become attached to places that support the pursuit of their goals. In the context of this study, it may be the pursuit of leisure or sport goals, or it may be goals more deeply connected to their personal values. Once individuals find themselves in 'favourite places', self-regulation is evoked and the individual can more easily turn his or her behaviour towards greater personal goals and standards (Scannell & Gifford, 2010). By implication, spectators seemingly participate in the EMS activities (through STI) because of self-regulation

connected to personal values and goals such as the desire to care for the environment or to act responsibly. This behaviour in turn increases their attachment to the setting, because it provided them with the opportunity to progress towards their goals. This explanation is, however, in contrast to previous conclusions that the hedonic (pleasure) goal is regarded as a key factor in preventing ERB choices among spectators, given that financial benefits did not have a significant impact on STI.

It is clear that this 'reversed' relationship requires greater investigation in future research. Greater explanation to this relationship could perhaps have been provided if personal values and norms had been included as predictors of ERB (after the NAM and V-A-B models), given the previous plausible explanation of self-regulation being evoked in a sport spectator setting. As stated by Scannell and Gifford (2010), "further research is needed to fully understand the functions of PEA and the particular needs that it fulfils". It has also been indicated that the activation of different goal frames remain under-investigated in different settings of environmental behaviour (Lindenberg & Steg, 2007).

7.3.9 <u>The effect of MOTV on STI and ATT</u>

Before evaluating the relationships between MOTV, STI and ATT, it is necessary to refer to the EFA conducted during the measurement model analysis.

7.3.9.1 The split of MOTV into two factors

At first the scale revealed three factors. Upon investigation of the pattern matrix (Table 96), MOTV6 ("Spend time with family"), MOTV7 ("Spend time with friends), MOTV 8 ("The friendly, family atmosphere"), MOTV9 ("Spend time outdoors"), MOTV10 ("For relaxation"), and MOTV11 ("For excitement") loaded onto the first factor. MOTV1 ("Cycling is my favourite sport"), MOTV2 ("Learn more about the sport of cycling"), MOTV3 ("Share a feeling of accomplishment with the riders"), and MOTV 5 ("Meet other people with similar interests as myself") appeared to load onto the second factor. MOTV12 ("To escape the reality of my daily life"), MOTV13 ("It is free entertainment"), and MOTV14 ("I happened to be in the area") appeared to load onto a third factor.

Interestingly, the last two items were extreme motivations and did not fit theoretically with MOTV12 as a leisure motivation. In fact, the first two were not motivational in the true sense as they represented no real motivation to undertake effort to attend the event. MOTV14 ("I happened to be in the area") also had the lowest mean score, indicating that people rarely attended these types of events by chance. MOTV4 ("Support a specific rider/team of riders") also appeared problematic, and may be due to the fact that supporting a specific rider will not necessarily be linked to a leisure or a sport related motivation, but rather an obligation or responsibility to accompany a person. It thus indicates an entirely different psychological driver. As these items were too few to form distinct factors (being two or single item respectively), none of these elements were used further as factors.

After a second round of EFA was conducted, two factors emerged. Looking at the substantive content of the items that cluster together, a central theme in the first cluster is thus related to Leisure MOTV, whilst the second cluster relates to Sport MOTV. The two factors emerging for MOTV are as follows:

Table 100: Two factors emerging for MOTV

Factor 1	Factor 2
New label: Leisure MOTV	**New label: Sport MOTV**
MOTV6: Spend time with family	MOTV1: Cycling is my favourite sport
MOTV7: Spend time with friends	MOTV2: Learn more about the sport of cycling
MOTV8: The friendly, family atmosphere	MOTV3: Share a feeling of accomplishment with the riders
MOTV9: Spend time outdoors	MOTV5: Meet other people with similar interests as myself
MOTV10: For relaxation	
MOTV11: For excitement	

For this study a combination of the Sport Interest Inventory by Funk *et al.* (2003), the categories developed by Smith and Stewart (2007), and tourist motivations identified by Dolnicar and Leisch (2008) were used to encapsulate the broad range of possible psychological drivers of sport consumption motivation. Upon interpreting the factor loadings of the items, it however appeared that the opinion of Snelgrove *et al.* (2008) is supported. They postulated that in general, there are three types of motives driving attendance: (i) motives related to being a fan of the sport; (ii) motives related to leisure preferences; and (iii) motives related to identification with the subculture of the sport at the event. They stated that the greatest differences will be found between those travelling specifically to watch an event and those that attend casually (local residents or tourists who are actually visiting the location for other reasons than the event).

As a result, all hypotheses related to MOTV were split into sub-hypotheses to make a distinction between Leisure MOTV and Sport MOTV.

7.3.9.2 The influence of MOTV on STI

Several previous studies proved significant links between specific leisure motivations of eco and nature-based tourists to ERB and pro-environmental attitudes (Andereck, 2009; Dodds *et al.,* 2010; Juric *et al.*, 2002; Luo & Deng, 2008). However, given the fact that limited studies were found that proved significant links between leisure motivations of sports tourists to ERB or pro-environmental attitudes, non-directional hypotheses were stated.

It was hypothesised that Leisure MOTV would influence STI:

H_{19a}: Leisure Attendance Motivation influences Situational Intention.

No statistical support was found for this hypothesis.

By implication, it cannot be assumed that spectators driven by a leisure motivation, including being there for the outdoors, will display the desired STI. This finding is corroborated by literature indicating that, even though tourists go to ecological areas because they are attracted by the natural resources, they will not necessarily engage in positive environmental behaviour (Chiu *et al.*, 2014).

It was hypothesised that Sport MOTV would influence STI:

H_{19b}: Sport Attendance Motivation influences Situational Intention.

Statistical support was found for this relationship. The Leisure MOTV scale reported a satisfactory Cronbach's Alpha and displayed satisfactory model fit.

Contrary to the Leisure MOTV, it has been proven that individuals attending as spectators with sport as their main motivation, are more inclined to display the desired STI. This finding is partially substantiated by the theory in sport studies related to lifestyle and extreme sport participants that are inclined to display strong feelings of connectedness to and a desire to care for nature (Brymer, *et al.*, 2009; Butryn & Masucci, 2009; Horton, 2006; Ray, 2009). It has also been proven that people that have a greater dependency on a place due to the setting offering specific recreational opportunities, and people that have higher levels of involvement in the activity under questions, have stronger connections to a location (Gross & Brown, 2008; Trendafilova, 2008). This in turn, has been proven to be associated with greater tendency to take care of the setting (Lee, 2011; López-Mosquera & Sánchez, 2013; Ramkissoon *et al.*, 2013; Snider *et al.*, 2011). However, this relates to sports participants and not spectators.

It may therefore mean that spectators attending with the sport or event itself as the main motivation, understand and appreciate the importance of the setting to ensure continuation of the sport or event. Even though they do not participate physically in the sport, they feel an attachment to the sport or event and therefore (perhaps subconsciously) are more willing or inclined to take part in actions that are perceived as necessary to ensure the quality of the setting.

7.3.9.3 The influence of MOTV on ATT

It was hypothesised that Leisure MOTV and Sport MOTV would influence ATT:

H_{20a}: Leisure Attendance Motivation influences Behavioural Attitude.
H_{20b}: Sport Attendance Motivation influences Behavioural Attitude.

No statistical support was found for these two hypotheses.

The majority of existing tourism studies focusing on ERB of tourists, have focused on tourists in natural settings, nature-based tourism and ecotourism (refer to Table 9, Chapter 3); with only a few studies focusing on visitors to a festival (Song *et al.*, 2012), a sustainability focused event (Kim *et al.*, 2006; Mair & Laing, 2013); island visitors (Cheng *et al.*, 2012); convention centre visitors (Lee *et al.*, 2013). This focus on nature-based/eco tourists is explained by the significance of the natural environment as a pull factor in tourist decision-making (Weeden, 2011). In most instances tourists within these settings are segmented according to socio-demographic factors, place of origin (different cultures), or according to different levels of environmental awareness, environmental concern or values.

Only a few studies could be found that focus on broader tourist categories to determine their interest in the environment. Dolnicar, Crouch and Long (2008) also found that essentially no research had been undertaken to identify environmentally friendly tourists among the general population of tourists. Juric *et al.* (2002) undertook a survey of 'general' tourists to determine their interest in ecotourism activities. However, their study focused on interests in activities during a trip and not on trip motivation overall. Bergin-Seers and Mair (2009) investigated ERB at home, information seeking and purchase intentions to identify green tourists, excluding travel motivations or preferences. Dolnicar undertook a range of investigations focusing on identifying pro-environmental tourists. She explored segmenting pro-environmental tourists based on socio-demographics, travel companions, trip characteristics, concern for and awareness of nature and ERB habits in general, but not on travel motivations (Dolnicar, 2004; Dolnicar, 2010; Dolnicar & Grün, 2009; Dolnicar & Matus, 2008). Two articles (Dolnicar & Leisch, 2008 a, 2008b) explored the different levels of environmental footprints of tourists in comparison to their travel preferences. Small impact tourists preferred realising their creativity, experiencing nature, maintaining unspoilt surroundings, having little traffic at the destinations, using the vacation for health and beauty, learning about the local people, having good company, and getting to know people. To the contrary, tourists looking for luxury and wanting to be spoilt, looking for a variety of fun and entertainment, not paying attention to prices and money, and looking for cosiness and a familiar atmosphere were associated with lower levels of ERB. They found no significant difference in the level of environmental footprint of tourists that wanted to do sports. In another study (Dolnicar & Long, 2009), it was indicated however that environmentally responsible tourists (based on willingness to pay for green experiences) prefer to be more physically active during a trip.

The split of MOTV between leisure and sport is thus a new classification on which to base a study of ERB. No previous literature could be found that provide results that could meaningfully be compared to the findings of this study. Given that this study found no significant relationships between these two motivations and ATT, does not imply that differences may not be found between other ERB-related constructs such as environmental concern or environmental awareness. These could be interesting avenues for future research, especially considering the proven difference in STI found in this study. As ATT is not the only driver of behavioural intention, it is important to explore other origins of ERB as has been identified in this study.

7.4 CHAPTER SYNTHESIS

This chapter provided an interpretation and discussion of the research results by integrating the research findings with the previously presented literature.

It was indicated that the model showed adequate, yet not good fit to the empirical data. Changes made to the original proposed structural model based on methodological and theoretical considerations, were highlighted. Three of the hypothesised relationships were confirmed through the statistical results. These include H_3 (the positive relationship between Low-cost STI and FTI); H_{16} (the positive relationship between Low-cost STI and PEA); and H_{19b} (the relationship between Sport MOTV and Low-cost STI). Eleven of the hypotheses were not supported by the data due to statistical insignificance of the hypothesised relationships. Six of the hypotheses could not be tested due to the hypothesised relationships being linked to variables that have been excluded for the structural model analysis during the process of model refinement.

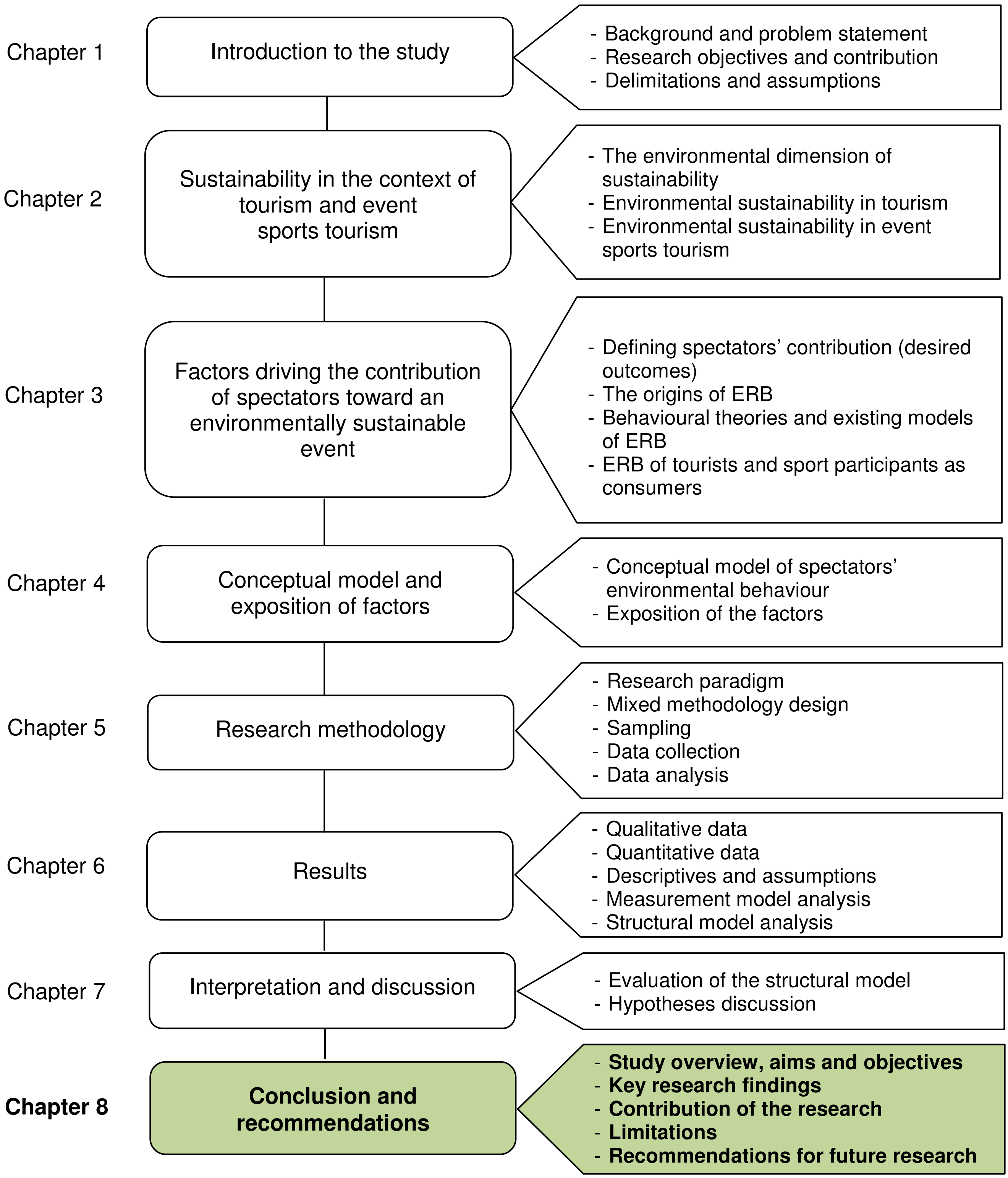
Some of these findings were in line with the literature, for example the finding that ATT does not necessarily have a positive influence on STI (the attitude-behaviour gap), or that STI has a positive influence on FTI. Some findings were surprising and different from existing literature, for example the fact that neither the EMS nor PEA had a significant influence on STI. Another example is the fact that BNFT has no influence on ATT or STI. This finding does however support existing literature that CST can override BNFT, especially in the context of sport spectating. The finding that STI has a large positive effect on PEA was also surprising, especially considering that the opposite relationship proved insignificant. Some findings present a contribution to the literature, for example the positive influence of Sport MOTV on STI, while Leisure MOTV has no influence on STI or ATT.

Issues around measurement concerns of some of the scales were noted and implications for data interpretation were highlighted. Importantly, three of the variables were removed from the proposed structural model. Two of these, SJN and PBC, are main components of the TPB on which the model had been based. While PBC had to be removed as a result of scale instability, SJN along with a third variable, CST, had to be removed due to extremely high correlations with EMS. Implications of these high correlations were explained within the study context. Suggestions were also made regarding future use of the TPB as reference model; with a main consideration being that other behavioural models that include values and norms (such as the NAM and VBN) should be considered to provide better prediction of ERB within the study context.

The next and final chapter presents a brief overview of the study; highlights the key theoretical and empirical findings; postulates the theoretical and practical contribution of the research; addresses the limitations of the study; and makes recommendations for future research.

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS



8.1 INTRODUCTION

The final chapter aims to bring the work of the study together by starting off with a brief overview of the study and the main research objectives. It then highlights the key theoretical and empirical findings discussed in Chapter 6 and Chapter 7. The researcher then postulates the perceived theoretical and practical contributions of the research. Finally, the chapter addresses the limitations of the study and makes recommendations for future research that could emanate from this study.

