Corvinus University of Budapest,
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Business Administration

SUSTAINABLE CONSUMPTION IN TOURISM?

THE RELATIONSHIP BETWEEN PLACE ATTACHMENT AND PRO-ENVIRONMENTAL BEHAVIOUR IN NATIONAL PARKS

Doctoral dissertation

Supervisor:
Dr. Ágnes Hofmeister-Tóth
Professor

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INSTITUTE OF MARKETING AND MEDIA

DEPARTMENT OF MARKETING RESEARCH AND CONSUMER BEHAVIOUR

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“The place should not be mistaken with the space. The difference is between the space and the place that the space has a number, the place has a face. The space, if only not exceptional, can be defined by accurate lines in coordinates, its area can be measured by square millimetre and hits shape can be sketched with compass and a ruler. The space is always a geometric figure. The place is always a painting and drawing, and that is the only one in the eye of the beholder. The space defined by formulas, but the place is the achievement of a genius.

Béla Hamvas

INTRODUCTION

The World Tourism Organization reported 1.133 million international tourism arrivals in 2014. This is a 4.4% decrease compared to the previous year's survey. Tourism marks the fifth consecutive year of robust growth above the long-term average (+3.3% a year) since the financial crisis of 2009 (UNWTO, 2015). This positive perspective is somewhat overshadowed by a concern of how this drastically growing industry may cope with the consequences of operation in the future. As estimated by the Forum for the Future (2009), the world's population will reach 8 billion by the second half of 2020 resulting in 1.2 billion individual demand on the global market. This will be complemented by the envisaged strengthening of the Chinese and Indian middle class which may fundamentally reshape the flow of tourists. By 2023, when, how, and where one can travel (if at all) could be called into question by the increasingly serious impact of climate change unfolding in parallel with the aforementioned phenomena.

The tourism industry is a bit more optimistic, it, however, was recognized that the restructuring of its operation toward a sustainable direction is indispensable. The industry is on the brink of profound changes. The process will produce winners and losers. There will be service providers who will adapt the concept of sustainability in a more efficient way than others: for them sustainability would mean new opportunities to explore, new consumers to get, new products to develop and new markets to create. There will be countries who will succeed in the implementation of this process. Their economy will be positioned as a sustainability hub thus gaining new competitive advantages. WEF[1] (2011) similarly emphasizes that companies and countries becoming part of the transformation of global economy into a sustainable form will more probably be prosperous.

However, the citizens themselves are the driving factors behind sustainable development of any nation. As consumers, investors, voters or employees citizens have the power to act for a change to happen. The reality however shows that individual commitment toward a shift of world economy into a sustainable form is happening slowly, in small steps. Some consumers pro-actively take part in this process although their number is too low to reach the critical mass. Most of them are confused about the terminology of sustainable

[1] World Economic Forum

production and consumption and have doubts whether they can influence the economy as a whole with their individual decisions, behaviour (WEF, 2011; National Geographics and Globescan, 2010).

Tourism has a unique potential to draw the attention of visitors to development related environmental and ethical issues and also it can shape their mind-set about this topic. Millions are travelling every year by stepping out of their routines in order to be more or less open to new impressions. Tourism may ensure an ideal atmosphere to develop environmental awareness. Nature or culture related values, services and experiences one can meet during a travel may enhance the awareness of a problem and this can be channelled into a process of changing consumer habits (UNWTO, 2010a; Amendah and Park, 2008). The information gained this way may encourage a change in behaviour that would not appear in the regular living environment of an individual. Possible forms of behaviour may affect individual's lifestyle and consumer decision-making, and as such, it affects the demand for tourism. This path, however, is only a chance whereby recreation may reflect to relaxation, having rest where individuals may not care much about their sense of responsibility. It is therefore necessary to make the conditions of relaxation attractive but they should act as a mean of pressure at the same time. The role of tourism in sustainable development is not only an opportunity but rather a responsibility. Bearing this responsibility in mind should have a serious focus in the course of the development of national tourism development strategies, thus ensuring a supportive environment to industry players, consumers so that their commitment toward sustainable tourism could be accomplished at a level of real actions.

1. OBJECTIVE AND STRUCTURE OF THE DISSERTATION

The research was made in frame of the project TÁMOP-4.2.1/B-09/1/KMR-2010-0005: Sustainable development, liveable region. During my research I was interested to know what factors could encourage sustainable development of tourism, more closely consumers' commitment. The objective of the dissertation is to summarize the factors influencing consumers' pro-environmental behaviour as well as to point out their relationship with leisure travel. The research of the dissertation will focus on the characteristics of visitations to national park, the attachment to the parks and the examination of pro-environmental behaviour in parks. I determined the research direction by taking the following aspects into consideration:

- Stimulating domestic tourism is a stated objective in Hungarian national tourism development (Magyar Turizmus Zrt., 2015).
- The core task of sustainable tourism is to shift tourism demand towards "pro-environmental products" (UNEP and WTO, 2005; WEF, 2011), in which national parks play a prominent role (Michalkó, 2007).
- A better understanding of consumers' preferences and commitment to pro-environmental behaviour is a valuable contribution to the management of national parks.
- Examining consumption in the context of tourism enables us to better understand consumption outside of the place of residence (and/or private property) and to understand the process of environmental commitment.

A promising way to understand the process of commitment to pro-environmental behaviour is to examine how the relationship between the individual and the place is establishing. Relph (1976) suggests that a certain place can awake individuals' sense of responsibility. Beyond emotional bonding, the thorough knowledge of the place (destination) increases the probability that the individual will demonstrate a protecting behaviour regarding the aforementioned place (Kals et al., 1999; Schultz, 2000; Pooley and O'Connor, 2000). The positive effect of place attachment on pro-environmental behaviour, including the context of leisure activities has been proven by several studies (Halpenny, 2010; Scannell and Gifford, 2010; Ramkissoon et al., 2013). At the same time, knowledge of the spillover effect of such changes in behaviour remains limited. My research aims to contribute to filling this research gap by further examining this field. The practical significance of the research is to obtain a clearer picture on how to enhance visitors' commitment to pro-environmental behaviour during visitations to national parks

by learning the effect of place attachment on pro-environmental behaviour. All this can contribute to a more sustainable management of national parks.

The basis of my dissertation was marked by alternative development[2] including the theoretical frame of sustainable development[3]. The theoretical background of my work and the research focus is shown in Figure 1.

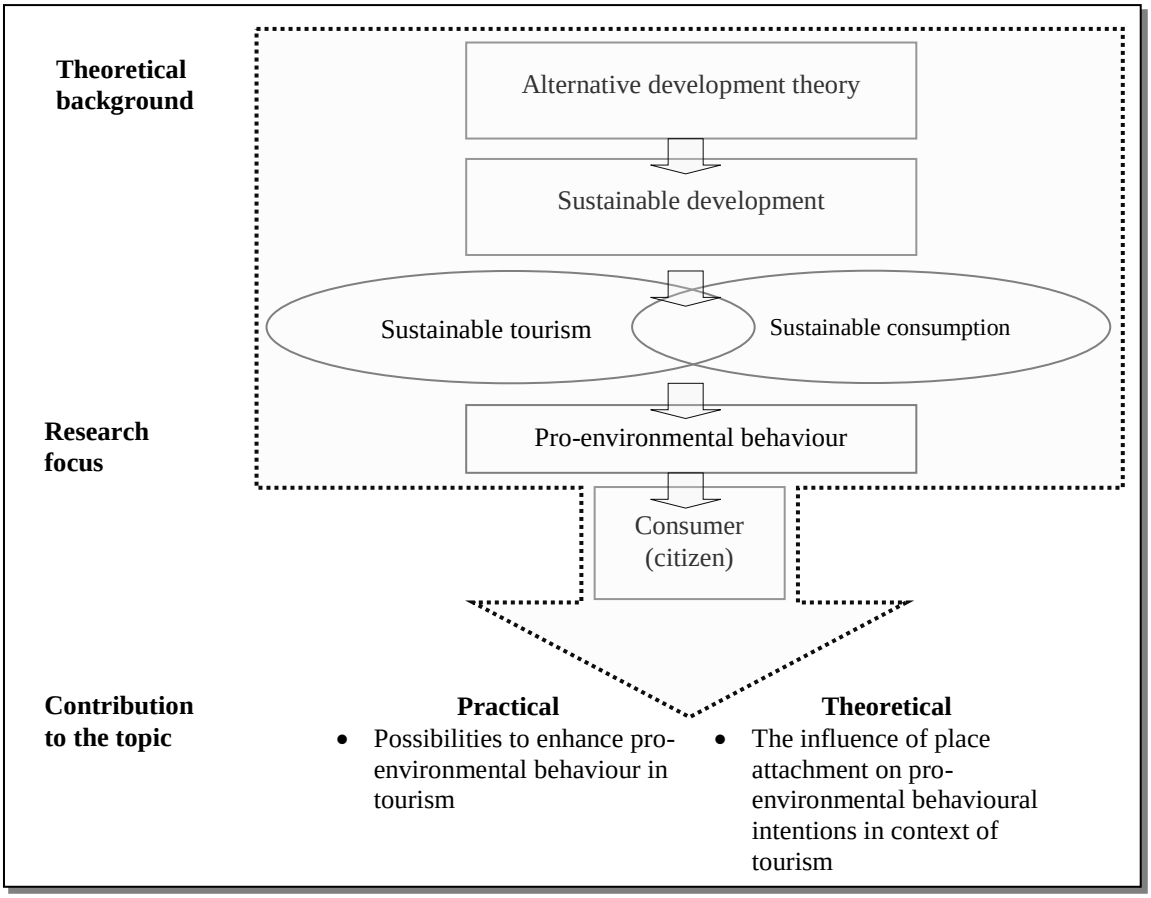

Figure 1: Research focus and theoretical background of the dissertation
Source: Own elaboration

In order to support the outlined research objectives, I will describe the main theoretical approaches in tourism development in Chapter 2., detailing the principles of sustainable development as a background of the dissertation, and also their implementation and challenges in tourism. This chapter points out the role of stakeholders in this process, more specifically the consumers.

[2]*Alternative development* - by resisting the traditions of linear growth theories - reflects to a resource based approach which takes the environmental, social, economical, ethical and cultural consequences of growth into consideration. Thus alternative paradigm focuses on humans and natural environments (Holden, 2006).
[3]*Sustainable development* is a concept of the link between human development and the conservation of natural resources. As such, this is a central but not exclusive topic of alternative development theories.

Chapter 3 describes the re-interpretation of consumption, the difficulties and challenges of its transformation into a sustainable model, as all as the role of consumption in a modern society.

After the description of relevant characteristics of tourism relating to this topic, the environmental responsibility of consumers is detailed in Chapter 4 including the difficulties in individual responsibility and the conflicts between the individualist and collectivist preferences. The chapter explains the substantive definition of pro-environmental behaviour and its diverse and complex forms. It also defines the profile of a pro-environmental tourist and outlines the conditions of an ideal tourist visit.

The theoretical approaches serving as a background to my planned research and the results of earlier studies in this field are summarized in Chapter 5. The chapter organizes the factors influencing pro-environmental behaviour and mentions major models describing their relationships. The questions of rationality, the role of moral and prevailing norms as well as the importance of habits and routines are also mentioned here. The relationship between the society and individual, the place and the role of commitment to the place will also be discussed.

Chapters 6-7 will detail the empirical researches on this topic. The results of the relating preliminary studies are summarized in Chapter 6, where the conclusions of the qualitative research and on-line survey made among students to examine place attachment and pro-environmental behavioural intentions will be discussed. Chapter 7 of the dissertation will focus on the introduction of the empirical research. The hypothesis of the research will be defined followed by the operationalization of key constructs and the description of the conditions and circumstances of the empirical work. The chapter covers methodologies applied during the research and the results thereof, Chapter 8 will present the conclusions of the dissertation, the evaluations of results and their practical implications as well as the limitations of the research and opportunities for future research.

2. TOURISM AND SUSTAINABILITY

The changes of tourism in time, space and volume have a complex impact on our world both in terms of the shape of the environment and on the development of human society. Economic, environmental and socio-cultural capital are all affected by the industry.

The economic role of tourism can be characterised by several factors, in particular employability, contribution to GDP and capital investments as well as its multiplicator effect on other sectors. As Tasnádi (2002) points out, this sector can be a fundamental source for currencies, furthermore it means investment possibilities and economic development potential on less developed regions. From the economic perspective, tourism plays a role in traditional settling of the balance of payments, employment, increasing revenue, production, and in mid or less developed countries, market expansion, structure improvement (Tasnádi, 2002. p. 58.) According to the UNWTO (2015) report, tourism accounted for 9% of the world GDP in a direct or indirect way. Based on the estimates, 6% of the total export revenue in 2014 derived from international visitations (UNWTO, 2015). Tourism expenditures mean important revenue sources in directly related sectors such as catering (HORECA), transport or infrastructure (Tasnádi, 2002). In addition to the listed economic advantages, there are some factors that jeopardize the industry. Less favourable tax regimes, foreign ownership, the import of luxury products often lead to the leakage of industry revenue from the region or from the country (Ap and Crompton, 1998). Such pure economic approach fundamentally challenges long term sustainability of resources ensuring the attraction.

The presence of tourism inevitably entails the change in environment and *natural capital*, partially through interventions helping tourism development and through tourism production process (Fletcher, 2008). Certain changes, such as the improvement of infrastructure (road/cycle route building, sewage water and waste management etc.), conservation and development of protected areas, natural parks have a positive effect on the population's lives and result in a more efficient system in terms of environment protection. The consumption and impact of physical (water, land, raw material) and abstract resources (beauty of nature, cleanliness, quietness etc.) may radically increase with the appearance of tourism. Natural systems however are capable of absorbing a certain amount of pollutant without being damaged functionally but beyond the

ecological capacity the resources are irreversibly damaged (Vargáné Csobán and Bauerné Gáthy, 2009; Vargáné Csobán, 2007). By irresponsible and partial planning tourism risks the most important attraction of the product, that is the natural capital, and compromises long term viability of the destination.

Two issues closely relating to natural capital, climate change and the decrease in biodiversity[4] also have a radical influence on tourism. The industry, due to its close link with transportation, is a main generator of greenhouse gas emissions causing climate change (Budeanu, 2007a). Provided that global warming will progress as projected, the existing popular destinations will need to face a radical increase in temperature and sea level within 100 years (Malcolm et al., 2002).

Societies are more aware of the threats and consequences of climate change. Therefore the concern relating to this topic is increasing worldwide (National Geographics and Globescan, 2010). 2010 put a new problem in the focus, namely the decrease in biodiversity.[5] Tourism is closely related to biodiversity since biodiversity directly contributes to human welfare by providing intellectual, aesthetic and spiritual experience (EEA, 2010; Mace et al., 2010). On this basis tourism mean an important source of income in poorer countries. A decisive proportion of the world biodiversity is present in emerging countries enabling these regions closer to tourism competitive advantages as well as social and economic benefits (UNWTO, 2007a). Preserving biodiversity is our own interest. In order to help this, a network of 25,000 protected areas within the Members States of the European Union was established during the past 30 years. The network known as Natura 2000 covers 17% of the area of Europa and forms the biggest system of protected areas in the world[6]. It has an inevitable importance in developing tourism and re-shaping individual's way of life, as it may create such bonds in the visitors that can encourage a more complex view of system by recognizing the individual's (limited) role in nature.

Tourism as a service industry is also distinct in that the consumption of its products is being intrinsically linked to the specific location of their production. Nonetheless, tourism is a personal service and can be consumed by those who visit the given destination.

[4]Biodiversity consists of genes, species and ecosystems forming life on Earth (EEA, 2010).

[6]In Hungary, currently there are 467 special nature conservation areas and appr. 50 areas for the protection of birds belonging to this network.

Tourism therefore not only influences economy and nature but entails an ever changing environment with new visitors (Fletcher, 2008). Based on this, it has two consequences from the aspect of *society and culture*. On one hand, economic growth and development influences locals' decisions regarding expenses and life style. Another dimension of socio-cultural changes is the interface between arriving visitors and locals. The interaction between tourists and locals can be useful or detrimental depending on the cultural differences and the nature of the relationship. In this respect, researchers have been primarily focusing on locals (UNESCO, 1976; Dogan, 1989; Lankford and Howard, 1994; Besculides et al., 2002). As we are talking about a relationship, its effects are determining from the visitors' side, too. The knowledge on habits, religious traditions, architectural memories and other heritage influences the picture a visitor may create on the world and on themselves, thus influencing the individual's relationship with environment and different cultures.

The above description intended to give a comprehensive overview of the complex relationship of tourism with the economic infrastructure, biodiversity, natural resources and human population. The global and local role of tourism can be interpreted in light of these factors, for the definition of development paths the complex system should be taken into consideration.

2.1. Development theories in tourism

According to the development theory paradigms, four major theoretical approaches can be distinguished from the aspect of the stages of tourism development, namely, modernisation, dependency, neoliberal and alternative development theories (Holden, 2006; Budeanu, 2007a).

1950-1960		1970-1980	1980-1990
Modernisation theories	**Dependence theories**	**Neoliberal theories**	**Alternative development theories**
economic growth	control and dominance	deregulation	consequences of growth

Figure 2: Development theories in tourism
Source: own elaboration based on Holden (2006) and Budeanu (2007a)

The modernisation theories following the Second World War defined economic growth as the driving factor of modern society. At that time modernisation was treated as a

development of traditional society and economy following an evolutionary and linear path. In countries following the economic and social modernisation tourism received significant incentive due to its economic advantages. The positive effects of these advantages were mainly manifested in growing employment and income rates produced by the industry, as well as in triggering a multiplier effect. This sector of relatively low investment costs and easily accessible, constant resources (like the beauty of nature) meant an attractive perspective in those countries where there were only limited amount of raw materials necessary for industrial production. The potential revenue from foreign exchange entailed the idea of international expansion along with an intention to extend the positive influence of investments on less developed regions (Oppermann, 1993). As a result, modernization meant the extension of structures following the western pattern of development onto less developed countries (Harrison, 1992 in: Holden, 2006). Following a similar pattern to colonisation the presence on the foreign market affected countries like India or Mexico (Holden, 2006). Modern tourism generated by western societies had to face a number of problems, such as unexpected costs, lower ROIs, negative effects of seasonality, increasing inflation and a segregation in developing countries due to tourism. All of the above-mentioned called the attention to the short-sightedness of modernist approach of development (Holden, 2006).

In parallel with the modernization theories prevailing between the 1950th an 1960th dependence theories appeared. Such view on tourism development is critical in that tourism perpetuates the colonization attitude of western societies by splitting the world into a central and a peripheral part (Budeanu, 2007a). Based on the dependence theories, tourism, similarly to its role in agricultural colonization, means a new opportunity to the power elite to extend its power to peripheral areas, too (Weaver, 2006). Britton (1982) suggests that developed countries treated tourism as a tool to join into the global system with by allowing the sector to become a product of metropolitan capitalist companies. When examining the issues of control and dominance, dependence theories pointed out the influences of tourism on less developed societies. Milne and Ateljevic (2004) however emphasize that, similarly to modernist approach, the dependence theories examine tourism from a quite narrow perspective focusing on its international impact only. These theories do not cover local aspects of tourism development and also, the complex system of tourism is only examined from the aspect of capital.

The next significant paradigm of tourism development theories is built on the liberalization of international trade (Sharpley, 2004). The neoliberal view of free market in the field of tourism was associated with the roll-back of state intervention and regulation (Holden, 2006) and with the global competition. The paradigm defined the basis of international development as the identification of competitive advantage and the international trade built on this. In this global system several countries specialized in producing their primary product for export with ignoring their internal market (Brohman, 1996). As a result, several sectors were put in the centre of economic interest which had been less known before. International tourism was one of them. The deregulation of this era as well as the external development strategy supported by IMF did not only create market for these countries but contributed to the increase of negative effects of tourism and the degradation of several destinations (Weaver, 2006). Butler's life cycle model of destination is a good example for this (Butler, 1980 in: Papatheodorou, 2004), as this describes the destination life cycles with the following stages: growth, involvement, development, consolidation, stagnation, decline or renewal. Mentioning renewal possibilities raise a view point that carries us over the next stage of tourism theories that are the alternative development theories.

As we saw, modernisation and neoliberal development theories supported by the Bretton Woods Trio and the western societies were mainly characterized with the belief in economic growth and the bottom-up diffusion processes. In parallel with this, new approaches appeared that defined development in context if different strategies. They are uniformly called alternative development theories. Tefler (2002) states that they are pragmatic, broad-minded approaches that were the outcome of the criticism of earlier models.

Alternative development - by resisting the traditions of linear growth theories - reflects to a resource based approach which takes the environmental, social, economic, ethical and cultural consequences of growth into consideration. Accordingly, the alternative paradigm focuses on humans and the natural environment. Its foundations are provided by democratic structure and community development (Sharpley, 2004). Societal advances, in this light, are characterized by indicators such as HDI (Human Development Index) or HPI (Human Poverty Index). This theoretical framework is at the origin of the concept of sustainable development (Kocsis, 2012).

Although it should be emphasized that sustainable development does not equal to alternative development. Sustainable development is a concept that can be described with the link between human development and the conservation of natural resources. As such, this is a central but not exclusive topic of alternative development theories.

2.2. Sustainable development as a framework

The idea of sustainable development dates back to the Club of Rome. In a 1972 report entitled 'The Limits to Growth' it was submitted by the Club's scientists that the current trends in the depletion of natural resources are not sustainable in the long term (Hofmeister-Tóth et al., 2009). The term itself was introduced in the 80th. World Commission on Environment and Development of the United Nations defined this term in its report Our Common Future in 1987 (NFFT, 2010, p. 11.):

"Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

Main principles of sustainability can be characterized by the holistic approach of planning and strategy making, the protection of biodiversity and cultural heritage, the protection of fundamental ecological processes, the encouragement of social involvement, the creation of commitment, the long term assurance of productivity, and the balancing between equity between countries and chances (Fletcher, 2008).

2.3. Definition and principles of sustainable tourism

Sustainability has been the most widely discussed subject of tourism development. Its specific contradiction is that there has been no consensus so far regarding its content either in the academic sphere or in business. The differences may be caused by the fact the sustainability covers a wide area including economic, environmental, social and cultural aspects. Sustainability also extends to ethical questions and equality within and between generations (Kelemen et al., 2010).

The principles of sustainability have roots going back to 19th century when the first national parks protecting its environment and population appeared (Yellowstone National Park, USA, 1872; Royal Society for the Protection of Birds, GB, 1889; National Trust,

GB, 1894). Later this intention spilled over to Australia, Canada and New-Zealand (Fletcher, 2008). The tourism industry was equally late in facing, in a serious manner, the environmental and social problems by the 1980s, only when the negative effects of mass tourism had come to focus of attention due to their volume. In 1980, the Manila Declaration (UNWTO, 1980) already mentioned the importance of state involvement insofar as tourism development should be defined from environmental, social and ethical aspect, too, in addition to economic guidelines. Bases on the report of the Brundtland Commitee, there has been significant progress in tourism regarding the adaptation of agreed guidelines to the sector (Brundtland, 1987). It was however unclear how the designated programs can be implemented in the tourism practice. Unfortunately no industry specific guidelines were given. As a result, two different interpretations were established: a reformist and a radical one. Reformists argued in favour of protecting the status quo, the existing economic and political system and proposed slight changes only. Radical approach emphasized that the paradigm of economy, society and politics should be changed. The following efforts and the overgrown definitions derive from these differences.

The Hague Declaration was a major contribution to clarifying the concept (UNWTO-IPU, 1989 in: Tasnádi, 2002), whose third main principle emphasizes that the fundamental responsibility of tourism is the preservation of integrity of natural, cultural and human environment. The drafted proposals included the following areas in particular: raising of awareness among tourists and locals, inclusion of constant development into an integrated planning, definition of capacities of tourism areas, respecting environmental and other aspects and the awareness raising of forms of alternative tourism (Tasnádi, 2002).

Globe 90' and Globe 92' Conferences were suitable platforms for the representatives of tourism and academic sector to share views. These conferences declared further guidelines to the relationship between environment and tourism. The main topics discussed were as follows: facilitating knowledge and understanding, clarification of the environmental and economic effect of tourism, enhancing equality and development, increasing the living standard of the host communities, providing high quality experience to visitors, protecting the quality of environment (Theobald, 1998; Sharpley, 2009).

The next milestone was the UNCED Conference[7] organized in Rio de Janeiro in 1992 and its outcome, the „AGENDA 21". Agenda 21 addresses the pressing problems of tourism and aims at preparing the world for the challenges of the next century. As a result, by 1996 WTTC[8], UNWTO[9] and the Earth Council[10] elaborated the framework for tourism guidelines (Agenda 21 for the Travel and Tourism Industry), in which sustainable tourism was defined as follows (WTO, 1998, p. 21.):

"Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is planned to manage resources in a way that people can fulfil their economic, social and aesthetic needs while preserving basic ecological processes, biodiversity, life supporting systems and cultural integrity of different peoples and groups."

Beyond the definition of sustainable development of tourism the next step is the acceptance of Global Code of Conduct. The Code covers the role of tourism in suppressing poverty and improving quality of life as well as the facilitating roles of the stakeholders. In addition, it gives guidelines how to encourage sustainability principles (UNWTO, 2001).

Two years later the UNWTO Millennium Conference of Tourism Leaders, which concluded in Osaka, adopted a declaration laying down sustainable development as the only alternative of tourism development. A year later, the Johannesburg Summit targeted the clarification of tasks and set up priorities of international tourism tailored to stakeholders such as tourism industry, governments, international and non-profit organizations (Tasnádi, 2002).

[7] United Nations Conference on Environment and Development
[8] World Travel and Tourism Council
[9] World Tourism Organization
[10]World Council

Year	Event	Main contribution to the topic
1980	Manila Declaration	Reference to the importance of state involvement in the social and ethical supplement to tourism development
1987	UN's World Commission on Environment and Development	Our common future / establishing major guidelines
1989	The Hague Declaration	Emphasis of the preservation of integrity of natural, cultural and human environment
1990	Globe'90 and 92'	Clarification of the relationship between environment and tourism
1992	UNCED Agenda 21	Further clarification of the guidelines of sustainable development, its breakdown into sectors
1996	Agenda 21 for the Travel and Tourism Industry	Definition of sustainable tourism, adaptation of sustainable development guidelines to tourism
1999	Global Code of Conduct	Outlining the role of tourism in suppressing poverty and in improving quality of life
2001	Osaka Millennium Declaration	Sustainable development as the only alternative of tourism development
2002	Johannesburg Summit	Definition of the priorities of international tourism focusing on the stakeholders
2007	Davos Declaration	Greenhouse gases and climate change
2010	Hainan Tourism Declaration	Coping strategies to tackle the difficulties caused by the crisis, defining millennium goals
2012	RIO+20	Evaluation of tasks undertaken in Agenda 21, ensuring the political support of fair and sustainable future

Table 1: Milestones in sustainable tourism development
Source: Own elaboration

After the Johannesburg Summit, the practical issues of sustainable tourism were dominant (the detailed description of the events is summarized in Annex 1). The issues of the setting up a regulatory framework, developing indicators and measuring tools, encouraging partnership and cooperation were often discussed between 2008 and 2010. Tourism has also been committed to the awareness-raising of several issues. The UNWTO made steps toward the reduction of poverty and inequalities in frame of the ST-EP programme (Sustainable Tourism-Eliminating Poverty) launched in 2002. In 2007, Davos Declaration outlined several actions in context of greenhouse gas emission and climate change (UNWTO, 2007a). The preservation of natural resources of tourism and biodiversity have become a focus of attention in 2010 (UNWTO, 2010b). 2010 was the year of summary and foresight. In Hainan Tourism Decleration coping strategies to tackle the difficulties caused by the crisis, positive conditions of development and the importance of cooperation were emphasized (UNWTO, 2010b). The Millennium Development Goals of UNWTO for 2015 called the attention to the role of tourism in eliminating extreme poverty and hunger, facilitating gender equality, environmental sustainability and global partnership (UNWTO, 2010c).

In addition to clarifying and regulating the frames of the demand side, tourism also addressed the supply side. Several programmes have emerged which support the

understanding and commitment of consumers (eg.: The International Ecotourism Society, Green Travel Guides, or Responsible Tourism Networking). Their importance is inevitable, their significance will intensify with the development of communication technology and the paradigm of new management. As Prahalad and Ramaswamy (2000) states, the consumers stepped out of their traditional role and fundamentally change the dynamics of the market. Nowadays the consumer is not only a buyer but a partner in value creation. He is not a single individual but part of an evolving social and cultural establishment. As such, the consumer has a fundamental role in the implementation of sustainability principles.

2.4. The role of stakeholders in enhancing sustainable tourism

The concept of sustainability ensures the consideration of economic, environmental, social, cultural and ethical aspects of development only with the involvement of a wider range of stakeholders. The implementation of such principles into practice is based on the encouragement of bottom-up organization, democratic structure and the enhancement of community development. The examination of tourism cooperation and partnerships therefore has been an area of emphasis for the past decades.

The high number of stakeholders in the sector poses a plethora of challenges in determining objectives and responsibilities of each of them. This is caused, in one part, by the constant turnover of concerned parties and, in another part, by the situational nature of their influencing power. Nevertheless, major tasks can be outlined at group level, to see how the consumer fits into the system.

Based on Heiland (1999 in: Strasdas, 2001), Stasdas classifies the stakeholders of tourism development along their political activity and power of influence. Along these dimensions, he distinguishes between policy decision makers (control subjects; Steuerungssubjekte), policy influencers, and policy addressees (control objects; Steuerungsobjekte). Policy decision makers are state actors such as the government, public administration, the parliament, or political parties. Also, NGOs with increasing governmental responsibilities can also be classified here. Political interest groups and the population through public disclosure make up the group of policy influencing stakeholders. These stakeholders do not necessarily actively shape tourism-related

processes, but can influence them through their activities, votes and public opinion. The third group is made up of actors executing political decisions.

The political and economic actions of each individual actor are defined by their respective interests and goals. Strasdas (2001) uses the following classification for these interests:

- Material vs. ideal interests: Material interests are primarily of economic nature (e.g. satisfaction of basic needs, risk minimization), but they equally include elements such as the preservation of the natural environment in order to assure healthy living conditions. Ideal interests are psychological, socio-cultural, or religious in nature. They are typically based on specific values or attitudes, and are at the source of goals such as freedom, pleasure, recognition, or power. In certain cases ideal interest can go hand in hand with material interests, allowing for potential overlaps between the two categories.
- Individual vs. collective interests: Certain actors' or interest groups' individual interests can often conflict with other actors' interests or with those of the general public. The role of managing these conflicts of interest generally falls back to the state, or social control at large through providing an appropriate regulatory environment.
- Tangible interests vs. self-interests: Collective actors such as special government departments seek to assert in their carrying out of their functions interests that pertain to both the common good and their own particular sake (such as the maintaining or increasing of their activity, power and influence).
- Short-term vs. long-term interests: The actions of actors can often be described as primarily motivated by the realization of short-term interests. However when taking limited resources into consideration, this approach may interfere with the stakeholders' long-term interests. Putting long-term interests above short-term interests is only rational if the latter are not considerably impaired and if sufficient predictability is ensured.
- Direct and indirect interests: The ultimate goal of all action is the realization of direct interests. Since the direct path is not always possible, actors may choose instrumental indirect paths to support the realization of the direct interests. An example of instrumental indirect goals is the gathering of power or knowledge in possession of which the realization of direct objectives becomes more likely.

In another approach, Inskeep (1994) defines the government, the tourism industry, local and international advocacy organizations, the local population and visitors as the most influential actors in the development of tourism.

In the implementation of sustainability principles into practice *governments* play the most important role since they can regulate the market and encourage stakeholders through the political innovations. In order to preserve a good shape of environment, the government should ensure that the environmental damage caused by corporations and locals for the sake of developing the economy will be compensated from natural investments financed by tax revenues (Kerekes, 2011). It is the government's responsibility to integrate the principle of sustainable development into the general planning process. To achieve this a cooperation is necessary with governmental and non-governmental international organizations, with NGOs, tourism industrial representative and with the population (Puczkó és Rátz, 2005).

The OECD lists the following policy instruments governments can take into account to influence consumer decision-making and to promote more sustainable consumption:

- economic instruments (waste fees, taxes on energy and water use, subsidies for green energy, tradable permits, etc.);
- regulatory instruments (waste management directives, energy-efficiency standards, extended producer responsibility regulation, regulations on environmental labels, water quality standards, etc.);
- social instruments (public information and environmental awareness campaigns, education, public debate and participatory decision-making processes, support to voluntary citizen initiatives, partnership with other actors, etc.);
- other tools (development of sustainable consumption indicators, incentives for environmentally superior technological innovation and diffusion, infrastructure provision, etc.) (OECD, 2002).

In summary, governments are responsible for creating an environment to support sustainable decisions and for enhancing new social norms and values. As a result, the society will demonstrate support as responsible consumers and as active citizens for sustainability measures.

Corporate players are the driving factors of an economy built on sustainable consumption through their investments and innovations. They can follow and shape the awareness of consumers on sustainability with their educational programmes addressing the social consequences of consumption, value chain cooperation, their sustainable value propositions, products, services and communication (WEF, 2011). Its first and the most generic step of this process is to integrate the principles of sustainable development into the management system of tourism companies thus ensuring that the whole operation of the company meets the dedicated principles in all areas (Puczkó and Rátz, 2005).

A further step is to make marketing activities of tourism companies transparent which is indispensable for creating trust in this field. Standards such as the Framework for Responsible Environmental Marketing Communication give basic guidelines for changes in tourism (ICC, 2010).

Choice editing[11] is a mutual responsibility of the government and corporations. Producer/service provider and selling companies (tourism wholesalers, hereinafter tour operators and agencies) are shaping consumers' decisions through activities such as rejecting to sale certain tourism products/deals. The government supports this with the regulation of the sector detailed above.

Local and international advocacy organisations support the above-mentioned processes and interactions. They facilitate
consumers' commitment and access to information, and when necessary, exert pressure on the government and market actors. Regarding tourism development, these institutions mainly represent the interests of the industry, public opinion and local populationss, as well as the protection of natural and cultural heritage (Puczkó and Rátz, 2005).

Local population has a liaising, regulating and cultural mediating role between the destination and other players. As citizens, it is their responsibility to protect the environment, to encourage actions for sustainability and the voluntary participation thereof.

[11] Sustaining choices aims at the withdrawal of unnecessary harmful products and solutions. This intends to make consumers' decisions easier.

Beyond their responsible behaviour and purchase decisions, visitors equally play a role in diffusing innovation and influence the market through formulating their needs as agents of the demand side. As citizens, they can further support state initiatives and regulations. In case of a higher involvement, their participation can also be extended to include social work.

A long term economic, environmental, social and political well-being of the stakeholders require everybody's commitment.

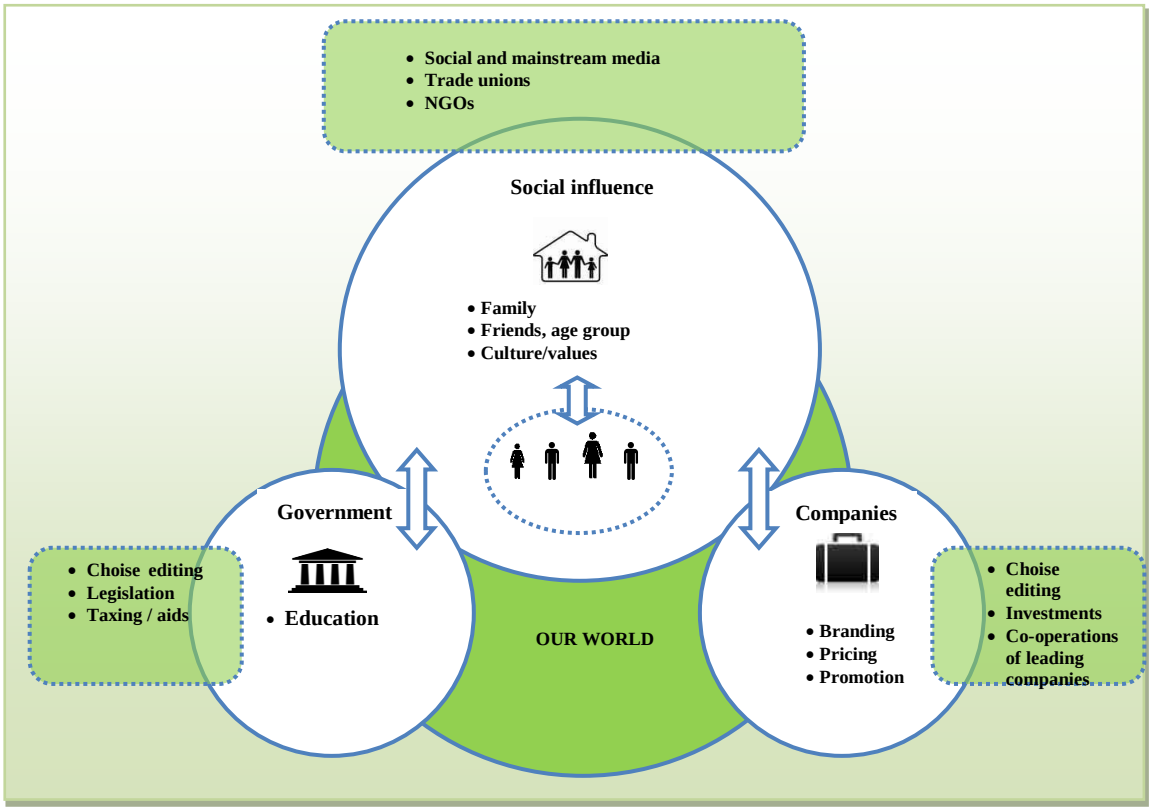

Figure 3: Stakeholders' interactions in consumer
Source: WEF (2011)

Concerning the common responsibility Budeanu (2007b) pointed out that compared to state and corporate efforts consumers show a significantly lower level of commitment toward sustainable life style and the support of responsible tourism services. This is reflected in the fact that the tools (financial incentives, eco-labels, certificates, marks, communication, promotional campaigns) applied to achieve consumer responsibility had less results in tourism than in other industries (Martens and Spaargaren, 2005). This is supported by Chafe's (2005) results whereby tourists demonstrated a positive attitude

toward sustainable tourism, still, only one of 20 travellers acted accordingly and chose a responsible deal, pro-environmental travel or purchased local products.