8.2 OVERVIEW OF PREVIOUS CHAPTERS

In Chapter 1, it was established that limited knowledge exists on the nature and extent of environmentally responsible practices from a demand-side perspective of sports tourism, even though a number of studies emphasise the importance of understanding the levels of environmental awareness among users of the natural resource base (Ahmed *et al.*, 2008:78). Across the study disciplines under investigation (sport, tourism and sports tourism), only tourism literature presented a greater amount of environmental sustainability knowledge from a demand-side (consumer driven) perspective. As it was not clear how much of this knowledge can be applied to sport event spectators as (sports) tourists, the need was identified to consult other subject areas within psychology and environmental studies that could specifically inform this perspective.

Chapter 2 provided a theoretical overview of the concept of sustainability and explained the rationale for focusing on the natural environment in this study. It then proceeded to place sustainability within context of the tourism industry, focusing firstly on some key industry initiatives to make the industry more environmentally sustainable. The chapter then discussed event sports tourism and described the nature of environmental sustainability in the event sports industry. The chapter concluded with an exploration of the changing behaviour of tourists as well as sport participants as responsible consumers.

Chapter 3 conceptualised the term ‘contribution’ as it is used in the title of the study (what a ‘contribution’ by spectators toward environmental sustainability would entail). It introduced the concept and origins of ERB as it has been studied in other related disciplines outside of tourism and sport. The chapter then proceeded with a discussion of behavioural theories and existing models of ERB. Lastly, it focused respectively on the ERB of tourists and sport participants as consumers to determine the extent to which existing ERB knowledge has been applied within these two domains (tourism and sport). Importantly, this chapter introduced the TPB on which the proposed theoretical model of this study would be built.

Chapter 4 presented the proposed theoretical model of the most relevant factors driving ERB among sport event spectators. It explained each factor in terms of its definition, reason for inclusion, as well as possible place within the model. A series of hypotheses were also formulated for the proposed structural linkages in the model.

Chapter 5 focused on the methodology to be employed for the empirical component of the research, providing a separate discussion of the qualitative and quantitative components. The role of the Delphi survey among experts, as well as the methodology was explained. Thereafter, the choice of the quantitative research technique was explained. The quantitative data collected through a self-completion questionnaire survey would be used to evaluate and validate the proposed theoretical model. SEM was indicated as the chosen statistical analysis process, along with a description of the various procedures and series of analyses involved in this process.

Chapter 6 provided the statistical results of the analyses performed on the data. It reported on the measurement model analyses to establish validity and reliability of the measures at a factorial level. This led to refinement of the proposed theoretical structural model.

Chapter 7 presented the interpretation and discussion of the results within the broader study aim and research objectives. It started off with an evaluation of the structural model, followed by a discussion of the theoretical hypotheses regarding the various factors underlying ERB of sport event spectators.

8.3 STUDY AIMS AND RESEARCH OBJECTIVES

The main aim of this study was to fill the gap in knowledge on ERB of consumers within the context of event sports tourism. The purpose was to propose and evaluate a structural model depicting the main factors that drive ERB among sport event spectators.

In order to fulfil the overall aim of the study, the researcher aimed to achieve the following research objectives:

1. to explore environmentally sustainable practices within the event sports tourism industry;
2. to identify factors underlying environmentally responsible behaviour of individuals;
3. to identify the components of tourist behaviour that relate to environmental responsibility;
4. to identify the components of sport spectator behaviour that relate to environmental responsibility;
5. to develop a conceptual model depicting the factors that could influence environmentally responsible behaviour amongst sport event spectators;
6. to explore expert opinions on the factors that could influence sport event spectators' environmentally responsible behaviour;
7. to design a measuring instrument to test the factors underlying environmentally responsible behaviour of sport event spectators; and
8. to test the relevance of the model amongst sport event spectators at a series of outdoor cycling events.

The key research findings will now be highlighted.

8.4 KEY RESEARCH FINDINGS

This section presents the main findings arising from the research, including the theoretical and empirical results. The discussion focuses on linking the findings to the study objectives as previously indicated.

8.4.1 Theoretical results

Objectives 1 to 4 set out to explore relevant current literature, with the aim to gain an understanding of ERB of individuals and how existing knowledge in this regard could be applied within the event sports tourism context. Objective 5 acted as the culmination of the literature review into a proposed theoretical model that could be tested through appropriate statistical analyses.

8.4.1.1 Findings from the literature

Objective 1 aimed to explore environmentally sustainable practices within the event sports tourism industry and was addressed in Chapter 2. As a starting point, environmental sustainability of the tourism industry as a whole was introduced. This revealed that, even though the tourism industry's transition to a green economy "looks gloomy as now" (Reddy, 2013), significant progress has been made toward sustainability in various sub-sectors on the industry. It is clear that much is being done from the industry perspective to build on a healthy environment-economic interface within the tourism industry, including creating awareness and promoting action among tourists, especially through eco, responsible, ethical tourism and the likes. In line with the wider tourism industry's awareness regarding environmental issues, there has been a steadily increasing awareness of the need to minimise and manage the negative environmental impacts associated with events, despite lagging behind other economic sectors engaging in adaptation research (Mair, 2011a). It was found that green strategies and environmental sustainability have become important considerations in staging successful events (Boo & Park, 2012; Dickson & Arcodia, 2010a, Whitfield & Dioko, 2011).

At the same time the sports industry and sports tourism literature also proved to increasingly focus on the impacts of sport on the natural environment as one of the three dimensions of sustainability (Weed, 2009:621); with a paradigm shift taking place from being economically orientated toward being sustainability driven, and moving away from "impact mitigation to proactive environmental stewardship and habitat creation associated with event sport tourism" (Hinch & Higham, 2011:142). A vast range of examples were found of industry-driven initiatives to promote environmental responsibility in sport. Nonetheless, the economic and social dimensions of the sport sector still appear to be receiving most of the attention (Rydin *et al.*, 2011:2), especially from a research perspective. As result, the relationship between sport and its environment remains a problematic and urgent issue (Book & Carlsson, 2011:401) and 'environmental respect' is regarded as one of the key challenges facing sport managers in the 21st century (Hums, 2010).

Objective 2 focused on identifying factors underlying ERB of individuals and was addressed in Chapter 3. Understanding sustainable behaviour can be regarded as part of the behavioural components that define the tourist experience; with the focus being on investigating "specific sustainability enhancing behaviours" (Pearce, 2011b:3). Three well-established subject areas were consulted with the aim of enhancing this understanding, namely Environmental Psychology, Environmental Education and Consumer Behaviour. Environmental Psychology literature revealed a range of key constructs underlying ERB, including environmental awareness, attitude, concern, commitment, environmental beliefs, ethics, feelings, knowledge, global values, ecological world views, and ecological self (Bonnes & Bonaiuto, 2002; Giuliani & Scopelliti, 2009). Environmental Education highlighted the importance of environmental awareness, knowledge, attitudes, skills and participation (Stapp, 1997). Consumer Behaviour highlighted the aspects of mindful consumption, the prevalence of the attitude-behaviour gap in consumerism, and the importance of the behavioural setting. Other constructs tested within a consumer context included the influence of culture, citizenship, collectivism, personal identity, locus of control (perceived consumer effectiveness), norms (social and personal), personality, responsibility attribution, values (altruism), faith in others (trust), levels of involvement and the role of consumer policy.

An exploration of existing models and theories revealed a range of tested (and contested) models. It became clear that ERB can be viewed from two perspectives, with each perspective being represented by specific theoretical models (Bamberg & Möser, 2007; Klöckner & Blöbaum, 2011). Firstly, rational choice models of which the popular Ajzen and Fishbein's Theory of Reasoned Action and Theory of Planned Behaviour usually form the basis. Secondly, pro-socially motivated models of behaviour of which Schwartz's Norm-Activation-Model or Stern's Values-Beliefs-Norms models are used as theoretical frameworks. Clearly, a broad array of terms and more or less successful models has been used to predict environmental behaviour, and in particular to explain the attitude-behaviour gap (Tanner, 1999). Importantly, all of the behavioural models have some validity in certain circumstances, and it was argued that the question of what shapes ERB is such a complex one that it cannot be visualised in one single framework or diagram (Kollmuss & Agyeman, 2002), but that it would perhaps prove more beneficial to use models only in the domains where they perform best and match the most applicable model to a specific domain (Steg & Vlek, 2009).

Objectives 3 and 4 were to identify the components of tourist and sport spectator behaviour that relate to environmental responsibility and were addressed in Chapter 3. It was found that the study of both tourist behaviour and sport participant behaviour (spectators and athletes) remain popular themes in academic literature. A number of well-established and emerging themes were identified within tourist behaviour, and it was highlighted that understanding the drivers of tourist behaviour are of critical importance as conflict often arises between an individual's travel behaviour and ERB (Budeanu, 2007). The literature revealed that a range of factors underlying ERB have already been tested in a tourism context, especially within the fields of ecotourism, nature-based tourism, wildlife tourism, ethical tourism and responsible tourism (summarised in Table 9, Chapter 3).

Sports literature indicated that the study of consumption and consumer behaviour in the context of sports events is distinct from other pleasure-seeking consumption experiences in several regards (King *et al.,* 2011). However, in contrast to what was found in the tourism literature, there appeared to be no such equivalent in sports literature with a strong focus on placing environmental responsibility within the hands of the consumer. Very few studies from the sport domain explicitly tested factors identified in ERB literature or aimed to apply and test existing models of ERB (available studies summarised in Table 10, Chapter 3). Only one form of sports consumption that appears to have received research interest with regard to the environmental consciousness of participants and nature-friendly practices is that of 'lifestyle sports'; also referred to as "free sports", "alternative sports" and "fringe sports" (Brymer & Gray, 2010; Salome *et al*., 2013); with the focus being on active participants and not spectators.

8.4.1.2 Developing the proposed theoretical model

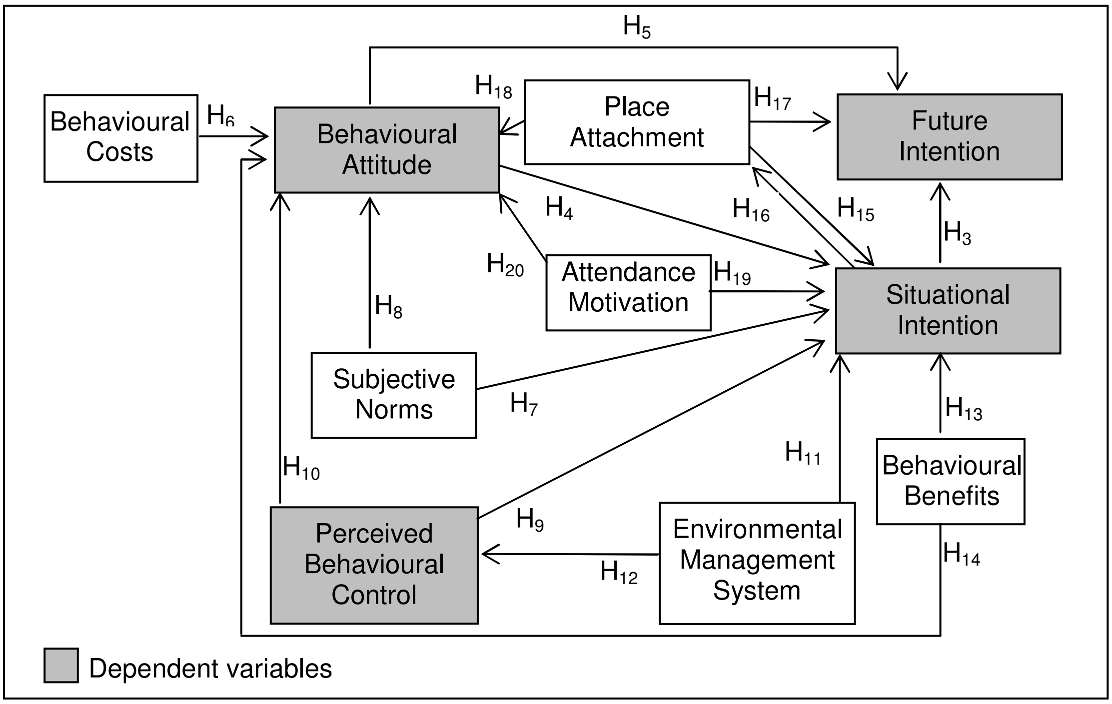
Objective 5 was to develop a conceptual model depicting the factors that could influence ERB amongst sport event spectators and was addressed in Chapter 4.

It was indicated that, even though there are other models that have also been successfully proven to predict behaviour (as identified in Chapter 3), it was decided to use the TPB as reference point, given the proven validity of the model and great number of studies that have successfully been able to add additional variables to the basic model (Ajzen, 2012; Nigbur *et al*., 2010). A combination of two models (TBP and VNB), as suggested by different authors (for example Kaiser *et al*., 2006; Lopez-Mosquera & Sánchez, 2012; Oreg & Katz-Gerro, 2006; Wall *et al*., 2007), would be difficult to test and would limit the possibility of using certain statistical procedures (Klöckner & Blöbaum, 2011). Using the TPB within the study context also presented a potentially significant contribution to the ERB literature in sport and sports tourism.

Figure 40 depicts the proposed structural model that was developed for the study, along with the hypothesised relationships between the variables. It was indicated that the aim of this study was not to prove a proposed addition to the TPB, but rather to use it as a basis from which to test behaviour in a specific context.

Apart from the three factors originating out of the TPB (ATT, SJN and PBC), three other 'intrapersonal factors' were chosen (MOTV, PEA and CST) because of their prominence in both sport and tourism literature and arguable relevance to the study context. Two 'extrapersonal' factors were also added (factors that the spectators have no control over, but their presence or absence may have an influence on ERB intentions), namely EMS and BNFT.

Figure 40: Proposed structural model with hypothesised linkages



The next section highlights the most important findings emanating from the empirical data collection.

8.4.2 Empirical results

The empirical results contain aspects from the qualitative (Delphi survey) data as well as the quantitative (spectator survey) data collected. Once again the results are discussed in answer to the set research objectives.

8.4.2.1 Results from the Delphi survey

Objective 6 aimed to explore expert opinions on the factors that could influence sport event spectators' ERB and was addressed in Chapters 5 and 6. The purpose of this objective was to verify that all the relevant constructs (possible factors underlying ERB) have been identified in the literature and given consideration within the study context.

The Delphi survey produced a wide range of factors, grouped under three broad categories: spectator specific, event/industry specific, and external factors. All of the factors were combined and ranked according to their mean scores (perceived level of importance) (refer to Table 25).

Table 25: Most important factors identified across all categories

	Mean	Std. Dev.
11. Ethics/Value - responsible for environment	3.90	.316
12. Attitude	3.90	.316
13. EMS in place	3.90	.316
14. Awareness - need for protection	3.80	.422
15. Ethics/Value - responsible toward others	3.80	.422
16. Environmental design	3.80	.422
17. Knowledge	3.67	.707
18. Level of environmental education	3.60	.699
19. Awareness - individuals have to act	3.60	.699
20. Habit	3.60	.699

The most important factors were perceived to be personal ethics/values related to the individual's sense of responsibility toward the environment; attitude toward the environment; the EMS in place; the individual's awareness of the need to protect the environment; personal ethics/values regarding responsibility toward others; the environmental design present at the event; the individual's knowledge of environmental issues; their (previously obtained) level of environmental education; the individual's awareness of the fact that individuals have to act to address global environmental issues; and lastly habits in place in the individual's daily life. Demographic spectator specific factors and external factors fall outside of the top ten priority list. This coincided with the literature from Environmental Psychology and Consumer Behaviour proposing that psychographic variables provide greater insight into behaviour than demographic variables.

It was decided to retain the model as is without inclusion of additional factors. Three factors omitted from the 'top ten list' included personal values, environmental beliefs and environmental awareness. As previously stated, the researcher acknowledged the importance of personal values as a component of ERB (as indicated in the NAM and VBN theories). However, it is excluded as a construct as the TPB was chosen as reference point, given the proven validity of the model and the proposed contribution to the literature in sport and sports tourism through applying this model. ‘Environmental awareness’ and ‘environmental beliefs’ have been used and proven as predictors in various ERB-related studies, especially to predict environmental attitudes. However, in the current model the attitude being measured was not a general environmental attitude, but a specific ATT (after Ajzen, 2012). The influence of ‘habit’ has been proven by a number of authors (Han & Kim, 2013) and it has been indicated by Ajzen (2011) that the frequency of past behaviour could be used to explain behaviour after the original TPB model variables have been accounted for, even though it is not part of the original version of the TPB (Klöckner & Blöbaum, 2011). For the sake of parsimony of the model and subsequent statistical testing (Klöckner & Blöbaum, 2011; Kollmuss & Agyeman, 2002), it was decided to exclude these three additional explanatory variables. Importantly, the table indicated that all of the constructs included in the model had indeed been mentioned by the respondents (though not all being in the top 10 list) and could therefore be regarded as relevant to the study.

Objective 7 stated designing a measuring instrument to test the factors underlying ERB of sport event spectators, and was addressed in Chapter 5. As discussed in Chapter 5, various literature sources were used to generate questionnaire scales. In many instances the researcher used tested scale items, but never a complete scale as is. As many of the original scales included large sets of items to test the related construct, it was decided to include only those scale items that had obtained the greatest factor loadings in the factor analyses (where applicable) conducted by the original researchers. A minimum number of three items were retained to operationalise a factor, as a factor with less than three items is regarded as weak and unstable (Costello & Osborne, 2005). During the data analysis process, this decision to retain only three items proved to present problems as no additional items could be dropped to increase scale reliability (such as the case with BNFT and PBC). It also proved to be too limited in some instances to operationalise complex variables, for example PEA (as discussed in Chapter 7).

8.4.2.2 Results from the spectator survey

Objective 8 was to test the relevance of the proposed theoretical model amongst sport event spectators at a series of outdoor cycling events. This objective is answered by evaluating the model fit with the data, as well as the model parameters presenting the path coefficients for the structural model linkages hypothesised.

8.4.2.2.1 Model fit with the data and model refinement

The overall fit of the structural model with the data was evaluated at the hand of model test statistics as well as goodness of fit indices. At a structural model level, both the hypotheses of exact and close fit were rejected. Even though it provides preliminary evidence against a model, there are various other factors that should be taken into consideration. The model test statistics (model chi-square) should always be viewed along with the approximate and goodness of fit indexes (Iacobucci, 2010; Kline, 2011). Considered collectively, the model showed adequate, yet not good fit to the empirical data.

After the measurement model analyses were conducted, a number of refinements were made to the proposed theoretical model based on methodological and theoretical considerations. The changes from the original proposed structural model included:

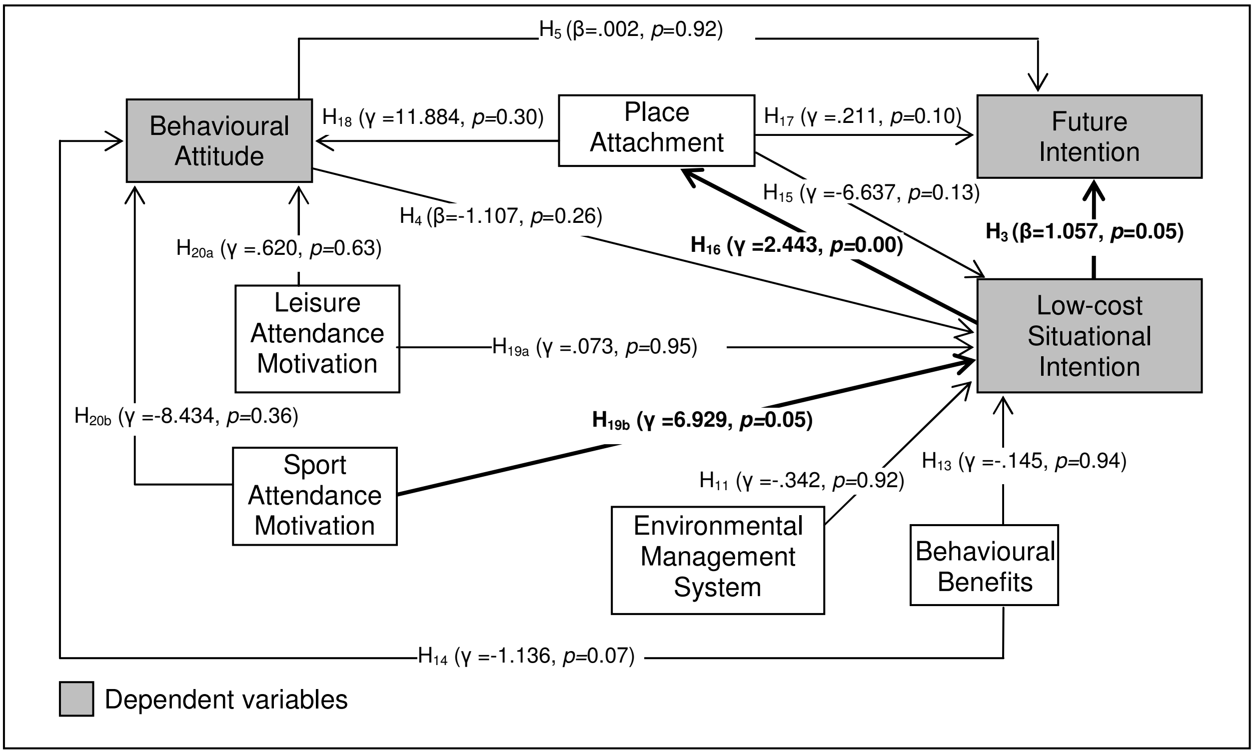
- the exclusion of SJN and CST due to extremely high correlations with EMS;
- the exclusion of PBC due to measurement concerns;
- the split of MOTV into two factors, labelled as Leisure MOTV and Sport MOTV; and
- the split of STI into two factors, labelled as Low-cost STI and High-cost STI (which had to be excluded based on measurement concerns).

The refined structural model is presented in Figure 41 along with the path coefficients (refer to the original proposed model in Figure 39).

8.4.2.2.2 Significant path coefficients

Only three of the hypothesised relationships proved to be statistically significant. These include H_3 (the influence of Low-cost STI on FTI), H_{16} (the influence of Low-cost STI on PEA) and H_{19b} (the influence of Sport MOTV on Low-cost STI). All three these relationships were positive. Measurement insufficiencies that jeopardised confidence in some of the findings were noted during the data interpretation and discussion.

Figure 41: Refined structural model with path coefficients



Given these results, the perceived contributions of the research are outlined next.

8.5 CONTRIBUTION OF THE RESEARCH

Overall, the study contributes to the growing number of tourism studies focusing on ERB of tourists, by providing insights into a growing niche segment, namely event sports tourism. It links existing knowledge of tourist and sport spectator behaviour with other subject areas, including Environmental Psychology, Environmental Education and Consumer

Behaviour – an endeavour that can be regarded as addressing a gap in the sustainable tourism research agenda (Dolnicar *et al.*, 2008). It also makes a contribution to sport-focused environmental sustainability literature that can still be regarded as being "in its infancy" (Mallen *et al.*, 2011:253). Specifically, no studies could be found that test any of the models of environmental behaviour in a sport spectating context.

Any research should aim to make both a theoretical and a practical contribution, as research should promote competencies for managing challenges in environmental sustainability along with innovative solutions (Mallen *et al.*, 2011). Hence, the perceived contributions from both perspectives are discussed in this section.

8.5.1 Theoretical contribution

Some of the findings were in line with the literature, some surprising and different from existing literature, and others presented a contribution to the literature. Measurement insufficiencies that jeopardised confidence in some of the findings were noted during the data interpretation and discussion.

The study simultaneously tested the influence of a range of behavioural factors activated within a given context. It indicated which of the relationships become more prominent given the influence of all the others. Three relationships proved to be statistically significant (discussed below).

- The positive influence of Sport MOTV on STI presents a contribution to the literature, especially in the light of Leisure MOTV having no influence on STI or ATT.

- The finding that STI has a positive influence on FTI corroborates with existing literature.

- It was found that STI has a large positive effect on PEA. This finding was surprising, especially considering that the opposite relationship (which is extensively proven in the literature) proved insignificant.

The findings also presented other theoretical contributions in the form of data dimensionality, correlations between variables and non-significant relationships (discussed below).

- The split of STI between high-cost and low-cost correspond to ERB literature indicating lower and higher cost activities, where the low-cost activities require less sacrifice and effort from the individual.

- The split of MOTV between Leisure MOTV and Sport MOTV presented an interesting finding, given the broad range of theorised possible psychological drivers of sport consumption motivation. It confirmed the opinion that sport attendance is motivated by only a few broad motives, including motives related to being a fan of the sport, motives related to leisure preferences and motives related to identification with the subculture of the sport at the event.

- The extremely high correlation between SJN and EMS presented an interesting finding, as it highlights the importance of the EMS as being the 'norm' of acceptable behaviour. It also supports the views of the Delphi participants that the EMS and its design is among the 'top 10' important factors affecting ERB.

- The extremely high correlation between CST and EMS presented another interesting finding, as it highlights the fact that people associate participation in ERB activities as 'automatically' being associated with personal costs.

- The non-significant relationship between ATT and Situational and FTI corroborates with literature and supports the viewpoint that attitude rarely predicts behaviour (the attitude-behaviour gap).

- The non-significant relationships between BNFT and ATT, as well as BNFT and STI corroborate with existing literature that 'gain goal' motives may become less important in a sport spectating context. In other words, people are not necessarily motivated by rewards (financial) or avoiding punishment.

Managerial implications that can be derived from these theoretical findings are discussed next.

8.5.2 Managerial implications of the study

The study presented a model of factors that could be relevant within the context of sport spectating. Given the proven significance of some of the relationships, the model may serve as a reference tool to identify strategies and develop tactics that can be implemented before, during and after a sports event to enhance the environmental sustainability initiatives.

As spectators with a positive STI are more likely to display desired behaviour in future, it is imperative for event managers to focus on identifying such individuals, as they will be the ones supporting future initiatives toward greening the event (such as making use of public transport; reading the event's rules and regulations before attending; and supporting the event's sponsoring company). The findings suggest that these individuals will most likely be those attending because of their affiliation with / love for the sport, as the sport itself is their main motivation for attendance. It is important for event owners or managers to facilitate the process and make it easy for past spectators to engage in the desired future behaviours.

Event owners have to realise the importance of implementing an EMS in a visible manner. The results suggest that, within the sport spectating context, the EMS will act as the 'norm' and be the main indication to spectators of the desired behaviour.

Environmental communication should be placed within the right message frame. Encouraging people through rewards may not necessarily prove to be effective, as findings suggest that such gains may not motivate a sport spectator. These individuals are more likely to be driven by the goal for hedonic pleasure and as a result be more sensitive to any perceived costs associated with performing ERB. The results suggest that individuals automatically associate participation in / use of an EMS and its facilities as costly to them in terms of time, ability to watch a race and enjoy themselves. This finding emphasised the need to ensure effective design of facilities to ensure ease of use and thereby minimising the perceived negative costs associated with the behaviour.

Event owners could also formulate communication in such a way as to establish an association between the spectator's participation in ERB activities, with greater pride in the event or setting. For example, use communication that encourages participation in the ERB activities by alluding to the fact that the spectator will be contributing to an even better event in the future, thereby growing their own affinity (PEA) toward the event.

The limitations of the study are discussed next.

8.6 LIMITATIONS

The main theoretical limitation of the study was the exclusion of values and norms as predictors of ERB, given that it was decided to use the rational choice approach of the TPB as reference and not pro-social models of behaviour that consider these variables as main predictors.

The fact that two of the main predictors of the TPB had to be removed from the model due to measurement concerns is regarded as a limitation of the study, as the model as such could not be validated. At the same time, the chosen model and statistical analysis technique presented a theoretical limitation, as only a small number of variables could be included in the model. As indicated in the literature, a vast range of factors have been linked to ERB and many other variables could have been included to improve the predictive power of the main predictor variables in the model.

Even though every effort was made to empirically refine the measurement models, problems were noted with the properties of some of the scales. The decision to retain only three items from existing scales or previously used questionnaires by other authors proved to present problems, as no additional items could be dropped to increase scale reliability. It also proved to be too limited in some instances to operationalise some of the complex variables.

In terms of the empirical research process, the data collection setting proved to present limitations to the study. Spectators were sometimes distracted by the race taking place and as they could not complete the survey in a relaxed state, often hurried through the questions or returned incomplete questionnaires (leading to missing data in the data set).

Another limitation is the cross-sectional nature of the study; implying that spectator behaviour could not be measured over time. This limitation is linked to the fact that many researchers state that SEM does not provide an 'ultimate proof' of causality as causality can only be proven through experimental research.

8.7 RECOMMENDATIONS FOR FUTURE RESEARCH

Considering the fact that two of the three main predictors of the TPB had to be removed from the model due to methodological and theoretical considerations, places a question on the future use of the TPB as reference model within the study context (sport spectating). Support could hereby be provided for current thinking that a combination of two models, such as the TPB and NAM, could provide greater predictive power. It may also support the notion of finding the best model within the context, thereby suggesting that behavioural models that include values and norms (such as the NAM and VBN) should be considered to provide better prediction of ERB within the study context.

At the same time, the TPB could still be used as a base, but then excluding EMS and including SJN and CST. It would then be appropriate to strengthen the predictive power of SJN through the addition of social aspects of behaviour, including subculture identification (a person's identification with the subculture of the sport as an influencer of the relative importance of SJN).

It could be beneficial to investigate the relative importance of various motives (hedonic versus gain goal versus normative) as predictors of STI in order to adapt communication strategies to encourage ERB using the most appropriate message framing. Though gain goals (BNFT) were found to be non-significant in this study, it does not mean that the same result will be found when only three sets of motives are tested within a structural model, as new interaction effects will most likely occur between variables.

The large positive relationship between STI and PEA requires further investigation, as this 'reversed' relationship has not received much attention in the literature. Greater explanation for this relationship could perhaps be found if personal values and norms are included as predictors in the model (people take responsibility based on personal values or norms and as a result experience increased pride and attachment toward a setting).

A wide range of additional variables can be included in the basic model. For example, environmental awareness, environmental beliefs (using the NEP) and love and care for nature can be linked to ATT. The influence of perceived consumer effectiveness and faith in others could also be used as moderators between ATT and intention. Furthermore, the influence of habits could also be considered as a moderator between behavioural intention and actual behaviour.

Future studies could explore the moderating effects of other variables on the relationships between the main predictor and outcome variables. Though it is suggested that demographics do not provide in-depth understanding of behaviour, demographic variables such as age, gender, education level and income can be explored. This is especially relevant in the sport consumption context and even more so in the South African context, where few empirical articles exist. Other factors could include testing the moderating effects of the event type (mountain bike versus road bike; other sporting codes such as running, swimming and triathlons); the event location (the nature of the surrounding destination); the event infrastructure (urban versus rural; stadium settings versus outdoor settings); trip characteristics (day versus overnight visitors; domestic versus foreign visitors); and travel companions (alone versus groups).

Lastly, this study tested behavioural intention without investigating actual behaviour. Future research could explore different ways of collecting data on actual behaviour, though it would probably be a difficult task given the behavioural setting where spectators move around and are often not contained to specific areas close to EMS facilities.

8.8 CONCLUSION

The aim of this chapter was to present an overall conclusion to the study by highlighting the main theoretical and empirical research findings and conceptualising the perceived contributions of the study to theory and practise. It also set out to indicate the major limitations of the study and to make suggestions for subsequent research that could address these limitations.

This study set out to identify and test the relevance of factors as drivers of ERB within a sport spectating context. The aim was to develop a theoretically based model that could be tested through an appropriate statistical technique. Structural Equation Modelling was used to test the simultaneous effect of a set of identified factors within a sport spectating context.

The research revealed that the refined structural model displayed adequate, but not good fit with the empirical data. Three of the relationships proved to be significant, namely the relationship between STI and FTI; between Sport MOTV and STI; and between STI and PEA. The theoretical and practical implications of these findings were discussed. Furthermore, a number of non-significant findings and highly correlated variables also presented interesting theoretical implications.

The study achieved its overall aim and individual research objectives. It presents a contribution to the limited number of empirical articles focused on the drivers of ERB within a sports tourism context. From an academic perspective, the tested model could serve as a starting point from which other predictor variables could be tested. From a practical perspective, the model identifies some of the important aspects that event practitioners should take into consideration when aiming to enhance the environmental sustainability of their events through the cooperation and contribution that can be made by spectators attending the event.

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APPENDIX A

Delphi 1st round letter of invitation and response sheet

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Fakulteit Ekonomiese en Bestuurswetenskappe
Faculty of Economic and Management Sciences

RESEARCH ON FACTORS THAT INFLUENCE ENVIRONMENTALLY RESPONSIBLE BEHAVIOUR OF SPORT EVENT SPECTATORS

Dear ……

As a recognised expert in the field of …………… we would like to invite you to participate in a research study by Elizabeth Kruger, under the direction of Prof. Ernie Heath of the Department of Tourism Management, University of Pretoria.