Taking into consideration that the primary goal of leisure travel is relaxation, entertainment and the leaving of problems behind, and also venue is usually a new environment which is often associated with a low level of the individual's perceived behavioural control, the above trend is less than surprising. The task is therefore given to the industry to change this. Governmental and corporate actions addressing this issue require a deeper understanding of tourism consumption. Bearing this goal in mind the following chapters will detail the main features and relationship of sustainable tourism consumption.

3. SUSTAINABLE CONSUMPTION AND ITS CHALLENGES

According to the traditional economics, the basic goal of consumption is to create individual and collective welfare so that the consumed products and services help the individual meet their needs and desires. Based on the individual's rationality, traditional economics assumes that the consumed goods contribute the individual's welfare through their usefulness.

In context of the above-mentioned links, we have to emphasize that a person struggling to meet his/her vital needs can be associated with pure rational behaviour but citizens living in well-being is characterized with a more complex motivation system. The exercise of the quality of life can be described with several factors. This is confirmed by the results of Donovan et al. (2002) whereby consumption costs almost doubled in Great-Britain in the past 30 years but this was slightly reflected in the satisfaction of the admitted life.

The realization of the fact that consumption often meets false needs lead to the criticism of consumer society. Scitovsky (1990) suggests that the commercial interests of modern society generated artificial needs that removed the individual from his/her own well-being. "Super consumption" as a reference to buying large volumes of fast moving goods made the individual critical regarding his/her own decisions (WEF, 2011). The concern

appearing after gaining the goods (see the „keep up with the Jones" phenomenon[12]) encourages the consumer to constantly review the correctness of his/her buying decision. The comparison is carried out on a quite broad spectrum since consumption has several other roles in modern society than its basic function. Beyond meeting the needs it contributes to forming an identity, social differentiation as well as the identification of the rationale of certain things (Jackson, 2005). As Kozák (2008) states, consumption gives a real picture on the self. Consumption makes it clear where the person is positioned in society.

The closeness of such modern society into unsustainable consumption patterns can be derived from habits, routines, social norms and expectations, conservation effect of dominant cultural values, structure of incentives, institutional conditions, difficulties in accessing alternatives and limited choices (Jackson, 2005). The restructuring of such complex system based on sustainability aspects requires the re-interpretation of our existing consumption model. The first step is to introduce the concept of sustainable consumption.

According to the official definition of CSD (1995), sustainable consumption can be described as follows:

"Sustainable production and consumption is the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations." (Norwegian Ministry of the Environment, 1994 in: Valkó, 2003, p. 12.)

The above definition highlights the main challenge of sustainable consumption: bring a better quality of life while ensuring the individual's and social well-being (Hofmeister-Tóth et al., 2011a).

In order for sustainability criteria to prevail in tourism consumption, factors that most determine tourism consumption need to be identified. The following chapter is dedicated to the study of these factors.

[12]American saying, meaning our achieved results, acquired goods are constantly compared with the reference group.

4. CONSUMERS' ENVIRONMENTAL RESPONSIBILITY

The theory of *transitive actions* states that consumer as a mediator gives market signals through his/her decisions which affect supply. According to this theory responsible behaviour and the empowerment of consumers can be achieved by information sharing, education and by fiscal incentives (Rumpala, 2011). It is a general approach that pro-environmental behaviour is facilitated by awareness and public education (Devine-Wright et al., 2004). The recognition of individual's responsibility is an important stage on the way to commitment. The gained knowledge and the overview of connections play a role in this process.

4.1. Individual's responsibility

Based on the approach of normative ethics, the socially responsible form of consumer behaviour raises questions such as how the "good" can be defined, how we can act and how we can think of consumption and environmental protection. This is a philosophical question which concerns personal and social moral. Its complexity is reflected in the various ways of responsible behaviour, thus its motivations may vary in a wide spectrum.

Responsible consumption entails two different motivations associated with consumption intention (Moisander, 2007). The individual is on one hand driven by individual goals and on the other by social goals that take into account the collective, long-term interests of society at large. Since the situations allowing responsible behaviour often represent a form of social dilemma (even a trap) or iterated prisoners' dilemma of multiple actors, the reconciliation of private and collective consumption goals poses several difficulties (Uusitalo, 1990). As Dawes (1980) points out, if we ignore how other players of the society behave, each individual consumer reaches higher social payment if they do not cooperate. At the same time, each member of the society gets no payment if nobody is engaged in cooperative strategy.

Moisander (2007) proves the theory above with the example of the consumption of public goods such as air which can be used by anybody but its maintenance requires the cooperation of the society. The more consumers are engaged in this process, the better the quality of air will be. It is the interest of responsible consumer is to cooperate in the preservation of the quality of air. On the other hand, an individual may decide to behave like a free-rider and just enjoy others' contributions. Taking into account the responsible

behaviour usually requires more investment in terms of time, money or other resource, the above-mentioned behaviour may happen with committed consumers, too.

In addition to the paradox detailed above, responsible consumption causes a complex moral issue which requires a deeper understanding of the ethical side. This highlights the ethical side of values and beliefs determining the interpretation of the question. Social justice, personal rights, different perceptions of the good and the society are behind the debates (Des Jardins, 1997).

4.2. The definition of socially responsible consumer

Responsibility in ethical sense is necessarily present in all decision making situations where the decision has long term, significant consequences and besides the decision maker others are also concerned in the outcome of the decision (Zsolnai, 2007). When examining the influence of society on the environment, consumer has an utmost importance. The way an individual behaves or decides (preference of certain products or services based on the individual's consideration) influences the environment and the individual's well-being (Jackson, 2005).

The prevalence of the social responsibility or the consumer dates back to the 70th. Anderson and Cunningham (1972) made a distinction between high and low social awareness based on certain demographical, socio-psychological and social economic factors (Hofmeister-Tóth et al., 2006). The definition of a socially responsible consumer is as follows (Webster, 1975, p. 188.):

"The socially conscious consumer can be defined as a consumer who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change."

Based on the individual's commitment, socially responsible consumption may appear in different areas and forms. Pro-environmental behaviour belongs to these options. In the following section I will detail this topic.

4.3. Pro-environmental behaviour and its forms

Environmental responsibility extends over several issues. Our decisions may cover the following considerations: the cleanness of air or water, the preservation of oceans, wild

areas, energy resources, raw materials and endangered species as well as waste management. In order to set up priorities in our behaviours, we should be capable of identifying those behaviours that best influence environment.

Stern (2000a) suggests that pro-environmental behaviour may appear in four forms. Besides pro-environmental behaviour in private sphere (consumption, usage, waste management) an individual may be an activist representing a pro-environmental organization or demonstration. He/she can have an indirect effect on the quality of environment by supporting relevant regulations and being willing to pay higher tax. Although this type of behaviour does not require such level of active involvement than a behaviour change within the household, its effect is still more significant due to the fact that the supported regulatory formats may modify the behaviour of several consumers and corporations. Workplace is another space of pro-environmental behaviour. Since the direct source of several environmental issues can be traced back to corporate behaviour, the behaviour and responsibility of individuals within the organization can equally bear have significant impact on social shift.

The environmental awareness of individuals as tourists can equally be manifested on several levels.he commitment to this topic can be expressed in forms such as volunteering or other activist duties (rescuing sea turtles in Mexico, working in a non-profit organization to help pro-environmental behaviour, boycotting destinations endangering wildlife etc.). The initiatives on sustainable development and the individual support of tourism regulations represent a significant contribution. The individual may express his/her responsibility as an employee of tourism sector or as a stakeholder of destination. The most fundamental involvements, however, are the decisions and behaviour made as a tourist.

4.4. Pro-environmental behaviour in leisure travel

The tourist's commitment to pro-environmental behaviour can be determined by his/her choice of service provider before the travel and by his/her behaviour during travelling. Such decisions are highly influenced by the traveller's expectations to gain experiences and this can have an impact on the consequences of behaviour (see Figure 4.)

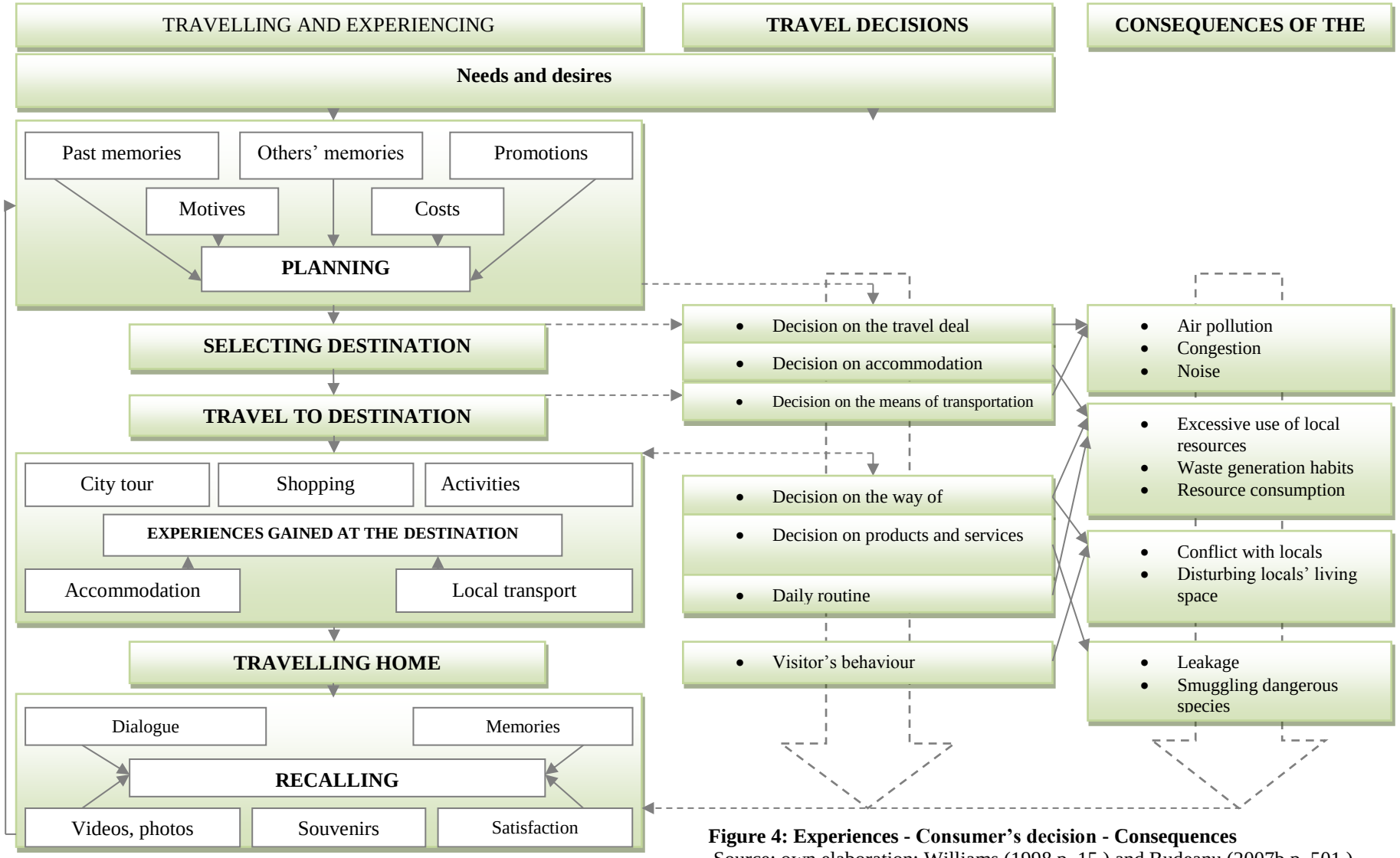

Figure 4: Experiences - Consumer's decision - Consequences
Source: own elaboration: Williams (1998,p. 15.) and Budeanu (2007b,p. 501.)

Decisions on travel starts with the selection and planning of destination, means of travel and accommodation (Seddighi and Theocharous, 2002). Decisions on the elements of the travel deal (train or air plane, green hotel or not etc.) highly influence the extent of consumers' environmental impact. Pro-environmental consumption in tourism can only be achieved by the inclusion of efficient means of transportation (Martens and Spaargaren, 2005) and by reducing travel distance (van den Bergh and Verbruggen, 1999). Budeanu (2007b) added a few more aspects to this statement: preferring environmentally friendly hotels, non-intrusive visitors' behaviour respecting locals' interests, avoiding littering, lower resource consumption, reducing disturbing entertainment, rejecting endangered species as a souvenir. Several researchers put the focus on technological development instead voluntarily reducing consumption. Kornevall (2002) state that the reduction of environmental impact can be achieved through robust technology solutions.

In the view of the author of the present dissertation (In our view? / In my view?) change ought to occur alongside choice editing (see Chapter 2.4.) in a mutually reinforcing process, rather than separately. This approach requires that consumers should be willing to cooperate.

The importance thereof is highlighted in Hertwich's (2005) research, who identifies a rebound effect in case of pro-environmental hotels. His results suggest that consumers tend to use the cost savings from reduced consumption to pay for supplementary consumption, therefore the overall environmental impact does not necessarily decrease in most cases, but rather increases (Zsóka et al., 2011). Provided that the consumer is aware of the fact that he/she chose an environmentally-friendly accommodation, he/she tends to use resources in a more intense way. The examination of consumers' behaviour therefore cannot be limited to the choice of services providers during their holiday, their behaviour on the spot is similarly significant. The traveller makes several further decisions on the spot. These can be as follows (Budeanu, 2007b):

(1) decision on entertainment
(2) decision relating to services and products on the spot,
(3) behaviour on the spot,
(4) preservation of daily routines.

Entertainment facilities on the spot can be associated with serious environmental, social and cultural impact. Environmental impacts may include the negative effect on biodiversity, the air pollution of means of local transport, ignoring a well-established waste management system, littering.

The quality of life of the locals influenced by tourism is a social and cultural aspect. Cultural, status related, economical and religious differences between locals and tourists may lead to conflicts and divide locals as well as generate negative attitude towards tourism (Holloway, 1998 in: Budeanu, 2007b). The money of tourists spent on the spot determines if the given destination is forced to import certain products or if the destination can meet the needs by utilizing local resources. It seem now obvious that these tiny decisions (eg. buying food, souvenirs, cosmetics) may be associated with serious impact. Swarbrooke and Horner (2007) concluded in their definition on pro-environmental tourist profile that travelers of higher environmental awareness do not choose far destinations, they protect the harmony of environment and avoid typical negative behavioural forms. In contrast, the less committed are only superficially concerned about the impact of their visitation.

Dolnicar (2004) examined travellers with low carbon footprint and found that for these people wild nature means an important attraction. Crouch et al. (2005) outlined a broader picture. Their results conclude that a pro-environmental tourist is between 46-55 and he/she spends less of his/her discretionary income on home decoration or overseas trips. Obtaining his/her travel related information is based on travel guides, he/she is not concerned about advertisements. His/her driving factors are cultural offers, sport, the sense of light and free movement, learning, avoiding traffic and familiarizing with locals' life style. The biocentric segment of Fairweather et al. (2005) highlights another aspect of pro-environmental tourist. The members of this group are characterized with pro-environmental attitude, interest in eco-labels which they also try. If choosing an environmentally-friendly accommodation, they are willing to pay premium price. Depending on how pro-environmental tourist is defined, their image can be quite diverse. Dolnicar (2010) reviewed the literature on pro-environmental tourism and concluded that pro-environmental tourists have a stronger pro-environmental attitude, they have a higher concern on environment and they belong to the upper category in terms of income and qualification.

4.5. The ideal visitor and the way towards them

Based on the guidelines drafted by UNEP and WTO (2005) the incentive of sustainable consumption in tourism can be described with influencing travel decisions and regulating visitors' flow and behaviour. As a result they determine supported and non-supported visitations as well as they offer an option for feedback through a benchmark to measure travellers' decisions and behaviour.

Concerning the influence on visitors' flow and decisions, the UNEP and the WTO outlined the following areas (UNEP and WTO, 2005).

Date of travel	Expanding the season and stimulating off-season travels can encourage sustainability.
The place visited	The determination of the number of visitors at certain areas based on strategic aspects. The aspects should take the supporting capacity of the place into consideration.
Means of transportation used	Encouraging transportation of less environmental impact. Reduction of the use of aircraft or own car.
Selected tour operators and enterprises	Encouraging consumers to buy from operators representing sustainability.
Group size	Limiting the number of tourists arriving at the same time.
Duration of stay	A longer stay is more advantageous for the host community and has less environmental impact than shorter and more frequent travels.

Table 2: Major guidelines to influence the flow and decisions of visitors
Source: UNEP and WTO (2005)

In summary, ideal visitors engaged in sustainable tourism behave in a way that demonstrates respect for host communities, they do not generate aversion, do not generate aversion, buy local products, are interested in natural, cultural and historical attraction of the destination, reduce personal environmental impact (reduce water and energy consumption, littering, collect waste selectively), support social and preserving initiatives (financially, voluntarily or in other ways), make less frequent but longer trips, buy travel products form sustainable operators.

The scope of tourism concepts based on the principles of sustainability is embarrassingly wide. Consumers should be supported to find, assess, choose and use these services. Beyond the easy access to and the transparency of the information and products, the traveller should be ensured about their credibility. Certifying and labelling systems play

an important role in this. Ensuring proper infrastructure, sharing best practices and codifications as well as regular feedback also contribute to progress.

This supporting system is indeed an effective tool in facilitating sustainable tourism, but we should also bear in mind how and when the consumer reacts. The following theories will therefore explain which factors influence the individual in developing pro-environmental behaviour.

5. MAJOR THEORIES OF PRO-ENVIRONMENTAL BEHAVIOUR

5.1. Rational decision making and its limitations

Economics is based on the fact that consumer is a rational entity. As such, consumer pursues self-interest and profit maximizing (Székely, 2003). Based on the rational choice model, the decision maker maximizes its own utility function. In order to do his, the decision maker's preferences should be transitive and complete in the dimension of available decision alternatives (Zsolnai, 2007). The above-mentioned approach of rationality raises several questions. These questions cover the over-expectation relating to the decision maker's cognitive capability and the limitation of information.

As Kahneman (1997) suggests that decision makers are not capable of estimating the realistic future value of their actions and they seem to be wrong in judging their past decisions.

Another limiting factor of the individual's rational behaviour is emotion. In several cases where rational choice model leads to irreconcilable conflicts it is the emotional commitment that finally makes the decision (Frank, 1988).

The self-interest focused interpretation of rationality therefore does not reflect the complex motivation background of human decision making since in addition to self-interest, obligation, loyalty and goodwill also play role in decision making (Zsolnai, 2007). Human behaviour is characterized by social, moral and altruistic elements as well as following self-interests.

This was proven by Weber's (1967) statement on social action which describes individual behaviour from the aspect of zweckrational (purposive), wertrational, (value-oriented), affective and traditional driving factors. In case of *zweckrational behaviour*, the action is mainly determined by the expectations relating to the behaviour of the outside world. The individual considers this expectation as a "tool" or "condition" to successfully achieve his/her rationally chosen and revised goals. On the contrary, *wertrational behaviour* determines action based on the individual's belief in ethical, aesthetic, religious or other values of a certain behaviour independently of the success. *Affective behaviour* defines action based on emotional situations. *Traditional behaviour* highlights the long established traditions, habits.

It seems now obvious that rationality plays an important role in decision making processes, although this is only a starting point in comprehending socially responsible behaviour. This approach does not aim to give a comprehensive explanation on the normative, affective and cognitive dimensions of behaviour (Hofmeister-Tóth et al., 2009).

5.2. Approaches of self-interest or pro-social motives

According to the early models, the development of environment related attitudes is often explained by *ecological knowledge* (Dispoto, 1977; Lounbury and Tournatsky, 1977 in: Zsóka, 2007). Empirical researches although pointed out that environmental attitudes as a result of ecological knowledge do no obviously lead to pro-environmental behaviour. As a result, the focus of examinations had been put on the relationship between *attitude and action*.

Depending on the motives of pro-environmental behaviour, the examination of this relationship can rely on two theoretical frame (Bamberg and Möser, 2007). Those who trace pro-environmental behaviour back to pro-social motivation, relied on the norm-activation model of Schwartz and Leonard (1977) and further results based on this model. On the contrary, all who considered self-interest as a more important motive, rely on the rational choice models, such as Ajzen's (1991) planned behaviour model. The following part of my dissertation will detail these two approaches and the relating models.

Models focusing on the motives of self-interest

According to Ajzen's TPB (Theory of Planned Behaviour) model, human being is described by his/her hedonistic characteristics (Bamberg and Möser, 2007). Its starting point was that individual behaviour is driven by the desire to avoid punishment and gain awards. The model assumes that individual decisions are preceded by the rational consideration of the consequences of that behaviour. As result, the general attitude of behaviour options is determined by the sum of perceived positive and negative consequences.

The theory of planned behaviour is based on the TRA model (Ajzen, 1991, 1985). In the theory of reasoned action (TRA) Ajzen and Fishbein (1980) called the attention to the fact the attitude has not direct effect on behaviour, it only influences the behavioural intention. The intention to act is driven by individual evaluation of the completion of the behaviour, that is the attitude relating the behaviour. Another driving factor is the subjective norm, namely the individual's opinion on how relevant persons expect him/her to behave and how they judge it. Authors explain the importance of this phenomenon with the fear of social exclusion. Subjective norm is influenced by two components: normative beliefs (what kind of activities important people expect him/her to do) and the individual's motivation to meet the expected activities.

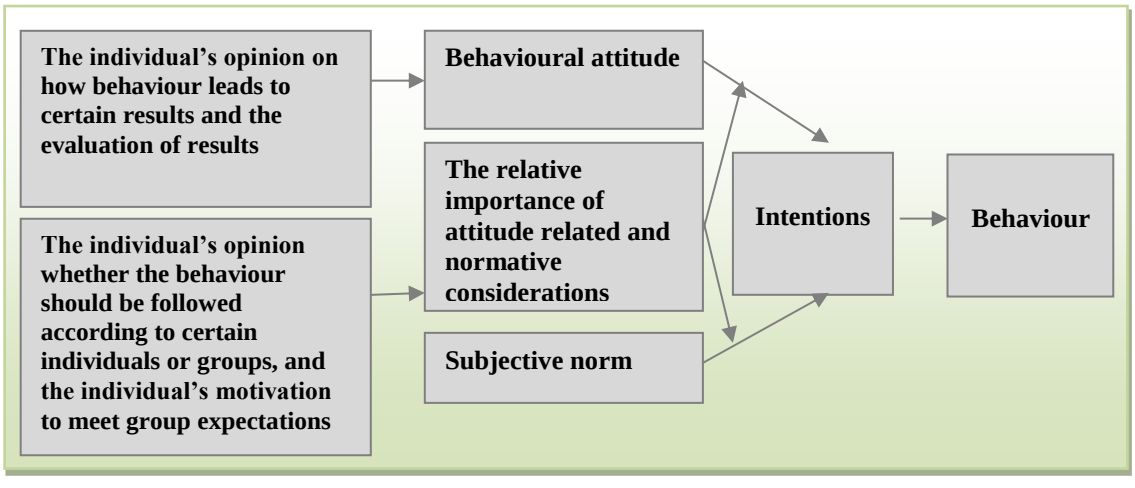

Figure 5: Theory of Reasoned Action (TRA)
Source: Ajzen and Fishbein (1980)

Controlling belief and perceived behaviour control as a consequence appear as new elements in TPB (Theory of Planned Behaviour) model which is a further developed

version of the theory of reasoned action. In the course of defining behavioural intention, the individual takes his/her behavioural attitude into account and also considers the chance to change this behaviour. Ajzen's model puts significant focus on the role of perceived behaviour control which influences behaviour not only through the intention to act but in a direct manner, too.

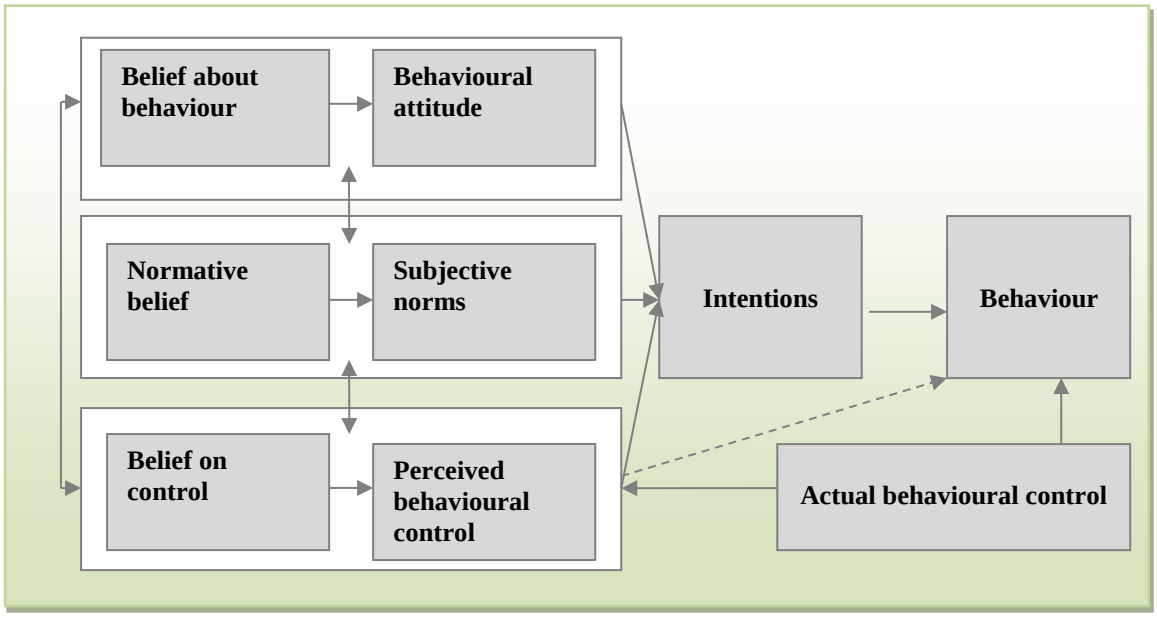

Figure 6: Theory of Planned Behaviour (TPB)
Source: Ajzen (1985, 1991)

This theory has been applied in several areas of tourism for choosing destination (Lam and Hsu, 2006; Sparks and Pan, 2009), examining risk and uncertainty experienced when travelling (Quintal et al., 2009) and for the satisfaction relating to holiday experiences (Bigné et al., 2005). Han et al. (2010) used this theoretical framework to explore consumers' intentions relating to eco-hotels. Results show that attitude, subjective norm and perceived behaviour control positively influenced the eco-hotel related intentions. After examining the relationship between influencing factors and intentions they concluded that there is no significant difference between active and passive pro-environmental consumers in this respect.

Models emphasizing pro-social motives

Several researches on pro-environmental behaviour came to the conclusion that such behaviour can sometimes be an outcome of altruistic and moral reasons. Jackson (2005)

added that although there are situations whereby pro-environmental behaviour is driven by self-interest, usually these behaviour are caused by moral reasons.

The negative impact of an individual's behaviour on environment is not always imputable to the actor but to someone else and at a different time. It is possible therefore that the individual is not concerned directly about the impact of his/her behaviour on others, still his/her need to integrate into the society forces him/her not to behave in the antisocial way. The presence of others' expectations in the individual's behaviour points out to the relationship between pro-environmental behaviour and norms (Jackson, 2005).

Biospheric value theories based on New Environmental Paradigm of Dunlap and Van Liere (1978) play an outstanding role in theories explaining moral and normative dimensions of human behaviour. Early normative models trace pro-environmental behaviour back to its value orientation. As a result, pro-environmental behaviour is primarily based on pro-social and moral values. Schwartz and Leonard (1977) distinguished mainly between a 'self-enhancement' value orientation and a 'self-transcendent' value orientation. Biospheric value model is built on a hypothesis saying that people characterized with self-enhancement values show less commitment to pro-environmental behaviour than those people who are mainly characterized with self-transcendent values. Following researches pointed out to a third dimension namely the values focusing on environment separately from altruistic and pro-social behaviour. Dunlap and Liere (1978) elaborated the New Environmental Paradigm (NEP) based on biospheric value orientation. They believed that environmental issues are partially caused by values, attitudes and beliefs prevailing in a society. Ecological crisis is caused by the dominant social paradigm (DSP) that can be described with the belief in well-being, over-trust in technology and science, private property, limited state interventions and the commitment to a laissez-faire type economic management (Dunlap and Liere, 1978). As environmental issues became more visible, these guiding principles were questioned from many aspects. As a result, an ecosystem shaping beliefs had been identified by the 70th which treated humans as part of nature and not as someone living above all living organism. Such environmental paradigm was associated with fundamental values which put the focus on the limits of nature and the preservation of natural balance.

Several researches examined the relationship between biospheric, altruistic, egoistic value orientation and pro-environmental behaviour (Snelgar, 2006; Schultz et al., 2005; Schultz, 2000, 2001; Stern et al., 1993; Stern et al., 1993, 1995). However, no obvious correlation was identified between certain value orientations and pro-environmental behaviour. Pro-environmental behaviour may appear relating to all three value orientations. Biospheric value theory is partially explained by the differences, mentioned earlier, between attitude and actual behaviour. The fact that an individual has pro-social or pro-environmental values and attitudes will not necessary mean that all these will be reflected in his/her actual behaviour. The dominance of egoistic values may lead to pro-environmental behaviour, provided that environmental degradation can influence the quality of the individual's life. A further difficulty is that disposition factors influencing behaviour can hardly be separated from situational and contextual variables (Jackson, 2005). Individual's values may vary depending on context or situation. This is proved by the results of Biel and Nilsson (2004, in: Jackson, 2005) whereby individual's environmental values can be significantly different at work place and in the personal environment. We can assume that such differences appear on the spot of leisure travel but this assumption has been proven, yet.

Another example for such theories is the Norm Activation Model of Schwartz and Leonard (1977). Schwartz suggests that the only direct element of pro-social behaviour is the personal norm. He believes that this relationship is not influenced by behavioural intention. He defines personal norm as a sense of moral obligation which a human can feel in order to commit to pro-social behaviour.

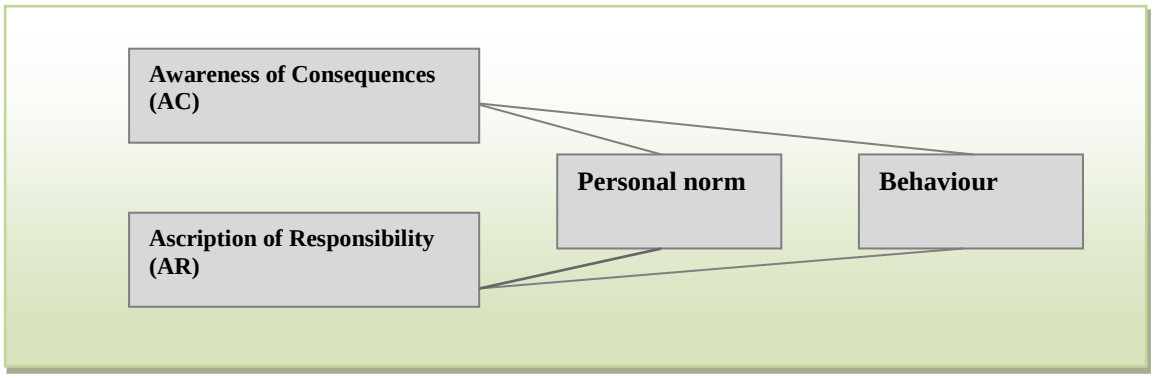

Figure 7: Norm Activation Model
Source: Schwartz (1977)

The norm concept created by Schwartz is different from the subjective norm defined in the theory of reasoned action. According to the Norm Activation Model, personal norm is directly influenced by two psychological factors: the individual is aware of the consequences caused by his/her behaviour (awareness of consequences or AC[13]) and the acceptance of the fact that the individual is responsible for the consequences (ascription of responsibility or AR[14]).

The models underlines that the awareness of consequences and ascription of responsibility is not only a cause of personal norm but their strength moderate the relationship between personal norm and behaviour.

Similarly to the planned behaviour model, norm activation theory focuses on the interaction between personal norm and its influencing psychological factors as well as on the assumption that personal norm is sufficient to pursuit a behaviour. Jackson (2005) however points out that external contextual and situational factors cannot be excluded when examining the relationship between personal norm and behaviour since their interaction may influence the relationship.

There is a more complex view in the *Value-Belief-Norm Model (VPN)* of Stern et al. (1999) which links biospheric value model with the norm activation model of Schwartz. Their approach is that the acceptance of ecological world-view, and NEP, precedes the knowledge of consequences in the norm activation model.

[13] Awareness of Consequences
[14] Ascription of Responsibility

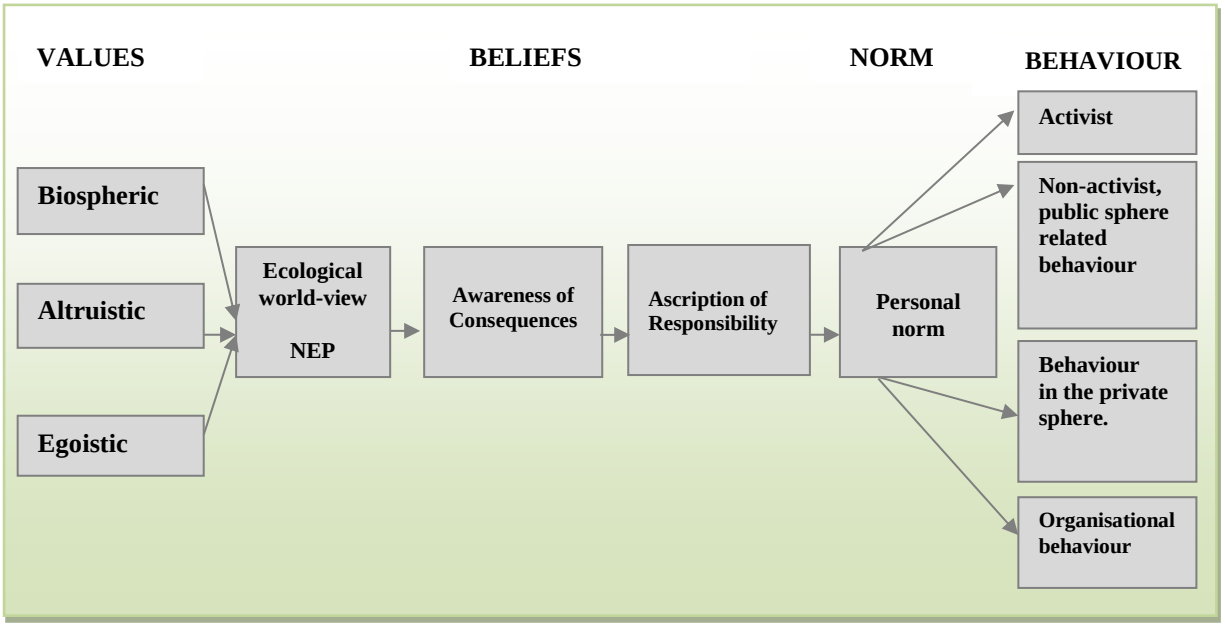

Figure 8: Value - Belief - Norm Model
Source: Stern (2000a)

Their results show that the rate of acceptance of the NEP is related to related to biospheric, altruistic and egoistic values. The relationship is positive in the two former cases, while it is negative in the latter. The more the individual shares egoistic values, the less he can accept the new environment paradigm. The acceptance of the paradigm is in positive interaction with the knowledge of consequences (AC). The more an individual accepts NEP worldview, the more he is aware of the consequences. This has and impact on the recognition of responsibility relating to the individual's activity (AR). The process continues with the integration in the personal norm which finally leads to pro-environmental behaviour.

5.3. The influence of habits and routines in behaviour

Human behaviour in general is target oriented. This does not mean that the individual's each action is preceded by conscious cognitive evaluation. In many cases the consumer can be characterized with instinctive, automatic and emotional behaviour which cannot be associated with the presence of conscious control. This explains that in some cases we act against our well defined intention (Jackson, 2005). In other words, no matter if we have a positive attitude towards pro-environmental behaviour and no matter if we learn pro-environmental social norms, it is by no means certain that this will be reflected in our

actual behaviour. This phenomenon challenges the models mentioned above which examines behaviour based on behavioural intention or values.

According to cognitive psychology mental processes can be automatic and controlled (Johnson and Hasher, 1987). Controlled processes involve intention, control, efficient use of cognitive resources and awareness. These characteristics do not appear in automatic processes (Jackson, 2005). There is no strict borderline between controlled and automatic processes. Controlled processes often become automatic as soon as we learnt them. Kahneman and Treisman (1984) emphasized that both automatic and controlled attributes appear in mental processes.

The rate of control and automatism applied in our decisions depends on the action itself and its context. Jackson (2005) suggests that the balance of control and automatism is determined by three factors: by the degree of involvement, by the degree of perceived complexity of the decision and by the degree of importance of the decision. As the involvement of the decision maker gets higher, the rate of control increases. As a consequence, the actor's concern is higher if the consequences of the action is more significant. If individuals can have different choices and these choices are characterized with several attributes and if the consequences of these attributes cannot be predicted then the decision will be made under more control due to the complexity of the situation. Finally, time limitation, cognitive capacity and the access to information also influence the rate of cognitive control in the decisions.

Besides controlled and automatic processes heuristics should also be mentioned. They are simple instructions or cognitive signs that do not require a whole cognitive evaluation. Consumer behaviour reflects this in choices based on brand, eco-label (eg.: certificate) or price. This however leads us to decision making based on routine and habits.

We have a lot of repetitive actions in our daily life which become part of the routine and do not require cognitive effort. This is due to the fact the routine actions are typically automated.

On the basis of the theory of rational decision, the habitual behaviour is considered to be irrational. If we dig down to examine the habitual actions we can conclude that several

advantages are caused by the fact that we make our daily decisions based on heuristics or routines with low cognitive process. Such available cognitive resources can be spent on major decisions (Baumeister et al., 1998). Habitual behaviour proves to be a proper strategy insofar as the decision situation does not change much.

Habitual behaviour is also associated with short-term awards and incentives. Routines can therefore overwrite the long term advantages of behavioural change or intensive intention through the immediate sense of award. Habits contrary to the intention entails a cognitive trap that may lock the individual into his/her own routine (Verplanken and Faes, 1999).

It is therefore easy to understand that the examination of the individual's behaviour in the context of tourism should be extended beyond his/her behaviour as a tourist. Provided that pro-environmental behaviour is not part of our routines actions, it will be less probable that the individual will start new behavioural patterns on the spot of vacation where the different environment is already associated with bigger cognitive workload than that of the home environment. It should also be noted that the individual's consumption habits become visible during holiday as well as the place related norms and expectations can also influence how the individual can optimize his/her cognitive capacity in relation to the adaptation to the place and the tasks to obtain experiences.

5.4. The influence of the individual's social integration on behaviour

An individual basically lives embedded into a social system. His/her actions are determined by the expectations and norms of the given area where decisions are made. In other words, how the individual undertakes the difficulties in behavioural change depends on how the surrounding supports him/her in this goal. The influence of society on individual' behaviour cannot be ignored when examining pro-environmental behaviour.

A common feature of the theories discussed earlier is that they treat humans as individuals. As a result, the research on the environmental commitment process focuses on the following factors: consumer's attitude, values, beliefs and personal consideration aspects. The TRA and TPB models described above attempt to demonstrate the effect of

social influence on individual decision-making via the subjective norm. Normative theories make a further step to integrate social influences into their models.

The way an individual thinks of himself/herself determines his/her behavioural intention. This idea is based on Festinger's (1957) *Theory of Cognitive Dissonance* which suggests that we experience dissonance in any situation where two cognitions are inconsistent. Since we cannot cope with a persistent state of tension we are motivated to reduce or eliminate it. As Mérő (2007) suggests, the individual following the least resistance will change those cognitions causing cognitive dissonance that can be easier to change in order to reduce the sense of inner tension.

The Spillover Effect by Thøgersen' (1999) is built on cognitive dissonance. Based on this theory, an individual's pro-environmental attitude or behaviour in an area can be a good predictor of his or her general environmental attitude and pro-environmental behaviour in other areas. Following this logic we can assume that it is more likely for a person being pro-environmental at home to act similarly at other places compared to the one who is not concerned even at home. Positive attitude may extend to other actions and areas this the pro-environmental behaviour can have a positive spillover effect. It is important to bear in mind that the attempt to eliminate dissonant cognition may cause damage in our attitude towards pro-environmental behaviour. In such cases the outlined process may shift into a negative direction. This puts a further emphasis on the role of social norms and external factors.

Another important aspect of this theory relating to this subject is that the behaviour itself can shape positive attitude. As Thøgersen and Ölander (2003) pointed out people collecting waste selectively will be more likely to demonstrate positive attitude towards environmental behaviour independently of their attitude in collecting waste selectively. Infrastructural and other investments into selective waste collection can be associated with positive consequences such as the increasing number of the ones who collect waste selectively and the improvement of the general environmental attitude of the participants which can influence behavioural patterns.

In the same line of thought, Higgins's (1987) self-discrepancy theory is based on the differences between the ideal and the actual self-concept. In total Higgins identifies six

distinct types of self-concept: actual-own, actual-other, ideal own, ideal-other and ought-own, ought-other. There can be further distinctions within these self-concepts which can be associated with guilt, shame, confusion or other pleasant feelings. These feelings motivate the individual to reduce him/her perceived differences. The reduction of differences in a modern society is however often associated with the buying of material goods (Hamilton, 2003). Hirsch (1977) suggests that a major rate of consumption focuses on the individual's positioning within the society. The quantity and quality of the owned goods serve to express the consumer's status and personal values (Csutora, 2012). This thought brings us back to the root: How can the critical mass be developed if the society we live in intensively promotes the obtained material goods?

Shaping the existing practice requires new forms of consumer commitment. Within this process, consumer should be treated as a citizen or a member of a broader community and not as an individual. This idea itself cannot be considered as a radical change. However, in light of the fact that marketing has been focusing on strengthening the individual's individualist side for decades, new challenges arise when aiming to develop new types of interactions with the consumers as citizens. Due to the technological development of communication, several new initiatives appeared which already represent a cultural move into a direction to sharing consumption instead of individually using them in areas like transport (Uber car sharing), accommodation (Airbnb, CouchSurfig) or sharing meals at home (Yummber).

Social networks	The recognition of human relationships (families, friends etc.) and the importance of place (place of residence, workplaces, schools etc.)
The power of new communities and networks	Opportunities due to the development of communication technology (virtual spaces, network)
Cultural shifting from "me" to "we"	Understanding and acting
Shared responsibility	Creating value together

Table 3: Corner stones of the new patterns of consumer commitment
Source: own elaboration, based on WEF (2011)

The question on the form and type of actions an individual may engage in commitment points out to the importance of another factor, namely the *place*.

5.5. The influence of person–environment on behaviour

Our behaviour is influenced by our physical environment. Dúll (2009) concludes that environment similarly to language is a complex phenomenon that can be interpreted through its molar units. *Place* is the unit of this analysis. Place is more than a pure geographical location since this determines the interaction between space and people. This interaction has three dimensions: perceived physical attributes, activities and regulations at the given place and evaluations (affective components) (Dúll, 2009).

According to the person-environment theory there is a correlation between the behavioural patterns and specific environmental conditions (Dúll, 1998). As Gump (1990) points out, two persons behave more similarly on a given place than one person at two different places. Brigham (1991) explains this observation with the fact that the interaction between the individual and the environment entails an alignment between the individual's purposes and the environmental setup. The structure of the physical environment influences social interactions thus effecting the locals' coping strategies (Evans et al., 1996, in: Dúll, 2009). Places inhibiting interactions may cause the lack of interpersonal communication and alienation. The lack is such collective approach may mean an important obstacle of sustainable behaviour (eg.: sharing goods, responsible use of community goods). This can explain other cases whereby the same person follows different consumption and behavioural patterns at different places. It is however more important to study the influence of the given destination on arriving visitors' behaviour, whether this influence can cause changes and if yes, what reasons and directions stand behind this change.

The difference between environmental attitude and actual behaviour can further be explained with considering the *place and its related personal relationship*. Place researches assumed that care for a certain place is caused by the constant interaction with it (Tuan, 1977). Relph (1976) suggests that place can facilitate the sense of commitment and responsibility. Beyond emotional bond the thorough knowledge of the place increases the probability that the individual will demonstrate a protecting behaviour regarding the aforementioned place (Kals et al., 1999; Pooley and O'Connor, 2000).

Place as an environment of experiences, social connections, emotions and ideas has an important role in defining what taking care means (Tuan 1977). Place determines not only the physical location of a space but human actions, social and psychological processes happening there (Brandenburg and Carroll, 1995; Dúll, 2009). As a result, place is the location of space which the society or the individual associate with meaning and values (Halpenny, 2010).

A more specific definition of place leads to two approaches based on researches on geography and sociology (Lewicka, 2011). The classic interpretation (Relph, 1976; Tuan, 1977) suggests that place is a well-defined entity which is characterized with special identity and historical permanence. Beyond this, it gives the opportunity for pleasant recreation and for protection from dangerous and strange outer world. On the contrary, liberal approach reflecting the global world states that place is a crossroad or meeting point that enables interaction (Milligan, 1998 in: Lewicka, 2011) and cultural diversity (Massey, 2004 in: Lewicka, 2011).

Various definitions of place are caused by the diverse and multidisciplinary examination of its related phenomenon. The interaction between the individual and the meaningful environment is discussed in environmental and community psychology, sociology, cultural anthropology, gerontology, social geography, urban science, ecology and economics. Due to its importance, this topic also appears in architecture and urban planning, and also in the relationship between tourism and recreation (Lewicka, 2011).

As a consequence of different researches this topic entails several inconsistent approaches. Several researches has focused on the clarification and on setting up a common theory base since 1990 (Lalli, 1992; Giuliani and Feldman, 1993; Giuliani, 2003; Farnum et al., 2005; Trentelman, 2009; Scannell and Gifford, 2010b; Lewicka, 2011). Hereinafter I will discuss the definition and theoretical background of place attachment as an interaction between the individual and his important environment on the basis of the PPP (Person-Process-Place) tripartite model of Scannel and Gifford (2010b).

5.5.1. The tripartite model of place attachment

Place attachment refers to a positive emotional bond between an individual and a particular place (Low and Altman, 1992). The term has become a focus of interest for the past forty years (Sennett, 2000; Scannell and Gifford, 2010b). The following changes are standing behind place attachment: globalization, increasing mobility, threats to the beloved environment, losing cultural attributes (Relph, 1976; Sennett, 2000). Place attachment is also put into the focus when other phenomena are examined. Place attachment positively influences the visitations to public places and national parks (Kyle et al., 2005; Moore and Graefe, 1994; Williams and Stewart, 1998; Scannell and Gifford, 2010b). Place attachment is also expressed in the pain and sense of loss that victims of disasters experienced and in the process of moving or losing home (Billig, 2006; Guest and Lee, 1983). The associated relationship between place attachment, environmental risk perception and environmental attitude contributes to the explanation of pro-environmental behaviour, too (Kyle et al., 2004a; Nordenstam, 1994; Vorkinn and Riese, 2001; Stedman, 2002).

The comprehensive explanation of place attachment in context of philosophy does not seem to be consistent. The different approaches are summarized in Table 4.

Definitions	**Representatives**
Place attachment is a multi-dimensional concept describing the bond between the individual and the important places	Giuliani and Feldman (1993) Low and Altman (1992)
Place means a universal emotional bond that meets humans' basic needs.	Relph (1976) Tuan (1974)
Place may include more sub-concepts such as place identity, place attachment and place dependence.	Jorgensen and Stedman (2006)
Place is an ancient bond creating the sense of belonging and the desire to staying there.	Hay (1998)
A bond on the level of city, home and neighbourhood.	Kasarda and Janowitz (1974)
Place attachment is a bond determined by social factors.	Woldoff (2002)
Place attachment is a bond determined by physical factors.	Stokols and Shumaker (1981)
Place attachment is a bond determined by social and physical factors.	Riger and Lavrakas (1981)

Table 4: Definitions of place attachment
Source: own elaboration based on Scannell and Gifford (2010b)

Research directions relating to the different definitions indicate the broadening of the theoretical background of this area. Scannell and Gifford (2010b) suggested a three-dimensional theoretical framework to channel certain trends into structure and synthesis. According to their model, place attachment is a multidimensional concept including the dimensions of person, place and process (See Figure 9.).

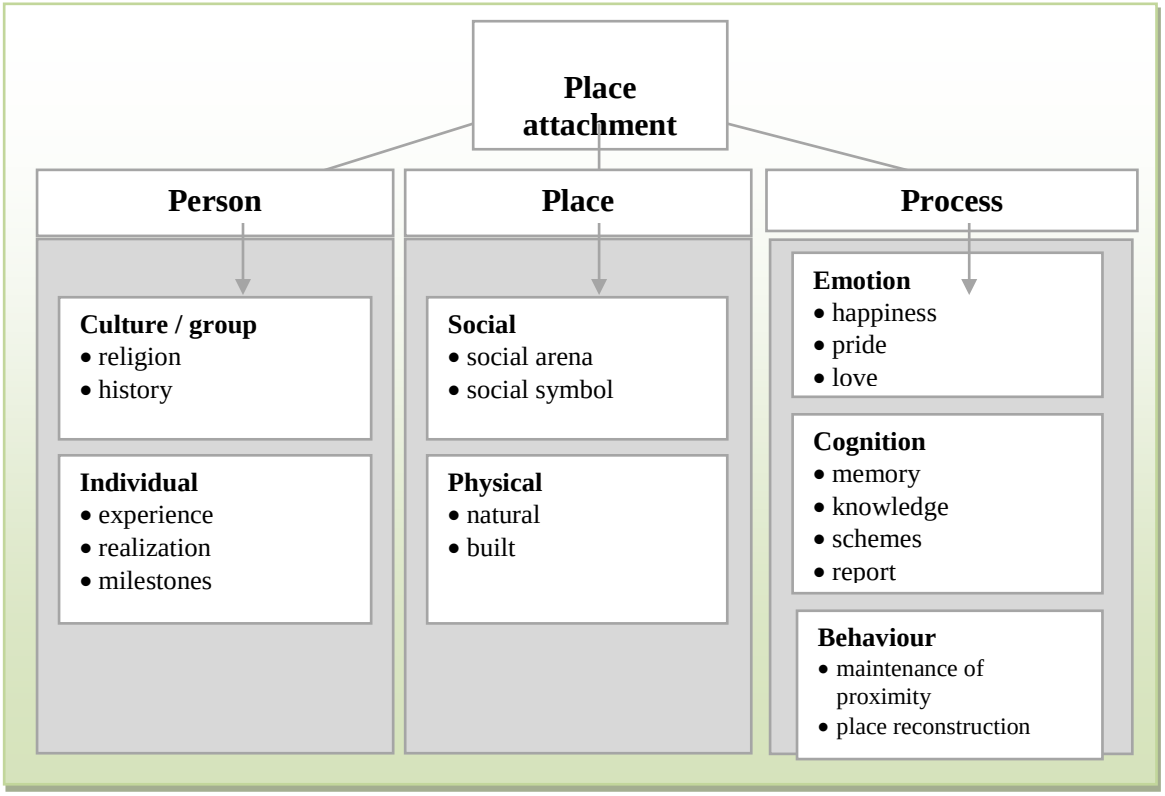

Figure 9: The tripartite model of place attachment
Source: Scannel and Gifford (2010b, p. 2.)

The first dimension of the model is the person who is attached to a given place and refers to its individually or collectively determined meanings. In other words, the individual level is the relationship between the person and the place through events such as important experiences, satisfactions or milestones in the individual's life. In contrast, social level refers to the symbolic meaning of the place shared by others (Low and Altman, 1992). This is a starting point in studies on cultural, religious and gender differences.

By judging the overemphasis of individual differences Droseltis and Vignoles (2010) called the attention to the importance of the examination of attachment to different places. Examinations on place basically expressed two approaches by making distinction between *social* and *physical place attachment*. Social attachment expresses the sense of belonging or membership (eg.: friendship, family) and the emotional bond deriving from

common past, interests or concerns (Raymond et al., 2010). Several researches emphasized the social aspect of place attachment. Based on this, individuals attached to places which help them enhance their social integration and group identity. Place attachment at the same time can be traced back to the physical quality, characteristics of the place. This physical quality may reflect built (houses, streets, buildings, non-living internal spaces) or natural (lakes, parks, woods, mountains) attributes of the place (Scannell and Gifford, 2010b). Attachment to the physical attributes of a place may vary depending on the fact whether individual's attachment to an attribute relates to general place attachment or to a specific place. (Williams et al., 1992) brought an example to point out that the interchangeability of a given place may vary depending on the fact whether the individual is attached to the physical attributes (of a given wood) of a specific place or he/she is attached to physical characters (of a wild landscape) of places in general. Their results show that people who are attached to wild places in general more often visited other similar places.

Regarding the influence of physical attributes on place attachment Stedman (2003) notes that it is not merely the physical attributes that shape individuals' place attachment but more importantly it is what they symbolize. For instance, a developed environment represents community, whereas a less developed one represents the wild. This finding brought us back to the statement of Scannell and Gifford (2010b) whereby physical and social aspects of the place may overlap.

The third dimension of place attachment is the *psychological process*. This dimension aims to explain the psychological process along which the individual is attached to a given place. According to Scannell and Gifford (2010b) process dimension is built on three factors: affective, conative and cognitive components.

The most essential element of the relationship between a person and a place is *emotional attachment* which appears in the majority of place attachment definitions. The individual's emotions relating to a place may come in different forms: love, satisfaction, fear or hatred (Manzo, 2005). In spite of the fact that important places can be associated with negative feelings, the literature on place attachment mainly focus on positive emotions (Scannell and Gifford, 2010b; Halpenny, 2006).

The interaction between the individual and the place relies on *cognitive elements*. Such elements may include memories, beliefs, information or meaning related to a place. Along these elements, individuals give meanings to a certain place by making it part of their self. Scannell and Gifford (2010b) suggest the following explanation for this: individuals structure social information to be processed easily and to fit into the existing information in a coherent manner. These pieces of information are ordered into cognitions or schemes including subject or self related information and beliefs. Referring to the general place dependence theory by Stokolos and Shumaker (1981), the authors argue that in case of such attachments the scheme contains information that is common at places where the individual wishes to attach to. Favourite place therefore means a scheme comprising the knowledge and beliefs relating to that place and describing the individual's relationship with that special place. As a result, these cognitions form part of the self-concept.

The third process element is behaviour that is the attachment expressed through activities. Place attachment is a positive emotional relationship between a special place and a person which encourages the individual to stay nearby (Hidalgo and Hernandez, 2001). Place attachment therefore is associated with a behaviour that maintains proximity. The literature on homesickness shows that some individuals who have been absent from their homes for an extended period of time express a great desire to return to or visit the place (Riemer, 2000). This behaviour appears in different forms in case of the rebuilding of disaster areas. As Francavigila (1978 in: Scannell and Gifford, 2010b) noted in relation to the rebuilding of a destroyed area that although the reconstruction gave the community an opportunity to reorganize and avoid already existing problems, it was still restored based on the old structure.

In context of the place attachment related behaviour we have to point out that although there might be some overlapping with territorial behaviour they are different types of behaviour. While territorial behaviour is based on property and assumes control on the place, place attachment behaviours are an emotional relationship even without any control such as in case of community areas or sacred places. In addition, territorial behaviours include marking, personalization, aggression, and territorial defence, whereas place attachment behaviours include pilgrimages, social support, and place restoration (Scannell and Gifford, 2010b). In the following, the review of place attachment behaviours will be directed to the context of pro-environmental behaviour.

5.5.2. The interaction between place attachment and pro-environmental behaviour

In the study of the relationship between place attachment and human behaviour, Vaske and Kobrin (2001) observe a strong relationship between positive place attachment and environmentally responsible behaviour. The authors point out that the relationship between self and place identities influences behaviours ensuring the sustainability of the given location as well as pro-environmental behaviour in other areas. With regard to the latter, it should be noted that the spillorver effect is not clearly established and requires further research. We can however state that positive place attachment is in relationship with the individual's intention to participate in the protection of the place (Williams and Vaske, 2003).

The relationship between place attachment, behaviour and behavioural intention was founded in the literature on community attachment. Based on the research by Wakefield et al. (2001), those residents who had higher place attachment with their neighbourhood are more likely to participate in civil initiatives than those who have lower attachment. Mesch (1996) verifies the positive relationship stating that people with higher attachment to neighbours are more likely to take action against social or physical change of their environment. In their research on the same phenomenon, Sampson and Groves (1998) concluded that higher attachment to neighbours encouraged locals to create norms in accordance with the place and to support actions against criminality.

In the study of the relationship of residents with the local archipelago[15] Kaltenborn (1998) found three groups representing three levels of sense of place. After segmenting local residents, the author compared the environmental intentions of the groups by drawing up different scenarios on how their recreation decisions and pro-environmental behaviour may influence the archipelago. Based on his results, the extent of place attachment had an effect on residents' reactions on environmental effects. Stronger place attachment was associated with lower tolerance for increasing tourism and a higher concern about solving environmental issues.

[15] Femundsmarka National Park in Norway

Stedman (2002) studied the effect of place attachment on environmental behavioural intention and showed that place related, emotional and identity based attachments influence temporary and permanent residents in their commitment to place protecting behaviour. Walker and Chapman (2003) concluded that almost all environmental behavioural intentions were significantly influenced by place attachment.

Beyond the place of residence, Borrie and Roggenbuck (2001) in their study on care for the wilderness found that following the visitation to a national park, visitors had higher care for the environment than before the visit. Kyle et al. (2004b) in their study of recreationists concluded that place identity increased during hiking and this was associated with a more intense perception of negative environmental conditions. Halpenny (2010) examined the interaction between place attachment and pro-environmental behaviour in the context of national parks, and concluded that the attachment to a national park positively influenced both the park-related and the general pro-environmental behaviour.

6. PRELIMINARY RESEARCH STUDIES

A multi-stage preliminary study was conducted to support the final research phase. A qualitative methodology was used in the aim of facilitating the selection of measurement tools to be used in the final study and in the aim of outlining the research context. The objective was to gain a better understanding of the dimensionality and structure of place attachment as well as of appearing pro-environmental behaviours. As a next step, selected scales were tested. Halpenny's (2006) three-dimension place attachment, and park-specific pro-environmental behaviour scales were tested. Based the results, a small-sample survey was performed among university students to test and ameliorate scale items for clarity and final structure. In the following I will proceed to the presentation of each related study and the main conclusions thereof.

6.1. Qualitative examination of place attachment and pro-environmental behaviour

An exploratory qualitative study was undertaken with the aim of gaining deeper insight into place attachment and behaviour during the visit. The general research questions guiding this phase were:

(1) What are the main topics with relevance to the place of visit mentioned during the description of a holiday?

(2) What is the nature of the respondent's relationship with the place?
   a. Is the respondent attached to that place?
   b. If yes, how is this manifested?

(3) By which types of pro-environmental behaviour can respondents be characterized?
   a. What kinds of activities did appear in responses and how can they be categorized into groups?
   b. Are there any activities that are mentioned but are not typical of the respondent?

(4) Which types of environmentally harmful behaviour do characterize respondents?
   a. Do respondents provide justification for these behaviours; if yes, how?
   b. How can mentioned activities be categorized into groups?

6.1.1. Circumstances of the qualitative research

The qualitative study was conducted in the second quarter of 2011 among MA students of the Consumption Theory and Customer Behavior course. Participation in the study was voluntary, students were awarded extra points in class for participating in the study.

A total of 23 narratives were collected. Interviewees were between the ages of 23-25. In terms of gender breakdown, there were 15 female and 8 male respondents. 11 respondents indicated the capital, Budapest as their place of residence, 5 respondents indicated a county seat and 7 respondents other towns. No respondent selected villages or large villages as their place of residence.

6.1.2. Applied methodology

Narrative analysis was selected as the primary analytic framework for the research. Narrative as genre is present in literature and in life alike. It is none else than a chronologically structured story or tale (Szokolszky, 2004). The approach according to which narrative understanding is a fundamental form of human thinking appeared in the 1980s. Born of this view, the field of narrative psychology is based on the assumption that people construct meanings about themselves and the world by telling stories. Thus, narrative analysis is a text-based empirical form of research which focuses on the ways in which people make and use stories and how stories function (Szokolszky, 2004).

The application of this methodology was motivated by the criticism of question/answer-type interviews. According to the criticism, interviews influence the respondent from three aspects, namely: selected topics, order of questions, formulation of questions (expressed in words), thus rendering research result biased.

The method is based on the assumption that minimizing the role of the interviewer will allow the researcher to get access to a less influenced and more reliable picture from the respondent's perspective. The best possible tool to achieve this is a special manifestation of everyday communication, namely storytelling (Jovchelovitch and Bauer, 2000). Based on the above, respondents were asked to *tell the story of a vacation that was particularly determining to them mostly because of the particular place they visited*. Since the presentation of the core topic of a narrative interview significantly affects the interviewee's successfully achieving the given task, the guidelines by Jovchelovitch and Bauer (2000) were followed during the formulation of the study's question (See Table 5).

Guidelines	Lessons for the focal topic
Informants should have some experience in the initial topic. • This can ensure informants' motivation to share their stories in detail.	General context of tourism context, without further thematic • The broad scope of available destinations allows the interviewee to tell a story that they can genuinely fill with a lot of memories and experience.
The initial topic must be of personal and of social or communal significance	• Going on holiday as the most common form of leisure travel
Informant's interest and investment in the topic should not be mentioned • This would lead them to take an initial position during their storytelling	• Informants are asked to recall the most determining vacation in terms of the location rather than the most visited place
The theme should cover a broad scope to allow the informant to develop a long story	• The story telling of the holiday was narrowed down to the most decisive place so that place specific factors could come out. No further limitations were applied, providing further details is within respondents' discretion.
No further limitations were applied, providing further details is within respondents' discretion.	• The central theme did not provided guidance relating to dates, specific places or travel mates or other company.

Table 5: Formulation of the focal topic
Source: own elaboration

Concerning the types of stories, the research relied on personal stories that the students shared in writing. In order to receive a detailed story, respondents were instructed as follows: *as for a good talk, a story should have no limits, we ask you to write in a manner and as much as you please.* The given task's formatting served the same purpose: respondents were provided a given space to write their story (See Annex 3). The given area visually supported the instruction to tell the story more in detail. Since interviewees received the task in an electronic format, they had not limitations in terms of length. The steps of the data collections are summarized in Table 6.

Decision points	Choice
Defining types of stories	Personal story
Identifying the source of stories	Corvinus University of Budapest, MA students in Marketing
Choosing the context of the stories	Interview
Triggering story telling	Reminder, designated volume of text
Collecting stories	In writing, in form of an essay

Table 6: Process of the analysis of the narratives
Source: Own editing based on Czarniaswska (2004, p. 15. in: Mitev, 2008)

Responses were processed with a thematic analysis using Atlas Ti 5.2 software. As a first step, whole paragraphs were evaluated with some summary sentences. These sentences were then broken down into keywords. Following the thematic breakdown a classification system was set up to code each interview. For doing so, each interview was categorized individually. The resulting categories were further classified into a coherent and comprehensive system of categories which was capable of handling all the interviews.

6.1.3. Results of the content analysis

Most stories were characterized by two main structural units. In a first stance, respondents reported on the context of their journey, followed by a detailed account of their holiday experience.

In the course of defining the *context*, respondents mentioned the date and place of the holiday and pointed out the reasons why they chose to write about that particular journey. In addition, the means of travel, the route and the travel mates were also introduced.

The majority of the stories were linked to European locations. Two respondents reported about oversees journeys, namely in to the USA and Mexico. While the former was a family visit, the latter one referred to an adventure shared by friends. Within Europe, most respondents mentioned Croatia and Montenegro and popular metropolises such as Barcelona, Paris, Amsterdam or Prague. Popular holiday resorts (Corfu, Crete, Mallorca) constituted another category of memorable locations indicated domestic places: Kunfehértó (a village in Bács-Kiskun county, in the Southern Great Plain region of Hungary), as a childhood holiday place and Szigetköz (an island bordered by the Danube and its branches in North-Western Hungary). Responses also mentioned Greece, Italy, Poland and Transcarpathia (or Carpathian Ruthenia, a historical region of Hungary, now Zakarpattia Oblast, the westernmost oblast or province of Ukraine). Regarding the listed places we can state the respondents did not think in reduced geographical units, they rather shared their experiences based on a country level.

Respondents mainly selected journeys within the past five years. Only four of them reported experiences dating back to childhood or teenage memories. Some of these

experiences were reward travels after final exams in secondary school, while others related to family memories.

Respondents mentioned no travelling alone. Most of them visited the chosen place with family members. This was followed by travels with friends and companions.

Visits were mainly motivated by the need for attractive beach environment but cultural, historical and natural journeys were equally mentioned. As for the means of travel, road and air transportation represented more or less the same proportion.

After laying down the context, interviewees *detailed their experiences*. The most frequent topics were the lifestyle of and the relationship with the locals. Each respondent reported their experiences positively with local service providers and residents, they often admired the lifestyle they encountered during their visit.

"It was amazing when we spotted a small snack bar at the edge of the island where we were offered grilled lunch. Snack bar could be a bit of an exaggeration since this place was operated by two people only, mainly as a hobby. They had a maximum of 10-20 guests every day so they spent much of their time surfing." (male, capital)

In addition to the relationship with locals, experiences relating to natural or built environment (nice beaches, liveable cities) and gastronomic adventures were also emphasized. In this regard exploration and learning new things played the major role.

"Since I favour Mediterranean taste, I particularly enjoyed local seafood specialities, fruits and vegetables. I am an adventurous type of person both in terms of gastronomy and leisure activities." (female, capital)

Finally, shopping and entertainment facilities should also be mentioned as factors influencing travel experiences. Several respondents emphasized their habit of buying food and souvenirs from locals.

Following the thematic breakdown of the stories we examined the main categories appearing within the texts. In addition to place related experiences, we also included pro-environmental and harmful activities into the analysis.

In the context of the place, the following four categories were identified which later served as a basis for codes: location, characteristics of the place, frequency of visit and the relationship with the place.

Location was examined as the distance between the selected place and the place of residence. The mentioned places were mostly European destinations accessible via road or air transport. The distance from the place of residence was big enough not to treat those places as targets of frequent visits. Only one exception was mentioned where the mentioned place was the grandparents' cottage.

Visited places in many cases shaped the intention to maintain proximity (to be able to spend more time there, the most often possible. This was reflected in the sense of longing and the desire to permanently return.

"People, food, drinks, climate and the atmosphere left their own mark on me forever and I always long to be there." (female, capital)

"I simply fell in love with this city and I came home with a desire to go back and live there for a while" (female, city)

Characteristics of the place

The next category refers to the characteristics of the destination in terms of physical, social and cultural features. During the description of the physical environment respondents put more emphasis on the natural environment than on the built one. Several respondents mentioned architectural landmarks of the visited cities but these experiences were never detailed as much as those related to nature.

"...I felt to have been brought back to the pure nature of sea, mountains, sunshine and trees (female, capital)

The attachment to the natural settings of the place was associated with the sense of leaving behind-arrival, deliberation and wondering. The sense of fear also appeared. As an interviewee mentioned, during their hike they were overtaken by a storm and the realization that they had nowhere to escape from the lightning frightened them. Besides this memory, the relationship with nature was always associated with positive experiences.

As for the built environment, symbolic buildings and urban structure played a greater role such as the stadium of the favourite team or houses of literary experiences, churches.

We visited Nou Camp, the stadium of Barca. The visit of my favourite team's stadium was incredible.... The Barca Museum was also part of our programme so I had a chance to learn about the history and present of the team. (male, county seat)

"The whole city feels like being in the Lord of Rings." Houses were built into the slopes and peaks were hardly seen due to the humidity.... The main square was amazing with full of silver stores and a wonderful church." (male, city)

Besides this example there were no other longer description on built environment. Examining these two examples in more details, in the first case we can highlight the cohesion power of the building, the common meaning, while the latter case may entail the accordance with nature.

Finally, we should mention the depth of experiencing the place. Respondents recalled unforgettable memories in relation to the visited destination however it did not mean a milestone in their lives. No story in the sample expressly mentioned the expansion of one's individual capabilities or the revelation of deeper contexts.

Frequency of visitations

Apart from two cases, respondents were first time visitors and did not show attachment to the place. However these two outlier cases provide interesting insights for our research. The first case referred to a repeated visit of the destination while the second case reported a regular relationship with the place.

"We so much liked this small city so we decided to go there next time." (female, city)

The respondent explained their second visit with the special features of the place such as the gradually deepening sea which was an important factor for his/her family. The interviewee also mentioned place related leisure activities. In this case place attachment was caused by the functional feature of the place which could be related to place dependence. We should also highlight that good relationship with the host had an influence on returning back thus a slight social attachment also played role in the decision.

In case of returning visits, family related childhood experiences meant the basis of the relationship. The role of childhood memories in fostering place attachment later appeared in the narratives of pro-environmental consumers and people committed to sustainability (Hofmeister-Tóth et al., 2012).

"When I was a little child my grandmother used to take me to the cottage for weeks and while grandma was making the meal or working in the garden, we, children, built a shelter from the wood and fought with the guy next door. We used to bath in the lake, played with our water guns with children of the family and we built mud castles on the lake beach. We used to wander a lot in the wood and screamed about the tack weed sticking into our feet. Well, of course we left our proper shoes at home." (female, county seat)

The interviewee also reported that her cottage related experiences were reshaped as time went on, instead of the family and nature related programs entertainment with friends became more important.

"When I got older, I visited the cottage with my friends and instead of playing we rather focused on parties and entertainment. Nowadays I only see the edge of the wood." (female, county seat)

Relationship with the place

Functional attachment appeared in many cases during place visitation. Selected places had such features that offered recreational activities. The role of place in identity and the feelings in relation to the place were left unsaid. We rarely found a few references to emotions or content relating to identity.

"For me it was a delightful experience to visit Verecke Pass for its historical importance. The beautiful landscape was just an addition." (male, county seat)

"I simply fell in love with with this city." (female, city)

The relationship with the place was most intensively manifested in the description of respondents' relationships with the locals. This sometimes led to the identification with them. Identification with the place could be observed at a social level rather than at a physical level.

"It is easy to get good experiences if you try to identify with the locals and you try to imagine how they live." (female, city)

Scope of environment damaging behaviours

We also asked about those behaviours which the respondent considered to be harmful for the given place. Responses followed two patterns. They either stated that they did not behave like that, or at least not intentionally, or listed those activities that could be harmful to the environment. These activities were the following: means of travel (air-plane, car renting), handling packaging when shopping (accepting bags, over packaging, throwing out recycle glasses) and the indifference towards the improper behaviour of the locals. An interviewee mentioned in connection with the USA that simply following locals' lifestyle is already an environmentally harmful activity.

"I believe that the huge portions in restaurants and the unnecessary packaging can cause damage to the place in the United States. Their lavish lifestyle can contribute to damage of that place which unfortunately I was part of." (male, capital)

The emotions relating to a place were a bit neglected when sharing experiences and were emphasized in case of a threat to the place. All of these were associated with the intention to protect the place. It should be noted the in such cases no mention of any proactive action was observed

"I did not do anything harmful to the place since I admired and respected the attractions. I believe it is important to protect such beautiful places." (female, city)

Pro-environmental behaviour at the place

Respondents demonstrated a general approach to act according to the expectations of the place and no further efforts were made to protect the environment.

"I don't really know if besides avoiding bad behaviour what else I can do to protect the environment." (female, capital)

"I did not make extra efforts but this is exactly why I like this area and local people that if we lived as they do, we would not need to make efforts afterwards just enjoy the balance on its own." (female, capital)

Provided that an active involvement appeared, it was realized mainly in physical activities associated with less effort.

If a bag was swimming in the water we would pick it and throw it in a dustbin." (female, capital)

Respondents listed the following types of pro-environmental behaviours: transport (public transport, biking, walking), preservation of nature and was management (avoiding littering, selective waste collection). Buying local products, rejecting irresponsible service providers (for example the coachman ignoring the capacity of the horse) and following the pro-environmental programme of the accommodation were also mentioned.

6.1.4. Conclusions on narrative interviews

As a summary of the interviews we can conclude that the relationship with the place appeared both at social and physical levels in accordance with the approach of Riger and Lavrakas (1981). After the comparison of the results with the PPP model of Scannel egy Giffod (2010b) we found that the person, the place and the process sub-dimensions also appeared in the narratives although with different emphases. Not surprisingly place was described in the most detailed manner. This can be caused by the nature of the task since interviewees had to report their most memorable holiday.

Concerning the description of the place, both social and physical aspects appeared. Social factors were brought by examples such as the emotional attachment to a city hosting the favourite sports team or the identification with local youth. As far as physical factors are concerned we can state that the natural settings were a bit more detailed than the built environment.

Concerning the individual level of person sub-dimension we can give two examples: the possibility of the visitation of the place especially in case of overseas destinations and the situation when the travel was a reward for the respondent (such as a family trip to a desired place after the final exams). Social level was mentioned by explaining symbolic meanings.

The sub-dimension of place attachment process consists of affective, conative and cognitive elements. These factors were identified in the interviews. Emotions - according to the literature - entailed positive feelings. The conative factor was mainly associated with the intention to return or preserve. The conative element appeared in form of preserved and outstanding memories and information.

Apart from the factors of the PPP model, we might also highlight the location and the frequency of visitations. These two factors however do not exceed the model provided that we accept that the frequency of visitations is in correlation with the maintenance of proximity, particularly with the conative element, and location also plays role in shaping this correlation.As a step forward to the scope of pro-environmental and harmful behaviours we found that the appearing actions were limited to the level of physical and financial activities based on the breakdown of Smith-Sebasto (1992a) (cf. Chapter 7.4.2.). Such behaviours that would require a more active involvement or more efforts did not appear in the context of the visited place. Main topics of the interviews are summarized in Figure 10.