The purpose of the study is to investigate factors that might influence spectators at outdoor sport events to display environmentally responsible behaviour. In the light of the increasing global awareness of and concern for environmental issues, members of the event sports tourism industry are increasingly impacted and required to comply. Though a growing number of studies address this topic within both sport and tourism respectively, there appears to be limited knowledge on the determinants of environmentally responsible behaviour of sport event spectators.

Based on a comprehensive review of current literature and industry practices related to environmental responsibility and behaviour, we have determined that a number of factors, including environmental education, personal ethics, level of involvement in sport, the industry's environmental management practices, and environmental messaging influence behaviour.

As a key point of departure for this research, we need your expert opinion on the factors that, from your perspective, could influence environmentally responsible behaviour. This will ensure that the questionnaire to be distributed to sport event spectators at a series of sporting events in South Africa adequately covers all factors that may influence their behaviour.

Your contribution is required for two rounds. In the first round we would like your opinion on all the factors that you feel may influence sport event spectators' environmental behaviour. This should take approximately 15 minutes to complete. After consolidating the opinions of all the respondents, we will revert back to you for the second round, where you will be asked to agree or disagree with the consolidated opinions presented. This should take approximately **10 minutes** to complete. **Your individual response will remain confidential**.

Please feel free to contact us with any uncertainties or suggestions.

We truly appreciate your cooperation in the above regard and take the liberty to attach the response sheet for round one.

Elizabeth Kruger
PhD CANDIDATE

Prof Ernie Heath
SUPERVISOR

Please provide **your opinion** of all the **factors** (**as comprehensively as possible)** that you see as having an influence on the environmentally responsible behaviour of **sport event spectators**. Please list the factors or describe them in sentences. Please return the completed sheet to elizabeth.kruger@up.ac.za or forward to ernie.heath@up.ac.za.

SPECTATOR SPECIFIC FACTORS:

INDUSTRY AND EVENT SPECIFIC FACTORS:

EXTERNAL FACTORS:

OTHER:

APPENDIX B

Delphi 2nd round letter of invitation and response sheet

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

RESEARCH ON FACTORS THAT INFLUENCE ENVIRONMENTALLY RESPONSIBLE BEHAVIOUR OF SPORT EVENT SPECTATORS

Dear ……

Thank you for your valuable contributions in the first round of our research. We have now consolidated the opinions of all the respondents and would like to request your participation in a second round.

During this round you are requested to indicate the extent to which you view each of the factors listed as influencing **the environmentally responsible behaviour displayed by individual sport event spectators.** This should take approximately **15 minutes** to complete. **Your individual response will remain confidential**. The response sheet for round two is attached for your perusal.

We truly appreciate your continued participation as part of the expert panel.

Elizabeth Kruger	Prof Ernie Heath
PhD CANDIDATE	SUPERVISOR

RESPONSE SHEET - ROUND TWO

Please indicate the extent to which you view each of the factors listed below as having an influence on the **environmentally responsible behaviour displayed by individual sport event spectators**. If you would like to indicate the nature of the influence, please do so by indicating a positive influence with **P** and a negative influence with **N** in the blocks provided. Provision has also been made for any additional comments or feedback at the end of each section. Please return the completed sheet to elizabeth.kruger@up.ac.za or forward to ernie.heath@up.ac.za.

SPECTATOR SPECIFIC FACTORS (The individual)				
	No influence	**Little influence**	**Moderate influence**	**Significant influence**
DEMOGRAPHICS AND TRIP CHARACTERISTICS				
Level of education (general)				
Occupation				
Gender				
Age/generation				
Affluence (socio-economic status)				
Ethnicity (culture)				
Origin (local versus out-of-town visitor)				
Travel companions				
PSYCHOGRAPHIC VARIABLES				
Personality				
Self-identity				
Socialisation (e.g. online communities)				
Level of involvement in sport (love/respect for the sports discipline)				
Level of involvement in sport (team / athlete attachment)				
Level of involvement in sport (frequency of attending the event)				
Level of involvement in sport (motivation for attending the event)				
Level of involvement in sport (identification with a sport sub-culture)				
ENVIRONMENTAL ORIENTATION				
Level of education (environmental education)				
Awareness (of the need that protection has to take place)				
Awareness (of the fact that individuals have to act)				
Awareness (of the fact that sport also affects the environment)				
Knowledge (on how to protect the environment)				
Personal ethics/values (personal responsibility towards the environment)				
Personal ethics/values (concern for welfare of others/collectivism/altruism)				
Attitude (environmental stewardship/concern)				
Habit (what you are used to doing at home)				
Risk perception (will suffer personally if environment is not protected)				
Risk perception (sport will suffer if environment is not protected)				
Attachment to / love for nature (experiences with nature / connectedness to nature / ecological self)				
Place attachment (area where event takes place / sense of ownership)				
Level of commitment (degree of sacrifice willing to make / voluntary actions)				
Belief about consequences (ease/time of required actions / behavioural control)				

SPECTATOR SPECIFIC FACTORS (The individual) continued				
	No influence	**Little influence**	**Moderate influence**	**Significant influence**
Belief about consequences (costs involved / willingness to pay)				
Belief about consequences (rewards)				
Belief about consequences (punishment / knowledge of punishment)				
Belief about consequences (chance to get caught)				
Perceived control / learned helplessness (ability to make a difference through own actions)				
Belief in others (in event owner/peers to also act responsibly)				
ANY ADDITIONAL FACTORS/COMMENTS:				

EVENT SPECIFIC FACTORS (Event organization) – influencing the individual spectator				
	No influence	**Little influence**	**Moderate influence**	**Significant influence**
Environmental management **system/programme in place** for the event (waste, water & energy management; biodegradable products; mass/public transport available; sufficient ablution facilities; carbon footprint management; biodiversity; lay-out of activities/usage intensity)				
Behavioural setting / environmental **design of** the environmental management system/programme (ease/convenience/simplicity of actions required by visitors)				
Environmentally responsible communication (advertising, promotion, PR)				
Environmentally responsible communication (signage)				
Environmentally responsible communication (education about environment where event takes place)				
Environmentally responsible communication (informing visitors about environmental programme of the event)				
Environmentally responsible communication (educating visitors about consequences of non-compliance)				
Post-event activities (communication; clean-up)				
Environmental philosophy of event owner/organiser				
Environmental reputation of the particular event				
Environmental reputation of event owner/organiser (disclosure)				
Environmental reputation of event owner/organiser (perception of greenwashing)				
Staffing (attitude/knowledge/setting an example e.g. volunteers)				
Enforcing rules/regulations (positive reinforcement e.g. incentives)				
Enforcing rules/regulations (fines, punishment, cost of non-compliance)				
Enforcing rules/regulations (effective communication)				
Enforcing rules/regulations (perceived effectiveness)				
Importance of the environment for the event (resource quality dependency)				
Nature of the event (scale, duration; sporting code)				
Temporal factors (weather)				

ANY ADDITIONAL FACTORS/COMMENTS:				
EXTERNAL FACTORS – influencing the individual spectator				
	No influence	**Little influence**	**Moderate influence**	**Significant influence**
Host community (government support for responsible operations)				
Host community (government policy/law in place)				
Host community (environmental ethics of residents)				
Host area (available infrastructure/services)				
Host area (environmental aesthetics / hygiene)				
Event partners (e.g. attitude and actions of tourism & hospitality industry)				
Event partners (role of event sponsors)				
Event partners (communication of environmental organisations/agencies)				
Sport starts as role models				
Mass media (environmental communication in popular media)				
Mass media (environmental advocacy by famous personalities)				
Mass media (environmental communication via online platforms)				
ANY ADDITIONAL FACTORS/COMMENTS:				

*** THANK YOU FOR YOUR TIME ***

APPENDIX C

Survey instrument

Questionnaire nr:	
Date distributed:	
Event location:	
Fieldworker:	

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Economic and Management Sciences

Informed consent for participation in an academic research study

Department of Tourism Management

Sport event spectators' contribution to the environmental dimension of sustainable event sports tourism

Research conducted by:
Mrs. E.A. Kruger (02537796)
Cell: 082 5432316

Dear Respondent

You are invited to participate in an academic research study conducted by Elizabeth Kruger, a Doctoral student from the Department of Tourism Management at the University of Pretoria. The objective of this study is to understand sport event spectators' perspectives of environmental sustainability and protection. It is also to understand the various factors that influence spectators to display environmentally responsible behaviour while spectating.

Please note the following:

- This study involves an anonymous survey. Your name will not appear on the questionnaire and the answers you give will be treated as strictly confidential. You cannot be identified in person based on the answers you give.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions in the questionnaire as completely and honestly as possible. This should not take more than 12 minutes of your time.
- The results of the study will be used for academic purposes only and may be published in an academic journal.
- Please feel free to consult with the fieldworker if you have any questions pertaining to the study or questions.
- You are also welcome to contact my study leader, Prof Ernie Heath (082 412 5952, ernie.heath@up.ac.za) if you have any questions or concerns about the study.

Please sign the form to indicate that:

- You have read and understand the information provided above.
- You give your consent to participate in the study on a voluntary basis.

___________________________ ____________________

Respondent's signature **Date**

PLEASE ANSWER THE FOLLOWING QUESTIONS AS HONESTLY AS POSSIBLE BY CIRCLING THE APPROPRIATE OPTION FOR EACH STATEMENT.

1. Your motivations for attending this cycling event.

	Strongly disagree	Disagree	Agree	Strongly agree
1.1 Cycling is my favourite sport.	1	2	3	4
1.2 Learn more about the sport of cycling.	1	2	3	4
1.3 Share a feeling of accomplishment with the riders.	1	2	3	4
1.4 Support a specific rider / team of riders.	1	2	3	4
1.5 Meet other people with similar interests as myself.	1	2	3	4
1.6 Spend time with family.	1	2	3	4
1.7 Spend time with friends.	1	2	3	4
1.8 The friendly, family atmosphere.	1	2	3	4
1.9 Spend time outdoors.	1	2	3	4
1.10 For relaxation.	1	2	3	4
1.11 For excitement.	1	2	3	4
1.12 To escape the reality of my daily life.	1	2	3	4
1.13 It is free entertainment.	1	2	3	4
1.14 I happened to be in the area.	1	2	3	4

2. Your feelings about this event.

	Strongly disagree	Disagree	Agree	Strongly agree
2.1 I am very attached to visiting this place specifically.	1	2	3	4
2.2 I have a special connection to attending this cycling race.	1	2	3	4
2.3 Attending this particular event is more important to me than attending a cycling event in another place.	1	2	3	4

3. Your opinions about performing <u>environmentally responsible actions</u> at this event.

	Strongly disagree	Disagree	Agree	Strongly agree
3.1 It is up to me to decide to behave in an environmentally responsible manner at this event.	1	2	3	4
3.2 I am confident that if I want to, I can perform environmentally responsible behaviour at this event.	1	2	3	4
3.3 I have the resources, time and opportunities to undertake environmentally responsible behaviour during this event.	1	2	3	4

4. Whether the following things will ENCOURAGE you to undertake environmentally responsible actions at this cycling event.

	Not at all encouraging	To some extent encouraging	Very encouraging
4.1 Seeing other spectators being environmentally responsible.	1	2	3
4.2 Signage that reminds me to act responsibly.	1	2	3
4.3 Clean, charged-for ablution facilities.	1	2	3
4.4 Being looked down upon if I am not environmentally responsible.	1	2	3
4.5 Actions that interfere with my ability to enjoy myself.	1	2	3
4.6 Information about the event's environmental management system.	1	2	3
4.7 Receiving discounted rates on public transport to and from the venue.	1	2	3
4.8 Receiving cash for every bag of litter that I hand in after the race.	1	2	3
4.9 Knowing that other spectators expect me to behave in an environmentally responsible manner.	1	2	3
4.10 Having access to safe drinking water.	1	2	3

Questions continue on the next page

4. Whether the following things will ENCOURAGE you to undertake environmentally responsible actions at this cycling event.

	Not at all encouraging	**To some extent encouraging**	**Very encouraging**
4.11 Being frowned upon if I go out of my way to be too environmentally responsible.	1	2	3
4.12 Receiving information about the natural environment in which the event takes place.	1	2	3
4.13 Conveniently located recycling bins.	1	2	3
4.14 Knowing that I will be prosecuted and/or given a fine if I don't comply.	1	2	3
4.15 Knowing that no one else is being environmentally responsible.	1	2	3
4.16 Clearly marked viewing areas.	1	2	3
4.17 People that assist me with the recycling activities.	1	2	3
4.18 Actions that interfere with my ability to watch the race.	1	2	3
4.19 Seeing the cyclists being environmentally responsible.	1	2	3
4.20 Actions that will take up a lot of my time.	1	2	3

5. Activities that you undertake as a spectator at this event.

	Definitely not	Unlikely	Maybe	Definitely
5.1 Stay within the designated viewing areas.	1	2	3	4
5.2 Read the information signs to guide my behaviour.	1	2	3	4
5.3 Throw my rubbish in the bins provided.	1	2	3	4
5.4 Make use of the ablution facilities provided.	1	2	3	4
5.5 Pick up any litter that I see.	1	2	3	4
5.6 Volunteer to pick up litter after the race.	1	2	3	4
5.7 Report inappropriate behaviour of other spectators.	1	2	3	4
5.8 Refill my water bottle with tap water.	1	2	3	4
5.9 Trample on plants to get a better view of the race.	1	2	3	4
5.10 Park my car only in the designated parking areas.	1	2	3	4
5.11 Make loud music or other noise to add to the event atmosphere.	1	2	3	4
5.12 Take note of the natural environment around me.	1	2	3	4

6. Activities that you plan to undertake regarding future cycling events.

	Definitely not	Unlikely	Maybe	Definitely
6.1 Read through the event's environmental rules and regulations before actual attendance.	1	2	3	4
6.2 Make a financial contribution towards the event's clean-up and recycling initiatives.	1	2	3	4
6.3 Make use of public transport or car-pooling to reduce the carbon footprint of the event.	1	2	3	4
6.4 Rather watch the race on television or over the internet in order to reduce the environmental impact of the event.	1	2	3	4
6.5 Follow the event's environmental initiatives in the media before deciding to return next year.	1	2	3	4

Questions continue on the next page

6. **Activities that you plan to undertake <u>regarding future cycling events</u>.**

	Definitely not	Unlikely	Maybe	Definitely
6.6 Sign a petition against the event if it becomes known that the event has a negative impact on the environment where it takes place.	1	2	3	4
6.7 Buy more products of the event sponsoring companies because they support this environmentally friendly event.	1	2	3	4

7. Listed below are pairs of descriptive words that one could use to describe opinions about behaving environmentally responsibly. **For each pair of descriptive words, choose the position on the scale that, in your view, best describes your opinion.**

For me, acting environmentally responsibly while spectating at this cycling race is:

7.1	extremely **unimportant**	1	2	3	4	5	6	7	extremely **important**
7.2	extremely **un-enjoyable**	1	2	3	4	5	6	7	extremely **enjoyable**
7.3	extremely **undesirable**	1	2	3	4	5	6	7	extremely **desirable**
7.4	extremely **tiresome**	1	2	3	4	5	6	7	extremely **easy**
7.5	extremely **foolish**	1	2	3	4	5	6	7	extremely **wise**
7.6	extremely **unnecessary**	1	2	3	4	5	6	7	extremely **necessary**
7.7	extremely **inconvenient**	1	2	3	4	5	6	7	extremely **convenient**
7.8	extremely **negative**	1	2	3	4	5	6	7	extremely **positive**

<u>DEMOGRAPHICS</u>

8. Please indicate your age: ___________ years.

9. Please indicate your gender:

Male	1
Female	2

10. Please indicate your highest qualification:

Primary school education	1
Grade 12	2
Diploma/National certificate	3
Degree	4
Post graduate degree	5

11. Please indicate your home language:

Afrikaans	1	Sesotho	7
English	2	Setswana	8
IsiNdebele	3	siSwati	9
IsiXhosa	4	Tshivenda	10
IsiZulu	5	Xitsonga	11
Sesotho sa Leboa	6	Other (please specify):	

12. Where did you travel from?

The event takes place in my neighbourhood	1
Neighbouring suburb	2
Neighbouring town/city	3
Another province (please specify):	
Another country (please specify:	

13. With whom are you attending the event?

Alone	1
Family	2
Friend/s	3
Sports club	4
Cyclist support team	5
Other (please specify):	

14. How did you travel to the event?

Alone in a private vehicle	1
With a group sharing a private vehicle	2
Alone in a rental vehicle	3
With a group sharing a rental vehicle	4
Airplane	5
Train	6
Bus	7
Bicycle	8
Walking	9
Other (please specify):	

15. If you are an overnight visitor, where are you staying over?

With friends/family	1
Hotel	2
Guest house / bed & breakfast	3
Camping / caravan park	4
Other (please specify):	

16. If you are staying overnight in the area, how many nights are you staying? ________ nights.

Thank you for completing the survey.
Your participation is greatly appreciated.

APPENDIX D

Survey permission and communication

RESEARCH ON FACTORS THAT INFLUENCE ENVIRONMENTALLY RESPONSIBLE BEHAVIOUR OF EVENT SPORT SPECTATORS

Dear Mr Bellairs

We would like to request your permission to undertake a research study at the Cape Argus cycle challenge during 2013. The study will be undertaken by Elizabeth Kruger, under the direction of Prof. Ernie Heath of the Department of Tourism Management, University of Pretoria.

The purpose of the study is to investigate factors that influence spectators at outdoor sports events to display environmentally responsible behaviour. In the light of the increasing global awareness and concern for environmental issues, members of the event sports tourism industry are increasingly impacted and required to comply. Although a wealth of information is available on sound environmental management practices within both the sports and tourism industries, by all indications, very little is known about the factors that determine environmentally responsible behaviour of sport event spectators.

We would like to request permission to undertake a survey among spectators spread along the routes of the road and off-road events. A self-completion questionnaire will be used to collect data from spectators and the aim is to include a total of 500 respondents from each event to make comparisons between group behaviour. A team of maximum eight fieldworkers will be used per event. The only assistance that the fieldworker team will require is permission and access to approach spectators at various points along the routes. Be assured that we will abide with any regulations set out to us.

Any details of the findings related to your specific event will also remain anonymous, but could be shared with you personally, if required. The survey results may provide valuable insights into the ways in which you as sport event owner/organiser can positively influence your spectators' environmental behaviour. This in turn may contribute to your corporate social responsibility (CSR) profile; lead to greater levels of satisfaction among increasingly discerning clients; and indirectly promote the economic sustainability of your event.

Should you be willing to participate by allowing the spectator survey, we will make contact with you closer to the time of the event, or at a time indicated by you, to finalise logistical details. We will provide you with a copy of the questionnaire before commencing with the survey.

We thank you for your cooperation.

Elizabeth Kruger PhD CANDIDATE	Prof Ernie Heath SUPERVISOR

RE: Follow-up from SETE

From:	David Bellairs < >,
To:	Elizabeth Kruger <Elizabeth.Kruger@up.ac.za>
CC:	
Date:	Wednesday - January 9, 2013 10:12 AM
Subject:	RE: Follow-up from SETE
Attachments:	Mime.822

Dear Elizabeth

I confirm that we are happy that you proceed with the research at the events mentioned below

Kind Regards

Dave

From: Elizabeth Kruger [mailto:Elizabeth.Kruger@up.ac.za]
Sent: 17 September 2012 03:25 PM
To: David Bellairs
Subject: Follow-up from SETE

Good day Mr Bellairs

It was a pleasure meeting you in person at the SETE conference.

I would just like to follow up on our conversation regarding the possibility to conduct research at the 2013 road and off-road events. I think it is also a very appropriate time, considering your planned initiatives regarding the environmental initiatives amongst spectators for 2013.

Please find attached an official letter requesting permission for the research. I would like to thank you so long for the opportunity and look forward to working with you on this project. Please feel free to make suggestions or any requests where you feel that the research can be modified (especially once you have received the questionnaire) to address specific needs that you may have.

Kind regards

Elizabeth Kruger
Lecturer
Dept of Tourism Management, UP
Cell: 082 543 2316
Tel: 012-420 3957

APPENDIX E

Survey summary example

EXECUTIVE SUMMARY
OF THE RESULTS OF RESEARCH UNDERTAKEN AT THE CAPE ARGUS PICK 'N PAY CYCLE TOUR
3 & 10 MARCH 2013

Sport event spectators' contribution to the environmental dimension of sustainable event sports tourism

REPORT PREPARED BY:

Mrs EA Kruger

PhD Candidate

Under supervision of Prof ET Heath

Division: Tourism Management

Department of Marketing Management

University of Pretoria

22 April 2013

TABLE OF CONTENTS

1. AIM OF THE RESEARCH

The objective of the (on-going) research study is to understand sport event spectators' perspectives of environmental sustainability and protection in general, but also within the context of spectating. It is also to understand the various factors that influence spectators to display environmentally responsible behaviour while spectating at a cycling event.

2. METHODOLOGY

The *Cape Argus Pick 'n Pay Cycle Tour* and *Mountain Bike Challenge* were chosen as two of ten events on the national cycling calendar. The road race is regarded as the world's biggest timed cycle race and is a highlight on the national cycling calendar. The equally successful mountain bike challenge celebrated its 12th year in 2013. The events attract athletes both nationally and from abroad, with the routes covering areas of pristine natural beauty.

A survey was conducted amongst spectators at the mountain bike challenge (3rd of March) and the road race (10th March). Three fieldworkers at the mountain bike event and 14 fieldworkers at the road race administered self-completion questionnaires on clipboards at and around the finish line area[10]. A simplistic combination of judgement and purposive sampling was used as spectators were approached based on their apparent state of relaxation (seated, standing relaxed and not waiting for a specific rider to come in). Spectators were also chosen individually and not as a group in order to minimise response bias through spectators influencing one another's answers. Furthermore, the fieldworkers aimed to include as diverse a set of respondents as possible across gender, age and racial categories. Unusable (incomplete) questionnaires were not included in the final results.

[10] For the road race this included a 3km stretch leading to the finish line as well as a few respondents at Suikerbossie.

3. RESULTS

3.1 Respondent profile

The final sample includes a total of 306 respondents; 247 from the road race (92 = male, 155 = female) and 59 from the mountain bike challenge (15 = male, 35 = female)[11]. The average age of respondents was 34, with the youngest being 13 and the oldest being 66 years. Majority of the respondents (51%) were English home language speakers, followed by Afrikaans (27%), African languages (10%), both Afrikaans & English (8%), and foreign languages (3%; including German, Shona, Italian and Japanese).

An equal number of respondents (36% each) originated from neighbouring cities/towns or suburbs neighbouring to the event location; followed by 14% that lived in the neighbourhood within which the event takes place. 11% originated from other provinces: 10 from Gauteng, 7 from the Eastern Cape, 6 from the Free State, 4 from KwaZulu-Natal, 3 from Mpumalanga and 2 from North West. 3% originated from other countries: 2 from the UK and 1 each from New Zealand, the USA, Oman and Zimbabwe. The remaining 11% originated from

Transport to the event included the following (in descending order):

Table 1: Mode of transport to event

Mode	n	%
With a group sharing private vehicle	148	50.3
Alone in a private vehicle	74	25.2
Walking	24	8.2
Airplane (as main form of transport to the destination)	12	4.1
With a group sharing a rental vehicle	11	3.7
By bus	10	3.4
By train	6	2.0
By taxi	5	1.7
Alone in a rental vehicle	2	.7
By bicycle	2	.7

[11] Some respondents did not indicate their gender

Travel companions to the event included the following (in descending order):

Table 2: Travel companions

Companions	n	%
With friends	152	51.5
With family	57	19.3
With friends & family	35	11.9
Alone	21	7.1
With members of an educational group	6	2.0
As part of a cyclist support team	5	1.7
With members of a sports club	3	1.0
With friends & members of a sports club	3	1.0
With work colleagues	3	1.0
With friends & as part of a cyclist support team	2	.7
With friends, family and members of a sports club	2	.7
With friends, family & as part of a cyclist support team	2	.7
With friends, members of a sports club & as part of a cyclist support team	2	.7
With family & members of a sports club	1	.3
With family, members of a sports club & as part of a cyclist support team	1	.3

Note: This question was a multiple response question and respondents could indicate more than one option, leading to small insignificant groupings.

104 (34%) of the respondents were overnight visitors to the area, with the average stay being 4 nights, the longest stay being 22 nights (one respondent), and the shortest stay being 1 night (16 respondents). Majority of the overnight visitors (61%) stayed with friends & family; followed by hotels (18%), guest house/bed & breakfasts (17%); camping/caravan park (3%), and in a motor home (1%).

3.2 Motivations for attending the Cape Argus Pick 'n Pay Cycle Tour

Respondents had to indicate the level (1 = strongly disagree; 4 = strongly agree) to which various factors were their main motivations for attending the event. Table 3 indicates the factors in descending order based on the average score achieved. The top factors (leaning stronger toward the positive end of the scale) appear to spend time outdoors, to experience a friendly, family atmosphere, to spend time with friends and family, to support a specific rider/team of riders, and to experience excitement and relaxation.

Table 3: Motivations for attending the event

Motivation	**Mean** [12]
To spend time outdoors.	**3.40**
For the friendly, family atmosphere.	**3.36**
To spend time with friends.	**3.31**
To support a specific rider / team of riders.	**3.29**
For excitement.	**3.28**
To spend time with family.	**3.27**
For relaxation.	**3.27**
To share a feeling of accomplishment with the riders.	3.11
It is free entertainment.	2.95
To escape the reality of daily life.	2.89
To meet other people with similar interests.	2.81
To learn more about the sport of cycling.	2.77
Cycling is his/her favourite sport.	2.72
Happened to be in the area.	2.16

3.3 Respondents' attachment to the sport and the Cape Argus Pick 'n Pay Cycle Tour as event

Respondents were then asked to indicate their feelings toward the sport of cycling and the specific event (1 = strongly disagree; 4 = strongly agree). Respondents indicated that they attend as many cycling events as possible throughout the year (m = 2.44) [13]. They spend time following the sport of cycling in the media and often travel away from home to attend cycling races (m = 2.37). They do not necessarily dedicate vacation time to specifically attend cycling events (m = 2.16). They indicated that they have a special connection to attending the Cape Argus Pick 'n Pay Cycle Tour and that they would regard attending this race as more important than any other (m = 2.59). At the same level, they have a strong attachment to visiting the specific place (m = 2.56).

[12] *mean* stands for the average; closer to 4 is better.

[13] *m* stands for the mean or average; closer to 4 is a stronger level of agreement.

3.4 Opinions on environmentally responsible actions at the event

Respondents indicated that they as individuals have the ability to really make a difference (*m* = 3.21)[14], and that they have the resources and opportunities available at the event to behave responsibly toward the environment (*m* = 3.22). They feel a sense of responsibility towards the environment even though they are just visiting (*m* = 3.18), and to a lesser extent that it is the full responsibility of others (the event organiser, the local municipality) to ensure that the event is environmentally responsible (*m* = 2.85). They agree that other people involved in the event (other spectators, the event organiser and the cyclists) also act environmentally responsible (*m* = 3.06).

Respondents had to indicate things that would encourage them to undertake environmentally responsible actions while spectating. Table 4 indicates the factors in descending order based on the average score achieved.

Table 4: Things that will encourage environmentally responsible behaviour

	Mean [15]
Having access to safe drinking water.	**2.72**
Conveniently located recycling bins.	**2.72**
Seeing other spectators being environmentally responsible.	**2.65**
Clean, charged-for ablution facilities.	**2.64**
Seeing the cyclists being environmentally responsible.	**2.63**
Signage that reminds them to act responsibly.	2.56
People that assist them with the recycling activities.	2.54
Clearly marked viewing areas.	2.53
Information about the event's environmental management system.	2.42
Receiving information about the natural environment in which the event takes place.	2.39
Knowing that they will be prosecuted and/or given a fine for noncompliance.	2.35
Receiving discounted rates on public transport to and from the venue.	2.31
Receiving cash for every bag of litter handed in after the race.	2.13

[14] *m* stands for the mean or average; closer to 4 indicates a stronger belief.

[15] Closer to 3 is better (more encouraging)

At the same time, activities that will take up a lot of their time (m = 1.97), interfere with their ability to watch the race (m = 2.11) or to enjoy themselves (m = 2.19) will deter them from such behaviour[16].

3.5 Self-reported environmental behaviour at the event

Respondents were asked to indicate the possibility (4 = definitely; 1 = definitely not) that they would undertake a number of environment-related activities (both positive and negative) while spectating at the event. Table 5 indicates the likelihood that spectators undertook the various positive as well as negative activities, in descending order. It is interesting to note that the last four positive activities, which are regarded as higher order activities (requiring a higher level of commitment to the environment), were also less likely to have been performed.

Table 5: Likelihood of performing positive environment-related activities

Positive activities	**Definitely (%)**	**Maybe (%)**	**Unlikely (%)**	**Definitely not (%)**
Throw rubbish in the bins provided (n=221)	84	12	2	2
Park car only in the designated parking areas (n=219)	70	16	8	6
Make use of the ablution facilities provided (n=218)	68	21	10	1
Stay within the designated viewing areas (n=218)	67	20	10	3
Read the information signs to guide behaviour (n=214)	58	25	16	1
Take note of the surrounding natural environment (n=218)	58	35	5	2
Refill his/her water bottle with tap water (n=220)	42	29	17	12
Pick up any litter that he/she sees (n=221)	34	39	19	8
Report inappropriate behaviour of other spectators (n=216)	22	32	34	12
Volunteer to pick up litter after the race (n=216)	18	28	54	20
Negative activities	**Definitely (%)**	**Maybe (%)**	**Unlikely (%)**	**Definitely not (%)**
Trample on plants to get a better view of the race (n=216)	9	15	21	55
Make loud music or other noise to add to the event atmosphere (n=221)	12	19	20	49

[16] Closer to 1 is worse (more discouraging)

3.6 Intended future environment-related behaviour for cycling events

Respondents were given a number of hypothetical environment-related activities that could be undertaken in future when attending cycling events (4 = definitely; 1 = definitely not). All of these activities are at the highest level of commitment towards the environment. Table 6 indicates the likelihood that spectators would undertake the various activities, in descending order. Results highlighted in green could be possible opportunities to consider for future events (refer to concluding recommendations).

Table 6: Intended future environment-related behaviour for cycling events

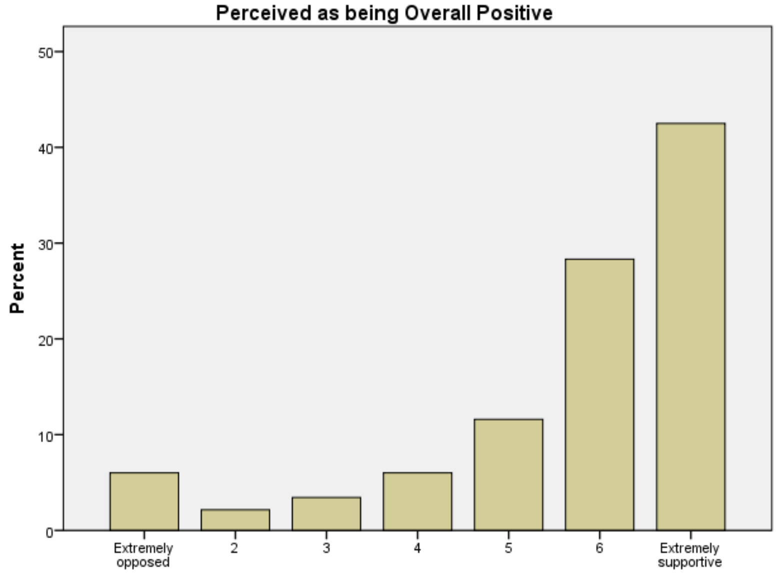
Positive activity	Definitely (%)	Maybe (%)	Unlikely (%)	Definitely not (%)
Read through the event's environmental rules and regulations before actual attendance (n=222)	32	36	20	12
Make use of public transport or car-pooling to reduce the carbon footprint of the event (n=218)	29	37	21	13
Buy more products of the event sponsoring companies because they support this environmentally friendly event (n=216)	28	47	16	9
Sign a petition against the event if it becomes known that the event has a negative impact on the environment where it takes place (n=221)	21	35	21	23
Follow the event's environmental initiatives in the media before deciding to return next year (n=218)	15	35	33	17
Make a financial contribution towards the event's clean-up and recycling initiatives (n=220)	15	32	41	12
Rather watch the race on television or over the internet in order to reduce the environmental impact of the event (n=219)	10	30	29	31

3.7 Overall attitude toward environmentally responsible behaviour at the Cape Argus Pick 'n Pay Cycle Tour

Respondents had to indicate (on a scale of 1 to 7, with 1 being extremely negative attitudes and 7 being extremely positive attitudes) how they perceive the task of acting environmentally responsible while spectating at the event. The results are displayed in the following set of bar charts to get an overall impression. In general, participants felt positive towards environmentally responsible behaviour at the event[17].