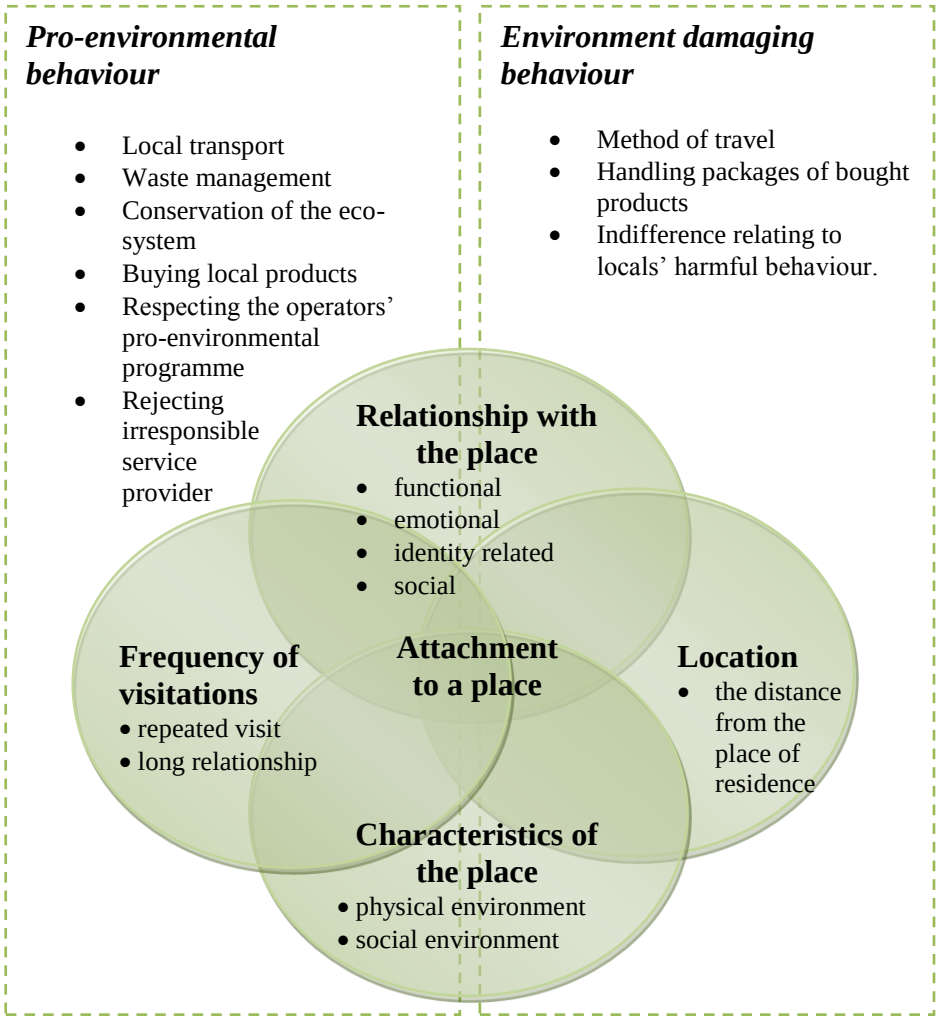

Figure 10: Summary of the results of narrative interviews
Source: own elaboration

I would like to conclude with an interviewee's opinion which well reflects the ambiguity of the responsibility for the place of residence–visited place.

"For me it is more important to protect the environment where I live than other places. If we are doing well at local level, we can move on to other areas." (female, city)

This ambiguity also appeared in our previous similar research (Kelemen et al., 2010).

6.2. Quantitative examination of place attachment and pro-environmental behaviour

To test the scales to be applied during the research a preliminary student survey was conducted in the fourth quarter of 2011. The objective of this study was to apply place attachment and pro-environmental behaviour scales to the focal research topic and to perform a reliability test thereof.

Completing the questionnaires was made on a voluntary basis, responses beyond the obligatory performance were honoured with credit points. Altogether we received 298 answers. After data cleaning 254 responses were analysed. Taking the guidelines of Tinsley and Tinsley (1987) into consideration, whereby at least five respondents per item are needed to perform factor analysis properly, this quantity proved to be sufficient for scale testing.

6.2.1. Testing place attachment scale

For measuring place attachment I applied the 16-item scale of Halpenny (2006) (see Annex 4) which measures place dependence with four items, place identity with six items and the place affect with six items. Respondents gave their answers in context of their favourite national park or conservation area. Scale items were assessed using a 5-point Likert scale (1 = "not at all true of me"; 5 = "very true of me").

Based on the results, items measuring emotions were given the highest scores. Four out of the five items having the highest average score referred to place affect, this was followed by items measuring identity and dependence in a mixed order (see Annex 5).

In order to prove the three-dimensional construct determined by the theory I completed an a priory factor analysis with principal component analysis and varimax rotation.

In case of the three-factor solution, the third factor had an own value of 0.858 so I move on to examining the two-factor solution. In this factor structure two items did not reach the desired value of 0.5, so I excluded them based on the guidelines of (Hair et al., 2006). Then I used the two factors to check items representing significant overlapping (>0.35). As a result, I excluded three further items (sense of self at the place, strong identification with the place, sense of happiness at the place). The two-dimensional model accounted for 62.98% of the total variance. Based on the 0.926 value of KMO test and the Bartlett test ($p<0.001$) the result can be accepted.

Dimensions*	Items	Component	
		1	2
PD	XXX National Park is the best place for what I like to do.	0.821	0.183
PA	XXX National Park is my favourite place to be.	0.817	0.201
PA	I really miss XXX National Park when I am away too long.	0.789	0.277
PD	I get more satisfaction out of visiting XXX National Park than any other parks.	0.777	0.292
PI	Visiting XXX national park. says a lot about who I am	0.772	0.047
PI	I feel XXX National Park is part of me.	0.765	0.23
PI	When I visit XXX National Park, others see me the way I want them to see me.	0.649	0.23
PD	The things I do at XXX National Park I would enjoy doing just as much at a similar site.	0.644	0.164
PD	I wouldn't substitute any other area for doing the types of things I do at XXX National Park.	0.643	0.193
PA	I feel relaxed when I am in XXX National Park.	0.15	0.875
PA	I feel strong, positive feelings for XXX National Park	0.279	0.809

Table 7: Results of the a priori factor analysis regarding the place attachment scale
*PD= place dependence; PA= place affect; PI= place identity
(N=256)
Source: Own elaboration

During the examination of the scales, the expected three sub-dimensions did not appear in the sample. According to the two-factor structure, the items of certain sub-dimensions were organized in the first factor in a mixed order, whereas the second factor consisted

of the item measuring two emotions. These results may have partially been caused by the translation of the items into Hungarian and partially by the special features of the sample.

6.2.2. The examination of pro-environment behavioural intention scale

Park-specific pro-environmental behavioural intentions were measured with Halpenny's (2006) 12-item scale. Respondents were asked to evaluate how likely they will carry out the given activity in the forthcoming twelve months. The values of the scale items were evaluated by using a 5-point Likert-scale where 1 meant "extremely unlikely" and 5 meant " extremely likely".

Based on the results respondents reported an intention weaker than medium in case of most items (See Annex 6). The following activities meant exceptions: support of petitions, pick up litter left by others, encourage others to reduce waste and the gain more knowledge in this field. These are all general, low effort but socially highly expected activities. Environmental activism (community activism, correspondence) was the least typical type of activity. In summary, high effort activities consistently received lower scores.

Items (see also Table 19) were determined based on the generality and the degree of difficulty of activities. I applied a multidimensional scaling to examine how the items are categorized in the sample. MDS (Multidimensional Scaling) is a mathematical statistical process for testing data structure and for visually displaying differences between the data. Objects appear as points of the status space in the scaling models where similar objects get closer to each other (Füstös et al., 2004). The model allows to get a spatial figure which contains the geometrical shape of the variables and helps to explore the linking system of data (Füstös et al., 2004).

I applied ALSCAL process to determine the two-dimensional model. The goodness of fit index of this model (Stress=0.0444; RSQ=0.992) is sufficient based on the stress value and the model accounts for 99.2% of the total variance of the 12 variables involved in the analysis. The results show that the first dimension was the degree of speciality of the activity and the second dimension was the degree of difficulty.

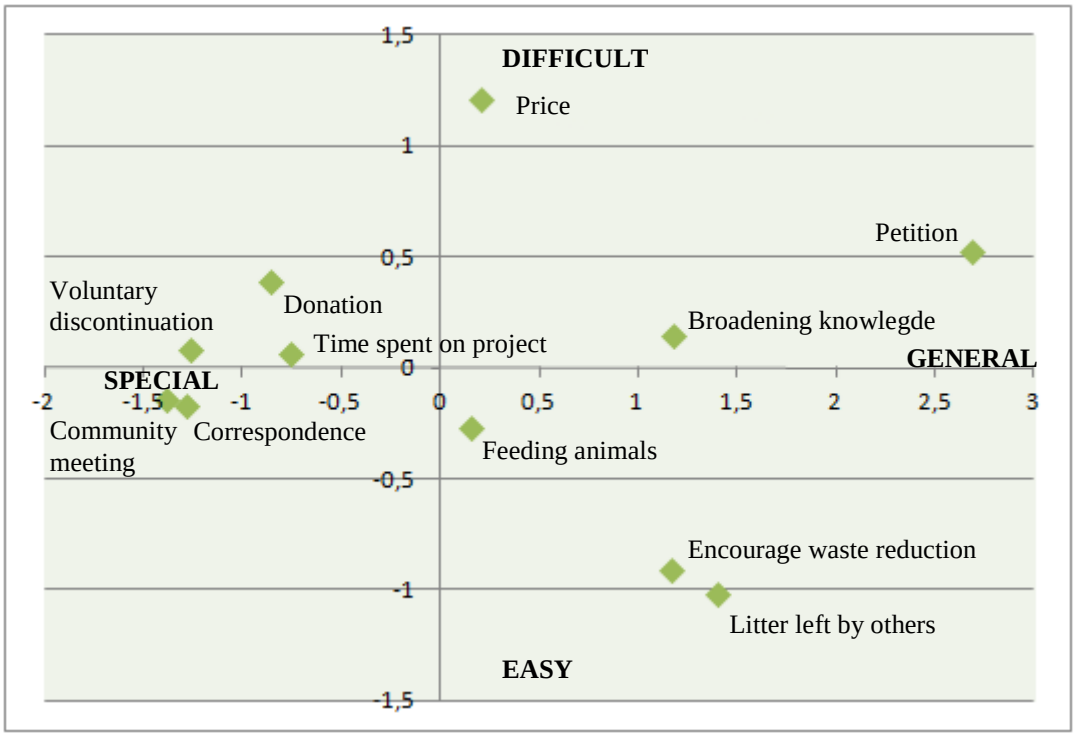

Figure 11: Euclidean distance model: speciality – difficulty
(N=256)
Source: own elaboration

The results showed several differences compared to the original categorisation of the items. The most salient difference was the expansion of the scope of special activities such as donation (categorised as general/easy), writing letters (general/difficult), participation in community meetings (general/difficult), time spent on the project, voluntary discontinuation and reduction of visitations of the park. There were differences based on the level of difficulty. Broadening knowledge, donation, voluntary discontinuation and limitation were categorized as more difficult activities while the writing letters originally categorised as difficult was re-considered as easy but special behaviour. Any further item was placed according to its category.

The main reason for the listed differences are linked to cultural differences. Several activities do not have such tradition in Hungary than in Canada where the scale was developed and this fact naturally entails differences in the evaluation. Another potential reason could be its incorrect translation. After a careful examination of the items, I decided to re-word the translation of three items (voluntary discontinuation, limitation, community meeting) to be make them more accurate and understandable.

Following the aforementioned categorisation of the items I carried out an a priori factor analysis to confirm the two-factor construct whereby I applied principal component analysis with varimax rotation. The factor weigh of the items, except for the price, reached the value of 0.5 in this factor structure (Hair et al., 2006). Higher entry price had a value above 0.4 on both factors so I excluded this item from further analyses. Then I identified an item (writing support letters) which showed significant overlapping with two factors (>0.35). This item was also ignored.

Such two-factor model (see Annex 7) accounted for 58.37% of the total variance. Based on the 0.835 value of KMO test and the Bartlett test ($p<0.001$) the result can be accepted.

Afterwards I examined scale reliability. As a first step I determined the item-total correlation. Results always exceeded the value of 0.3.

Scale items	Mean if deleted	Item-total correlation	Alpha if item deleted
Low effort park-specific pro-environmental behavioural intentions (α=, 735, 5 items)			
Pick up litter at XXX National Park left by other visitors.	11.12	0.494	0.691
Tell my friends not to feed the animals in XXX National Park or similar parks	11.71	0.482	0.695
Sign petitions in support of XXX National Park and similar protected areas.	10.67	0.418	0.723
Learn more about the natural settings of XXX National Park.	11.25	0.508	0.686
Encourage others to reduce their waste and pick up their litter when they are in XXX National Park.	11.20	0.594	0.650
High effort park-specific pro-environmental behavioural intentions (α=, 868, 5 items)			
Volunteer my time to projects that help XXX National Park or similar parks and nature areas.	6.29	0.716	0.835
Participate in a public meetings about managing XXX National Park.	6.63	0.665	0.851
Volunteer to stop visiting a favourite spot in XXX Park if it needs recover from environmental damage.	6.43	0.767	0.821
Volunteer to reduce my use of a favourite spot in XXX Park if it needs recover from environmental damage.	6.45	0.753	0.825
Contribute donations to ensure protection of places like XXX Park.	6.32	0.590	0.868

Table 8: Internal consistency of park-specific pro-environmental behavioural scale
(N=256)
Source: own elaboration

This was followed by the determination of Crombach-alfa values of the sub-scales which were above 0.7 in both cases (see Table 8), thus they proved to be sufficient (Hair et al., 2010).

6.2.3. Conclusions of scale testing

I concluded the testing of the place attachment scale as follows:

1. It is advisable to test further scales besides the place attachment scale of Halpenny (2006). The appearance of social attachment sub-dimension is an aspect of the selection of the proper scale. Social attachment like emotional attachment is a less examined sub-dimension of place attachment. However, more empirical research confirmed the importance of this sub-dimension (Brocato, 2006; Raymond et al., 2010; Kyle et al., 2005; Ramkissoon et al., 2013) and our own qualitative research resulted in similar findings. The measurement of sub-dimensions with at least three items is an important aspect in meeting the criteria of future research methodology (Hair et al., 2010).
2. The accurate adaptation of the translation of the selected scale requires two exports in addition to the translation of items from English into Hungarian and then from Hungarian into English.

The pro-environmental behaviour scale performed well, its further use in the research was justified, although I considered it necessary to involve two exports in the translation of scale items.

Based on this, a comprehensive classification and evaluation of the place attachment scales were carried out (see Chapter 7.4.3). The four-sub-dimension scale selected this way (Ramkissoon et al., 2013) was examined in 2013 among students in frame of a quantitative survey of small sample size. I received 74 responses, out of which 5 respondents did not evaluate place attachment scale items. The objective of the current stage of research, in addition to the examination of alternative place attachment was primarily to check the questionnaire structure and to map tools helping to complete the questionnaire. I asked the students to indicate if the completion of the questionnaire requires further explanation or visual support at any point. In this stage I checked the final translation of the scales and involved a linguist and an expert from the national park auditing organization. Comments in the questionnaire can be summarized as follows:

(1) scale items proved to be clear, understandable
(2) the structure of the questionnaire proved to be clear,
(3) completing the questionnaire was facilitated by a map indicating the location of national parks

The averages and the standard deviations of place attachment scale, as well as the reliability statistics are summarized in Annex 8. In summary, the use of the present scale was decided instead of Halpenny's (2006) scale presented beforehand, which was also supported by the results of the preliminary qualitative research.

7. EMPIRICAL RESEARCH

7.1. Objective of the research

The central purpose of this study is to examine the relationship between an individual's place attachment and pro-environmental behavioural intentions as well as to have a deeper understanding of the connections between variables. The analysis of factors enhancing place attachment including park visitation characteristics and park relationship variables also forms part of the research. In order to clarify my research, the following research questions were formulated:

(1) What is the extent of place attachment regarding visitors of the domestic national parks in the sample?

(2) How to describe the pro-environmental activities and behavioural patterns related to the national parks in question?

(3) What differences can be identified between pro-environmental behaviours in national parks and at the place of residence?

(4) What is the effect of place attachment on pro-environmental behavioural intentions in the context of national parks?

(5) How do high and low effort behaviours interact with each other? Which behavioural type can be used to describe the effect of place attachment?

(6) To what extent can certain visitation patterns, relationship and socio-demographic variables predict place attachment?

7.2. Sample and sampling

I examined the relationship between place attachment and pro-environmental behavioural intentions in context of the Hungarian visitors of domestic national parks. Unlike the practice of preliminary researches on this subject (Ramkissoon et al., 2013; Halpenny, 2006) the sample examines the visitors of several domestic national parks at the same time and it does focus on one particular national park only. My decision was caused by my intention to study place attachment in a diverse spectrum thus my results could be of more general use. Ten Hungarian national parks of different characteristics allowed me to carry out such research. This is detailed in Annex 9.

Due to the number of venues to be studied, the data collection was carried out in the form of an on-line survey (CAWI). The reason for such on-line survey was also the fact that the respondents had a chance to answer it at the most convenient time. This also increased the chance to get a fully completed questionnaire.

A sample size of 300 was determined following various guidelines on research objective feasibility (for a detailed description, see the description of measurement model validation – p. 126.). As a first step of data cleansing, respondents providing the same answer for all questions were excluded, thus reducing the sample size to 264. For the purpose of structural equations modelling, an outlier detection of was conducted Mahalanobis distance calculation using AMOS 22.0 software (Weiber and Mühlhaus, 2010). The final sample size applied in the correlation analysis was 240. This number is sufficient for structural equation modelling where Hair et al. (2010) determined the expected minimum sample size to be 200.

When selecting the date of data collection my primary objective was that the respondents should have recent experiences, it should be easy for them to recall the details of their visitations. I tried to find a date that is particularly typical regarding the visitations of national parks. Therefore I decided on the week of national parks.[16] The data collection was carried out between June 17-28, 2015.

[16]The Week of Hungarian National Parks was organized between June 12-21, 2015. During this period, national parks offered a wide range of programs to visitors interested in nature related experiences. The opening weekend of the event was hosted by Békéscsaba between June 12-14.

The electronic survey was forwarded by market research company NRC to its panel members.[17] The survey was carried out by an independent market research company in order to get a more objective research process. Invitees were sent to the representative population aged 15-69. A filter question was applied as a condition of participation. The survey involved all respondents who have visited any of the domestic national parks during the 12 months preceding the survey. Visual support was used to enhance the recalling of national parks whereby respondents could use a map to recall the location of the national parks (see Annex 10).

The questionnaire consisted of 34 questions, 15 of which referred to demographical figures. The survey required approximately 15-20 minutes. Questions equally covered the relationship with the place of residence and the pro-environmental behaviour there (K1-K6 questions). The research, however, was focused on unveiling visitation patterns of national parks, the quality of the relationship with the parks, and the tendencies of park specific pro-environmental behaviour (questions K7-K19).

Certain elements of place attachment and park specific behavioural intention scales appeared in a randomized manner in front of the respondents. Some questions of the questionnaire were obligatory to answer (place attachment, pro-environmental behaviour and behavioural intention in national parks). This helped me to avoid missing data of the scales concerned. In case of pro-environmental behaviour relating to the place of residence, I corrected the distortive effect of the binding response (in accordance with the suggested use of the scale) with adding the option of "not relevant to me". This was not required in case of national parks since the given activity should be evaluated whether it is carried out by the respondent or not. The structure of the questionnaire is shown in Annex 11.

In case of ethical issues of the research I followed the guidelines of Singleton et al. (1993) who recommend to inform the participants of the research about the circumstances, objectives and confidentiality of the research. Misleading respondents or causing any

[17]The NRC establishes its base research sample with regular mail shots by using layered random sampling of people in the NetPanel system containing more than 227,000 people. According to international standards, the sample was established based on 5 major demographical features (gender, age, education, type of place, region).

damage to them should also be avoided. Research participants were panel members of NRC [18]who were allowed to decide on their participation based on the information in their invitation letter. Respondents were informed about the research objective and confidentiality in the questionnaire. Completing the whole questionnaire meant the confirmation of the intention to participate in the research. Respondents participated in a draw by completing the questionnaire, no individual award was given to them.

Research sample

The sample size was 264 after the first step of data cleaning. The sample with the demographical attributes is shown in Table 9. The sample cannot be deemed to be representative either in terms of the Hungarian population or in terms of the visitors visiting Hungarian national parks, however it clearly reflects the scope of visitors visiting domestic national parks in the year preceding the study. Compared to the figures of the population census in 2011 (KSH, 2013), the proportion of older age group (60-69) and higher education (particularly people having degree) in the sample was higher than the national average.

The composition of the sample by genders is balanced, the proportion of men (49.6%) and women (50.4) are nearly the same. This ratio is different from the preliminary research in domestic national parks, whereby women's responsiveness was typically higher (2013: women: 60.6% male 37.6%; 2012: female: 53.8%, male: 42.9%) (Ministry of Agriculture and Pannon University, 2015; Ministry of Rural Development and Pannon University, 2012).

[18]NetPanel is a website audited by PPOS and ensures that personal data of panel members are handled in compliance with the laws and with the highest confidentiality.

		Sample size	Percentage distribution	Summarized percentage distribution
GENDER N=264	male	131	49.6	49.6
	female	133	50.4	100.0
AGE N=264	15-29	26	9.8	9.8
	30-39	48	18.2	28.0
	40-49	54	20.5	48.5
	50-59	48	18.2	66.7
	60-69	88	33.3	100.0
EDUCATIONAL ATTAINMENT N=264	Completed primary school	4	1.5	1.5
	Completed vocational school	32	12.1	13.6
	Final exams (completed secondary school)	94	35.6	49.2
	Bachelor degree	75	28.4	77.7
	Master degree	59	22.3	100.0
PLACE - TYPE N=264	Budapest	45	17.0	17.0
	city	140	53.0	70.1
	village	79	29.9	100.0
REGION OF PLACE OF RESIDENCE N=264	Middle	80	30.3	30.3
	East	106	40.2	70.5
	West	78	29.5	100.0
FAMILY STATUS N=264	Single	29	11.0	11.0
	In a relationship but living separately	19	7.2	18.2
	Married or in a partnership	179	67.8	86.0
	Divorced	27	10.2	96.2
	Widow	10	3.8	100.0
NUMBER OF PEOPLE IN THE HOUSEHOLD N=264	1 person	39	14.8	14.8
	2 persons	103	39.0	53.8
	3 persons	53	20.1	73.9
	4 persons	45	17.0	90.9
	5 persons or more	24	9.1	100.0
PER CAPITA INCOME OF A HOUSEHOLD N=197	under HUF 100,000	28	10.6	10.6
	HUF 100,000 - 200,000	51	19.3	29.9
	HUF 200,001 - 300,000	53	20.1	50.0
	HUF 300,001 - 400,000	35	13.3	63.3
	above HUF 400,000	30	11.4	74.6
	I do not know/respond	67	25.4	100.0

Table 9: Whole sample broken down by demographical variables
N=264
Source: own elaboration

Respondents' age was between 16-69 with an average of 49.64 (SD=13.818). Respondents aged above 60 represent the higher proportion in the sample (33.3%) whereas younger age group represent 9.8%. The over-representation of the senior age group also appeared in Halpenny's study (2006) where silver group similarly represented a bigger proportion. The average age of the respondents in a Canadian research was 52.83 (SD=13.8). On the contrary, Ramkissoon et al. (2013) concluded the opposite result, his sample showed younger age group in a higher proportion, more than half of the respondents were below 35. In a research on national parks commissioned by the Ministry of Agriculture in 2013 it was also the younger age group representing bigger proportion (0-14: 8.5%; year 15-34: 29.9%; year 35-54: 41.1%; above 55: 16%) (Ministry of Agriculture and Pannon University, 2015). The research involving 1546 respondents and applying simple random sampling process carried out the survey among visitors of Hungarian eco-tourism show places. A number of reasons might account for the differences between the samples, out of which the differing circumstances of sampling should be highlighted.

Concerning the level of education, 50.7% of the respondents have higher education: 28.4% of them have BA degree, 22.3% of them have MA degree or diploma. The results of Halpenny (2006) and Ramkissoon et al. (2013) showed similar tendencies. In a Canadian research, 75% of the respondents had higher education, whereas in Australia this ratio was 70%.

Based on the region of place of residence and the type of locality, 40.2% of the respondents live in East-Hungary, 30.3% in Mid-Hungary and 29.5% in West-Hungary. 17% of the Mid-Hungarian respondents live in Budapest. Besides the ones living in the capital, 53% of the respondents live in cities and 29.9% in villages. The ratio of respondents in the Eastern region living in cities is 72.6%, the Western region reflects 53.8%. Respondents living in villages represent 27.4% (east) and 46.2% (west).

As for the family status, 67.8% of the respondents are married or live in partnership. Examining the size of the household in the group, we have seen that the proportion of the two-person households represent a quite high value, 48%.

25.4% of the respondents did not answer the question on the per capita income of their household. 10.6% of the respondents had an income below 100,000 HUF, 20.1% of them had an income between 100,000-200,000 HUF and 44.8% of them had an income above 200,000 HUF.

In summary, visitors of national parks has the following demographical profile: overrepresented in the sample compared to the domestic population.

- older generation;
- highly qualified;
- and all living in the Eastern region.

7.3. Theoretical model

By relying on the results of environmental psychology (Bonnes and Secchiaroli, 1995) the theoretical frame of the research is partially based on the TRA (Theory of Reasoned Action) model Ajzen and Fishbein (1975). The theory suggests that behaviour can be clearly projected based on the behavioural intention to act. Behavioural intention is among other factors (see Chapter 5) determined by the individual's attitude of behaviour. By interpreting place attachment as an attitude, in my research I assume that an individual's pro-environmental behavioural intentions concerning a certain place can be originated partially from past experiences relating to the place and from the place attachment arising from these experiences (Halpenny, 2010). The theoretical model of my research is shown in Figure 12.

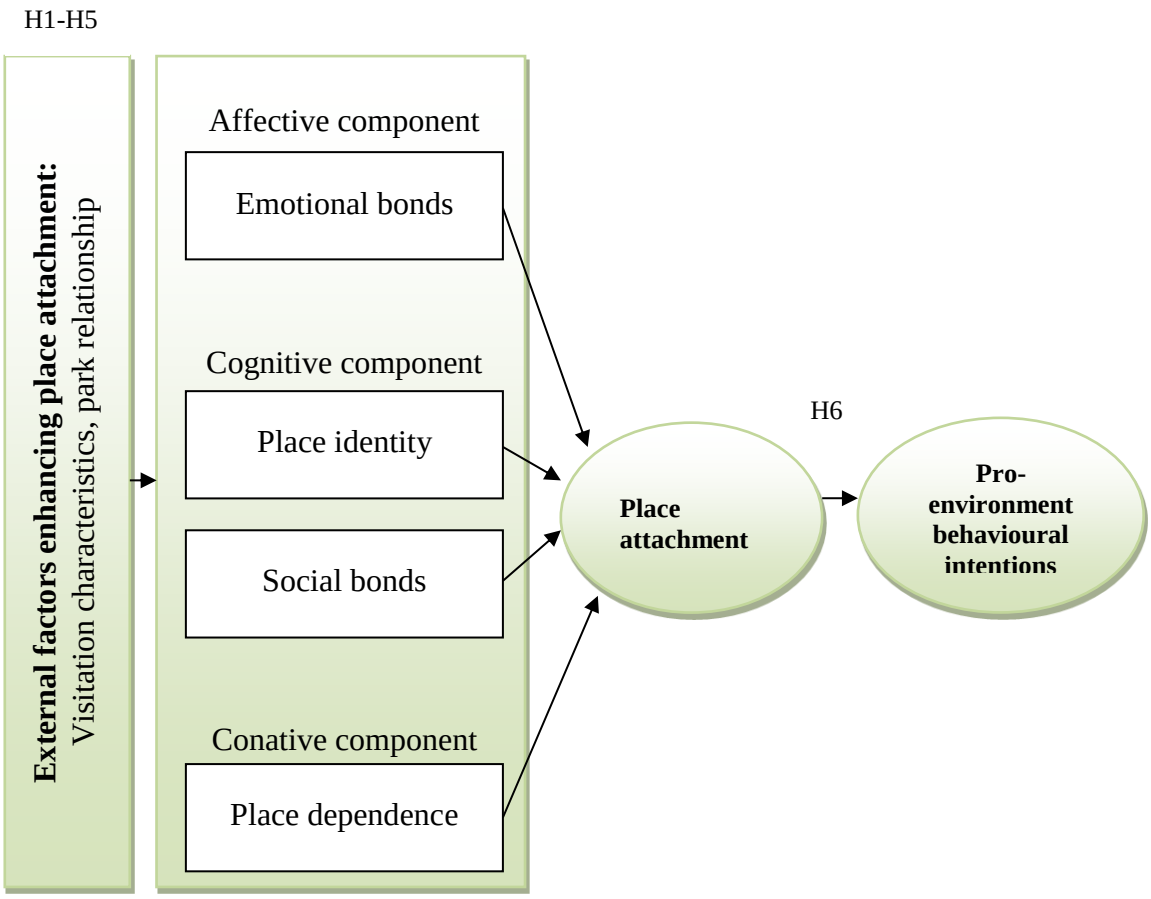

Figure 12: Theoretical model of my research
Source: own elaboration

During my research I tested part of the TRA model, more precisely the effect of the attitude concerning the place (place attachment) on pro-environmental behavioural intentions. Based on the findings of Ramkissoon et al. (2013) I made a distinction between high and low effort pro-environmental behaviours and studied the interaction between certain behaviours. Preliminary studies on this topic confirmed that place attachment has a positive effect on pro-environmental behavioural intentions both in terms of the place examined and of the level of general intention (Halpenny, 2006). Furthermore Ramkisson et al. (2013) proved that place attachment has a considerable influence on high effort behavioural types (for example participation in community events, volunteering in projects) than on low effort activities (waste management, decreasing consumption etc.). The link between behaviour types making commitment stronger (high effort) or weaker (low effort) will also be discussed here. Another theoretical basis of this research reflects to *Spillover Effect* by Thøgersen (1999) that enables us to further explain the patterns of the commitment process. Based on this theory, an individual's pro-environmental attitude

or behaviour in an area can be a good predictor of his or her general environmental attitude and pro-environmental behaviour in other areas. Provided that place attachment generates pro-environmental behavioural pattern, that is the high effort pro-environmental behaviour in our case, as a result, this effect may spill over to other areas such as to low effort behaviours. Thøgersen and Ölander (2003), although in context of selective waste management, did verify the relationship.

7.4. Description and measurement of model variables

7.4.1. Place attachment and its measurability

A number of definitions and subsequent measurement tools exist for place attachment in several disciplines. Most conceptualizations of the construct associate it with a range of feelings associated by individuals with specific environments (Kyle et al., 2005). Low and Altman (1992) made a comprehensive analysis on the literature of place attachment and highlighted the following common features:

(1) Most studies examining the human-place relationship focus on affect, emotion and feeling.

(2) The subject of attitude or the focus of sense refer to a special environment or settings that can differ in many ways (by size, known or unknown, symbolic or tangible etc.).

(3) The analysis of place attachment from the perspective of the individual or the community allows us to group certain approaches. While environmental psychology examines the relationship between the individual and the place, sociology, anthropology or social geography examine collective or consensual attachment of couples, families, communities or cultures to a given place. The importance of social relationship is emphasized by approaches whereby place attachment covers other relationships (for example family, community, culture) or it is based on this relationship.

(4) Place attachment is also determined by the variation over time, such as cyclical pattern or fluctuation.

In addition to place attachment, the literature often cites a number of analogous terms: community attachment (Kasarda and Janowitz, 1974), sense of place (Hay, 1998), place identity (Proshansky, 1978), place dependence (Stokols and Shumaker, 1981), rootedness (Hummon, 1992).

The dimensionality of place attachment does not show a consistent picture either. Early studies measured place attachment with proxy variables that is the length of stay or property (Riger and Lavrakas, 1981), nowadays several one- or multidimensional scales have been developed. Major multidimensional scales are shown in Table 10.

In context of recreation I would outline the scale of Willams and Roggenbuck (1989) from the measurement tools of place attachment, which appeared in a number of further studies (Jorgensen and Stedman, 2001; Williams and Vaske, 2003), in some cases in a further developed version (Kyle et al., 2005; Halpenny, 2006, 2010; Ramkissoon et al., 2012, 2013; Ramkissoon and Mavondo, 2015). Williams and Roggenbuck, (1989) suggest that the human-place relationship can be described with the following two dimensions: place dependence and place identity.

The theoretically most well-founded and researched dimension of place attachment is *place identity* (Jorgensen and Stedman 2001; Stedman, 2002; Kyle et al.., 2003; Kyle et al., 2004a; Kyle et al., 2004c; Knez, 2005). Proshansky, (1978, p. 155.) states that "*those dimensions of self that define the individual's personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideals, beliefs, preferences, feelings, values, goals, and behavioural tendencies and skills relevant to this environment.*"

Author(s)	Year	Dimensions	Context
Williams and Roggenbuck	1989	2 dimensions • place dependence (functional relationship) • place identity (emotional relationship)	Recreational venues
Williams and Vaske	2003	2 dimensions: testing scale dimensionality • place dependence (functional relationship) • place identity (emotional relationship)	Recreational venues
Kyle et al.	2005	3 dimensions: • place dependence • place identity • social bonds	Recreational venues
Lewicka	2005	3 dimensions: • place of origin • discovered place • relativity of place	Urban environment
Hammitt et al.	2006	5 dimensions: • skills • belonging there • identity • dependence • origin	Recreational venues
Jorgensen and Stedman	2006	Treating the sense of place as an attitude with 3 sub-dimensions • place attachment • place identity • place dependence	Property at the lake
Brehm et al.	2006	Separating physical and social meaning of the place	Communities' relationship with nature
Halpenny	2006	Interpretation of place attachment as attitude with 3 sub-dimensions • place dependence • place identity • place affect	National parks
Brocato	2006	Place attachment is defined as an emotional relationship between the individual and the place which affects physical and social environment of the place. 4 dimensions are distinguished: • place dependence • place identity • emotional bonds • social bonds	Restaurants
Hidalgo and Hernandez	2007	Distinction of place attachment and place identity	Permanent residents
Scannell and Gifford	2010a	Separation of citizenship or nature related attachment	Permanent residents
Ramkissoon et al.	2012 2013	Interpretation of place attachment as attitude with 4 sub-dimensions • place attachment • place identity • place affect • social bonds	National parks

Table 10: Major studies examining the dimensionality of place attachment
Source: own elaboration

In this sense, the conditions of the place ensure the individual to express and confirm his/her identity. In other words, place identity is part of the self-identity which helps to organize experiences relating to a different physical environment (Shumaker and Taylor, 1983). Researchers trace back place identity to several reasons. By highlighting two examples, Moore and Graefe (1994) suggest that place identity is formed as an influence of place dependence as a result of place related interactions. Stedman (2002) however traces it back to the symbolic relationship between the individual and the conditions of place.

The functional nature of place attachment appears as *place dependence* (Stokolos and Shumaker, 1981; Kyle et al., 2004a). Place dependence determines to what extent the individual can perform certain activities at the given place. In other words, how do the conditions and factors contribute to the achievement of certain goals compared to other places (Jorgensen and Stedman, 2001). Unlike further dimensions determining place attachment (such as place identity, social bonds) place dependence can be negative (Brocato, 2006). If all the alternatives are negative, the selected option can even be the least bad version (Jorgensen and Stedman, 2001). Place dependence is influenced by two major factors: the quality of place and the relative quality of alternative places serving for comparison (Brocato, 2006; Halpenny, 2010).

Vaske and Kobrin (2001) made a distinction between the dimensions of place dependence and place identity and stated the following correlations:

(1) if place dependence increases, so does place identity,
(2) if place identity increases, so does the admitted pro-environmental behaviour,
(3) a place identity mediates between place dependence and the admitted pro-environmental behaviour.

The place attachment concept of Williams and Roggenbuck (1989) was applied by several researches (Kyle et al., 2003; Moore and Graefe, 1994; Vaske and Kobrin, 2001). Since the majority of studies did not put significant focus on testing place attachment scale of validity or scalability, Williams and Vaske (2003) tested the scale in 2003. They confirmed the existence of the two sub-dimensions of the scale by measuring them at four different places.

Later Kyle et al. (2005) completed the scale with social bonds sub-dimension (Hidalgo and Hernandez, 2001; Low and Altman, 1992; Mesch and Manor, 1998), by interpreting place attachment as attitude according to Jorgensen and Stedman (2001)[19].

Social bonding can be described as the overall interpersonal relationships occurring at the given place. If the individual establishes or maintains important relationships at a given place, since the place ensures the context of shared experiences, we can assume that place represents part of this importance. In other words, the individual's attachment to a particular place can partially be expressed and shaped by his/her social relationships being built at that place. This was supported by the remark of Mensch and Manor (1998) which suggests that the closer friendship or neighbourhood characterized respondents, the higher place attachment values were observed.

Several authors in environmental psychology called the attention to the importance of emotions in individual's place attachment (Giuliani, 2003; Kals et al., 1999). These studies mention place related emotions (place affect/affective attachment) as the fourth dimension of place attachment, separating it from identity, which summarizes individual's emotions and feelings in relation to a particular place. Although emotional sub-dimension is less well-founded than the three other sub-dimensions discussed earlier, several empirical researches argued for handling this dimension separately. Milligan (1998) studied the students' relationship to cafeterias and concluded that the dimension of emotional attachment clearly appeared and increased with the frequency of visitations. Halpenny (2006) examined the attachment to national parks and established a three-dimensional scale which determines place attachment by place identity, place dependence and place affect sub-dimensions.

Regarding place attachment scales applied for national parks we can highlight Halpenny's (2006) three-dimensional scale. The author developed the scale of Williams and Roggenbuck (1989)[20] by considering place attachment as an attitude and integrated

[19] Jorgensen and Stedman (2001) defined place attachment as a separate dimension (first-order component of the sense of place) and not as a comprehensive term (second-order factor).

[20]This scale is based on the theory of Prohansky (1978) and Stokols and Shumaker (1981). While Prohansky emphasized the role of place identity in place attachment whereby there is a cognitive Relationship between

affective component in addition to cognitive (PI, place identity) and conative (PD, place dependence) domains. Ramkissoon et al. (2013) further developed this into a four sub-dimensional scale which includes the term of social bonds. Since my preliminary studies (Kasza-Kelemen, 2012) as well as other researches in this field (Brocato, 2006; Kyle et al., 2005) indicated the existence and importance of sub-dimension I applied the validated scale of 12 items, 4 sub-dimensions of Ramkissoon et al. (2013) to measure place attachment (see scale items in Annex 12).

In my dissertation, I examine *place attachment* as a *second-order factor having four sub-dimensions*, namely place dependence (PD), place identity (PI), place affect (PA) and place social bonding (PSB). The author defines place attachment as attitude according to Jorgensen and Stedeman (2001) with four sub-dimensions (conative (PD), cognitive (PI and PSB) and affective (PA)).

7.4.2. Pro-environmental behaviour, the definitions and measurability of behavioural intentions

Sivek (1987 in: Sivek and Hungerford, 1990) defines pro-environmental behaviour as individual or group activities that support or facilitate sustainable use of natural resources. Regarding the definition of pro-environmental behaviours Stern (1997) suggests to examine the effects of a behaviour by answering the following two questions:

(1) What is the impact of behaviour on the accessibility to available raw materials or energy resources?
(2) What is the impact of behaviour on the structure and dynamics of ecosystem and biosphere?

According to Snelgar (2006) pro-environmental behaviour may come in the following forms:

- personal shopping behaviour
- travelling habits
- selective collection
- usage of resources

physical environment and self, Stokols and Shumaker pointed out the functional nature of place (place dependence) (Halpenny, 2006).

- active participation in environmental organizations

The theoretical framework of Smith-Sebasto (1992) and Smith-Sebasto and D'Acosta (1995) provides a wider interpretation of consumption by defining six forms of pro-environmental behaviour: civic, learning, financial, legal, physical and convincing actions. The content and form of actions can be as follows:

Civic action: all kinds of individual or group activities (not monetary or not caused by any influencing strategy) which represent the efforts to protect nature in a political manner.

Forms or actions: vote, participate in public hearings, sign petitions, passive resistance or protest.

Learning action: all kinds of individual or group activities aiming at learning about environmental issues.

Forms of action: Watch TV programmes, read books, articles, participate in courses

Financial actions: activities to facilitate or prevent financial transactions which express the pro-environmental intention of an individual or group.

Forms of actions: buy or boycott a product or service depending on their pro-environmental features, financial support to NGOs, invest into responsible companies, support pro-environmental campaigns.

Legal actions: any individual or group activity that relates to legislation facilitating environmental laws and regulations or legal restrictions of unwanted environmental behaviour.

Forms of actions: civil lawsuits, prohibiting orders.

Physical action: any individual or group activities that serve to protect environment without financial means.

Forms of actions: pick up waste, selective collection for recycling, participate in environment cleaning, supply household with energy saving appliances.

Convincing actions: any non-monetary means whereby individuals or groups may encourage other people, organizations, industry or the government to conduct pro-environmental behaviour.

Forms of actions: letters to competent persons, speeches, informal talks, lobbying.

Stern provides a framework to integrate and handle the actions types listed above (Stern, 2000a, Stern, 2000b). The author identified four main areas taking the rate of commitment, and the differences between private and public sphere into account: *pro-environmental behaviour in private sphere*(shopping, usage, waste management), *act as an environmental activist* (as participant in a pro-environmental organization or demonstration), *non-activist behaviour in public sector* (support relating legislation, paying taxes), and *other important pro-environmental behaviour* (in workplace).

1. Pro-environmental behaviour in private sphere.
consumer shopping behaviour
usage of household appliances
change in the usage of appliances and in lifestyle
waste management
"green" consumption
2. Non-activist behaviour in public sphere
environmental citizenship (participate in petitions, join groups)
governmental support regarding these issues
3. Other environmentally significant behaviour
any behaviour that influences decision making at an organization
4. Acting as a pro-environmental activist

Table 11: Environmentally significant behaviour
Source: Stern (2000a)

In order to measure the aforementioned behavioural types Stern et al. (1999) applied the pro-environmental behaviour scale. In this scale pro-environmental behaviour is measured by the following sub-scales: consumer behaviour (CB), willingness to sacrifice (WS) and environmental citizenship (EC). Based on Stern's (2000a, 2000b) results the scale was later completed by Dono et al. (2009) with environmental activism scale and they also confirmed that environmental activism is a sub-type of pro-environmental behaviour. The internal reliability of the sub-scales were shown in each examined study.

Since this research topic covers the behaviour in national parks, the scales listed above require a slight re-wording. As a further filter, certain items are hard to interpret in recreational context. Halpenny (2006) decided to fill this gap and developed a 12-item scale[21] using a 5-point Likert scale in relation to visitations and protection of national parks. When selecting or modifying items Halpenny (2010) followed the following three principles:

(1) universality (commitment to behaviour should be available for as many people as possible in the examined context),
(2) diversity (items should include several different behavioural types),
(3) specificity (the listed items are in accordance with items measuring place attachment).

Regarding national park related questions I relied on Halpenny's (2006) pro-environmental behavioural intentions scale which was primarily justified by scale specificity. Olli et al. (2001) found that attitude-behaviour relationship is stronger statistically and empirically if both variables are measured by the same specificity, that is pro-environmental behaviour and place attachment (attitude) are applied in protected environmental areas.

Research also covered pro-environmental behaviour demonstrated at the place of residence. For measuring this I applied the self-reported pro-environmental behaviour scale of Schultz and Zelezny (1998). The 10-item scale put questions in relations to the frequency of activities in the past 12 months (optional answers: daily, weekly, monthly, never, not relevant). In this scale the level or pro-environmental behaviour is measured by the following habits: selective waste collection, conservation behaviours, consumer behaviour and transportation. In my research, similarly to the practice of Schultz et al. (2005) I applied the 5-point Likert scale allowing the option of *not relevant to me*. The reason behind my decision was the need for a measurement level suitable for further analyses.

[21] During scale development the author of the present dissertation relied mainly on the related scales by Schultz and Zelezny (1998), Smith-Sebato and D'Costa (1995), Stern et al. (1999), Van Liere and Dunlap (1981), and Vaske and Korbin (2001). Following the study of the above source scales and in the aim of providing greater comparability of pro-environmental behaviour at home and at national parks the scale by Schultz and Zelezny (1998) was used to measure general behavioural intentions.

7.4.3. Measuring predictors of place attachment

Individual patterns may show differences concerning the characteristics of visitations to national parks Frequency and length of visitations, length of relationship with the park, distance from the place of residence, childhood visitations to national parks can predict place attachment (Halpenny, 2006). Demographical attributes such as gender, age, education and income also has an impact on the level of place attachment, although their predictive power is debated in the literature. My research covered the examination of the following variables:

Frequency of visitations was measured with two variables. First I identified the frequency of visitations to national parks (K8) then I asked about the frequency of visitations to the selected national park (K15). While the first variable measuring the frequency with categories from "1-never" to "5-very much" reflects a subjective judgement, the second variable gives a more objective picture by using the given categories („1=within this year" „5=at least once a month").

I measured the *duration of visitation* based on Halpenny's (2006) categories. The variable (K18) determines the duration of visitation based on the last visit during the past 12 months by making distinction between one-day or multi-day visits and between the ways of accommodation.

The distance between the place of residence and the national park was also measured in a categorical variable (K14). The ideal solution would have been to check zip codes of places of residence and national parks, unfortunately the technical background of the data collection did not allow this automation. At the same time the development of categories enabled us to determine the scope of visitation and distinguish between local (within 40 km) and non-local respondents. Besides Halpenny (2006) Manzo (2005) also emphasized the importance of the variable. Based on his results, his respondents often indicated natural settings being close to their homes, differing from their place of residence and workplace and being easily accessible as their favourite places.

To measure *childhood visitations t*he frequency of visitation under the age of 14 was determined by using a 5-point Likert- scale where 1 meant "not visited at all" and 5 meant

“ frequently visited” (K17). The question also covered the given national park and the visitation to domestic national parks in general.

Length of relationship refers to the relationship between the national park and the individual. The variable was determined in years based on the time spent since the first visit (K16).

7.5. Hypotheses of the research

Hypotheses were discussed under two topics. The first group of hypotheses (H1-H5) examines the effect of external variables forecasting place attachment. They are meant to give a wider picture on the relationship between visitation characteristics and place attachment. This was followed by the examination of the relationship between place attachment and pro-environmental behavioural intention (H6).

Predictors of place attachment and their influence in context of national parks

Predictors are factors that can be examined independently of the sense of place attachment, with the individual being unaware of a potential positive interaction between the predictor and the strength of place attachment. Unlike the dimensions of place attachment, which themselves serve as predictors for major behaviours (for example pro-environmental behaviour), predictors help to unveil possible mechanisms of the attachment (Lewicka, 2010), and the major motives of their development.

According to Lewicka (2010), there are three types of predictors of place attachment: socio-demographical, social and physical. The summary is shown in Table 12.

Category	Main predictors	Attributes
Socio-demographic predictors	**Duration of stay**	• The length of stay is a place attachment predictor in case of stays of both residential and recreational purposes. • It may predict attachment directly or indirectly (Lewicka, 2010) • Not every study found significant relationship between place attachment and duration of stay (Bolan, 1997; Scannell and Gifford, 2010a)
	Mobility	• Has several forms that assess and measure place attachment in different ways (Gustafson, 2002) • Forms: frequent change of permanent address, there is a permanent place but due to the work one has to spend longer periods in other cities or countries (van der Klis and Karsten, 2009), in-country business trips or longer stays abroad (Gustafson, 2009), frequency and length of tourism related visits (Halpenny, 2006) • Mainly examined in context of the attachment to the place of residence • Lewicka (2011) suggests that mobility is a weaker predictor of place attachment than the duration of stay.
	Owing a real estate	• Consistent predictors • Some researchers apply it as a proxy variable during the examination of place attachment (Taylor et al., 1985)
	Other	• Social and economic situation, age, qualification, place of residence • Uncertain predictors whereby the relationship is typically mediated or moderated by other variables (Lewicka, 2011)
Social predictors	**Community relationships**	• Predictor determined by the measures of local social capital such as the extension of relationship prevailing in the residential environment. • The closeness of community relationships is a consistent positive predictor of place attachment (Lewicka, 2011) • Organizational membership (Halpenny, 2006)
	Sense of Security	• It is a consistent positive predictor of place attachment (Brown et al., 2003; Lewicka, 2010) • Length of relationship with the place, childhood relationship (Halpenny, 2006)
Physical predictors	**Can be measured by wider categories (natural settings, built environment, urban environment)**	• Difficult to operationalize, determined by several factors • GIS (Hur et al., 2010) • PREQ (Perceived Residental Environment Quality) - (Bonaiuto et al., 2003) • Building size - Lewicka, 2010 • In context of tourism, the distance between the place of residence and the destination (Halpenny, 2006)

Table 12: Classification of predictors of place attachment
Source: own elaboration

Consumers may show differences concerning the characteristics of visitations to national parks. Frequency and length of visitations, length of relationship with parks and childhood visitations to these national parks are factors which can predict place attachment (Halpenny, 2006). The objective of the first *hypothesis group* is to determine the relationship between the visitation, relationship pattern (frequency of visitations, duration of visitation, length of relationship with the national park, childhood interactions) and place attachment.

Previous recreational studies found a strong positive interaction between the *frequency of visitations* and place attachment (Moore and Graefe, 1994; Williams et al., 1992), Halpenny, 2006). According to Moore and Graefe (1994) frequent visitation first establishes the individual's place dependence, the visitor realizes that special circumstances relating to the place can only be available there. This is followed by place identity due to the memories, meanings during the visitations.

H1: There is a positive relationship between the frequency of visitations to national parks and the extent of place attachment.

Longer stays enable deeper interactions with the place thus a positive relationship can be assumed between the multi-day visitations of national parks and place attachment. Williams et al. (1992) examined the relationship between variables and confirmed a significant positive interaction with the attachment to the wild area. Having made a distinction between the duration of the last visit and the duration of visitations in general, they found that the relationship between the average length of the multi-day visitations and place attachment is stronger than in case of the last visit. Halpenny (2006) studied a Canadian national park and also confirmed this significant relationship.

H2: There is a positive relationship between the duration of visitations to national parks and the extent of place attachment.

The importance of *distance from the place of residence* was pointed out in several researches. Based on the results of Manzo (2005), respondents often indicated natural settings being close to their homes, differing from their place of residence and workplace and being easily accessible as their favourite places. Halpenny (2006) found a significant relationship between place attachment and the distance from the place of residence

however she pointed out that the explanatory power of the variable is low for the changes of place attachment.

H3: There is a negative relationship between the distance from the place of residence to the national park and the extent of place attachment.

The influence of childhood visitations to national parks on place attachment and its indirect effect on pro-environmental behaviour have not been extensively explored (Halpenny, 2006; Chawla, 1992; Lee and Allen, 1999; Hofmeister-Tóth et al., 2012). The studies by Chawla (1992) and Hofmeister-Tóth et al.. (2012) both identify, childhood experiences in natural settings as a key factor in the commitment to pro-environmental behaviour.

H4a: Childhood relationship with a given national park has a positive effect on the extent of place attachment.

H4b: In general, childhood relationship with national parks has a positive effect on the extent of place attachment.

The effect of the *length of relationship with the place* on place attachment is in the focus of several researches (Moore and Graefe, 1994; Kaltenborn, 1997; Mesch and Manor, 1998, Halpenny, 2006). Moore and Graefe (1994) found that the length of relationship positively influences place identity, while this relationship does not appear in case of place dependence. Halpenny (2006) confirmed that the length of relationship is a positive predictor of place attachment.

H5: The length of the relationship with the national park has a positive effect on the extent of place attachment.

The relationship between place attachment and pro-environmental behavioural intentions

Based on the findings of Dann (1977, 1981) regarding tourism motivation, consumers are partially encouraged to travel by the attraction of the destination (pull factors). Visitation of certain destinations are motivated by the possible interaction with the environment there and this fact may bring special psychological, social and physiological benefits. As a result of the interactions the tourism resources of the destination, visitors may associate

the place, that was privileged before, with meaning and an attachment can develop to the place/type of place (Tuan, 1977; Kyle et al., 2004a). Literature on place attachment however points out that care for the place is rising as place attachment increases. In this vein, the *hypothesis group* examines if a more intense attachment to national parks affects pro-environmental behavioural intentions. Answering this question may serve several purposes. The results of studies on the effect of place attachment on behaviour are not consistent. Vaske and Kobrin (2001) found that stronger emotional place attachment stimulates self-reported commitment to pro-environmental behaviour. Clayton (2003) and Piskóti (2015) pointed out that those who have a stronger identity with natural setting have significantly carried out more pro-environmental actions than those who have lower environmental identity. Scannell and Gifford (2010a) split civic-based and natural-based attachment and pointed out that those who are more attached to their local natural settings are more committed to pro-environmental behaviour, while civic based attachment does not predict pro-environmental behaviour. Contrary to the results listed above Uzzell et al. (2002) found negative interaction between attachment to the place of residence and pro-environmental behaviour. Beyond the differences in literature, further studies of place attachment and pro-environmental behavioural intentions are justified since this issue relates to tourism and the approach from the visitors' point of view is still not intensively researched (Halpenny, 2010). In light of the aforementioned facts, I have the following assumptions concerning the relationship between place attachment and pro-environmental behavioural intention:

H6: Place attachment as a second-order factor positively influences visitor's pro-environmental behavioural intentions.

H6a: Place attachment as a second-order factor positively influences the visitor's low effort pro-environmental behavioural intentions.

H6b: Place attachment as a second-order factor positively influences the visitor's high effort pro-environmental behavioural intentions.

H6c: Low effort pro-environmental behavioural intentions mediate the effect of place attachment on high effort pro-environmental behavioural intentions.

H6d: High effort pro-environmental behavioural intentions mediate the effect of place attachment on low effort pro-environmental behavioural intentions.

In summary, the hypotheses of the research were as follows:

H	Content of the hypothesis	Method of testing hypothesis
H1	There is a positive relationship between the frequency of visitations to national parks and the extent of place attachment.	analysis of variance
H2	There is a positive relationship between the duration of visitations to national parks and the extent of place attachment.	analysis of variance
H3	There is a negative relationship between the distance from the place of residence to the national park and the extent of place attachment.	analysis of variance
H4a:	Childhood relationship with a given national park has a positive effect on the extent of place attachment.	analysis of variance
H4b:	In general, childhood relationship with national parks has a positive effect on the extent of place attachment.	analysis of variance
H5	The length of the relationship with the national park has a positive effect on the extent of place attachment.	analysis of variance
H6	Place attachment as a second-order factor positively influences visitor's pro-environmental behavioural intentions.	SEM
H6a:	Place attachment as a second-order factor positively influences the visitor's low effort pro-environmental behavioural intentions.	SEM
H6b:	Place attachment as a second-order factor positively influences the visitor's high effort pro-environmental behavioural intentions.	SEM
H6c:	Low effort pro-environmental behavioural intentions mediate the effect of place attachment on high effort pro-environmental behavioural intentions.	SEM
H6d:	High effort pro-environmental behavioural intentions mediate the effect of place attachment on low effort pro-environmental behavioural intentions.	SEM

Table 13: Summary of research hypotheses
Source: own elaboration

7.6. Preparation of statistical analysis

The first step towards performing the analyses was the verification of the database, data cleansing and the treatment of missing values. The latter one is particularly important for structural equation modelling since ignoring missing values, especially the systematically missing ones may lead to the distortion of the model (Weiber and Mühlhaus, 2010). As I already referred, items measuring latent variables in the model were obligatory resulting in no missing values in case of the mentioned variables.

I examined the distribution of variables with checking the data. I tested normal distribution of individual variables with SPSS 22.0 software and Kolgromorov-Spirnov and Shapiro-Vilk test (Sajtos and Mitev, 2007). Based on the results, variables did not show normal distribution (see Annex 13). Scholderer et al. (2006, p. 62.) however call the attention to the fact that evaluation scales of economic and sociology related researches usually do not show normal distribution. Kolgromorov-Spirnov and Shapiro-Vilk tests have a quite rigid interpretation of the criteria of normal distribution, such strict evaluation is not needed for applied research methods (Weiber and Mühlhaus, 2010). Following the normality test of individual variables I tested the normality of changing structure (multi-normality) with AMOS 22.0 software. I examined cases differing significantly from the others by using Mahalanobis distance (Weiber and Mühlhaus, 2010). I identified 24 cases where the distance indicator stood out, I excluded them from further analyses. The indicator of multi-normal distribution was above the expected threshold but as the applied estimating methods are quire robust, it did not influence the fitting of the model (Weiber and Mühlhaus, 2010).

7.7. Results of the research

7.7.1. General characteristics of visitation to national parks

In order to understand respondents' visitation patterns, visitation frequency to certain domestic national parks as well as parks visited between July 2014 and July 2015 were examined. I also wished to explore how often the respondents visit foreign parks in addition to the domestic ones and how much time they spent in national parks during their childhood.

As already seen in the description of the sampling procedure, only respondent who, at least once, visited any of the Hungarian national parks during the given 12 months were eligible to participate in the study. Since the sampled population covered regular or occasional visitors, first I was interested to know what are the general visitation patterns of national parks. Respondents evaluated the values of the scale items by using a 5-point Likert-scale where 1 meant "not at all true of me" and 5 meant "completely true of me". Visitations of domestic national parks were given a M=3.65 (SD=1.002) average score while visitations to foreign parks had an average value of M=2.16 (SD=1.214).

Besides the aforementioned, I analysed the frequency of visitations to certain national parks. I put this question in general and did not tie it to time intervals. Survey participants rated the frequency of their visitation ranging from 1 (never) to 5 (very often). The majority of the respondents in the sample visit Bükk, Balaton-felvidék, Aggtelek and Hortobágy National Parks in their leisure time. In light of the visitation frequency it can be stated that while Hortobágy and Aggtelek National Parks attract ad hoc visitations, Bükk and Balaton-felvidék National Parks are featured by a large number of returning, frequent visitors.

	Regular	**Occasional**	**Total visitors**	**Total non-visitors**
Bükk National Park	58	162	**220**	**44**
Balatoni-felvidék National Park	62	157	**219**	**45**
Aggtelek National Park	23	192	**215**	**49**
Hortobágy National Park	16	194	**210**	**54**
Kiskunság National Park	23	163	**186**	**78**
Duna-Ipoly National Park	37	125	**162**	**102**
Fertő-Hanság National Park	13	147	**160**	**104**
Őrség National Park	21	133	**154**	**110**
Körös-Maros National Park	22	126	**148**	**116**
Duna-Dráva National Park	17	127	**144**	**120**

Table 14: Visitation frequency to domestic national parks
(N=264)
Source: own elaboration

*The category of 'frequent' is a result of merging 4=often and 5=very often, while the category 'occasional' merges 2=rarely and 3=sometimes.

Most of the respondents never visited Duna-Dráva, Körös-Maros and Őrségi National Parks. Frequency of visitations to certain national parks are detailed in Annex 14.

I found a similar trend in case of national parks visited during the past 12 months. The average number of the parks visited during the reference period is 2.08 (SD= 1.15). 37.5 % of the respondents (n=99) visited one, 33.3% (n=88) visited two, 18.6% (n=49) visited three, 6.4% (n=17) visited four, and the rest 4.2% (n=11) visited five or more parks during the past year. Most of the respondents visited Balaton-felvidék National Park (37.9%, n=100) in the given period. This was followed by Bükk (33%, n=87), Hortobágy (31.1%, n=82) and Duna-Ipoly (19.7, n=52) National Park. Further researches (Ministry of Agriculture, former Ministry of Rural Development and Pannon Egyetem 2012, 2015) show that the mentioned parks were mainly characterized with shorter visits as a result of their proximity from sending points and their potential to make travels more colourful. Their frequent occurrence in the answers is therefore probably a result of their geographic location. Duna-Dráva and Fertő-Hanság National Parks were given the least mentions (12.1%, n=32).

7.7.2. Patterns of attachment to national parks

In the study of place attachment to national parks respondents were asked to mark the one national park visited in the past 12 months that they felt the closest to. Although the time frame limited the respondents in choosing their favourite park to use for completing the questionnaire, several further research questions (pro-environmental behaviour in the park) required exact recalling of the details of the visitation. During the selection phase I wanted to ensure that the visitor evaluates the most favourite park visited within one year so as to be able to give more nuanced answers regarding the attachment to the place. Based on respondents' answers relating to their favourite parks, Bükk, Balaton-felvidék and Hortobágy National Parks received the most mentions. Mentions of national parks by numbers and proportions are summarized in Table 15.

Name of the national park	Number of visitors in the sample	Proportion of visitors in the sample
Bükk National Park	50	18.9%
Balatoni-felvidék National Park	46	17.4%
Hortobágy National Park	30	11.4%
Duna-Ipoly National Park	29	11.0%
Körös-Maros National Park	24	9.1%
Duna-Dráva National Park	22	8.3%
Kiskunság National Park	18	6.8%
Őrség National Park	18	6.8%
Aggtelek National Park	17	6.4%
Fertő-Hanság National Park	10	3.8%

Table 15: Number and proportion of mentions in the sample about the favourite national parks visited during the past 12 months
(N=264)
Source: own elaboration

Almost half of the respondents (47.3%) visited the given national park within three month before the questionnaire. At the same time, 51.9% of them completed the survey based on their experiences gained during the previous year.

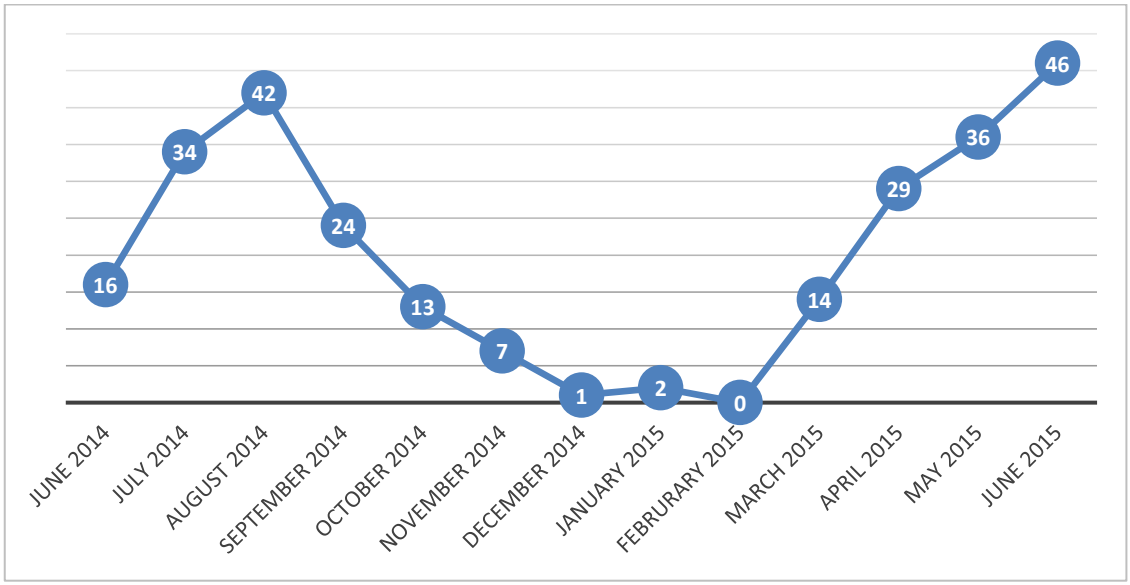

Figure 13: Recent visitations to the given national park in monthly breakdown
(N=264)
Source: own elaboration

Preliminary researches (Kaltenborn and Williams, 2002; Syme et al., 2002) pointed out that those who lived near the national park or other conservation area were willing to demonstrate higher place attachment to a nearby park/conservation area. To study this relationship, the proportion of locals in the sample was first determined. 34.5% (91

persons) of the respondents were local visitors that is the given national park was located in a range of 40 km from their place of residence. 33% of the respondents (87 persons) travelled 40-150 km, 22% (58 persons) travelled 151-250 km and 8% (22 persons) travelled more than 250 km to visit the given national park. 6 respondents did not answer this question.

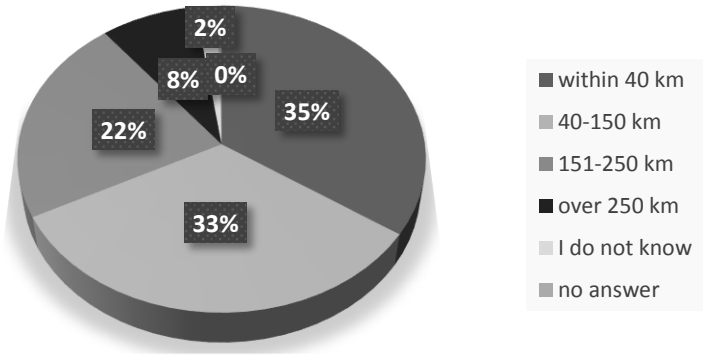

Figure 14: The distance from the place of residence to the selected national park
(N=264)
Source: own elaboration

139 persons (52.7 %) were frequent visitors of the given park, out of which 39.4% had a few visits per year and 13.3% of the visitors visited the park at least every month. Further categories showed the following breakdown: a few visits per year: 104 persons (39.4%), one visit per year: 64 persons (24.2%), one visit in every three years: 28 persons (10.6%), one visit in more than three years: 19 persons (7.2%); no answer: 14 persons (5.3%).

Almost two third of the respondents were day visitors. 49.9% of them stayed the night at home, 14% of them stayed overnight within the range of 40 km and 10.6% of them were passing through to another destination. 21.6% of the respondents spent several days there and stayed within a range of 40 km. The rest 3.8% indicated other categories (daily visitors, multiple day visitors staying within a range of 60km or further etc.).

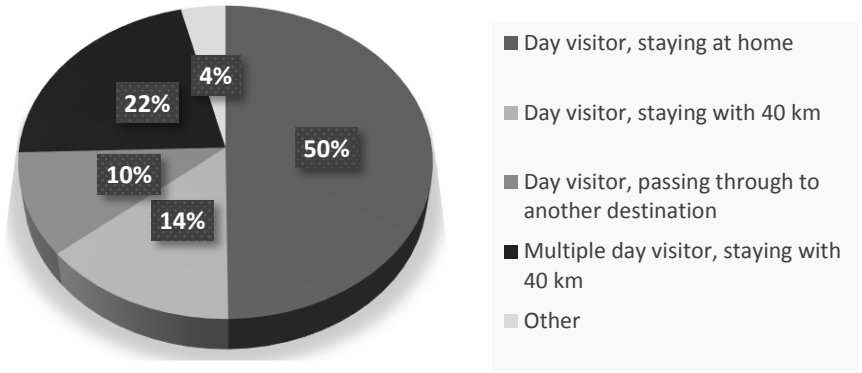

Figure 15: Duration of visitation in the national park (categories per capita and in %)
(N=264)
Source: own elaboration

80.3% of the respondent visited the given national park with four or less travel mates. 35.9% of them arrived with children company aged 1-3. The occurrence of group visits (over 10 persons) was 8%.

The relationship with the national park, that is the period of time since the first visit was 19.92 years on average (SD= 15.15). Answers varied between 0 (first visitation to the park happened this year) and 65. 18 persons (6.8%) reported on first visitation. Based on the age of respondents and the number of years since the first visit I identified the age of respondents at the time of their first visit which was 29.72 years on average (SD=18.12). *The majority of the respondents listed those parks that they visited as adults.* This was supported by the questions concerning visitations during childhood. Having examined the characteristics of visitations to a given national park and to national parks in general during childhood I found that children under the age of 14 appeared to visit parks in general rather than a specific park (see Table 16)

	in the given national park		**in national parks in general**	
under the age of 14	N	%	N	%
visitations were not common	167	63%	132	50%
visitations were moderately common	40	15%	71	27%
visitations were common	57	22%	61	23%
Total	**264**	**100%**	**264**	**100%**

16. Table:Visitations to national parks under the age of 14 in the sampleTable
(N=264)
Source: own elaboration

Having understood the main patterns of the recent visitations, I examined the attachment to the selected park. A 12-item scale by Ramkissoon et al. (2013) presented earlier was used to measure place attachment. The scale measures place dependence, place identity, place affect and social bonds sub-dimensions with 3 items each. Respondents evaluated the values of the scale items by using a 5-point Likert-scale where 1 meant "not at all true of me" and 5 meant "completely true of me".

Sub-dimensions	Items	Average	Standard deviation
Place dependence	**α=0.836**	**M=2.902; N=264**	
PD1	This national park has the best settings and facilities for activities that entertain me the most.	2.82	1.125
PD2	I cannot imagine better settings and facilities for my activities than this national park.	2.85	1.126
PD3	A visitation to XXX National Park brings more entertainment than other places.	3.03	1.147
Place affect	**α=0.877**	**M=3.249, N=264**	
PA1	This national park means a lot to me.	3.57	1.051
PA2	I am attached to this national park.	3.26	1.218
PA3	I feel I belong to this national park and to its settings/facilities.	2.92	1.258
Place identity	**α=0.854**	**M=2.971, N=264**	
PI1	I strongly identify with this national park.	3.08	1.270
PI2	I feel that this national park has become part of my life.	2.98	1.270
PI3	The fact that I visit this national park tells a lot about who I am.	2.85	1.226
Social bonds	**α=0.773**	**M=2.218, N=264**	
PSB1	I would lose several friendships if I did not visit this national park any longer.	1.92	1.139
PSB2	My friends/family would be disappointed if I were to visit areas of other settings and facilities.	2.07	1.116
PSB3	Most of my friends/relatives prefer this national park to others.	2.66	1.229

Table 17: Description of the scale measuring place attachment
The Cronbach α value of the whole scale was 0.933
Source: own elaboration

The average of the items in the sample was M_{Item}= 2.83 (SD=1.18). Two out of the five items having the highest average score referred to place affect, this was followed by items

measuring identity and dependence in a mixed order. The smallest values were assigned to social bonds items (see Table 17).

I determined the strength of commitment to a national park based on the values of the place attachment scale by adding up the evaluation figures given to the scale items for each individual. Based on this, the average score can be between 12-60. The average value of the place attachment scale was M_{Scale}=34.02 (SD=10.767) which reflects a slightly stronger commitment to national parks than the medium level [22].

In order to understand the demographical differences of place attachment, I examined the following variables: gender, age, region and type of the place of residence, family status, size of the household, number of children under 14 in the household, qualification, income and childhood place of residence. Significant difference was shown based on

1. age (F(4.259)=3.131; p=0.015),
2. region of place of residence (F(2.261)=6.195; p=0.02) and
3. income (F(4.192)=5.543; p=0.000).

Average and variance values are summarized in Table 18.

		N	Average	Standard deviation
Age	15-29	26	32.35	10.15
	30-39	48	32.29	11.36
	40-49	54	32.85	11.15
	50-59	48	32.02	10.57
	60-69	88	37.26	9.94
	Total	**264**	**34.02**	**10.77**
Region	Middle	80	32.40	10.19
	East	106	36.80	10.84
	West	78	31.90	10.55
	Total	**264**	**34.02**	**10.77**
Income	under HUF 100,000	28	38.68	11.91
	HUF 100,000 - 200,000	51	38.08	10.32
	HUF 200,001 - 300,000	53	35.79	8.84
	HUF 300,001 - 400,000	35	30.49	10.33
	above HUF 400,000	30	30.20	10.28
	Total	**197**	**35.00**	**10.65**

Table 18: Demographical differences in the values of place attachment
Source: own elaboration

[22]Average place attachment of the sample to the place of residence was M_{Scale}=37.57 (SD=10.182).

People between the age of 60-69 demonstrated the strongest attachment to national parks among other *age groups* (M=37.26, SD=9.94). As a result of the Tukey HSD Post-hoc test there is a significant difference between them and people aged 50-59. The relationship between age and place attachment was more obvious among returning visitors and locals than among occasional visitors (Mesch and Manor, 1998; Shumaker and Taylor, 1983; Williams et al., 1992). I shall mention further studies on this during the multiple analysis of variance. As far as *region* is concerned, people living in the eastern region had higher average values and showed significantly stronger place attachment than people in mid- or western region. It is however important to point out that the difference could have been caused by the higher proportion of respondents aged above 60 in that region. Based on the per capita income of a household, place attachment is decreasing as the income increases. There was a significant difference between the category under 100,000 HUF and the category above 300,000 HUF. This can be explained by the fact that lower income people are less mobile and this increases place dependence to recreation venues within their region that is the functional attachment to a place (Halpenny, 2006).

Place attachment items in relation to the place of residence were also asked in the study. Having seen the answers relating to national parks, the place of residence, as expected, had a higher average value in each item ($M_{SacelLakhely}$=37.57, SD=10.182) except for the place dependence item relating to the entertaining nature of the place. The national park was given a slightly higher average (see Annex 15). During the comparison of attachment to two places the biggest differences appeared in case of items referring to social bonds dimension, emotions (I feel I belong to the environment of my place of residence) and identity (I feel the place of residence and the surroundings are part of me).

7.7.3. Forms of pro-environmental behaviour

Respondents' pro-environmental behaviour was examined both in relation to the given national park and to the place of residence. Park-specific pro-environmental behavioural intentions in national parks were measured using Halpenny's (2006) previously described 12-item scale. Respondents considered the items from two aspects. First, whether they performed the given action during their last visit (yes/no), second, how likely they will perform these actions during the next visit (1=very unlikely, 5=very likely).

The reliability of pro-environmental behaviour scales was examined using the same procedure that was described previously in connection with place attachment. The Cronbach alfa value of Halpenny's (2006) behavioural intention scale in national parks was 0.909, the item-total correlation reached the value of 0.3 in all cases. In case of the pro-environmental behaviour scale of Schultz and Zelezny (1998) the Cronbach alfa value exceeded the expected value of 0.7 (α=0,825). The item-total correlation for 10 items was between r=0.5364 and 0.662, within the range of acceptance (r >0.3).

Respondents mainly conducted 4-5 types of actions out of the 12 pro-environmental actions relating to national parks. The scale average was M=4.76 (SD=2.82). The number of realized action, as well as the associated individual scores varied between 0-12 in the sample. The most frequent actions were categorised as low effort, easy and general types resulting in quite mixed categories (see Table 19). Most respondents mentioned the information before visitation (n=219), this was followed by picking up litter (n=158), encouraging others (n=146), protecting favourite spot is if it needs to recover from environmental damage. High effort behavioural types (environmental activism, civic actions) had lower ranking and less mentions.

Category	Generality	Difficulty	Items	N	Did you carry out such activity during your last visit? **(persons)**	Probability of the activity during the next visit **Average**	Probability of the activity during the next visit **Standard deviation**
Learning behaviour	G	E	Learn more about XXX National Park's natural environment.	264	219	3.56	1.098
Pro-environmental citizen / physical activity	G	E	Pick up litter at this National Park left by other visitors.	264	158	3.35	1.282
Consumer behaviour	S	E	Volunteer to stop visiting a favourite spot in the Park if it needs to recover from environmental damage.	264	154	3.50	1.345
Convincing behaviour	G	E	Encourage others to reduce their waste and pick up their litter when they are in this National Park.	264	146	3.55	1.182
Consumer behaviour	S	E	Volunteer to reduce my use of a favourite spot in the Park if it needs to recover from environmental damage.	264	129	3.47	1.319
Convincing behaviour	G	E	Tell my friends not to feed the animals in this National Park or similar parks.	264	111	3.21	1.272
Environmental activist	G	D	Sign petitions in support of XXX National Park and similar protected areas.	264	89	3.34	1.307
Financial activity	G	D	Pay increased park fees if they were introduced for this national park's programs.	264	76	2.97	1.238
Environmental activist/ physical activity	S	D	Volunteer my time to projects that help this national park or similar national parks and conservation areas.	264	52	2.69	1.200
Financial activity	G	E	I donate money to protect places such as the XXX National Park.	264	52	2.55	1.095
Citizens' activity	G	D	I participate in public meetings regarding the operation of XXX National Park.	264	41	2.28	1.159
Environmental activist	G	D	I urge to support XXX National Park (eg.: I write a letter, support online petition).	264	31	2.29	1.215

Table 19: Pro-environmental behaviour and behavioural intention in national parks
S: specific, G: general, E:easy, D:difficult
Source: own elaboration

Demographical differences were examined using one-way ANOVA in the aim of gaining a deeper understanding of pro-environmental behaviour patterns. The following variables were incorporated into the study: gender, age, region and type of place of residence, family status, size of household, number of children under 14 in the household, education, income, place of residence, and place of childhood. Significant difference was shown based on

1. age ($F(4.259)=12.904$; $p=0.000$),
2. region ($F(2.261)=3.493$; $p=0.032$),
3. income ($F(4.192)=4.453$; $p=0.002$),
4. presence of children under 14 in the household ($F(1.262)=10.017$; $p=0.002$).