[17] 1 – 3 falls on the negative side of the continuum (extremely opposed); 5 – 7 falls on the positive side of the continuum (extremely supportive); 4 may be representative of a 'neutral' or 'unsure' attitude

Furthermore, the majority of respondents perceive it to be easy and convenient to undertake.



4. CONCLUDING RECOMMENDATIONS

The researchers would like to conclude with a word of thanks for the opportunity to conduct research at the Cape Argus Pick 'n Pay Cycle Tour events. Furthermore, we would like to mention a few recommendations for future organisation of the event, based on the results obtained[18].

When designing the event's environmental management system, it may be important to take both the encouraging and discouraging factors into consideration in the aim to influence spectators' behaviour (refer to Table 4). Reinforcements in the form of punishments (fines) or rewards (discounted rates / cash back) appear to be less encouraging than providing adequately located facilities and reinforcement through communication (refer to Table 4).

[18] Please note that these recommendations are based on preliminary findings and may require validation through future research.

The results indicate that spectators are willing to participate in environmental initiatives of the event. Results highlighted in Table 6 could be possible opportunities to consider for future events. These include providing the event's environmental rules and regulations to spectators and providing public transport to the venues (park and ride facility). There may also be some benefit to sponsoring companies to improve consumer loyalty through positive brand association with the event as an environmentally managed event.

APPENDIX F

Complete list of factors mentioned by Delphi participants

Complete list of factors mentioned by Delphi participants

Aspect	Mean	Std. Dev.	Related ERB construct
Ethics/Value - responsible for environment	**3.90**	**.316**	**Environmental beliefs**
Attitude	**3.90**	**.316**	**Behavioural attitude**
Environmental management system in place	**3.90**	**.316**	**Management system**
Awareness - need for protection	**3.80**	**.422**	**Environmental beliefs**
Ethics/Value - responsible toward others	**3.80**	**.422**	**Personal values**
Environmental design	**3.80**	**.422**	**Management system**
Knowledge	**3.67**	**.707**	**Environmental awareness**
Level environmental education	**3.60**	**.699**	**Environmental awareness**
Awareness - individuals have to act	**3.60**	**.699**	**Environmental beliefs**
Habit	**3.60**	**.699**	**Habit**
Enforcement - effective communication of rules	**3.60**	**.699**	**Management system / Behavioural incentives**
Awareness - sport affects environment	3.50	.850	Environmental awareness
Place attachment	3.50	.527	Place attachment
Love for nature	3.40	.843	Love and care for nature
Level of commitment	3.40	.699	Situational intention / future intention
Behavioural consequences - ease & time	3.40	.699	Behavioural costs
Environment-related communication - environmental programme	3.40	.699	Management system
Enforcement - perceived effectiveness or rules	3.40	.699	Faith in others
Risk - personal suffering	3.30	.823	Behavioural costs
Risk - sport suffering	3.30	.823	Event type
Environment-related communication - signage	3.30	.675	Management system
Environment-related communication - host environment	3.30	.823	Management system
Environmental philosophy of the event owner	3.30	.823	Management system
Importance of nature for event	3.30	.675	Event type
Education	3.20	.789	Demographics
Behavioural consequences - costs	3.20	.789	Behavioural costs
Environment-related communication - advertising	3.20	.632	Environmental awareness
Environmental reputation of the particular event	3.20	.789	Environmental awareness
Staffing	3.20	.422	Management system
Perceived control	3.10	.738	Perceived behavioural control
Enforcement - positive rewards	3.10	.738	Behavioural incentives
Host community - ethos residents	3.10	.876	Faith in others
Sports role models	3.10	.994	Subjective norms
Belief in others	3.00	.667	Faith in others
Environment-related communication - consequences	3.00	.943	Behavioural costs / incentives
Event Partners (Tourism industry)	3.00	.816	Management system
Mass Media - environmental communication	3.00	1.054	Environmental awareness
Mass Media - advocacy by popular figures	3.00	.816	Environmental awareness
Age	2.90	.568	Demographics
Personality	2.90	.738	Personal values
Level of Involvement - Identification with subculture	2.90	.876	Subculture identification
Behavioural consequences - rewards	2.90	.876	Situational factors (benefits)
Behavioural consequences - punish	2.90	.876	Situational factors (costs)
Post-event activities	2.90	1.101	Future intention

Environmental reputation - event organiser disclosure	2.90	.738	Faith in others
Enforcement - negative consequences	2.90	.738	Behavioural costs
Host area - infrastructure	2.90	1.101	Event location
Host area - aesthetics	2.90	1.101	Event location
Event partner - sponsor	2.90	.876	Faith in others
Socialisation	2.80	.789	Subjective norms / attendance motivation
Environmental reputation - event organiser greenwash	2.80	.919	Faith in others
Event partner - environmental agencies	2.80	.632	Faith in others
Behavioural consequences - chance of getting caught	2.70	.675	Situational factor (costs)
Nature of the event	2.70	.949	Event type
Mass media - environmental community online	2.70	.823	Environmental awareness
Affluence	2.60	.843	Demographics
Ethnicity	2.60	1.265	Demographics
Self-identity	2.60	.843	Personal values
Level of Involvement - love for sport	2.60	1.174	Level of involvement
Level of Involvement - team attachment	2.60	.699	Level of involvement
Level of Involvement - frequency attending	2.60	.699	Level of involvement
Level of Involvement - motivation for attending	2.60	.843	Level of involvement
Origin	2.44	.726	Demographics
Travel companion	2.44	.726	Trip characteristics subjective norms
Host community - government laws	2.40	.843	Faith in others
Occupation	2.30	.675	Demographics
Gender	2.30	1.160	Demographics
Host community - government support	2.30	.949	Faith in others
Temporal factors	2.00	.816	

APPENDIX G

Frequency tables

Table G.1: Frequencies: Situational Intention

	Definitely not	Unlikely	Maybe	Definitely	Total
BVI1: Stay in viewing areas					
Frequency	17	51	162	647	877
Valid Percent	1.9	5.8	18.5	73.8	100.0
BVI2: Read info signs					
Frequency	8	70	218	577	873
Valid Percent	.9	8.0	25.0	66.1	100.0
BVI3: Rubbish in bins					
Frequency	8	13	67	793	881
Valid Percent	.9	1.5	7.6	90.0	100.0
BVI4: Use ablution facilities					
Frequency	20	47	147	661	874
Valid Percent	2.3	5.4	16.8	75.6	100.0
BVI5: Pick up litter					
Frequency	46	163	353	315	877
Valid Percent	5.2	18.6	40.3	35.9	100.0
BVI6: Pick up litter after race					
Frequency	137	326	280	125	868
Valid Percent	15.8	37.6	32.3	14.4	100.0
BVI7: Report behaviour of others					
Frequency	87	293	299	193	872
Valid Percent	10.0	33.6	34.3	22.1	100.0
BVI8: Refill water bottle					
Frequency	158	174	246	292	870
Valid Percent	18.2	20.0	28.3	33.6	100.0
BVI9: Avoid trampling on plants*					
Frequency	67	89	186	532	874
Valid Percent	7.7	10.2	21.3	60.9	100.0
BVI10: Park in designated areas					
Frequency	27	56	122	670	875
Valid Percent	3.1	6.4	13.9	76.6	100.0
BVI11: Avoid making noise pollution*					
Frequency	90	114	198	474	876
Valid Percent	10.3	13.0	22.6	54.1	100.0
BVI12: Note natural environment					
Frequency	17	51	282	526	876
Valid Percent	1.9	5.8	32.2	60.0	100.0

*Note: these items were reversely stated in the questionnaire, but corrected in the table

Table G.2: Frequencies: Future Intention

	Definitely not	Unlikely	Maybe	Definitely	Total
FTI1: Read rules and regulations before attending					
Frequency	70	168	329	315	882
Valid Percent	7.9	19.0	37.3	35.7	100.0
FTI2: Financial contribution					
Frequency	89	314	356	122	881
Valid Percent	10.1	35.6	40.4	13.8	100.0
FTI3: Use public transport					
Frequency	111	233	328	202	874
Valid Percent	12.7	26.7	37.5	23.1	100.0
FTI4: Rather watch broadcast					
Frequency	248	266	241	72	827
Valid Percent	30.0	32.2	29.1	8.7	100.0
FTI5: Read up on EMS before deciding to attend					
Frequency	139	279	288	117	823
Valid Percent	16.9	33.9	35.0	14.2	100.0
FTI6: Sign petition					
Frequency	145	191	306	181	823
Valid Percent	17.6	23.2	37.2	22.0	100.0
FTI7: Support sponsor					
Frequency	52	142	427	251	872
Valid Percent	6.0	16.3	49.0	28.8	100.0

Table G.3: Frequencies: Behavioural Attitude

	Extremely opposed	2	3	4	5	6	Extremely supportive	Total
ATT1: Important								
Frequency	13	5	23	69	141	216	394	861
Valid Percent	1.5	.6	2.7	8.0	16.4	25.1	45.8	100.0
ATT2: Enjoyable								
Frequency	18	14	27	92	163	261	263	838
Valid Percent	2.1	1.7	3.2	11.0	19.5	31.1	31.4	100.0
ATT3: Desirable								
Frequency	21	17	27	106	174	234	248	827
Valid Percent	2.5	2.1	3.3	12.8	21.0	28.3	30.0	100.0

Table continues on the next page

Table G.3: Frequencies: Behavioural Attitude (continued)

	Extremely opposed	2	3	4	5	6	Extremely supportive	Total
ATT4: Easy								
Frequency	23	22	54	104	181	227	216	827
Valid Percent	2.8	2.7	6.5	12.6	21.9	27.4	26.1	100.0
ATT5: Wise								
Frequency	40	21	32	77	142	231	286	829
Valid Percent	4.8	2.5	3.9	9.3	17.1	27.9	34.5	100.0
ATT6: Necessary								
Frequency	34	24	31	72	127	222	324	834
Valid Percent	4.1	2.9	3.7	8.6	15.2	26.6	38.8	100.0
ATT7: Convenient								
Frequency	37	18	36	106	206	237	191	831
Valid Percent	4.5	2.2	4.3	12.8	24.8	28.5	23.0	100.0
ATT8: Positive								
Frequency	39	13	22	50	110	221	377	832
Valid Percent	4.7	1.6	2.6	6.0	13.2	26.6	45.3	100.0

Table G.4: Frequencies: Perceived Behavioural Control

	Strongly disagree	Disagree	Agree	Strongly agree	Total
PBC1: It is up to me to decide to behave responsibly					
Frequency	23	57	386	537	1003
Valid Percent	2.3	5.7	38.5	53.5	100.0
PBC2: I can perform ERB if I want to					
Frequency	21	53	495	434	1003
Valid Percent	2.1	5.3	49.4	43.3	100.0
PBC3: I have the resources, time and opportunities to undertake ERB					
Frequency	21	157	549	265	992
Valid Percent	2.1	15.8	55.3	26.7	100.0

Table G.5: Frequencies: Behavioural Costs

	Not at all encouraging	To some extent encouraging	Very encouraging	Total
CST1: Enjoyment				
Frequency	169	335	227	731
Valid Percent	23.1	45.8	31.1	100.0
CST2: Ability to watch the race				
Frequency	228	270	226	724
Valid Percent	31.5	37.3	31.2	100.0
CST3: Time				
Frequency	262	290	176	728
Valid Percent	36.0	39.8	24.2	100.0

Table G.6: Frequencies: Subjective Norms

	Not at all encouraging	To some extent encouraging	Very encouraging	Total
SJN1: Seeing other spectators				
Frequency	24	232	503	759
Valid Percent	3.2	30.6	66.3	100.0
SJN2: Being looked down upon in not behaving ERB				
Frequency	154	307	280	741
Valid Percent	20.8	41.4	37.8	100.0
SJN3: Others are expecting ERB behaviour from me				
Frequency	49	284	398	731
Valid Percent	6.7	38.9	54.4	100.0
SJN4: Being admired if I am very responsible*				
Frequency	214	258	252	724
Valid Percent	29.6	35.6	34.8	100.0
SJN5: Knowing everybody else acts responsibly*				
Frequency	179	214	335	728
Valid Percent	24.6	29.4	46.0	100.0
SJN6: Seeing the cyclists act responsibly				
Frequency	21	219	495	735
Valid Percent	2.9	29.8	67.3	100.0

Table G.7: Frequencies: Environmental Management System

	Not at all encouraging	To some extent encouraging	Very encouraging	**Total**
EMS1: Signage				
Frequency	39	249	464	752
Valid Percent	5.2	33.1	61.7	100.0
EMS2: Ablution facilities				
Frequency	41	217	492	750
Valid Percent	5.5	28.9	65.6	100.0
EMS3: Information about the event's EMS				
Frequency	44	368	320	732
Valid Percent	6.0	50.3	43.7	100.0
EMS4: Access to safe drinking water				
Frequency	23	152	560	735
Valid Percent	3.1	20.7	76.2	100.0
EMS5: Information about the event's natural environment				
Frequency	57	348	326	731
Valid Percent	7.8	47.6	44.6	100.0
EMS6: Recycling bins				
Frequency	25	142	573	740
Valid Percent	3.4	19.2	77.4	100.0
EMS7: Demarcated viewing areas				
Frequency	36	272	426	734
Valid Percent	4.9	37	58.0	100.0
EMS8: Assistance with recycling activities				
Frequency	54	275	407	736
Valid Percent	7.3	37.3	55.3	100.0

Table G.8: Frequencies: Place Attachment

	Strongly disagree	Disagree	Agree	Strongly agree	**Total**
PEA1: I am very attached to this place specifically					
Frequency	209	358	308	126	1001
Valid Percent	20.9	35.8	30.8	12.6	100.0
PEA2: I have a special connection to attending this cycling race					
Frequency	153	243	389	218	1003
Valid Percent	15.3	24.2	38.8	21.7	100.0
PEA3: Attending this particular event is more important than other events					
Frequency	185	338	326	157	1006
Valid Percent	18.4	33.6	32.4	15.6	100.0

Table G.9: Frequencies: Attendance Motivation

	Strongly disagree	Disagree	Agree	Strongly agree	**Total**
MOTV1: Cycling is favourite sport					
Frequency	76	295	425	214	1010
Valid Percent	7.5	29.2	42.1	21.2	100.0
MOTV2: Learn about cycling					
Frequency	66	231	531	175	1003
Valid Percent	6.6	23.0	52.9	17.4	100.0
MOTV3: Feel sense of accomplishment with the riders					
Frequency	32	118	512	334	996
Valid Percent	3.2	11.8	51.4	33.5	100.0
MOTV4: Support specific riders					
Frequency	37	91	257	631	1016
Valid Percent	3.6	9.0	25.3	62.1	100.0
MOTV5: Meet similar people					
Frequency	87	228	459	229	1003
Valid Percent	8.7	22.7	45.8	22.8	100.0
MOTV6: Family time					
Frequency	52	86	378	490	1006
Valid Percent	5.2	8.5	37.6	48.7	100.0
MOTV7: Social with friends					
Frequency	38	86	417	465	1006
Valid Percent	3.8	8.5	41.5	46.2	100.0
MOTV8: Family atmosphere					
Frequency	23	67	438	478	1006
Valid Percent	2.3	6.7	43.5	47.5	100.0
MOTV9: Time outdoors					
Frequency	23	53	383	543	1002
Valid Percent	2.3	5.3	38.2	54.2	100.0
MOTV10: Relaxation					
Frequency	40	102	437	432	1011
Valid Percent	4.0	10.1	43.2	42.7	100.0
MOTV11: Excitement					
Frequency	25	123	422	431	1001
Valid Percent	2.5	12.3	42.2	43.1	100.0
MOV12: Escape					
Frequency	134	208	330	325	997
Valid Percent	13.4	20.9	33.1	32.6	100.0

Table continues on the next page

Table G.9: Frequencies: Attendance Motivation (continued)

	Strongly disagree	Disagree	Agree	Strongly agree	Total
MOV13: Free entertainment					
Frequency	114	236	373	272	995
Valid Percent	11.5	23.7	37.5	27.3	100.0
MOTV14: Unintentional					
Frequency	421	291	176	102	990
Valid Percent	42.5	29.4	17.8	10.3	100.0

Table G.10: Frequencies: Behavioural benefits

	Not at all encouraging	To some extent encouraging	Very encouraging	Total
BNFT1: Discounts on public transport				
Frequency	136	288	300	724
Valid Percent	18.8	39.8	41.4	100.0
BNFT2: Cash back for litter handed in				
Frequency	206	253	268	727
Valid Percent	28.3	34.8	36.9	100.0
BNFT3: Avoiding prosecution				
Frequency	101	246	382	729
Valid Percent	13.9	33.7	52.4	100.0

APPENDIX H

Scree plots

Figure H.1: Scree plot: Situational Intention

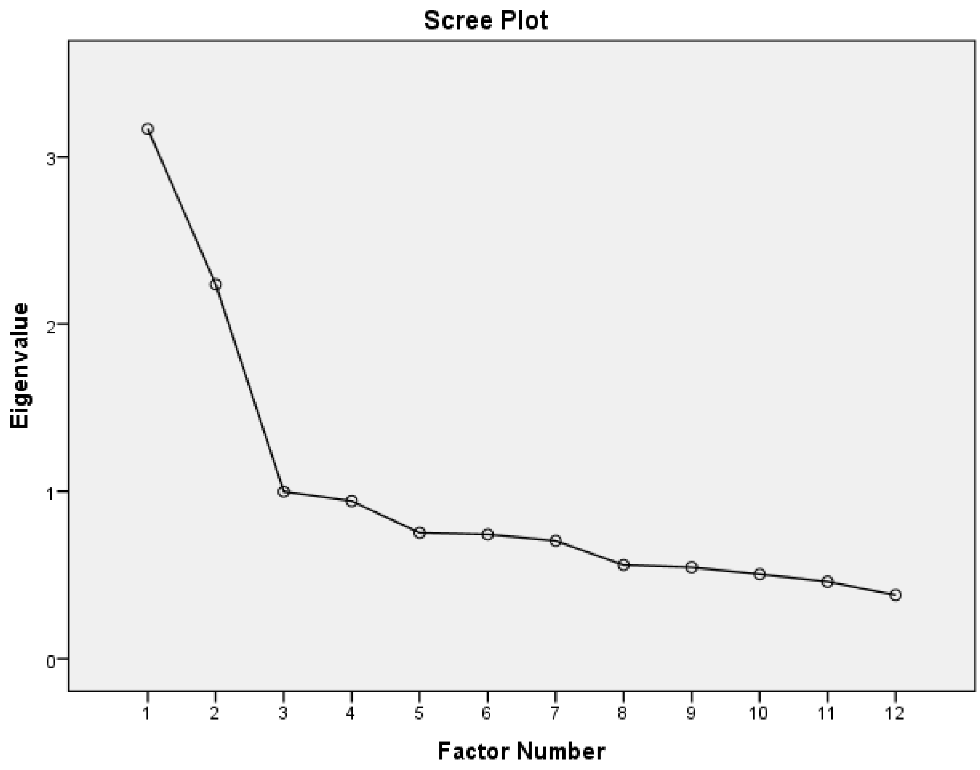


Figure H.2: Scree plot: Situational Intention (new solution)

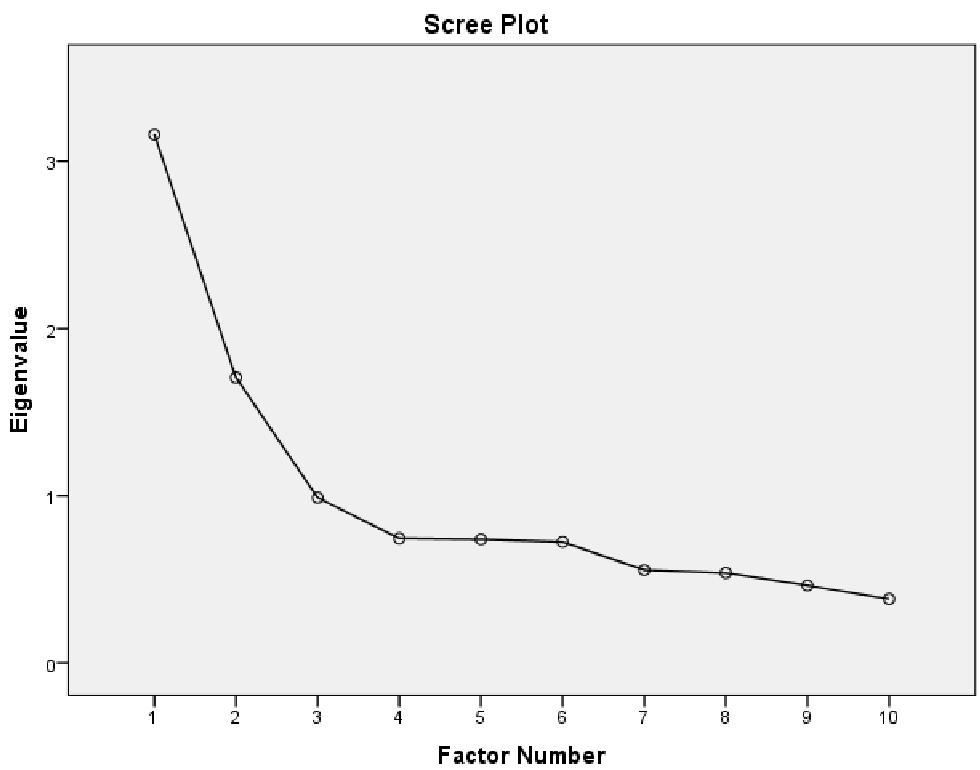


Figure H.3: Scree plot: Future Intention

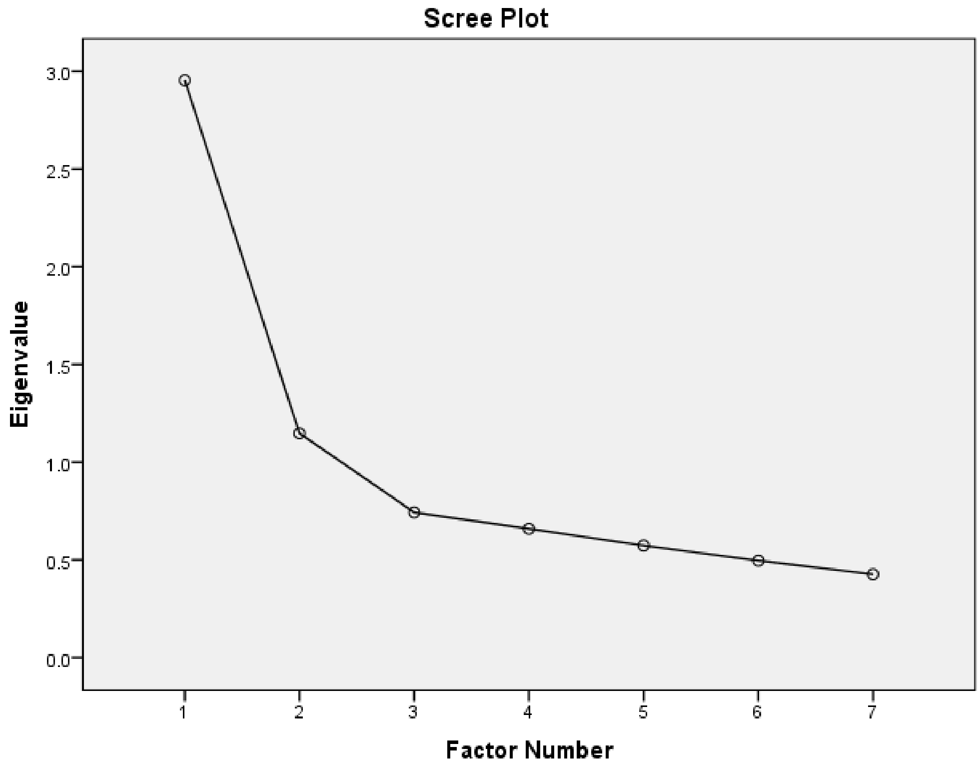


Figure H.4: Scree plot: Future Intention (new solution)