Respondents aged 60-69 were mainly characterized with pro-environmental behaviour in national parks, they were followed by the age group of 15-29 then 50-59. The lowest average appeared amongst people between 40-49. Based on the Tukey HSD post-hoc test there is a significant difference between the age group of 60-69 and other age groups. By examining eastern, mid and western regions, it seemed clear that respondents in the Eastern region performed significantly more actions compared to other regions. Based on the breakdown of incomes, people possessing 300,000-400,000 HUF per capita income demonstrated the least pro-environmental behaviour. Significant difference was detected between them and the category of 100,000-300,000 HUF. In general we can state that pro-environmental behaviour is less common in category above 300,000 HUF. I experienced significant difference based on the presence of a child under 14 in a household. Among people with children in a household, pro-environmental behaviour was significantly lower. Average and variance values are detailed in Table 20. The related ANOVA tables and Turkey HSD post-hoc tests can be found in Annex 18.

		N	Average	Standard deviation
Age	15-29	26	4.54	2.92
	30-39	48	3.44	2.57
	40-49	54	3.91	2.68
	50-59	48	4.33	2.18
	60-69	88	*6.32*	2.66
	Total	**264**	**4.77**	**2.82**
Region	Middle	80	4.30	2.92
	East	106	*5.31*	2.78
	West	78	4.50	2.67
Income	**Total**	**264**	**4.77**	**2.82**
	under HUF 100,000	28	*5.64*	3.23
	HUF 100,000 - 200,000	51	*5.55*	2.45
	HUF 200,001 - 300,000	53	*5.66*	3.23
	HUF 300,001 - 400,000	35	3.77	2.24
	above HUF 400,000	30	3.93	2.48
	Total	**197**	**5.03**	**2.87**
Children in the household	no children under 14	207	*5.05*	2.82
	children under 14	57	3.74	2.59
	Total	**264**	**4.77**	**2.82**

Table 20: Demographical differences in the values of pro-environmental behaviour concerning national parks
Source: own elaboration

Following the study of activities during the last visit, behavioural intentions were examined. The average score of the *pro-environmental behavioural intentions* scale was M_{Scale}=36.77 (SD=10.42), while the average of the items was M_{Item}= 3.06 (SD=1.509)[23]. Individual values higher than the average of M_{Item} were reached by easily accessible, general activities. Compared to the actual behaviour, less change was observed, typically in regard to the management scattered waste. In case of pro-environmental intentions, warning other has a higher average score (M=3.55, SD=1.118) than that of the own behaviour (M=3.35, SD=1.282). This phenomenon can be explained by the fact that own behaviour item referred to the scattered litter and warning others can reduce or prevent this action. This reflects a more conscious behaviour as we have seen that warning others had far less mentions (n=146) than own behaviour (n=219).

[23] Halpenny (2006) M=3.7, SD= 0.68

Having compared the research results of behavioural intention with Halpenny's (2006) Canadian research, similarly low average values appeared in case of high effort political and activism actions, while easier, socially more expected forms (picking up waste, information etc.) received higher values. Differences were rather related to deviations: while the present research showed lower variance in case of committed actions, the Canadian study observed this relationship in connection with easier forms.This can be caused by the fact that in Hungary, the encouragement of this forms of behaviour has started much later, they have not been fully integrated into social expectations. The lower ranking of financial actions in the Hungarian sample was considered to be another difference. This can be explained by the price sensitivity of the Hungarian population (Hofmeister-Tóth et al., 2011b; Nagy and Piskóti, 2011), and with the changed economic climate between the dates of the two researches.

Behaviour at the place of residence was equally studied in the aim of comparing pro-environmental behaviour patterns in national parks.

Items	Average	Standard deviation	NV
Recycled newspapers	4.23	1.116	4
I collect cans and bottles selectively.	4.08	1.121	4
Looked for ways to reuse thing	3.82	0.926	4
I saved fuel and I was walking or riding a bike instead.	3.52	1.164	5
Purchased products in reusable or recyclable containers	3.39	0.902	6
Encouraged friends or family to recycle.	3.32	1.187	5
Picked up litter that was not your own	3.23	1.026	12
I voted for a candidate who supports environmental issues.	3.1	1.406	19
Composted food scraps	2.77	1.503	21
Written a letter supporting an environmental issues	2.21	1.242	34

Table 21: Pro-environmental behaviour at the place of residence (N=264)
Source: own elaboration

The average of the self-reported pro-environmental behaviour scale of Schultz and Zelezny (1998) in the sample was M_{Scale}=33.67 volt. The 10-item scale on the realized behaviour put questions in relation to the frequency of activities in the past 12 months. Respondents evaluated the values of the scale items in relation to the frequency of the actions by using a 5-point Likert-scale where 1 meant "never" and 5 meant "always" and 99 meant "not relevant to me". Provided that the respondent was unable to perform the action at his/her place of residence (no car was available thus saving fuel was not an

appropriate option) 99=not relevant to me was an option. The average of scale items M_{Item}=3.367 (SD=1.377)

Like in case of behaviours in national parks, among behaviours at the place of residence easier, socially more expected actions got higher ranking such as selective waste collection, recycling, discontinuation of consumption. Actions at the place of residence were less characterized with environmental activism. The option "not relevant to me" was mostly selected in case of the following items: urge to support environmental issues, composting, voting on environmentalist MPs.

As a next step, following the guidelines by Schultz and Zelezny (1998), the average (hereinafter referred to as 'score') of the answers given to the scale was computed. Authors recommended that individual average could range from 1 to 5 with considering items "not relevant to me" as missing values. Scale score for the whole sample was M_{Score}=3.359. I analysed the differences in pro-environmental behaviour with demographical variables. By applying a one-way analysis of variance significant difference was detected in age groups only (F(4.259)=5.671; p=0.000). Respondents aged 15-29 were less characterized with pro-environmental actions (M=3.15), the age group of 60-69 was most characterized with pro-environmental actions (M=3.65) and it increased as people got older (see Annex 16). Based on the Tukey HSD post-hoc test there is a significant difference between the age group of 60-69 and other age groups. We have seen it when discussing typical behaviours in national parks that this age group performed significantly more actions during their visitations compared to other age groups. This tendency was reflected in several previous national studies, in which also the younger population demonstrated less environmental awareness (Piskóti, 2015; Hofmeister-Tóth et al., 2013). I also found that the following two items entailed significant differences between the age group of 60-69 and other age groups: voting for a representative supporting environmental issues and composting. While "composting" is significantly frequent in age group 60-69 compared to the age group 15-49, "voting for candidate" brings significant difference compared to the age group 30-59. The age group 60-69 demonstrated significantly lower value in case of item referring to buying recyclable, selective package compared to the age group 30-39.

In summary, behavioural patterns in national parks and at the places of residence were limited to low-effort behaviours whereas dynamic activities less expected by society and requiring activism were more characteristic in the age group above 60. It can be stated that demographical variables showed more significant differences in pro-environmental behaviour in national parks than at the place of residence. While the differences were noticeable based on age only at the place of residence, national parks however demonstrated more differences based on region, income and the presence of children under 14.

7.7.4. Examination of external variables of place attachment

Hypotheses H1-H5 aimed to study the relationship between external factors and place attachment. While hypotheses H1, H2 and H3 analyse the predicting effect of certain visitation characteristics on place attachment, hypotheses H4a, H4b and H5 describe the development of place attachment from the aspect of the relationship with the national park. The classification of involved variables is shown in Table 22.

EXTERNAL FACTORS	
Characteristics of the visit	**Characteristics of the relationship**
H1: Frequency of visitations	H4a: Childhood visitations to the given park
H2: Duration of visit	H4b: Childhood visitations to national parks
H3: The distance from the place of residence to the national park	H5: Length of relationship

Table 22: Summary of the independent variables examined
Source: own elaboration

Due to the level of measurement, a one-way analysis of variance was used to measure the variables. A two-way analysis of variance was conducted to test for interations. IBM SPSS 22.0 software was used for statistical analyses. As an initial condition of the analysis, the normal distribution of the dependent variable as well as variance homogeneity were examined. For examining normality I applied Kolmogorov-Smirnov and Shapiro-Wilk tests. The null hypothesis of the tests is true if the distribution is different from normal distribution (Sajtos and Mitev, 2007). This could not be rejected

for the sampled dependent variable, that is the place attachment scale value, therefore the variable cannot be considered to have normal distribution (see test results in Annex 17). As far as the F-test is concerned, Sajtos and Mitev (2007) point out that due to its robust nature, the non-compliance with the criteria do not have much impact on first-order of second-order error probability, thus this does not harm the validity of conclusions. To estimate variance homogeneity the Levene's test was applied. The goal of this test is to determine whether the dependent variable has the same variation with different levels of the independent variable. Null hypothesis is true if the variance of dependent variables is uniform with different levels if independent variables (Katz et al., 2009) In case of independent variables involved in the analysis null hypothesis was rejected at a threshold value of 0.1. The criteria of variance homogeneity was met in case of all variables.

After ensuring that the required conditions were met, a one-way analysis of variance was conducted to evaluate the relationships between the variables. Among sampled visitation characteristics, the variables of frequency of visitations and distance from national parks had significant effect.

Frequency of visitations

I found a significant difference between place attachment and frequency of visitations ($F(4.245)=10.008$; $p=0.000$).

Variable		Sample size	Average	Standard deviation
Frequency of visitations	Less than once in 3 years	19	25.53	9.65
	Once in three years	28	29.11	9.06
	Once a year	64	32.91	10.76
	Few times a year	104	36.44	9.46
	At least once a month	35	40.00	10.57
	Total	**250**	**34.38**	**10.63**

Table 23: Differences in the values of place attachment based on the frequency of visitations to the national park
Source: own analysis

Place attachment had higher and higher values in the sample as the frequency of visitation increased (see Table 23). Based on Tukey HSD post-hoc test, a significant difference is shown between rare visitors (visiting less than once in three years) and visitors visiting at least once a year. A significant difference was equally found between the group visiting once in three years and the group visiting several times a year, as well as between visitors

visiting once a year and visitors visiting at least once a month. In a next step, explained variance was computed. The influence of the frequency of visitations on place attachment was $Eta^2=0.14$. In other words, the frequency of visitations accounted for 14% of the variation of place attachment.

Based on the results, hypothesis H1 is accepted as a positive relationship was found between place attachment and the frequency of visitations.

Duration of visit

A longer visit to the national park may be associated with more complex experiences and wider information so a positive relationship was assumed between multiple day visitations to national parks and place attachment. Based on the duration of stay, however, I did not find significant difference in place attachment ($F(3.249) =1.164$; $p=0.324$). It can partially derive from the fact that the variable was defined for the last visit. According to Williams et al. (1992), this relationship can be better understood if this variable determines the average duration of visitations calculated from the average of the total visitations during the examined time period.

Variable		Sample size	Average	Standard deviation
Duration of visit	Day visitor, staying at home	131	34.69	11.16
	Day visitor, staying with 40 km	37	31.11	10.69
	Day visitor, passing through to another destination	28	34.43	9.89
	Multiple day visitor, staying with 40 km	57	34.37	8.86
	Total	**253**	**34.06**	**10.49**

Table 24: Differences in the values of place attachment based on the duration of visitations to the national park
Source: own analysis

Based on the average values of place attachment it seems clear that one-day visitors staying within 40 km were characterized with the lowest place attachment value. We can assume that the driving factor behind this type of visitation is to make leisure time more colourful and recreation appears as a secondary element only during a long vacation. Regarding shorter visits similar conclusions were drawn in a study on the visitations to Hungarian national parks (2013) (Ministry of Agriculture and Pannon University, 2015).

Based on the results, *I reject H2 hypothesis* as I did not find significant relationship between place attachment and the duration of the stay.

The distance from the place of residence to the national park

Concerning place attachment and the distance to the national park a significant relationship was only found in the context of locality. Respondents could choose from four categories when specifying the distance between the national park and their place of residence: the first category related to local visitors (place of residence within 40 km), the others related to visitors coming from further distances. The analysis of variance on between the four categories did not result in significant difference for place attachment ($F_{Distance}$ (3.254)=2.113; p=0.099). After separating local and non-local distance categories, I found significant differences between the groups (F_{Local} (1.256)=5.857; p=0.016), local visitors were marked by stronger place attachment regarding the selected national park. A more detailed differentiation of distances allows us to notice that the value of place attachment becomes bigger as the distance increases. It is worth further examining this issue by excluding local visitations. In this case, even a narrowed examination of visitors coming from farther that 40 km did not result in significant difference.

Variable		Sample size	Average	Standard deviation
Locality	Local visitor (living within 40 km)	91	36.32	10.82
	Non-local visitor	167	32.96	10.57
	Total	**258**	**34.14**	**10.76**
Distance from the national park	within 40 km	91	36.32	10.82
	40-150 km	87	32.39	10.78
	151-250 km	58	33.53	10.09
	over 250 km	22	33.68	11.29
	Total	**258**	**34.14**	**10.76**

Table 25: Differences in the values of place attachment based on the distance between the national park and the place of residence
Source: own elaboration

Taking the above-mentioned into account, I reject *H3 hypothesis*. No significant relationship was found between the distance from the place of residence and place attachment. However, a positive interaction appeared between place attachment and the local attribute of visitations. The influence of the local attribute of visitations on place

attachment was $Eta^2=0.22$ Therefore the local attribute of visitations accounted for 22% of the variation of place attachment scale.

To study the interactions between the visitation features and to identify partial effects a two-way hierarchical analysis of variance was conducted with locality as the first predictor variable. Significant main effects appeared when examining locality and the frequency of visitations together ($F_{Local}(1.240)=7.616$; $p=0.06$; $F_{Frequency}(4.240)=8.328$; $p=0.000$). The interaction between the two variables was not significant, thus the two variables have their each (partial) effect on place attachment. The examination of partial effects shows that the effect of locality weakens ($Beta^2=0.002$), the effect of frequent visitations grows ($Beta^2=0.163$), if the effect of the other variable on place attachment is kept under control. In other words, if we exclude the effect of frequency of visitations, the effect of locality on place attachment decreases, so as its explanatory power, its examination in addition to frequency of visitations is progressive. The partial effects of the variables are summarized in Table 26.

	ETA	**BETA**	**BETA²**
Locality	0.164	0.05	0.002
Frequency	0.378	0.404	0.163

Table 26: Influence of visitations characteristics on place attachment, two-way ANOVA
Source: own elaboration

Locality and the frequency of visitations together account for 14.5% of place attachment strength ($R^2=0.145$).

Potential further interactions were investigated by involving demographical attributes known to be in significant relationship with place attachment. I completed the analysis with age, region and income related variables. Here too, no significant interactions were apparent between variables. The significant main and partial effects are detailed in Table 27.

Variable-pair	Significant main effects		Interaction	ETA		BETA		BETA²		R2
	Main effect of variable 1.	Main effect of variable 2.		Variable 1.	Variable 2.	Variable 1.	Variable 2.	Variable 1.	Variable 2.	(in %)
age-locality	F(5.248)=4.159 p=0.01	F(4.248)=3.381; p=0.007	-	0.223	0.150	0.233	0.164	0.054	0.027	7.70%
income-locality	F(4.185)=5.871 p=0.000	F(1.185)=4.168; p=0.043	-	0.329	0.161	0.320	0.140	0.102	0.019	12.80%
region-locality	F(2.252)=5.607 p=0.01	F(1.252)=6.292; p=0.02	-	0.215	0.150	0.200	0.130	0.040	0.017	6.20%
age-frequency	F(4.225)=3.548 p=0.08	F(4.225)=9.530; p=0.000	-	0.222	0.375	0.205	0.365	0.042	0.133	18.00%
income-frequency	F(4.166)=6.495 p=0.000	F(4.166)=10.189; p=0.000	-	0.326	0.435	0.293	0.414	0.086	0.171	27.30%
region-frequency	F(2.235)=6.009 p=0.003	F(4.235)=9.519; p=0.000	-	0.203	0.375	0.176	0.362	0.031	0.131	17.10%

Table 27: Interaction between variables, significant main and partial effects
Source: own elaboration

Income and frequency of visitations have the strongest total explanatory power (27.3%) among the variable pairs examined. We have seen it earlier that as the frequency of visitations rises, place attachment increases. By clarifying this connection further we see that as a result of frequent visitations, place attachment increases more significantly in lower income categories than among visitors of higher income. In terms of locality, local visitors represent stronger attachment than non-locals in each income category, however, this difference was especially visible in income categories under HUF 100,000 and above HUF 400,000.

Concerning the partial effects of variable pairs examined, the effect of certain variables decreases, except for age-locality, provided we keep the other variable under control. In case of age and locality, explanatory power of both variables increases by excluding the effect of the other one. Local visitors above the age of 30 show stronger place attachment as age increases than visitors coming from farther. Previous studies on age also reported stronger place attachment among locals (Mesch and Manor, 1998; Shumaker and Taylor, 1983, Williams et al., 1992).

Similar results were found in case of returning visitors, too. Results of the two-way analysis of variance showed that in the combined impact of locality and frequent visitations, locality had less explanatory power. Based on the combined impact of these two variables, visitors from a further distance showed higher place attachment in all frequency related categories than local people. However, local population represented frequent visitors. By completing this with the effect of age I can conclude that the frequency of visitations and ageing in the age groups above 30 increased the value of place attachment. This relationship addresses the significance of length of the relationship with the national park.

The role of childhood visitations

During the analysis of the relationship between childhood visitations and place attachment I found significant effects regarding the given park ($F_{\text{given park}}(2.261)=4.536$; $p=0.012$) and national parks in general ($F_{\text{in general}}(2.261)=3.719$; $p=0.026$).

	in the given national park		**in national parks in general**	
under the age of 14	**Average**	**Sample size**	**Average**	**Sample size**
visitations were not common	32.54	167	32.60	132
visitations were moderately common	35.83	40	34.01	71
visitations were common	37.07	57	37.10	61
Total	**34.02**	**264**	**34.02**	**264**

Table 28: Differences in the values of place attachment based on childhood visitations to the national park
Source: own elaboration

The bigger role visitations to a given park or to national parks in general played in respondents' childhood, the higher values of place attachment appeared. Childhood visitations to national parks accounted for 2.8% of the variation of place attachment and visitations to a given park accounted for 3.4% of the same variation. As a result of the Tukey HSD post-hoc test in both cases significant difference was noticed between groups visiting national parks in childhood and groups not visiting them in childhood. The combined examination of the two variables resulted in significant main effect only in case of the variable of childhood visitation to national parks ($F(2.255)=3.713$; $p=0.026$), there were no interaction between the two variables. This can be caused by the fact that respondents primarily listed those parks that they had relationship with as adults.

I accept *H4a and H4b hypotheses* with the above-mentioned comments. Both childhood relationship with a given national park and the childhood relationship with national parks in general positively affect the extent of place attachment.

Significant differences were found in the relationship between the length of the relationship with the national park and place attachment (F (5.258)= 4.307; p=0.01) among first time visitors and visitors of more than 6 years of visitation. The variable accounted for 7.7% of the variation of place attachment (R^2-=0.077). Since the relationship of elderly people with the national park can be longer due to their age, I examined the interaction between the two variables. Results confirmed that beside the significant main effect of the two variables ($F_{relationship}$(5.235)=4.696, p=0.000; F_{age} (4.235)=3.425, p=0.006) the interaction (F(19.235)=1.653, p=0.045) is also significant, thus the two variables represent a joint explanatory power. Regarding place attachment values, a salient connection has become clear in the dimension of age and the length of relationship. First, a stronger bond of the older age group appeared again. Place attachment values of the age group 60-69 as already referred to them, were higher in all relationship related category except for two cases. The two exceptions were such relationship-age combinations where the visitor had a childhood bond (age group 30-39 had 26-35 year relationship, age group 40-49 had a relationship of more than 35 years). Thus the importance of childhood visitations was taking more and more shape when examining the two variables.

Age	Length of relationship with the park					
	first visit	**1-5 years**	**6-15 years**	**16-25 years**	**26-35 years**	**35+ years**
15-29	20.33	26.00	34.80	*38.57*	32.00	
30-39	18.00	31.50	33.00	28.60	*39.67*	20.00
40-49	24.80	31.78	35.30	31.40	30.25	*41.75*
50-59	28.00	25.40	34.21	26.00	34.67	35.93
60-69	28.00	*37.12*	*37.00*	*42.40*	*39.00*	*35.67*
Total	**24.17**	**32.41**	**34.97**	**33.96**	**36.00**	**36.49**

Table 29: Place attachment values in the dimension of age and the length of relationship variables
Source: own elaboration

In order to better understand the higher values appearing consequently in the age group 60-69, I involved another variable, namely the active/inactive employment status into the analysis. I assumed that variations in place attachment values were caused by the fact that

elderly people have more leisure time due to their inactive status. Active/inactive status had no significant effect (F(1.253)=0.986,p=0.322) on place attachment within the dimension defined by these three variables.

As a last step in the examination of predictors hierarchical analysis of variance was performed to identify partial effects of visitation (frequency of visitations), relationship (length of relationship) and demographical (income, age) variables. I integrated the most powerful variables into the analysis based on the explanatory powers found in the one-way analysis of variance. As a result, the variables examined accounted for 33.3% of the strength of place attachment (R^2=0.333).

	Eta	Beta	Beta2
Frequency	,435	,355	0.126
Income	,326	,288	0.083
Age	,216	,201	0.040
Relationship	,279	,187	0.035

Table 30: The influence of external variables on place attachment based on hierarchical analysis of variance
Source: own elaboration

According to partial effects, the frequency of visitations has the biggest specific effect (12.6%) and this is followed by the income (8.3%). However, in the dimension defined by the four variables, age and the relationship with the national park has lost its significant effect on place attachment (See Annex 19).

7.7.5. The relationship between place attachment and pro-environmental behavioural intention

In the next research phase the method of structural equation modelling (hereinafter referred to as SEM) was applied to test for relationships between place attachment and pro-environmental behavioural intentions. A covariance-based covariance-based structural equation modelling was preferred instead of the differentiated variance technique. The reason behind this decision is that variance based PLS (Partial Least Square) only allows for the testing of correlations between latent variables, while

covariance-based AMOS (Analysis of Moment Structures) allows for the testing of the whole model (Hair et al., 2011), allowing for the testing of the entire model's fit (Neumann-Bódi, 2012). The present research is aimed at testing a theory-based model, which lead to using reflective measurement models during the analyses, i.e. the causal processes are directed in the model from the latent variable (construct) towards the indicators (measurement variables). In other words, changes of latent variables are determined by measured variables (Henseler et al., 2009). I analysed and tested the structural model with maximum-likelihood estimate by using AMOS 22.0 software. The Cronbach alpha indicators were calculated with SPSS 22.0 software. The size of sample was 240 persons. Compared to the different views in the literature regarding the minimum sample size, my sample size met the expected level in almost each case based on the criteria summarized in Table 34. The samples size was only once below the recommended value, which was Kline's (2005) ideal value, however the sample still met the minimum requirements. Based on this, I considered the sample size sufficient.

Author	**Year**	**Definition of the expected minimum sample size***	**Expected minimum sample size**
Bentler and Chou	1978	n/q>5,	>165
Kline	2005	ideally n/q>10, but at least n/q>5	ideally >330, but at least >165
Bagozzi, 1975	1981	n-q>50	>88
Hair et al.	2010	minimum 200 persons	>200

Table 31: Aspects of defining the sample size
* where n= sample size, q= estimated number of parameters of the model (33 in our case)
Source: own elaboration

7.7.6. Validating the measurement model

As the first step of the correlation analysis, I tested the reliability and validity of the scales and measuring model. *Reliability* means the exclusion of accidental errors, the repeatability of results under the same conditions (Homburg and Krohmer, 2003). The examination of internal consistency is a possible procedure for reliability where *Cronbach-alpha* is the most common measure. The indicator provides a reliability estimate as an average of correlation coefficients deriving from various splitting of scale items (Cronbach, 1951). Since the alpha coefficient increases as the scale items grow (Malhotra and Simon, 2008), and also in case of latent variables it may underestimate or overestimate the rate of internal consistency, besides Cronbach-alpha, the literature also recommends CR (composit reliability) as another reliability indicator relating to one

indicator (Fornell and Larcker, 1981; Hair et al., 2010). Similarly to Cronbach-alpha, the value of CR indicator can be accepted above 0.7 (Hair et al., 2010). Beyond the definition of Cronbach-alpha and CR-indicators, testing the reliability of indicators is another task. The proper process aims to get the factor weighs of certain indicators reach 0.7 (Henseler et al., 2009; Hair et al., 2010).

Based on these findings, the measurement model and the scale reliability can be deemed reliable upon the following conditions (Cronbach, 1951; Henseler et al., 2009; Hair et al., 2010; Nyírő, 2011):

(1) Cronbach- alfa coefficient > 0.7
(2) CR (Composite reliability) coefficient > 0.7
(3) Factor weigh of the indicators > 0.7

Besides scale reliability, we have to test scale *validity*, too, by excluding system errors thus ensuring that we measure what we actually wanted to measure (Homburg and Krohmer, 2003). One can distinguish between several types of validity. Henseler et al. (2009) suggest differentiation between content validity, convergent validity and discriminant validity. Furthermore, Hair et al. (2010) mention construct validity and nomological validity. In the following the various validity concepts will be discussed in detail, with special attention to the related indicators.

Content validity is subjective, but an expert evaluation on how a given scale reflects the measurement task (Malhorta and Simon, 2008). In other words, content validity gives us the opportunity to test if scale items fully cover the meaning of the variable to be measured. As such, this only requires qualitative approach (Nyírő, 2011). A review in the literature on this topic as well as my qualitative research among the students contributed to the content validity of the scales.

Besides content validity, construct validity equally needs to be tested. A necessary condition for testing construct validity is that convergent, discriminant and nomological validities be confirmed.

Convergent validity appears if measuring results of two variables will be the same in case of two different measuring methods (Weiber and Mühlhaus, 2010). AVE (average variance extracted) indicator is a suitable tool to declare convergent validity (Fornell and

Lacker, 1981). AVE is the average amount of variance in indicator variables that a construct is managed to explain.Sufficient convergent validity means a value above 0.5 (Fornell and Larcker, 1981).

The criteria of discriminant validity fulfills if the measurements of certain variables significantly differ from each other. For measuring discriminant validity in case of reflective structural equality model, Henseler et al. (2009) recommend the use of the Fornell-Larcker criterion and that of cross-loadings. Fornell and Larcker (1981) suggest that discriminant validity exists if the own indicators account for higher percentage of the variance of a latent variable than that of the variance of any other latent variable. A precondition to verify this criterion is that the square root of AVE of all latent variables be larger than its correlations with the other latent variables (Nyírő, 2011). The Fornell-Larcker criterion examines discriminant validity in context of the latent variables. On the contrary, cross-loadings validation determines the existence of discriminant validity in context of the indicators. According to the criteria, the correlation between the indicator and the relating latent variable should be higher than the correlation between the indicator and other variables (Fornell and Larcker, 1981).

In summary, the validity of the measurement model and the scales can be defined upon the following conditions (Henseler et al., 2009; Fornell and Larcker, 1981):

(1) In case of convergent validity: AVE > 0.5
(2) In case of discriminant validity
    a. AVE > R^2 with any variables (Fornell-Larcker criterion)
    b. correlation between the indicator and its own latent variable > correlation between the indicator and other latent variable (cross-loadings criterion)

Hereinafter to test for construct validity a confirmatory factor analysis (CFA) was carried out. The initial measurement model involving each indicator contained place attachment construct (Ramkissoon et al., 2013) comprising four sub-dimensions with 3-3 items, while park specific pro-environmental behavioural intentions (Halpenny, 2006) comprised high and low effort action types with four or five items. In order to confirm the dimensionality of pro-environmental behavioural intentions scale I carried out exploratory factor analysis (EFA) before the analysis, applying main component procedure besides varimax rotation. The reason for a preliminary EFA was that I made

some fine-tuning after the scale test, thus scale items slightly changed for a better understanding. Based on the factor analysis, three statement were deleted since they showed significant overlapping with both factors, and also, two of them did not reach the desired factor weigh of 0.5 (paying higher entrance fee, acquiring more knowledge before the visit, signing petitions). The various types of activities were differentiated along Ramkissoon et al.'s (2013) guidelines, which was equally in line with the observations made during the pre-test of the scale in the present study. This initial confirmatory factor model is described in Annex 21.

The initial model was not acceptable since the variance of the place identity random error was negative. Such cases are called Heywood cases (Hair et al., 2010) which is logically impossible since the model assigns a value under 0 to the random error, as a result, more than 100% of the explained variance is associated to the relating variable or construction. Hair et al. (2010) suggest they construct validity should be ensured in such cases. A potential way to do this is to ignore the variable in question with keeping the three-indicator rule. Since the identity dimension was measured with three indicators, this solution needed deeper consideration. In order to settle further steps, I examined the first-order, four-dimension factor solution of place attachment (see Annex 21). Based on the results it became obvious that cross-loadings validity was harmed in identity and emotions sub-dimensions, the correlation between indicator and emotion sub-dimensions was higher than the correlation between the sub-dimensions and their own indicators. Although at a smaller extent but a similar issue occurred between identity and place attachment sub-dimensions. The over sliding of sub-dimensions mentioned above is not a unique case, Halpenny (2006) obtained similar results. If we look back to the scale evolution, it becomes visible that the emotion and identity statements of the scale we applied in our research and which was based on the one Ramkissoon et al. (2013) suggested, were apparently moved from the scale items of Kyle et al (2004c). Dimensions of the scale measuring emotion and identity were distinguished in both researches (Kyle et al., 2004c; Ramkissoon et al., 2013), however both studies emphasize that further testing is needed in different context of the scale. Later Kyle et al. (2005), to fill this gap, examined and confirmed the already separated emotion and identity statements in a sliding over manner in the course of the overall examination of place attachment dimensionality, and differentiated place identity, place dependence and social bonds. This can be explained by the fact that early scales measuring place attachment in context of

place dependence and place identity considered emotional component as part of the identity. This theoretical approach allowed me to continue testing the model with combining emotion and identity sub-dimensions. Afterwards, while examining the outliers indicated by the modification indices I examined the measurement model fit by picking the lowest factor weigh variable from its confirmatory factor structure, as well as the above-mentioned indicators of reliability and validity. Through this process I finally reached a proper measurement model fit taking always into consideration that the reliability of indicators should not go under the value of 0.7. This measurement model is shown in Figure 16.

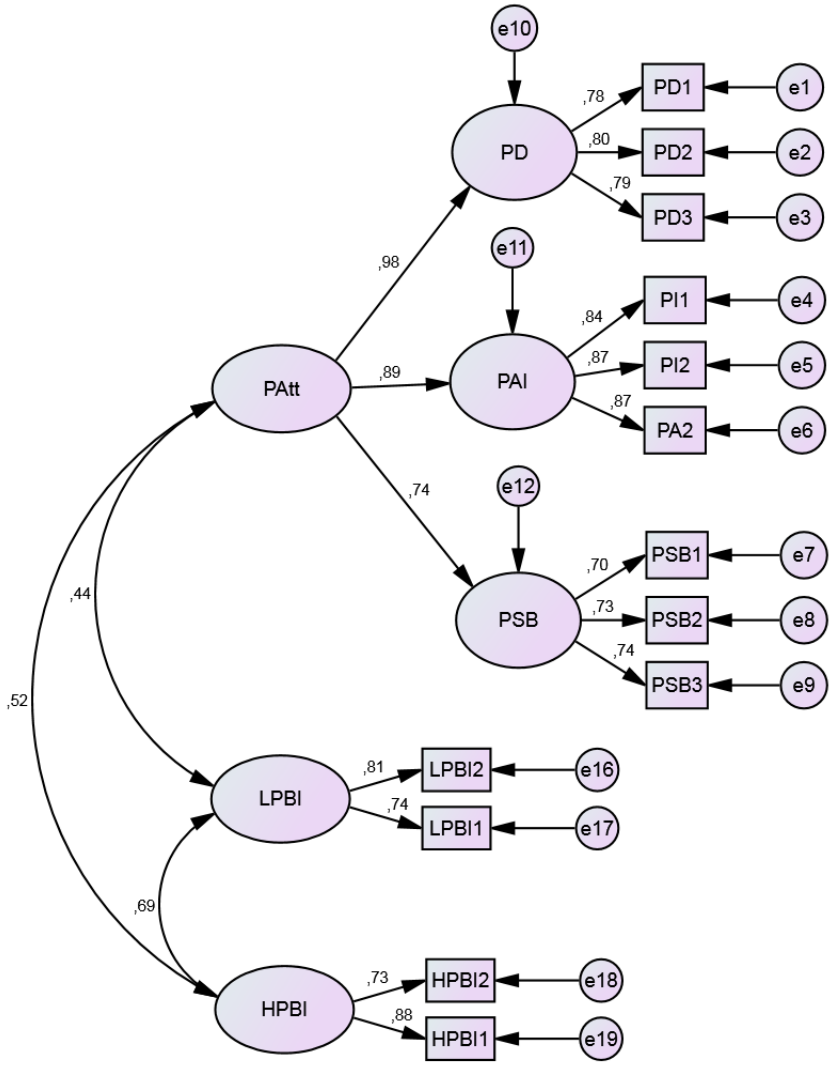

Figure 16: Final measurement model
where PAtt= place attachment, LPBI= low effort pro-environmental behavioural intentions, HPBI= high effort pro-environmental behavioural intentions, PAI= place affect-identity, PSB= place social bonding, PD= place dependence

Source: AMOS/own elaborattion

Compliance indicators of the final confirmatory factor model is detailed in Table 32. I applied the formulas defined by Fornell and Larcker (1981) to calculate AVE and CE indicators in an excel spreadsheet.

Name of variable / Indicators	Factor weight (>0,7)	CR (>0,7)	AVE (>0,5)	Cronbach-alfa (>0,7)
Place attachment		**0.91**	**0.77**	**0,903**
Place dependence		0.83	0.62	0.832
PD1	0.78			
PD2	0.80			
PD3	0.79			
Place affect-identity		0.89	0.74	0.893
PI1	0.84			
PI2	0.87			
PA2	0.87			
Place social bonding		0.77	0.52	0.767
PSB1	0.70			
PSB2	0.73			
PSB3	0.74			
Low effort pro-environmental behavioural intentions		**0.75**	**0.60**	**0.745**
PBI1	0.74			
PBI7	0.81			
High effort pro-environmental behavioural intentions		**0.79**	**0.65**	**0.770**
PBI6	0.88			
PBI12	0.73			

Table 32: Results of confirmatory factor analysis, scale reliability and validity calculations
Source: own elaboration

The following indicators were defined to test model fit: Chi-square, RMSEA (Root Mean Square Error of Approximation), CMIN/d.f. ($\chi 2$/degree of freedom), NFI (Normed Fit Index), TLI (Tucker-Lewis Index) and CFI (Comparative Fit Index).

AMOS 22.0 software was used for calculation. Certain indicated can be interpreted as follows:

(1) Chi-square test: null hypothesis is true if empirical model fits to the data (Hair et al., 2010). Since the test is sensitive to large sample size, further indices are recommended for analytical parameters and the normality of variables (Jöreskog and Sörbom, 1993).

(2) CMIN/d.f: absolute fit indices measuring the goodness of the model compared to when there is "no model" (Byrne, 2001).

(3) RMSEA: indicator based on the analysis of residues. Enables to examine differences between the observed correlation/covariance and the reproduced values.

(4) CFI, NFI and TLI: incremental and comparative indicators which compare with the specified base model (Neumann-Bódi, 2012).

Fit indices of the model and the range of acceptance of certain indicators are shown in Table 33.

	Range of acceptance	**Estimated value**	**Evaluation**
CMIN/d.f	≤ 3 (Bentler, 1990)	1.973	criteria matched
RMSEA	≤ 0.08 , if CFI ≥0.95 (Hair et al., 2010)* ≤ 0.08 acceptable, ≥0,1 non-acceptable (Backhaus et al., 2005)	0.064	criteria matched
TLI	≥ 0.90 (Baumgartner and Homburg, 1996)	0.952	criteria matched
CFI	≥ 0.90 (Baumgartner and Homburg, 1996)	0.964	criteria matched
NFI	≥ 0.90 (Hair et al., 1992)	0.930	criteria matched

Table 33: Fit indices of the measurement model
* Range of acceptance for sample less than 250, observed variables less than 30
Source: own editing

Based on the results, all sampled indicators were within the range of acceptance. In summary, the *fit indices of the measurement model* can be accepted.

7.7.7. Fit indices of the structural model

Following the measurement model I examined the fit indices of the structural model. The objective of the model is to get a deeper understanding of the effect of place attachment on pro-environmental behavioural intentions. Structural model is shown in Figure 17.

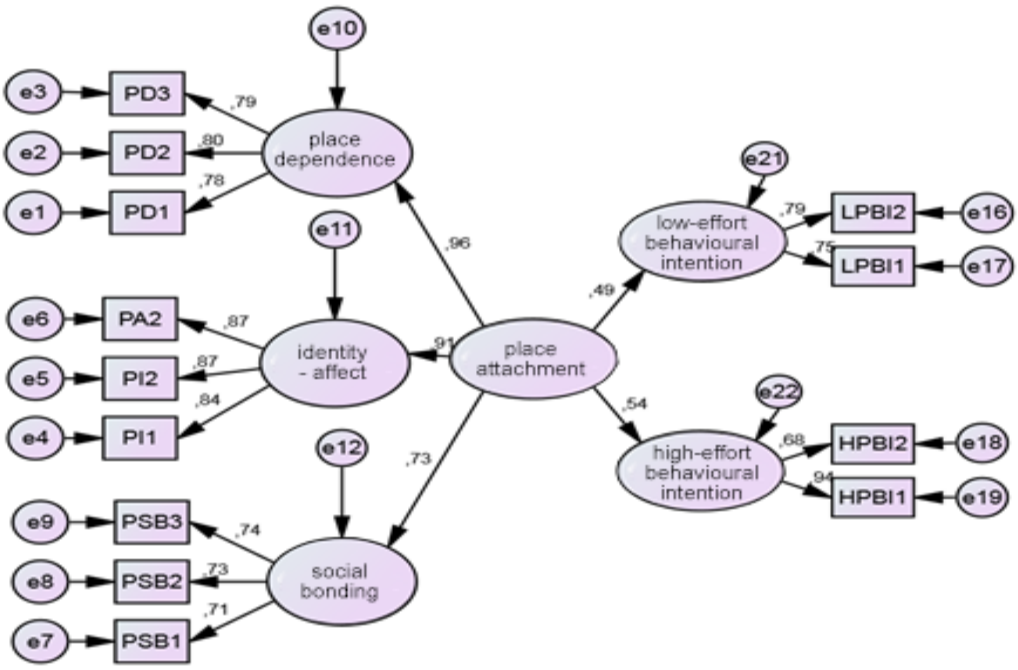

Figure 17: Structural model
Source: AMOS/ own elaboration

Fit indices of the structural model were as follows:

	Range of acceptance	Estimated value	Evaluation
CMIN/d.f	≤ 3 (Bentler, 1990)	2.748	criteria matched
RMSEA	≤ 0.08 , if CFI ≥0.95 (Hair et al., 2010)* ≤ 0.08 acceptable, ≥0.1 non-acceptable model (Backhaus et al., 2005)	0.086	criteria matched**
TLI	≥ 0.90 (Baumgartner and Homburg, 1996)	0.915	criteria matched
CFI	≥ 0.90 (Baumgartner and Homburg, 1996)	0.934	criteria matched
NFI	≥ 0.90 (Hair et al., 1992)	0.901	criteria matched

Table 34: Fit indices of the structural model
* Range of acceptance for sample less than 250, observed variables less than 30
** According to Backhaus et al. (2005)
Source: own elaboration

Fit indices of the structural model were within the range of acceptance. We can state that the model fits to data properly. In the following section I will detail the results.

7.7.8. Results of the structural model

The effects (standardized regression coefficients) were examined using the maximum likelihood estimation method with AMOS software. Results are summarized in Table 18.

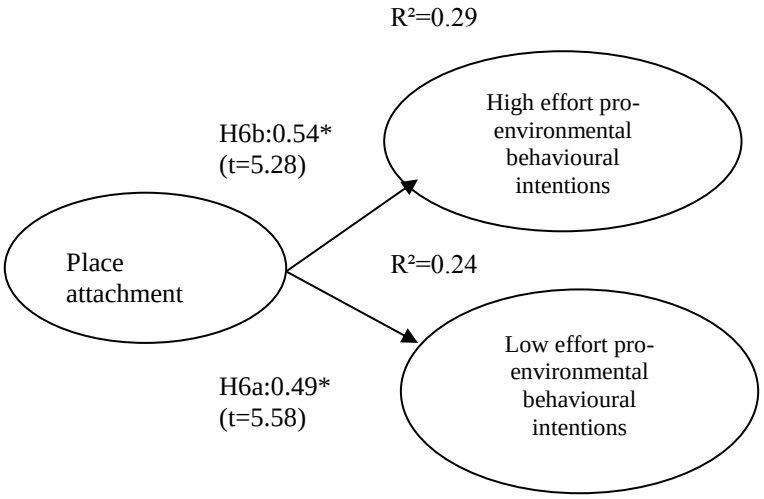

Figure 18: Illustration of effects in a structural model
Significant paths are marked with solid lines. *p<0, 001
Source: own elaboration

Based on the results the effect of place attachment proved to be significant for both pro-environmental behavioural intentions. Place attachment positively influences the visitor's high effort pro-environmental behavioural intentions (t=5.28, p<0.001,β=0.54) and has a weaker influence on low effort pro-environmental behavioural intentions (t=5.58, p<0.001,β=0.49).[24]Place attachment accounts for 29% of the variation of high effort behavioural intentions while it accounts for 24% of the variation of low effort behavioural intentions. This is another validation of the early theories of Relph (1976) and Tuan (1974) whereby place attachment is associated with the intention of protection of the place. The result is also in line with the findings by Ramkissoon et al (2013) who showed that place attachment had a stronger effect on high-effort behavioural intentions.

Hypothesis H6 assuming that *place attachment as a second-order factor positively influences pro-environmental behavioural intentions* was confirmed by the results, thus this hypothesis is accepted. By distinguishing high- and low-commitment patterns of behavioural intention, the following can be stated:

[24]Cohen (1988) recommends that weak effect happens if the absolute value of the standardized path coefficient is below 0.1, medium effect has a value of approximately 0.3 and strong effect appears above 0.5.

H6a: *Place attachment as a second-order factor medium-strongly and positively influences the visitor's low effort pro-environmental behavioural intentions*. I accept the hypothesis.

H6b: *Place attachment as a second-order factor strongly and positively influences the visitor's high effort pro-environmental behavioural intentions.* I accept the hypothesis.

In the context of the connection between the variables discussed, I analysed the direct and indirect effects between the various behavioural intentions and place attachment. My aim was to provide a deeper understanding on the patterns of pro-environmental behavioural intention as a result of place attachment. In other words, I wished to analyse the strength of effects between the variables in light of each commitment path.

The study is based on the so-called Spillover Effect (Thøgersen, 1999) whereby an individual's pro-environmental attitude or behaviour in one area can be a good predictor of their pro-environmental behaviour in other areas. This relationship among behavioural patterns at the place of residence and while away is supported by a number of previous studies (Vaske and Korbin, 2001; Halpenny, 2006; 2010). Provided that place attachment generates pro-environmental behavioural pattern, that is the low effort pro-environmental behaviour in our case, as a result, this effect may spill over to other areas such as to high effort behaviours. The theory however does not cover the potential direction of this process therefore it is more appropriate to refer to patterns rather than a hierarchical way of a given direction. This was confirmed by Hofmeister-Tóth et al. (2012) in their research on commitment process to pro-environmental behaviour. They examined the narratives of persons committed to sustainability based on the main motivations of their commitment. As a result of the content analysis of the interviews, three life path patterns have become visible: commitment after a turning point, challenging commitment and community focused commitment. Depending on the realized actions each life path had its own way. While challenging commitment was unfolding with high effort actions, commitment after a turning point was a step-by-step commitment process from the easier actions towards the harder ones. There can be no single way in this process but the understanding of certain areas (such as national park in our case) has a high impact on incentive programs facilitating changes in behaviour and on drafting policy proposals.

Since the applied theory suggested a two-way mediating effect between low- and high-effort pro-environmental behavioural intentions, I tested alternative models and defined a basic model (without mediating effect, A) as well as other models analysing the mediating effect of high (model B) and low (model C) effort behavioural intentions.

„ A variable functions as a mediator when it meets the following conditions:

- variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e., Path a)
- variations in the mediator significantly account for variations in the dependent variable (i.e., Path b), and
- when paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path c is zero" (Baron and Kenny, 1986, p. 1176).

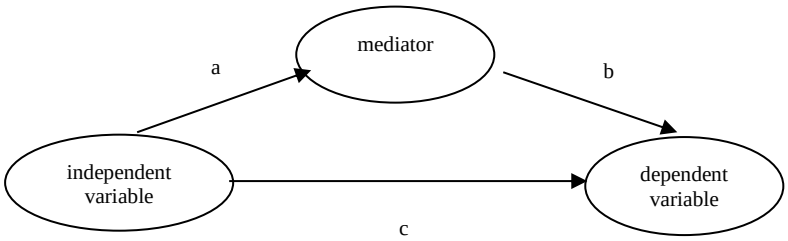

Figure 19: Mediating effect
Source: Baron and Kenny (1986)

By introducing the mediating effect, the fit of the structural model greatly improved. Hereinafter I relied on this result when examining the direct and indirect effects relating to models B and C. The fit indices of the models are summarized by Table 35.

	Range of acceptance	Basic model (A)	Alternative models (B and C)
CMIN/d.f	≤ 3 (Bentler, 1990)	2.748	1.973
RMSEA	≤ 0.08 , if CFI ≥0.95 (Hair et al., 2010)	0.086	0.064
TLI	≥ 0.90 (Baumgartner and Homburg, 1996)	0.915	0.952
CFI	≥ 0.90 (Baumgartner and Homburg, 1996)	0.934	0.964
NFI	≥ 0.90 (Hair et al., 1992)	0.901	0.930

Table 35: Fit indices of alternative models examined
Source: own elaboration

The direct and indirect effects relating to models B and C were examined in the following based on the above. The results are summarized in Table 36.

MODEL A: No mediating effect					
Latent variable	**Direction of effect**	**Latent variable**	**TOTAL**	**DIRECT**	**INDIRECT**
Place attachment	→	Low EBI	*0,486*		
Place attachment	→	High EBI	*0.538*		
MODEL B: Low EBI mediating effect					
Latent variable	**Direction of effect**	**Latent variable**	**TOTAL**	**DIRECT**	**INDIRECT**
Place attachment	→	Low EBI	*0.435*		
Low EBI	→	High EBI	*0,573*		
Place attachment	→	High EBI	*0.521*	*0.272*	*0.249*
MODEL C: High EBI mediating effect					
Latent variable	**Direction of effect**	**Latent variable**	**TOTAL**	**DIRECT**	**INDIRECT**
Place attachment	→	Low EBI	0.435	~~0.103~~	***0.332***
High EBI	→	Low EBI	*0.637*		
Place attachment	→	High EBI	*0.521*		

Table 36: Total, direct and indirect effects between the variables
Italic, highlighted parts p<0.01 refer to the level of significance
Source: own elaboration

In case of *model B* (see Figure 19) the full effects between the sampled latent variables proved to be significant in all cases. The level of significance of the indirect effect was also $p<0.01$. It can be stated that this case shows a partial mediating effect. Place attachment has a significant strong effect ($t=3.378$, $p<0.001$, $\beta=0.521$) on high effort behavioural patterns, and has a medium strong effect on low effort behavioural patterns ($t=4.953$, $p<0.001$,$\beta=0.435$). Place attachment equally shows a significant effect ($t=5.686$, $p<0.001$, $\beta=0.573$) on high-effort pro-environmental behavioural intentions through the low-effort pro-environmental behavioural intentions. Place attachment accounts for 7.3% ($R^2=0.073$) of the variation of high-effort behavioural intentions while it accounts for 18.9% ($R^2=0.189$) of the variation of low-effort behavioural intentions. Low-effort behavioural intentions account for 32.8% of the variation of high-effort behavioural intentions.

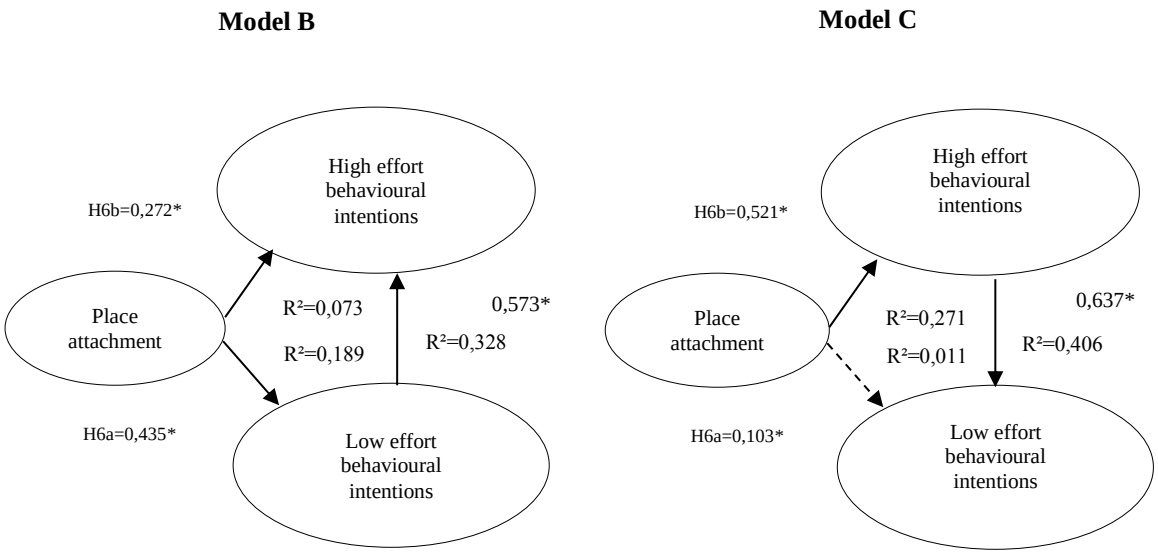

Figure 20: Illustration of effects in a structural model (model B and C)
Significant paths are marked with solid lines while non-significant paths are marked with dashed lines.
*p<0.001
Source: own editing

Based on *model C* place attachment remains to have a strong significant effect on high-effort behavioural intentions (t=5.504, p<0.001, β=0.52), while its significant effect on low-effort activities disappears (t=1.2, p>0.05, β=0.10). In order to define the significance of the indirect effect I applied bootstrapping (MacKinnon et al., 2002) by using AMOS software. Results suggest that the significant effect between the two variables observed earlier (in the basic model) was a result of the indirect effect (see Table 36). In case of model B the significant effect of place attachment on low-effort pro-environmental behavioural intentions is only manifested through high-effort intentions. Place attachment accounts for 27.1% (R^2=0.271) of the variation of high-effort behavioural intentions while it accounts for 1.1% of the variation of low-effort behavioural intentions. High effort behavioural intentions accounts for 40.6% of the variation of low effort behavioural intentions.

In summary, based on the fit indices of models B and C, as well as the total direct and indirect effects between the variables it can be concluded that a spillover effect appears in case of both commitment paths. While for model B the mediating effect is only partial, for model C the mediating effect is full. In other words, the desired behavioural intention can be better projected if the effect of place attachment unfolds in case of high effort activities, for example through the participation of a project relating to the operation of a

national park. In addition to these activities, new low effort patterns may also disappear such as picking up garbage left by others. In terms of the hypotheses, the following conclusions can be drawn.

H6c: Low-effort pro-environmental behavioural intentions partially mediate the effect of place attachment on high-effort pro-environmental behavioural intentions. *Hypothesis H6c is partially accepted.*

H6d: High effort pro-environmental behavioural intentions mediate the effect of place attachment on low-effort pro-environmental behavioural intentions. *The hypothesis is accepted.*

8. EVALUATION OF RESULTS, CONCLUSIONS

8.1. Summary of results

The core of the research was the study of the relationship between place attachment and pro-environmental behavioural intentions by linking the TRA model and spillover effect theory. In addition to the study of the relationship between place attachment and pro-environmental behaviour the study equally analyzes the factors facilitating place attachment to national parks.

After the investigation of the main characteristics of visitations to national parks, the major forms of attachment to parks and pro-environmental behaviour were examined. Respondents were characterized with a slightly weaker than medium attachment to the given park. Concerning the demographical differences of place attachment I found significant differences in age, income and the region of the place of residence. People between the age of 60-69 demonstrated the strongest attachment to national parks. Based on the per capita income of a household, place attachment is decreasing as the income increases. There was a significant difference between the category under 100,000 HUF and the category above 300,000 HUF based on the per capita income of a household. Regarding the region of the place of residence, respondents of the eastern region showed significantly higher place attachment.

In the study of pro-environmental behaviour and behavioural intentions, behavioural patterns in national parks and at the places of residence turned out to be limited to low-effort behaviours whereas dynamic activities less expected by society and requiring activism were more characteristic in the age group above 60. It can be stated that demographical variables showed more significant differences in pro-environmental behaviour in national parks than at the place of residence. While the differences were noticeable based on the age only at the place of residence, national parks however demonstrated more differences based on region, income and the presence of children under 14.

In the study of hypotheses H1-H5 related to the relationship between place attachment and visitation and park related characteristics (relationship with the park) a one-way and a multi-way analyses of variance (ANOVA) were performed. Based on the results, among other visitation-related attributes a significant difference in place attachment was found in connection with the *frequency of visitations* (H1). The higher the frequency of visitation was, the higher the value of place attachment became, with the former variable accounting for 14% of the variation of place attachment. No significant relationship was found between place attachment and the *duration of the stay* (H2) and between place attachment and the *distance from the place of residence* (H3). By examining the distance from the park in terms of locality (by separating places of residence within and outside of the range of 40 km) a *positive significant interaction* between *place attachment* and *locality* appeared. The local feature of the visitation accounted for 22% of the variation of place attachment. I performed a two-way hierarchical analysis of variance to identify partial effects and to study the interactions between the visitation features. Results showed a lower explanatory power of locality in the *combined effect of locality and frequent visitations*. Based on the combined effect of these two variables, visitors from a further distance showed higher place attachment in all frequency-related categories than local people. However, regular visitors were mostly originating from among the local population. By completing this result with the effect of age one can conclude that in the age group above 30 both the frequency of visitations and ageing increased the value of place attachment. This relationship addresses the importance of the length of the relationship with the national park.

The analysis of the relationship between childhood visitations (H4a and H4b) and place attachment revealed significant effects regarding both the given park and national parks in general. The bigger role visitations to a given park or to national parks in general played in respondents' childhood, the higher values of place attachment appeared to be. Childhood visitations to international parks accounted for 2.8% of the variance of place attachment and visitations to a given park accounted for 3.4% of the same variance.

In connection with the length of the relationship with the national park, as expected, significant differences were found in the values of place attachment, and these variations appeared between first-time visitors and returning visitors with more than 6 years of relationship with the park. The variable accounted for 7.7% of the variation of place attachment. Since the relationship of elderly people with the national park can be longer due to their age, I examined the interaction between the two variables. Results confirmed that beside the significant main effect of the two variables the interaction is equally significant, the two variables thus bear a joint explanatory power. Regarding place attachment values, two marked relationships emerged in the dimension of age and the length of relationship. First, a stronger bond of the older age group appeared again. Place attachment values of the aforementioned 60-69 age group were higher in all relationship-related categories except for two cases. The two exceptions were such relationship-age combinations where the visitor had a childhood bond (with the 30-39 age group having a 26-35 year relationship and the 40-49 age group having a relationship of more than 35 years). This also confirmed the importance of childhood interactions.

In the next phase of the study, the method of structural equation modelling (hereinafter referred to as SEM) was applied for testing the interaction between place attachment and pro-environmental behavioural intentions (H6). SEM model comprises a measurement and a structural model (Backhaus et al., 2005). As a first step, I performed a confirmatory factor analysis to validate applied scales and to determine quality compliance of the measurement model. This was followed by the establishment of a structural model which I considered valid based on the fit indices recommended in the literature. I used this model to examine the effect of place attachment on low and high effort pro-environmental behavioural intentions. My results confirmed that place attachment positively influences pro-environmental behavioural intentions and its effect was stronger in case of high effort

pro-environmental behavioural intentions than in case of low effort pro-environmental behavioural intentions.

The evaluations of research hypotheses can be summarized as follows:

Hypothesis	Evaluation	Final thesis
H1: There is a positive relationship between the frequency of visitations to national parks and the extent of place attachment.	Support	Having examined the external factors predicting place attachment, there is a positive significant relationship between place attachment and the frequency of visitations as far as visitation features are concerned. By observing the distance from the place of residence only the local nature of the visitation implies the positive relationship (between people living within or outside of the range of 40 km). All relationship attributes have a significant positive effect on place attachment. The strongest effect appears in the context of the relationship with the national park.
H2: There is a positive relationship between the duration of visitations to national parks and the extent of place attachment.	No support (no detectable effect)	
H3: There is a negative relationship between the distance from the place of residence to the national park and the extent of place attachment.	Partial support	
H4a: Childhood relationship with a given national park has a positive effect on the extent of place attachment.	Support	
H4b: Childhood relationship with national parks in general has a positive effect on the extent of place attachment.	Support	
H5: The length of the relationship with the national park has a positive effect on the extent of place attachment.	Support	
H6: Place attachment as a second-order factor positively influences pro-environmental behavioural intentions.	Support	SEM analysis confirmed the positive effect of place attachment on pro-environmental behavioural intention that unfolds in case of low-and high-effort behavioural intentions. It can be stated that place attachment has a stronger effect on high-effort pro-environmental behaviour than on low-effort pro-environmental behaviour. Spillover effect: The study of the total direct and indirect effects between the variables revealed that model B implicates a partial mediating effect and model C implicates a full mediating effect. The desired behavioural intention can be better projected if the effect of place attachment on behavioural intention unfolds in case of high-effort activities.
H6a: Place attachment as a second-order factor positively influences the visitor's low effort pro-environmental behavioural intentions.	Support	
H6b: Place attachment as a second-order factor positively influences the visitor's high effort pro-environmental behavioural intentions.	Support	
H6c: Low effort pro-environmental behavioural intentions mediate the effect of place attachment on high effort pro-environmental behavioural intentions.	Partial support	
H6d: High effort pro-environmental behavioural intentions mediate the effect of place attachment low effort pro-environmental behavioural intentions.	Support	

Table 37: Summary of research hypotheses
Source: own elaboration

8.2. Theoretical and practical significance of my research

The development of appropriate habits and behaviour of visitors plays an important role in preserving national parks. Individuals, through their leisure activities, may cause serious damage to the environment of parks, thus contributing to the degradation of protected areas. Fostering pro-environmental behaviour of visitors is a strategic goal that plays an important role in the preservation of parks (Halpenny, 2006), in promoting sustainability (Ballantyne et al., 2009; Ramkissoon et al., 2012), and in the long term, in the establishment of sustainable tourism (López-Mosquera and Sánchez, 2011). Visitation to national parks, in appropriate circumstances, may allow visitors to develop responsible behaviour. This is associated with several positive impacts. Pro-environmental behaviour in national parks may trigger individuals to better appreciate natural resources (Baral et al., 2008), and in addition, the experiences and knowledge gained here may lead to the recognition of further relationships. Pro-environmental behaviour enhanced by visitations to national parks ensures the preservation of natural and cultural heritage to the next generations (Ramkissoon et al., 2012).

A deeper understanding of place attachment and pro-environmental behaviour as well as the study of factors enhancing place attachment can substantially contribute to the elaboration of policy proposals and strategies regarding the management of national parks. The dissertation's results confirmed the positive effect of place attachment on pro-environmental behaviour. By differentiating high- and low-effort behavioural patterns, place attachment was confirmed to have a stronger effect on high-effort behavioural intentions. By examining pro-environmental behaviour patterns appearing in the sample it became visible that pro-environmental behaviour both at the place of residence and in national parks was primarily limited to low-effort activities (expected by society) while activity patterns requiring environmental activity showed less appearance. The results equally pointed out that increasing place attachment could be a promising way to enhance high-effort activities (such as donating to or volunteering in national park related projects). In the context of visitation, relationship and demographical attributes as predictors of place attachment one can conclude that the frequency of visitations, income and age had the highest explanatory power concerning place attachment, however a significant interaction appeared in case of the region of residence, the length of relationship with the national park, childhood visitations and the local nature of

visitations. Well-planned marketing programs that take these factors into consideration may increase visitors' place attachment more efficiently and thereby their pro-environmental behavioural intention.

8.3. Conclusions on the measurement of place attachment

Based upon the environmental psychology approach, place attachment was interpreted in the dissertation as bond to a certain place which can be described with functional, cognitive and affective attributes (Jorgensen and Stedman, 2001; Halpenny, 2006; Yuksel et al., 2010). As such, place attachment was considered an attitude in the dissertation. According to Ramkissoon et al. (2013), I examined place attachment as a second-order factor having four sub-dimensions, namely place dependence (conative range), place identity (cognitive range), place affect (affective range) and place social bonding (cognitive range). Confirmatory factor analysis (CFA) was performed to test construct validity of the measurement model, place attachment construct of four sub-dimensions was not acceptable since the variance of the place identity random error was negative. Hair et al. (2010) suggest that the measurement of a latent variable with less than three indicators and small sample size ($n<300$) may cause Heywood cases. In our case the rule of three indicators (each latent variable should be measured with at least three indicators) was met although sample size was below 300. The exclusion of this variable can solve this problem. In our case it would have meant the exclusion of a whole dimension so I continued with the examination of the interactions between the four sub-dimensions in order to improve the construct. I concluded that the discriminant validity of the construct is harmed in identity and emotions sub-dimensions, cross-loadings validity revealed that the correlation between identity and emotions sub-dimensions was higher than that of between the sub-dimensions and their own indicators. Having examined the evolution of the scale I found that the emotions and identity items of the 12-item, 4 sub-dimension scale of Ramkissoon et al. (2013) were based on the scale items of Kyle et al. (2004a). Dimensions of the scale measuring emotion and identity were distinguished in both researches (Kyle et al., 2004c, Ramkissoon et al, 2013), however both studies emphasize that further testing of the scale is needed. Later Kyle et al. (2005) examined and confirmed the already separated emotion and identity statements merged together in the course of the overall examination of place attachment dimensionality, and differentiated place

identity, place dependence and social bonds. We have seen that consideration of the distinction of the two sub-dimensions in the literature is not consistent. The present research confirmed the three sub-dimensional, second-order factor solution of place attachment which is built on place dependence, place identity-emotions (Kyle et al. (2005) cite it as place identity) and place related social bonds sub-dimensions.

8.4. Limitations of research and future research possibilities

One limitation of my research is that its analysis is limited to one part of the TRA model by Ajzen and Fisbein (1980), namely the relationship between attitude and behavioural intention which is completed by the examination of the spillover effect between high- and low-effort pro-environmental behaviours. A study of pro-environmental behaviour in national parks by involving further factors may demonstrate a higher predicting value while a more complex picture can be drawn by involving perceived and actual behavioural control.

It should be emphasised that further testing of the place attachment construct on a bigger sample is recommended due to the overlapping of the emotional and identity sub-dimensions. Moreover a further qualitative examination of certain sub-dimensions, including the content validity of the emotional dimension, may contribute to the identification and clarification of the construct.

I would recommend a more in-depth examination of two particular age groups in further studies. First, the examination of the bond of children, teenagers and young people to national parks: as priority target groups of environmental education, analysing the identification of childhood interactions with protected places in particular, in connection with the effects of family, schools and NGOs is recommended. Second, in order to better understand the relationship with parks of the senior age group as a target group demonstrating closer bond as a result of their early socialization, I would emphasize the understanding of the narratives of this age group including their commitment paths.

The examination of non-visitors may contribute to a better understanding of the enhancing effect of pro-environmental behaviour in national parks, by enabling a

comparability between the behaviour of visitors and non-visitors. A further research direction concerns segmentation based on visitors' place attachment. This approach would allow to study how behaviours may spill over in different place attachment groups, what types of commitment patterns are taking shape within the groups. Moreover, it would allow, along with a joint measurement of environmental identity, for the analysis of relationships between place attachment and pro-environmental behavioural intentions of groups with different environmental identities

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ANNEX

Annex 1: UNWTO programmes 2002-2015
Source: own elaboration

Event	Year	Topic	Focus	Questions discussed
Johannesburg Summit, 2002	2002	Summary of WTO participation in the World Business Council for Sustainable Development (UNWTO, 2002)	The role of WTO	• The role of WTO in the development of sustainable tourism
Publication	2003	Sustainable development of ecotourism (UNWTO, 2003)	Good practices for SMEs	• the role of small and medium-sized enterprises • achieved good practices • cross-border cooperation • guidelines for practical adaptation of ecotourism in accordance with local circumstances
Publication	2004	Indicators of sustainable development of tourism destinations (UNWTO, 2004)	Measurement questions relating to destination	• summary of major sustainability related questions • recommendation for indicators and measurement tools • practical sources of information
Publication	2005	Making tourism more sustainable - A guide for policy makers (UNWTO, 2005a)	Legislation related questions	• guidelines for governments on the development and application of policies for sustainable tourism
WTO Tourism Policy Forum, 2004	2005	Tourism potential in the sustainable development strategy (UNWTO, 2005b)	Policy and strategy making	• strategic and policy questions • knowledge management • case studies
Publication	2007	Policies, strategies and instruments enhancing sustainable development in tourism (UNWTO, 2007a)	Policy and strategy making	• strategic and policy questions • cross-border cooperation • the role of indicators • summary of good practices and techniques
International Year of Deserts and Desertification, 2006	2007	Sustainable development in desert tourism (UNWTO, 2007b)	Guidelines for desert related questions	• challenges of extreme climate • desert specific adaptation of sustainable development
Davos Declaration, 2007	2009	Tourism's response to climate change (UNWTO, 2009)	Climate change and greenhouse gases	• The influence of reducing GHG emission on tourism • governmental and corporate responsibilities regarding climate change • raising social awareness
International Year of Biodiversity, 2010 (WTD)	2010	Linking tourism and biodiversity (UNWTO, 2010b)	Natural capital of tourism	• preserving biodiversity • communication to the public, increase knowledge • feasibility issues
Tourism and Millennium Development Goals, 2010	2010	Designated tasks till 2015 (UNWTO, 2010d)	CSR practice	• the role of tourism in sustainable development • summary of the forms of corporate responsibility
Sustainable Tourism Programme	2015	Framework of Programmes on Sustainable Consumption and Production Patterns catalyzes changes in tourism operations (UNEP, 2015)	The 10YFP Sustainable Public Procurement Programme (SPPP)	• expanding the Programme in areas of tourism

Annex 2: Definitions or tourism intentions set out for sustainability
Source: own elaboration

Pro-Poor Tourism

Such tourism products aim to strengthen the cooperation between tourism industry and people living in poverty. Pro-poor tourism contributes to the reduction of poverty and addresses people living in poverty through product development.
Source: http://www.propoortourism.org.uk

Community Tourism

Sum of initiatives that are based on the intense cooperation among the locals. A local community may better influence tourism through the relations between companies, resulting in more significant benefits. Community organizations play an integrating role in the development of local facilities and contribute to a legislative framework to tackle the exploitation of the locals by foreign investors.
Source: Boxill (2003)

Social Tourism

The aim of the initiative is to enable social groups struggling with financial or other difficulties to travel thus ensuring the right to travel for everybody. Special off-season deals help the disadvantaged social groups experience travelling and also they ensure the possibility of season expansion.
Source: Ryan (2002)

Ethical Tourism

Ethical tourism assumes that each and every stakeholder is deemed to be responsible for their decisions. Ethical tourism emphasizes the equality of stakeholders in decision making while examines the stakeholders' needs from ethical aspect.

Source: Weeden (2002)

Fair Tourism

The approach emphasizes the fair price of a tourism product and this enables local communities to have better living conditions. Fair tourism focuses on people who have insufficient power and financial resources to control tourism. This may include tourism companies without sufficient capital, local population, indigenous communities or tourism workers.
Source: http://www.tourismconcern.org.uk/

Ecotourism

Ecotourism includes the following types of 'products':

(1) Each type of nature based tourism where travellers primarily wish to observe and experience nature and cultures relating to the natural settings.
(2) Ecotourism typically include educational and interpretative elements:
(3) Eco tours generally but no exclusively are organized by highly specialized travel operators, typically for small groups. The travel operator is usually in contact with local companies of the destination.
(4) Stakeholders of ecotourism strive to minimize the adverse affects on nature and socio-cultural environment.
(5) Ecotourism contributes to the conservation of attractive natural areas by enabling to generate income for communities living in natural settings and for organizations and authorities operating for environmental purposes, it also help create jobs and income for local communities and increases awareness towards the preservation of natural and cultural heritage amongst locals and tourists.

Source: Ecotourism Market Reports, 2002 in: Veréczi (2003)

Volunteer tourism

This a type of tourism whereby travel is associated with voluntary work. Tourists offer their time, money and other human resources at destinations far from their place of residence in order to gain cultural, environmental and spiritual experiences.

Source: Wearing (2001)

Gentle Tourism

Gentle tourism refers to the type of tourism that encourages mutual understanding between local people and tourists, it does not endanger cultural heritage of the visited area and it enables to respect environment.

Source: CIPRA, 1985: Tasnádi (2002)

Annex 3: Instructions of qualitative research
Source: Own elaboration

QUALITATIVE RESEARCH IN THE CONTEXT OF PLACE ATTACHMENT

Dear Student,

Please see below a questionnaire relating to an essay listed in the programme of Consumption Theory and Consumer Behaviour subject. Your participation in this research means a valuable contribution the scientific work at our department.

Participation is voluntary, responses are honoured with 5 points. Please send your filled form to the following address by 25 April, 2011:
kata.kelemen@uni-corvinus.hu

Thank you for your cooperation!
Department of Marketing Research and Consumer Behaviour

Please recall any of your holidays which was your greatest experience due to its location. Describe your stay there. Try to tell this as if you would be telling it to a friend of yours. As for a good talk, this storytelling has no limits, tell us about it the way you like.
(one page available for description)

Have you done anything to conserve that given area? Please report on any of your activities at the place or later that may have contributed to the conservation of the place.
(half page available for description)

Have you done anything to harm that given area? Please report on any of your activities at the place or later that may have contributed to harming the place.
(half page available for description)

4, Demography

1. Your gender: .....
2. Your age: .....
3. Your permanent address (please underline the correct answer):
    a. capital
    b. county seat
    c. city
    d. village
4. Have you lived abroad over a longer period (for more than 3 months)?
    a. yes b. no
5. If you lived abroad for longer than 3 months, please specify the counrtry: .....

Please give your Neptun code for calculating your points.
(Neptun codes and responses will not be linked, we need the codes only for the purpose of submitting your points. Responses are treated confidentially and will be used only for the purpose of the research.)

THANK YOU FOR YOUR COOPERATION!

Annex 4: Three sub-dimension place attachment scale of Halpenny
Source: Halpenny (2006)

Place identity
▪ When I visit XXX National Park, others see me the way I want them to see me.
▪ I strongly identify with XXX National Park.
▪ I feel that XXX National Park is part of me.
▪ The fact that I visit XXX National Park says a lot about who I am.
▪ XXX National Park means a lot to me.
▪ I feel I can really be myself when I am in XXX National Park.
Place affect
▪ I feel happier if I am in XXX National Park.
▪ XXX National Park is my favourite place to be.
▪ I feel strong, positive feelings for XXX National Park
▪ I am fond of XXX National Park.
▪ I feel relaxed when I am in XXX National Park.
▪ I really miss XXX National Park when I am away too long.
Place dependence
▪ I wouldn't substitute any other area for doing the types of things I do at XXX National Park.
▪ The things I do at XXX National Park I would enjoy doing just as much at a similar site.
▪ I get more satisfaction out of visiting XXX National Park than any other parks.
▪ XXX National Park is the best place for what I like to do.

Annex 5: Descriptive statistics of place attachment
Source: own elaboration

Place attachment	N	M	SD
I strongly identify with XXX National Park.	256	2.82	1.189
I feel happier if I am in XXX National Park.	256	3.39	1.170
The things I do at XXX National Park I would enjoy doing just as much at a similar site.	256	2.40	1.140
I feel strong, positive feelings for XXX National Park	256	3.79	1.011
I wouldn't substitute any other area for doing the types of things I do at XXX National Park.	256	2.45	1.307
The fact that I visit XXX National Park says a lot about who I am.	256	2.13	1.177
I feel I can really be myself when I am in XXX National Park.	256	2.57	1.199
I really miss XXX National Park when I am away too long.	256	2.31	1.342
XXX National Park is the best place for what I like to do.	256	2.15	1.117
XXX National Park means a lot to me.	256	2.88	1.222
I get more satisfaction out of visiting XXX National Park than any other parks.	256	2.25	1.161
I feel relaxed when I am in XXX National Park.	256	3.70	1.179
XXX National Park is my favourite place to be.	256	2.03	1.176
When I visit XXX National Park, others see me the way I want them to see me.	256	2.25	1.128
I am fond of XXX National Park.	256	2.99	1.262
I feel that XXX National Park is part of me.	256	2.19	1.207

Annex 6: Descriptive statistics of park-specific pro-environmental behaviour
Source: own elaboration

Park-specific pro-environmental behaviour	N	M	SD
Pick up litter at XXX National Park left by other visitors.	254	2.87	1.231
Tell my friends not to feed the animals in XXX National Park or similar parks	254	2.26	1.150
Sign petitions in support of XXX National Park and similar protected areas.	254	3.30	1.371
Learn more about the natural settings of XXX National Park.	254	2.74	1.198
Write letters of support of XXX National Park.	254	1.46	,808
Volunteer my time to projects that help XXX National Park or similar parks and nature areas.	254	1.74	,963
Encourage others to reduce their waste and pick up their litter when they are in XXX National Park.	254	2.78	1.299
Participate in a public meetings about managing XXX National Park.	254	1.39	,707
Pay increased park fees in XXX National Park if they were introduced and used for park programs.	254	2.41	1.296
Volunteer to reduce my use of a favourite spot in XXX National Park if it needs to recover from environmental damage.	254	1.59	,910
Volunteer to stop visiting a favourite spot in XXX National Park if it needs to recover from environmental damage.	254	1.58	,920
I donate money to protect places such as the XXX National Park.	254	1.70	,949

Annex 7: Results of a priori factor analysis of the park-specific pro-environmental behavioural scale
(N=256)
Source: Own elaboration

Items	Component 1	Component 2
Volunteer to stop visiting a favourite spot in XXX National Park if it needs to recover from environmental damage.	0.891	0.054
Volunteer to reduce my use of a favourite spot in XXX National Park if it needs to recover from environmental damage.	0.887	0.101
Participate in a public meetings about managing XXX National Park.	0.753	0.196
Volunteer my time to projects that help XXX National Park or similar parks and nature areas.	0.752	0.345
I donate money to protect places such as the XXX National Park.	0.641	0.317
Encourage others to reduce their waste and pick up their litter when they are in XXX National Park.	0.257	0.731
Pick up litter at XXX National Park left by other visitors.	0.082	0.706
Tell my friends not to feed the animals in XXX National Park or similar parks	0.090	0.693
Learn more about the natural settings of XXX National Park.	0.186	0.679
Sign petitions in support of XXX National Park and similar protected areas.	0.184	0.565

Annex 8: The four sub-dimension scale of Ramkissoon et al. (2013)
The Cronbach α value of the whole scale was 0.90
(N=69)
Source: Own elaboration

Sub-dimensions	Items	Average	Standard deviation	Sample size
Place dependence		**M=2.41**	**SD=1.27**	**α=0.791**
PD1	This national park has the best settings and facilities for activities that entertain me the most.	2.61	1.36	69
PD2	I cannot imagine better settings and facilities for my activities than this national park.	1.99	1.18	69
PD3	A visitation to XXX National Park brings more entertainment than other places.	2.59	1.25	69
Place affect		**M=2.32**	**SD=1.17**	**α=0.849**
PA1	This national park means a lot to me.	2.61	1.23	69
PA2	I am attached to this national park.	2.39	1.23	69
PA3	I feel I belong to this national park and to its settings/facilities.	1.96	1.05	69
Place identity		**M=2.00**	**SD=1.05**	**α=0.765**
PI1	I strongly identify with this national park.	2.23	1.15	69
PI2	I feel that this national park has become part of my life.	2.06	1.06	69
PI3	The fact that I visit this national park tells a lot about who I am.	1.71	0.94	69
Social bonds		**M=1.51**	**SD=0.80**	**α=0.553**
PSB1	I would lose several friendships if I did not visit this national park any longer.	1.12	0.47	69
PSB2	My friends/family would be disappointed if I were to visit areas of other settings and facilities.	1.41	0.69	69
PSB3	Most of my friends/relatives prefer this national park to others.	2.00	1.22	69

Annex 9: Brief introduction of the national parks
Edited based on the introductory materials of the website of Hungarian National Parks
Source: http://magyarnemzetiparkok.hu/

(1) Aggtelek National Park
280 caves located in this national parks have been part of UNESCO World Heritage since 1995. Baradla cave is the most prominent one of the karst area among caves of different origin and shape (currently

available to visit: Meteor-, Vass Imre-, Kossuth-, Béke-, Rákóczi-cave). The whole cave system and water catchment area have been under the scope of Ramsar Convention since 2001.