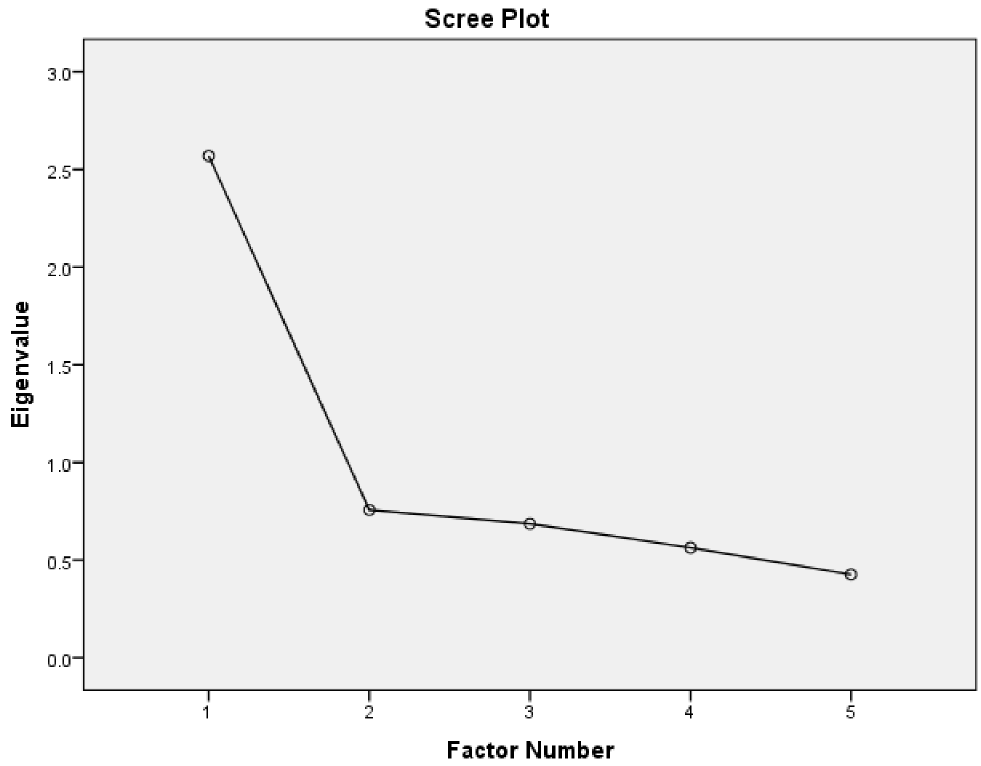


Figure H.5: Scree plot: Behavioural Attitude

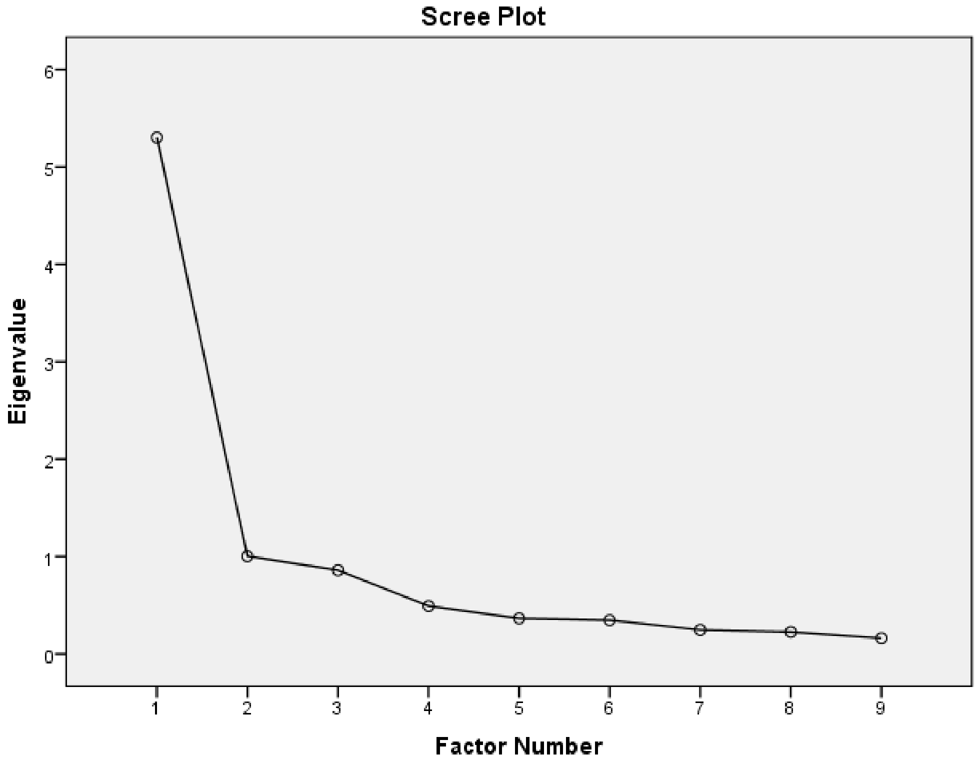


Figure H.6: Scree plot: Perceived Behavioural Control

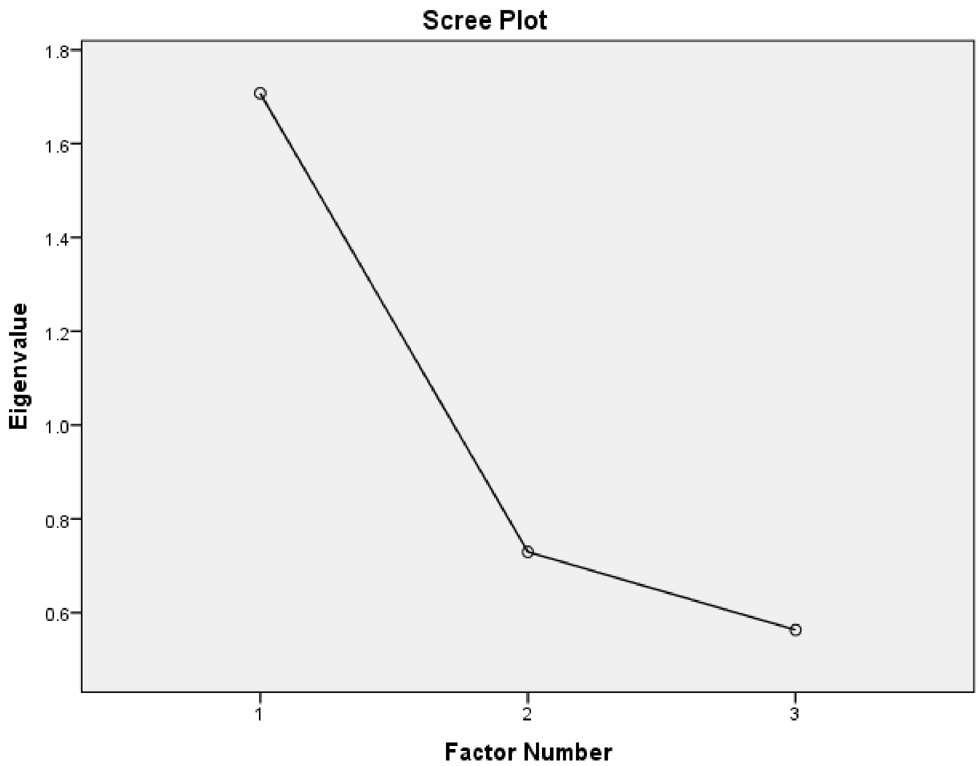


Figure H.7: Scree plot: Behavioural Costs

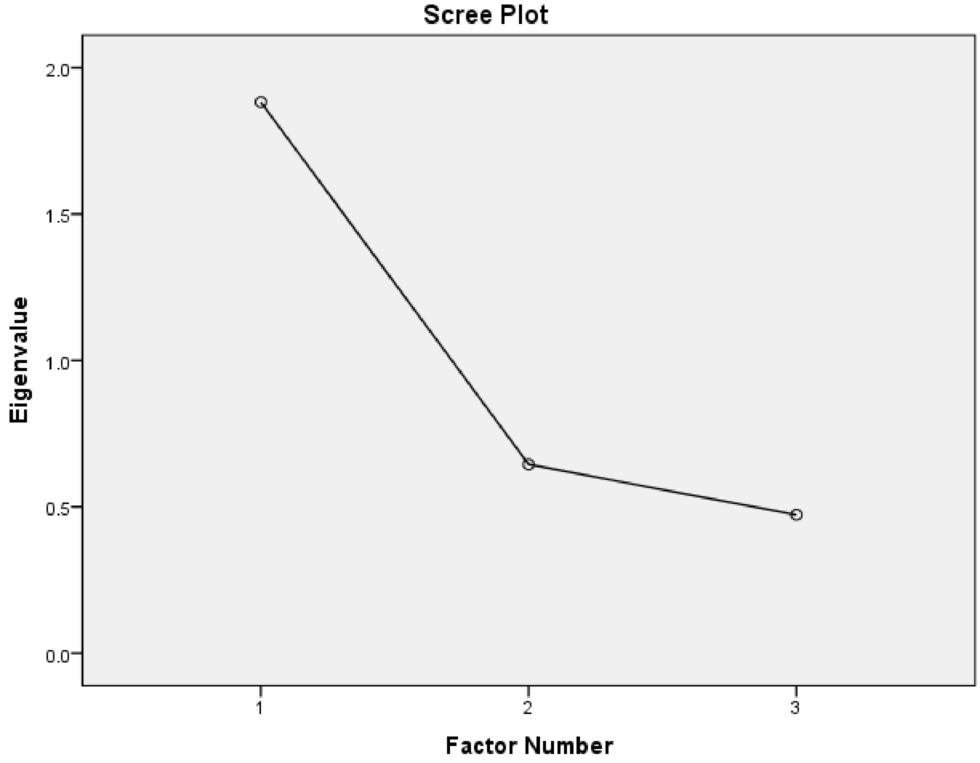


Figure H.8: Scree plot: Subjective Norms

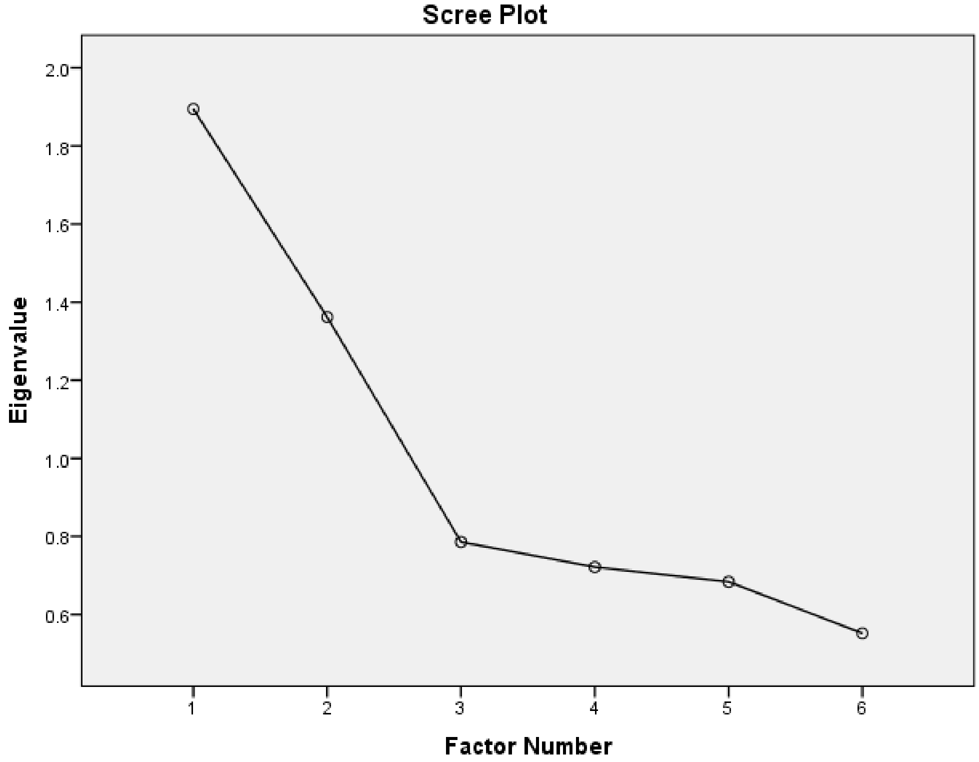


Figure H.9: Scree plot: Subjective norms (new solution)

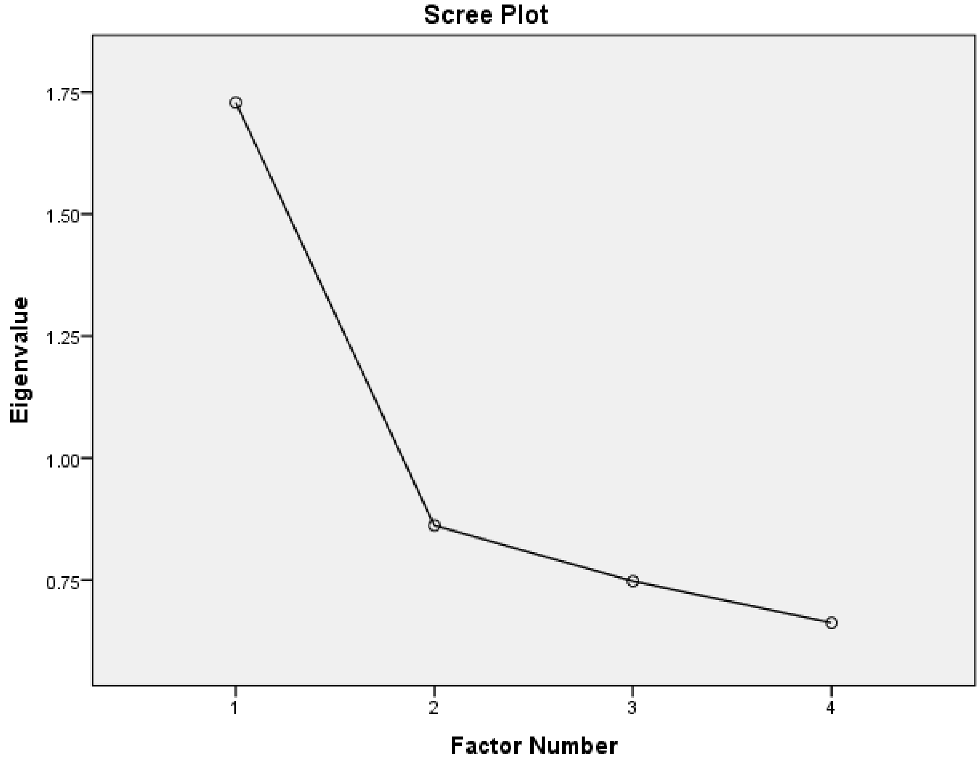


Figure H.10: Scree plot: Environmental Management System

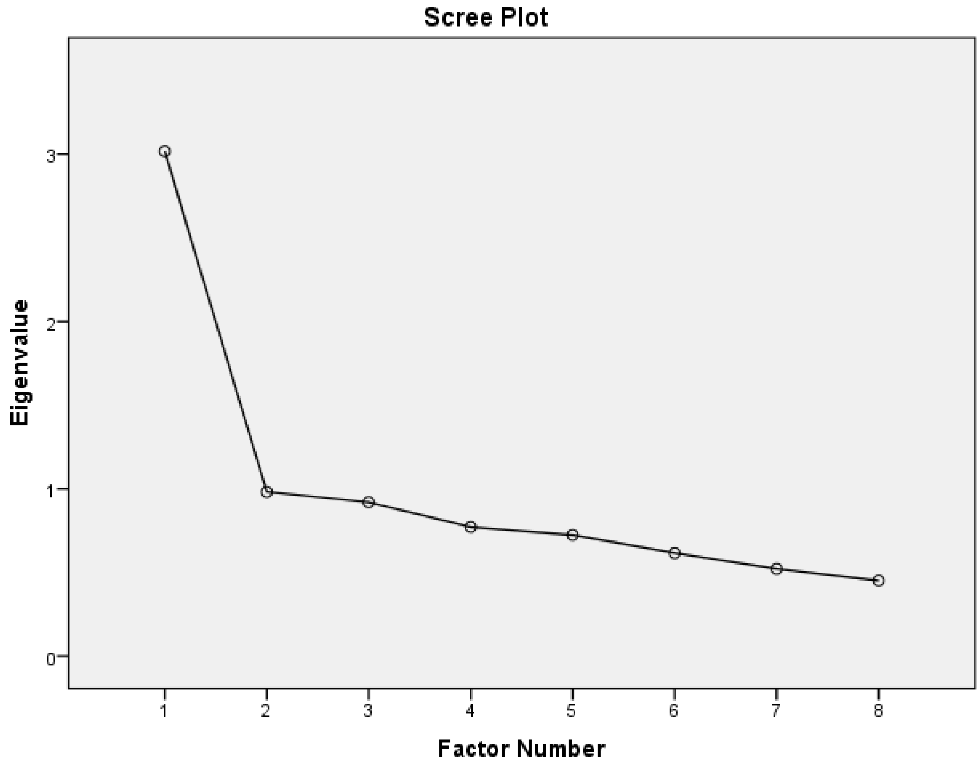


Figure H.11: Scree plot: Place Attachment

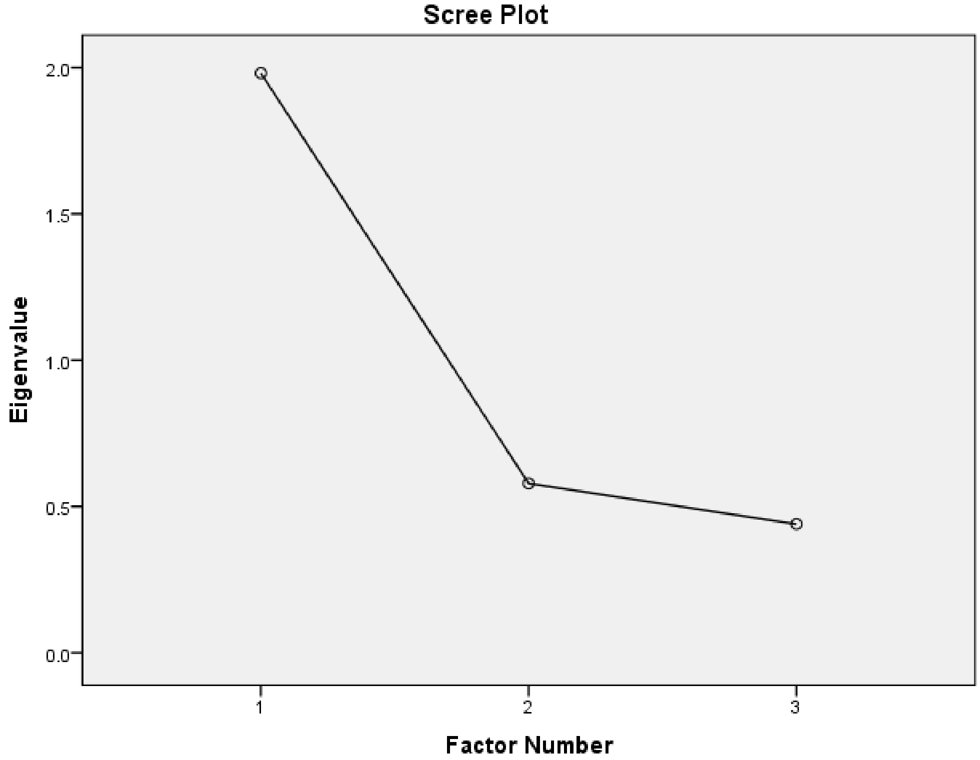


Figure H.12: Scree plot: Attendance Motivation

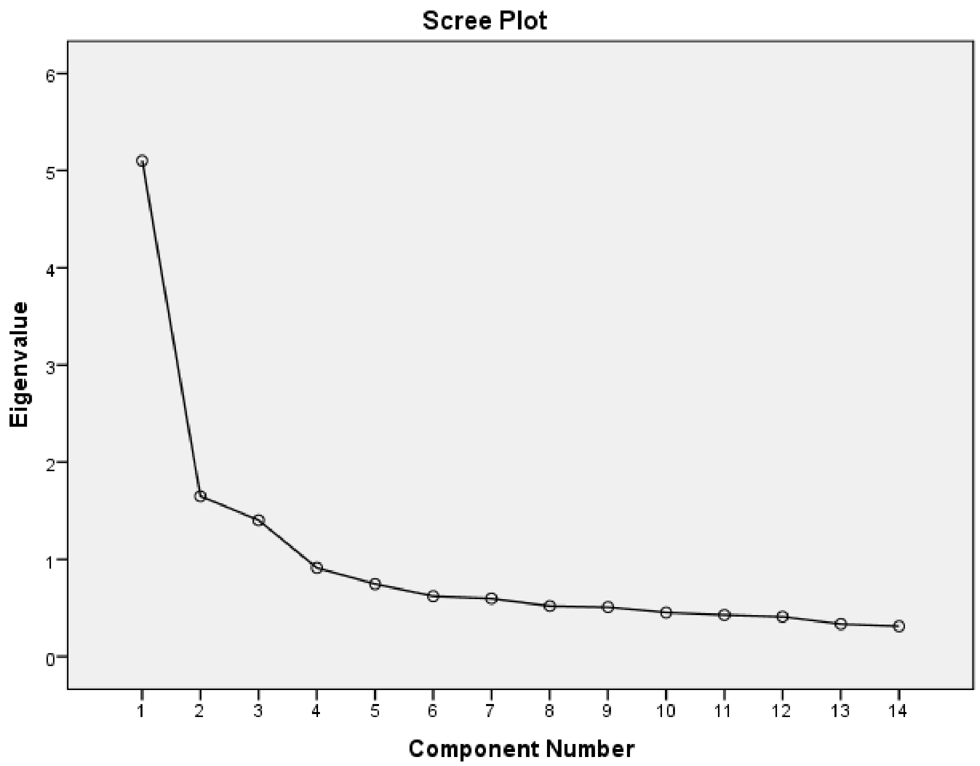


Figure H.13: Scree plot: Attendance Motivation (new solution)

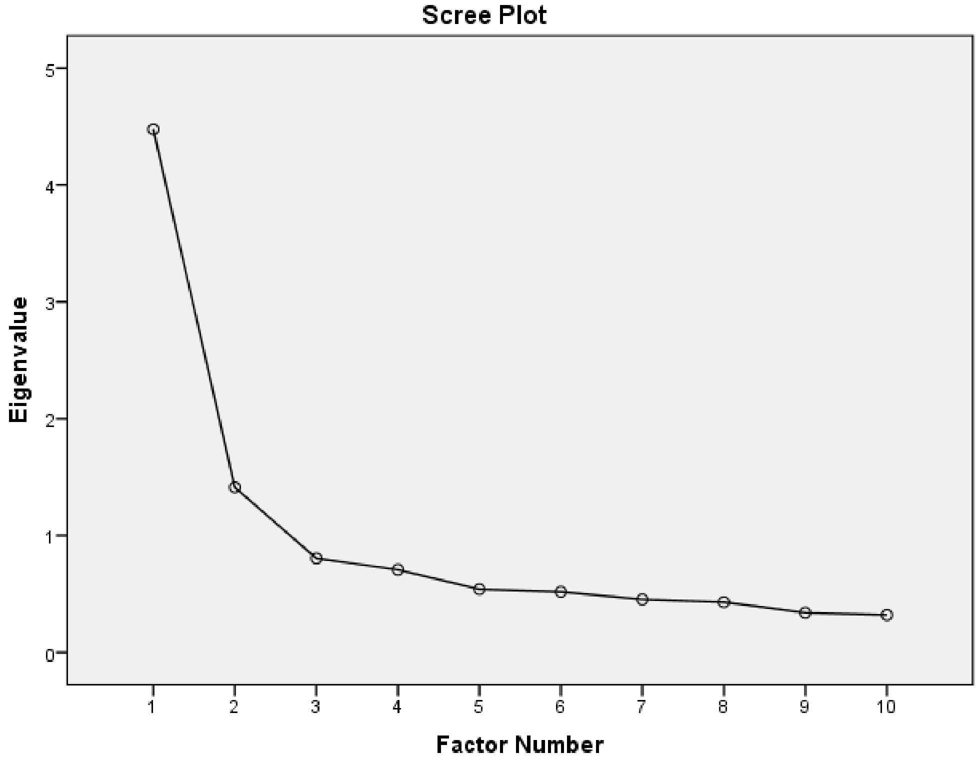


Figure H.14: Scree plot: Behavioural Benefits