(2) Balatoni-felvidék National Park

Balaton-felvidéki National Park founded in 1997 consists of six landscape protection areas. One of its regions, Kis-Balaton is also protected by the international Ramsar Convention, serving the protection of wetland habitats. Tihany Peninsula - as a recognition of its outstanding geological values and the work of nature conservation in that region - was awarded of European Diploma in 2003.

(3) Bükk National Park

Bükk is Hungary's highest mountain based on the average mountain height in Hungary, its limestone peaks exceed the height of 800-900 m. Its steep slopes, "Chain of stones", deep valleys, karstic terrains of Bükk plateau, green pastures provide a rich habitat for local flora and fauna. The karstic mountains house an extensive cave system.

(4) Duna-Dráva National Park

Duna-Dráva National Park runs alongside the edge of these two rivers and is situated in an area of approximately 50,000 hectares. There are wide range of habitats on the flood plains with a number of protected species of flora and fauna. The authority of Duna-Dráva National Park covers the whole South Transdanubia in addition to these two big rivers. Major part of the protected areas belongs to NATURA2000, the ecological network of the EU.

(5) Duna-Ipoly National Park

Duna-Ipoly National park is lying in a central location of our country, to the north of Budapest and has a few connecting points with the Hungarian-Slovak border. Certain areas of the national park are situated in the immediate vicinity of the capital. Its unique diversity is reflected in the beautiful harmony of the following regions: Pilis-Visegrad mountains, Börzsöny mountains, Ipoly valley and part of the Great Plain near the Danube.

(6) Fertő-Hanság National Park

Fertő region is a meeting point of climate zones, flora and fauna borders. The natural conditions being unique in Europe and the biological diversity of a small area determine the shape of this landscape. The national park is characterized with a mosaic shape. Its main regions: Fertő region, Hanság with Tóköz and Répce region.

(7) Hortobágy National Park

The national park of 80,135 hectares consists of Hortobagy, Nagykunság and some areas of the Tisza Lake. Hortobagy, established in 1973, is one of the most diverse national parks in Hungary. As "The best Hungarian destination maintaining live traditions" and "Excellent European Destination" (ÉDEN 2008), it is still preserving its internationally renowned shepherd tradition.

(8) Kiskunság National Park

This national park was founded in 1975 as the second biggest national park in Duna-Tisza region. At the time of foundation it consisted of 6 units which have grown to 9 units by now. Area: 50523 hectares The mission of Kiskunsag National Park is to preserve the characteristic shape, natural assets, geological formations and waters of Duna-Tisza region and to enhance scientific research, education and dissemination of these values.

(9) Körös-Maros National Park

The national park consists of 13 mosaics, whereby certain parts are designated to reflect the ancient landscape, typical habitats, rivers, moorland and heath.

(10) Őrség National Park

Őrség is the only region of Hungary where the population has been living in one place since the conquest of Hungary. People living here has been shaping the landscape for hundreds of years with their parcel farming, natural buildings by being in harmony with nature to preserve and maintain its diversity.

Annex 10: Visual presentation of national parks in the questionnaire
Source: http://www.mozaweb.hu/Lecke-BIO-Biologia_9-Termeszet_es_kornyezetvedelem-102487

Annex 11: The questionnaire of empirical

D1. Please mark your gender !

Obligatory:YES

⊙ 1. Male
⊙ 2. Female

D2. How old are you?
Please indicate the number of completed years.

Obligatory:YES

1. .....year old *Numeric:YES Min:15-69*

D3. Please indicate your place of residence.
Click on the down arrow to open the drop down menu. You can select your place from the drop down list by scrolling it down or you can start to type the name.

Obligatory:YES

⊙ 1.

D4a. Is your temporary address the same as your permanent one?

Obligatory:YES

⊙ 1. yes
⊙ 2. no

D4. Please specify the place where you live. Click on the down arrow to open the drop down menu. You can select your place from the drop down list by scrolling it down or you can start to type the name.

Displayed if: D4a == 2

Obligatory:YES

⊙ 1.

D9. Please indicate your highest completed education.

Obligatory:YES

⊙ 1. Non-completed primary school
⊙ 2. Completed primary school
⊙ 3. Completed vocational school
⊙ 4. Final exams (completed secondary school)
⊙ 5. Bachelor degree
⊙ 6. Master degree

SZ1. Have you visited a national park for the past 12 months?

Obligatory:YES

☑ 1. Yes, in my country
☑ 2. Yes, abroad
3. No

SZ1_1!=1 --> exit, not suitable

D5. How would you describe the building you live in now?

Obligatory:YES

⊙ 1. Housing estate
⊙ 2. Multi-apartment buildings in green area
⊙ 3. Multi-apartment buildings in non-green area
⊙ 4. One-story semi-detached or family house
⊙ 5. Multi-story semi-detached or family house
⊙ 6. Farmhouse of traditional build
⊙ 7. Homestead
⊙ 8. Other, building for non-living purposes

D6. How would you describe the area you live in now?

Obligatory:YES

1. Urban type (with traditional buildings)
2. Housing estate
3. Villas area, or villa type apartment houses
4. Apartment blocks
5. Detached houses
6. Village type
7. Periphery
8. Other

D7. What is your status at your place of residence?

Obligatory:YES

1. Owner / Shareholder
2. Relative of the owner
3. Tenant
4. Other

D8. Childhood place of residence until the age of 14.
If the place where you grown up had been upgraded since then, please indicate initial category. If you are uncertain, please mark the answer 'I do not know'.

Obligatory:YES

1. Budapest
2. County seat
3. City
4. Village
5. I do not know

D10. What do you do for a living?

Obligatory:YES

- ⊙ 1. Director or top manager with staff of 6 or more
- ⊙ 2. Director or top manager with staff of 5 or less
- ⊙ 3. Self-employed
- ⊙ 4. Employee
- ⊙ 5. Middle management or other management function with staff of 6 or more
- ⊙ 6. Middle management or other management function with staff of 5 or less
- ⊙ 7. Company owner (stakeholder), entrepreneur with staff of 6 or more
- ⊙ 8. Company owner (stakeholder), entrepreneur with staff of 5 or less
- ⊙ 9. Office employee
- ⊙ 10. Work involves travelling or service, not physical or intellectual worker
- ⊙ 11. Farmer, fisherman
- ⊙ 12. Qualified skilled worker, foreman
- ⊙ 13. Non-skilled physical worker, household support staff
- ⊙ 14. Housewife
- ⊙ 15. Student
- ⊙ 16. Pensioner, retired
- ⊙ 17. Unemployed

D11. What is your family status?

Obligatory:YES

- ⊙ 1. Single
- ⊙ 2. In a relationship but living separately
- ⊙ 3. Married or in a partnership
- ⊙ 4. Divorced
- ⊙ 5. Widow

D12. How many people live permanently in the household including yourself?

Obligatory:YES

- ⊙ 1. 1 personDisplayed if: *D11==1||D11==2||D11==4||D11==5*
- ⊙ 2. 2 persons
- ⊙ 3. 3 persons
- ⊙ 4. 4 persons
- ⊙ 5. 5 persons or more

D13. Please specify the number of children under 14 in your household:

```
Displayed if: D12 == 2 || D12 == 3 || D12 == 4 || D12 == 5
```

Obligatory:YES

1. .....persons *Numeric:YES Min:0 Max:15*

D14. Number of children between 14-18 in your household:

`Displayed if: D12 == 2 || D12 == 3 || D12 == 4 || D12 == 5`

Obligatory:YES

1. .....persons *Numeric:YES Min:0 Max:15*

D15. Which category applies to you based on the monthly net income of the whole household?

Obligatory:YES

1. under 80,000 HUF
2. 80,000 HUF- 100,000 HUF
3. 100,001 HUF- 150,000 HUF
4. 150,001 HUF- 200,000 HUF
5. 200,001 HUF- 250,000 HUF
6. 250,001 HUF- 300,000 HUF
7. 300,001 HUF- 350,000 HUF
8. 350,001 HUF- 400,000 HUF
9. 400,001 HUF- 450,000 HUF
10. 450.001 HUF - 500.000 HUF
11. 500.000 HUF -
99. I do not know/ respond

K1. How would you describe the surroundings of your place of residence?

Obligatory: YES

Interval:0-10; Min: far from nature; Max: close to nature, Min value displayed: YES; Max value displayed: YES; Initial value:5; Values displayed: YES; Values:0,1,2,3,4,5,6,7,8,9,10; Values displayed: YES

K2. How long have you been living at your place of residence?

`Please mark zero if you have been living at your place of residence for less than a year.`

Obligatory: YES

1. .....years ago *Numeric: YES Min:0 Max:69*

K3. Please indicate your level of agreement with the following statements regarding your place of residence.
By living surroundings we mean the surrounding area of your place of residence, places within 10-minute walking distance, eg. : streets, parks, stores, pubs, clubs etc.

Please give you score by using a 5-point scale where 1 means "completely disagree" and 5 means "fully agree".

Obligatory:YES RANDOM

	1. - completely disagree	2	3	4	5- fully agree
For the recreation activities I enjoy the most, the settings and facilities provided by the surrounding area of my place of residence are the best.	⊙1	⊙2	⊙3	⊙4	⊙5
The surrounding area of my place of residence means a lot to me.	⊙1	⊙2	⊙3	⊙4	⊙5
I feel that the surrounding area of my place of residence is a part of me.	⊙1	⊙2	⊙3	⊙4	⊙5
My friends/family would be disappointed if I were to move to an area of other settings and facilities.	⊙1	⊙2	⊙3	⊙4	⊙5
For what I like to do, I could not imagine anything better than the setting and facilities provided by the surrounding area of my place of residence	⊙1	⊙2	⊙3	⊙4	⊙5
I am very attached to the surrounding area of my place of residence.	⊙1	⊙2	⊙3	⊙4	⊙5
I identify strongly with the region of my place of residence.	⊙1	⊙2	⊙3	⊙4	⊙5

If I were to stop visiting places around my place of residence, I would lose contact with a number of friends	⊙1	⊙2	⊙3	⊙4	⊙5
I feel a strong sense of belonging to my place of residence and its settings/facilities.	⊙1	⊙2	⊙3	⊙4	⊙5
Living here says a lot about who I am.	⊙1	⊙2	⊙3	⊙4	⊙5
Many of my friends/family prefer the surroundings of my place of residence over many other parks	⊙1	⊙2	⊙3	⊙4	⊙5
I enjoy my place of residence and its environment more than any other places.	⊙1	⊙2	⊙3	⊙4	⊙5

K4. Please specify how often did you carry out the following activities during the past 12 months?

Choose "Not relevant" option if you can not answer. (Eg.: for questions "I saved fuel", if you do not own a car.)

Obligatory: YES

	never	sometimes	occasionally	often	always	Not relevant
Looked for ways to reuse things	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Recycled newspapers	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Recycles cans or bottles	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Encouraged friends or family to recycle	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Purchased products in reusable or recyclable containers	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Picked up litter that was not your own	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Composted food scraps	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99

Conserved gasoline by walking or bicycling	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Written a letter supporting an environmental issues	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99
Voted for a candidate who supported environmental issues	⊙1	⊙2	⊙3	⊙4	⊙5	⊙99

K5. Have you donated for initiatives to address environmental issues?
(eg.: On-line donation, offering of 1% of income tax)

⊙ 1. yes
⊙ 2. no

K6. Please mark which items are true of you.

Please give you score by using a 7-point scale where 1 means "Not at all true of me" and 7 means " Very true of me".

Obligatory:YES

	1-not at all true of me	2	3	4	5	6	7-completely true of me
I spend a lot of time in natural settings (woods, mountains, desert, lakes, ocean).	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
I think of myself as a part of nature, not separate from it.	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
If I had enough time or money, I would certainly devote some of it to working for environmental causes.	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7

If I am upset or stressed I can feel better by spending some time outdoors "communing with nature."	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
I feel that I have a lot in common with other species.	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
Behaving responsibly toward the Earth-living a sustainable lifestyle-is part of my moral code.	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
Learning about the natural world should be an important part of every child's upbringing	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
I'd rather live in a small room or house with a nice view than in a bigger room or house facing other buildings.	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
I would feel that an important part of my life was missing if I was not able to get out and enjoy nature from time to time	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7

I have never seen a work of art that is as beautiful as a work of nature, like a sunset or a mountain range	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7
I feel that I receive spiritual sustenance from experiences with nature.	⊙1	⊙2	⊙3	⊙4	⊙5	⊙6	⊙7

The following questions will refer to visitations to protected natural areas, more closely to national parks.

K7. Describe you habit of visitation to national parks!

Please give you score by using a 5-point scale where 1 means "not at all true of me" and 5 means " completely true of me".

Obligatory:YES

	1-not at all true of me	2	3	4	5-completely true of me
Visitations to domestic national parks	⊙1	⊙2	⊙3	⊙4	⊙5
Visitations to national parks abroad	⊙1	⊙2	⊙3	⊙4	⊙5

How often do you visit the following domestic national parks?

Page images:

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K8. Please give you score by using a 5-point scale

Obligatory:YES

	never	sometimes	occasionally	often	often
Hortobágy National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Kiskunság National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Bükk National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Aggtelek National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Fertő-Hanság National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Duna-Dráva National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Körös-Maros National Park	⊙1	⊙2	⊙3	⊙4	⊙5

Balatoni-felvidék National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Duna-Ipoly National Park	⊙1	⊙2	⊙3	⊙4	⊙5
Őrség National Park	⊙1	⊙2	⊙3	⊙4	⊙5

K9. Please mark the national park you visited during the past 12 months.
MULTIPLE ANSWERS ARE ALLOWED

Displayed if: SZ1_1

Obligatory:YES

Images of the question:

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☑ 1. Hortobágy National Park *Displayed if: K8_1==2||K8_1==3||K8_1==4||K8_1==5*

☑ 2. Kiskunság National Park *Displayed if: K8_2==2||K8_2==3||K8_2==4||K8_2==5*

☑ 3. Bükk National Park *Displayed if: K8_3==2||K8_3==3||K8_3==4||K8_3==5*

☑ 4. Aggtelek National Park *Displayed if: K8_4==2||K8_4==3||K8_4==4||K8_4==5*

☑ 5. Fertő-Hanság National Park *Displayed if: K8_5==2||K8_5==3||K8_5==4||K8_5==5*

☑ 6. Duna-Dráva National Park *Displayed if: K8_6==2||K8_6==3||K8_6==4||K8_6==5*

☑ 7. Körös-Maros National Park *Displayed if: K8_7==2||K8_7==3||K8_7==4||K8_7==5*

☑ 8. Balatoni-felvidék National Park *Displayed if: K8_8==2||K8_8==3||K8_8==4||K8_8==5*

☑ 9. Duna-Ipoly National Park *Displayed if: K8_9==2||K8_9==3||K8_9==4||K8_9==5*

☑ 10. Őrség National Park *Displayed if: K8_10==2||K8_10==3||K8_10==4||K8_10==5*

K10. Please mark the national park you visited during the past 12 months and which you liked the best

Obligatory:YES

1. Hortobágy National Park *Displayed if: K9_1*
2. Kiskunság National Park *Displayed if: K9_2*
3. Bükk National Park *Displayed if: K9_3*
4. Aggtelek National Park *Displayed if: K9_4*
5. Fertő-Hanság National Park *Displayed if: K9_5*
6. Duna-Dráva National Park *Displayed if: K9_6*
7. Körös-Maros National Park *Displayed if: K9_7*
8. Balatoni-felvidék National Park *Displayed if: K9_8*
9. Duna-Ipoly National Park *Displayed if: K9_9*
10. Őrség National Park *Displayed if: K9_10*

K11. When did you last visit <K10a> National Park?

1. June 2014
2. July 2014
3. August 2014
4. September 2014
5. October 2014
6. November 2014
7. December 2014
8. January 2015
9. February 2015
10. March 2015
11. April 2015
12. May 2015
13. June 2015

K12. There are no good or bad answers to the following questions, we are interested in your level of agreement with the following items concerning <K10a> National Park

Please give you score by using a 5-point scale where 1 means "completely disagree" and 5 means "fully agree".

Obligatory:YES RANDOM

	1. - completely disagree	2	3	4	5- fully agree
For the recreation activities I enjoy the most, the settings and facilities provided by this National Park are the best.	1	2	3	4	5

This National Park means a lot to me.	⊙1	⊙2	⊙3	⊙4	⊙5
I feel this National Park is a part of me.	⊙1	⊙2	⊙3	⊙4	⊙5
If I were to stop visiting this park, I would lose contact with a number of friends.	⊙1	⊙2	⊙3	⊙4	⊙5
I am very attached to this park.	⊙1	⊙2	⊙3	⊙4	⊙5
I identify strongly with this park.	⊙1	⊙2	⊙3	⊙4	⊙5
My fiends/family would be disappointed if I were to start to visiting other settings and facilities.	⊙1	⊙2	⊙3	⊙4	⊙5
For what I like to do, I could not imagine anything better than the setting and facilities provided by this National Park.	⊙1	⊙2	⊙3	⊙4	⊙5
I feel a strong sense of belonging to this National Park and its settings/facilities.	⊙1	⊙2	⊙3	⊙4	⊙5
Visiting this National Park says a lot about who I am.	⊙1	⊙2	⊙3	⊙4	⊙5
Many of my friends/family prefer this National Park over many other parks.	⊙1	⊙2	⊙3	⊙4	⊙5
I enjoy visiting this National Park and its environment more than any other parks.	⊙1	⊙2	⊙3	⊙4	⊙5

K13. Please continue to think of <K10a> national park! We are interested in your habits relating to the following activities.
Did you carry out such activity during your last visit or later?

Obligatory:YES ***RANDOM***

	yes	no
Picked up litter at this National Park left by other visitors.	⊙1	⊙2
Told my friends not to feed the animals in this National Park or similar parks.	⊙1	⊙2
Signed petitions in support of XXX National Park and similar protected areas.	⊙1	⊙2
Learnt more about XXX National Park's natural environment.	⊙1	⊙2
Wrote letters in support of XX Park	⊙1	⊙2

Volunteered my time to projects that help this national park or similar parks and nature areas.	⊙1	⊙2
Encouraged others to reduce their waste and picked up their litter when they are at this National Park.	⊙1	⊙2
Participated in a public meeting about managing of XXX National Park.	⊙1	⊙2
Paid increased fees if they were introduced and used for park programs	⊙1	⊙2
Volunteered to stop visiting a favorite spot in XXX Park if it needs recover from environmental damage.	⊙1	⊙2
Volunteered to reduce my use of a favorite spot in XXX Park if it needs recover from environmental damage.	⊙1	⊙2
Contributed donations to ensure protection of places like XXX Park.	⊙1	⊙2

K13b. Please continue to think of <K10a> national park!
How likely would you carry out such activity during your next visit?

`Please give you score by using a 5-point scale where 1 means "highly unlikely" and 5 means "highly likely".`

Obligatory:YES RANDOM

	1-highly unlikely	2	3	4	5-highly likely
Pick up litter at this National Park left by other visitors.	⊙1	⊙2	⊙3	⊙4	⊙5
Tell my friends not to feed the animals in this National Park or similar parks.	⊙1	⊙2	⊙3	⊙4	⊙5
Sign petitions in support of XXX National Park and similar protected area.	⊙1	⊙2	⊙3	⊙4	⊙5
Learn more about XXX National Park natural environment.	⊙1	⊙2	⊙3	⊙4	⊙5
Write letters in support of XXX National Park.	⊙1	⊙2	⊙3	⊙4	⊙5
Volunteer my time to projects that help XXX National Park or similar parks and nature areas	⊙1	⊙2	⊙3	⊙4	⊙5
Encourage others to reduce their waste and pick up their litter when they are at XXX National Park.	⊙1	⊙2	⊙3	⊙4	⊙5

Participate in a public meeting about managing XXX National Park.	⊙1	⊙2	⊙3	⊙4	⊙5
Pay increased fees if they were introduced and used for park programs.	⊙1	⊙2	⊙3	⊙4	⊙5
Volunteer to stop visiting a favorite spot in XXX National Park if it needs recover from environmental damage.	⊙1	⊙2	⊙3	⊙4	⊙5
Volunteer to reduce my use of a favorite spot in XXX National Park if it needs recover from environmental damage.	⊙1	⊙2	⊙3	⊙4	⊙5
Contribute donations to ensure protection of places like XXX National Park.	⊙1	⊙2	⊙3	⊙4	⊙5

K14. Please specify the distance between <K10a> national park and your place of residence?

⊙ 1. within 40 km
⊙ 2. 40-150 km
⊙ 3. 151-250 km
⊙ 4. over 250 km
⊙ 5. I do not know

K15. How often do you visit <K10a> National Park?
`Please choose the option below best describing your habit!`

Obligatory:YES

⊙ 1. Less than once every 3 years
⊙ 2. Once every three years
⊙ 3. Once a year
⊙ 4. Few times a year
⊙ 5. At least once a month
⊙ 6. I do not know

K16. When did you first visit <K10a> National Park?
Put zero if it was your first visit.

Obligatory:YES

1. .....years ago *Numeric:YES Min:0 Max:69*

Describe you habit of visitation to national parks until the age of 14!

K17a. Visitation to <K10a> national park until the age of 14

Please give you score by using a 5-point scale where 1 means "not at all true of me" and 5 means " completely true of me".

Obligatory:YES

	1-not at all true of me	2	3	4	5-completely true of me
	⊙1	⊙2	⊙3	⊙4	⊙5

K17b. Visitation to national parks until the age of 14 in general

Obligatory:YES

	1-not at all true of me	2	3	4	5-completely true of me
	⊙1	⊙2	⊙3	⊙4	⊙5

K18. Now, please recall again your last visitation to <K10a> National Park! Which of the below options describe you the best?

⊙ 1. Day visitor, staying at home
⊙ 2. Day visitor, staying with 40 km
⊙ 3. Day visitor, passing through to another destination
⊙ 4. Multiple day visitor, staying with 40 km
⊙ 5. Other:..... *Length:50*

K19. With how many visitors did you last visit <K10a> National Park?

☑ 1. .....adult *Numeric:YES Min:0 Max:100*
☑ 2. .....children *Numeric:YES Min:0 Max:100*

Annex 12: Validated scale of Ramkissoon et al. (12 items, 4 sub-dimensions)
Source: Based on the findings of Ramkissoon et al. (2013)

Sub-dimensions	Items
Place dependence	
PD1	For the recreation activities I enjoy the most, the settings and facilities provided by this National Park are the best.
PD2	For what I like to do, I could not imagine anything better than the setting and facilities provided by this National Park.

PD3	I enjoy visiting this National Park and its environment more than any other parks.
Place affect	
PA1	This National Park means a lot to me.
PA2	I am very attached to this park.
PA3	I feel a strong sense of belonging to this National Park and its settings/facilities.
Place identity	
PI1	I identify strongly with this park.
PI2	I feel this National Park is a part of me.
PI3	Visiting this National Park says a lot about who I am.
Social bonds	
PSB1	If I were to stop visiting this park, I would lose contact with a number of friends.
PSB2	My fiends/family would be disappointed if I were to start to visiting other settings and facilities.
PSB3	Many of my friends/family prefer this National Park over many other parks.

Annex 13: Testing the normality of variables involved in the analysis
Test of normality - scale value place attachment

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PA_score	,067	264	,007	,978	264	,000

a. Lilliefors Significance Correction

Annex 14: Frequency of visitations to certain national parks
Source: own elaboration

	Hortobágy National Park	**Kiskunság National Park**	**Bükk National Park**	**Aggtelek National Park**	**Fertő-Hanság National Park**	**Duna-Dráva National Park**	**Körös-Maros National Park**	**Balatoni-felvidék National Park**	**Duna-Ipoly National Park**	**Őrség National Park**
Not visiting	54	78	44	49	104	120	116	45	102	110
Occasional	194	163	162	192	147	127	126	157	125	133
Regular	16	23	58	23	13	17	22	62	37	21
Total	**264**	**264**	**264**	**264**	**264**	**264**	**264**	**264**	**264**	**264**

Annex 15: Place of residence and national park specific descriptive statistics of place attachment
Source: own elaboration

Items relating to the place of residence	Average for the place of residence	Standard deviation	Average for the national park	Standard deviation
For the recreation activities I enjoy the most, the settings and facilities provided by the surrounding area of my place of residence are the best.	2.84	1.090	2.82	1.125
The surrounding area of my place of residence means a lot to me.	3.69	1.054	3.57	1.051
I feel that the surrounding area of my place of residence is a part of me.	3.67	1.107	2.98	1.270
My friends/family would be disappointed if I were to move to an area of other settings and facilities.	2.82	1.254	2.07	1.116
For what I like to do, I could not imagine anything better than the setting and facilities provided by the surrounding area of my place of residence.	3.06	1.191	2.85	1.126
I am very attached to the surrounding area of my place of residence.	3.46	1.179	3.26	1.218
I identify strongly with the region of my place of residence.	3.30	1.162	3.08	1.270
If I were to stop visiting places around my place of residence, I would lose contact with a number of friends.	2.45	1.250	1.92	1.139
I feel a strong sense of belonging to my place of residence and its settings/facilities.	3.40	1.115	2.92	1.258
Living here says a lot about who I am.	2.95	1.307	2.85	1.226
Many of my friends/family prefer the surroundings of my place of residence over many other parks.	3.04	1.121	2.66	1.229
I enjoy my place of residence and its environment more than any other places.	2.89	1.104	*3.03*	1.147

Annex 16: Averages and variations of residential pro-environmental behaviour
Source: own elaboration

	Average	Standard deviation	N
Recycled newspapers	4.23	1.116	213
Recycles cans or bottles	4.08	1.121	213
Looked for ways to reuse things	3.82	,926	213
Conserved gasoline by walking or bicycling	3.52	1.164	213
Purchased products in reusable or recyclable containers	3.39	,902	213
Encouraged friends or family to recycle	3.32	1.187	213
Picked up litter that was not your own	3.23	1.026	213
Voted for a candidate who supported environmental issues	3.10	1.406	213
Composted food scraps	2.77	1.503	213
Written a letter supporting an environmental issues	2.21	1.242	213

Annex 17: Examination of the variance homogeneity and normality of place attachment
Source: own elaboration

PA_score

Levene Statistic	df1	df2	Sig.
,866	4	245	,485

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PA_score	,067	264	,007	,978	264	,000

a. Lilliefors Significance Correction

Annex 18: Tables of one-way analysis of variance
Source: own elaboration

Pro-environmental behaviour in national parks, differences by age groups

ANOVA

PBI_Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	346.871	4	86.718	12.904	,000
Within Groups	1740.569	259	6.720		
Total	2087.439	263			

Multiple Comparisons

Dependent Variable: PBI_Score

Tukey HSD

Age category (I)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
15-29	30-39	1.10096	,63125	,409	-,6332	2.8351
	40-49	,63105	,61881	,846	-1.0689	2.3310
	50-59	,20513	,63125	,998	-1.5290	1.9392
	60-69	-1.77972*	,57866	,020	-3.3693	-,1901
30-39	15-29	-1.10096	,63125	,409	-2.8351	,6332
	40-49	-,46991	,51425	,891	-1.8826	,9428
	50-59	-,89583	,52916	,440	-2.3495	,5578
	60-69	-2.88068*	,46516	,000	-4.1585	-1.6028
40-49	15-29	-,63105	,61881	,846	-2.3310	1.0689
	30-39	,46991	,51425	,891	-,9428	1.8826
	50-59	-,42593	,51425	,922	-1.8386	,9868
	60-69	-2.41077*	,44813	,000	-3.6418	-1.1797
50-59	15-29	-,20513	,63125	,998	-1.9392	1.5290
	30-39	,89583	,52916	,440	-,5578	2.3495
	40-49	,42593	,51425	,922	-,9868	1.8386
	60-69	-1.98485*	,46516	,000	-3.2627	-,7070
60-69	15-29	1.77972*	,57866	,020	,1901	3.3693
	30-39	2.88068*	,46516	,000	1.6028	4.1585
	40-49	2.41077*	,44813	,000	1.1797	3.6418
	50-59	1.98485*	,46516	,000	,7070	3.2627

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PBI_Score by age category	,408	,166

Pro-environmental behaviour in a national park, differences by income

ANOVA

K13_Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	136.836	4	34.209	4.453	,002
Within Groups	1474.981	192	7.682		
Total	1611.817	196			

Multiple Comparisons

Dependent Variable: PBI_Score

Tukey HSD

(I) Income		Std. Error	Sig.	95% Confidence Interval

		Mean Difference (I-J)			Lower Bound	Upper Bound
under HUF 100,000	HUF 100,000 - 200,000	,09384	,65192	1.000	-1.7015	1.8891
	HUF 200,001 - 300,000	-,01752	,64754	1.000	-1.8008	1.7657
	HUF 300,001 - 400,000	1.87143	,70275	,063	-,0639	3.8067
	above HUF 400,000	1.70952	,72831	,135	-,2962	3.7152
HUF 100,000 - 200,000	under HUF 100,000	-,09384	,65192	1.000	-1.8891	1.7015
	HUF 200,001 - 300,000	-,11136	,54367	1.000	-1.6086	1.3858
	HUF 300,001 - 400,000	1.77759*	,60838	,032	,1022	3.4530
	above HUF 400,000	1.61569	,63773	,088	-,1406	3.3719
HUF 200,001 - 300,000	under HUF 100,000	,01752	,64754	1.000	-1.7657	1.8008
	HUF 100,000 - 200,000	,11136	,54367	1.000	-1.3858	1.6086
	HUF 300,001 - 400,000	1.88895*	,60369	,017	,2265	3.5514
	above HUF 400,000	1.72704	,63326	,054	-,0169	3.4710
HUF 300,001 - 400,000	under HUF 100,000	-1.87143	,70275	,063	-3.8067	,0639
	HUF 100,000 - 200,000	-1.77759*	,60838	,032	-3.4530	-,1022
	HUF 200,001 - 300,000	-1.88895*	,60369	,017	-3.5514	-,2265
	above HUF 400,000	-,16190	,68961	,999	-2.0610	1.7372
above HUF 400,000	under HUF 100,000	-1.70952	,72831	,135	-3.7152	,2962
	HUF 100,000 - 200,000	-1.61569	,63773	,088	-3.3719	,1406
	HUF 200,001 - 300,000	-1.72704	,63326	,054	-3.4710	,0169
	HUF 300,001 - 400,000	,16190	,68961	,999	-1.7372	2.0610

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PBI by D15a	,291	,085

Pro-environmental behaviour in a national park, differences by regions

ANOVA

PBI_Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	54.413	2	27.206	3.493	,032
Within Groups	2033.026	261	7.789		
Total	2087.439	263			

Multiple Comparisons

Dependent Variable: PBI_Score

Tukey HSD

(I) Region of residence - 3 groups		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Middle	East	-1.01132*	,41334	,040	-1.9856	-,0370
	West	-,20000	,44411	,894	-1.2468	,8468
East	Middle	1.01132*	,41334	,040	,0370	1.9856
	West	,81132	,41635	,127	-,1701	1.7927
West	Middle	,20000	,44411	,894	-,8468	1.2468
	East	-,81132	,41635	,127	-1.7927	,1701

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PBI_Score by Region of residence - 3 groups	,161	,026

Pro-environmental behaviour in a national park, differences by the variable related to the presence of children under 14 in a household

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PBI_Score	Main Effects	D13a	76.870	1	76.870	10.017	,002
	Model		76.870	1	76.870	10.017	,002
	Residual		2010.570	262	7.674		
	Total		2087.439	263	7.937		

a. K13_Score by D13a

Model Goodness of Fit

	R	R Squared
K13_Score by D13a	,192	,037

Place attachment to the national parks, breakdown by age

ANOVA

PA_score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1406.321	4	351.580	3.131	,015
Within Groups	29080.584	259	112.280		
Total	30486.905	263			

Tukey HSD

Age category (I)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
15-29	30-39	,05449	2.58024	1.000	-7.0337	7.1426
	40-49	-,50570	2.52937	1.000	-7.4541	6.4427
	50-59	,32532	2.58024	1.000	-6.7628	7.4135
	60-69	-4.91521	2.36524	,233	-11.4128	1.5823
30-39	15-29	-,05449	2.58024	1.000	-7.1426	7.0337
	40-49	-,56019	2,10201	,999	-6.3346	5.2142
	50-59	,27083	2.16295	1.000	-5.6710	6.2127
	60-69	-4.96970	1.90134	,071	-10.1928	,2535
40-49	15-29	,50570	2.52937	1.000	-6.4427	7.4541
	30-39	,56019	2,10201	,999	-5.2142	6.3346
	50-59	,83102	2,10201	,995	-4.9434	6.6054
	60-69	-4.40951	1.83171	,117	-9.4414	,6224
50-59	15-29	-,32532	2.58024	1.000	-7.4135	6.7628
	30-39	-,27083	2.16295	1.000	-6.2127	5.6710
	40-49	-,83102	2,10201	,995	-6.6054	4.9434
	60-69	-5.24053*	1.90134	,049	-10.4637	,0174
60-69	15-29	4.91521	2.36524	,233	-1.5823	11.4128
	30-39	4.96970	1.90134	,071	-,2535	10.1928
	40-49	4.40951	1.83171	,117	-,6224	9.4414
	50-59	5.24053*	1.90134	,049	,0174	10.4637

Model Goodness of Fit

	R	R Squared
PBI_Score by age category	,215	,046

Place attachment to the national parks, breakdown by region

ANOVA

PA_score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2299.947	4	574.987	5.543	,000
Within Groups	19916.053	192	103.729		
Total	22216.000	196			

ANOVA

PA_score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1381.686	2	690.843	6.195	,002
Within Groups	29105.219	261	111.514		
Total	30486.905	263			

Dependent Variable: Place attachment_score

Tukey HSD

(I) Region of residence - 3 groups		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Middle	East	-4.40189*	1.56395	,014	-8.0884	-,7154
	West	,50256	1.68036	,952	-3.4583	4.4634
East	Middle	4.40189*	1.56395	,014	,7154	8.0884
	West	4.90445*	1.57534	,006	1.1911	8.6178
West	Middle	-,50256	1.68036	,952	-4.4634	3.4583
	East	-4.90445*	1.57534	,006	-8.6178	-1.1911

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PA_Score by Region of residence - 3 groups	,213	,045

Place attachment to the national parks, breakdown by income

ANOVA

PA_score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2299.947	4	574.987	5.543	,000
Within Groups	19916.053	192	103.729		
Total	22216.000	196			

Multiple Comparisons

Tukey HSD

(I) Income		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
under HUF 100,000	HUF 100,000 - 200,000	,60014	2.39552	,999	-5.9968	7.1971
	HUF 200,001 - 300,000	2.88612	2.37945	,744	-3.6666	9.4388
	HUF 300,001 - 400,000	8.19286*	2.58231	,015	1.0815	15.3042
	above HUF 400,000	8.47857*	2.67624	,015	1.1085	15.8486
HUF 100,000 - 200,000	under HUF 100,000	-,60014	2.39552	,999	-7.1971	5.9968
	HUF 200,001 - 300,000	2.28598	1.99777	,783	-3.2156	7.7876
	HUF 300,001 - 400,000	7.59272*	2.23553	,007	1.4363	13.7491
	above HUF 400,000	7.87843*	2.34341	,008	1.4250	14.3319
HUF 200,001 - 300,000	under HUF 100,000	-2.88612	2.37945	,744	-9.4388	3.6666
	HUF 100,000 - 200,000	-2.28598	1.99777	,783	-7.7876	3.2156
	HUF 300,001 - 400,000	5.30674	2.21830	,122	-,8022	11.4157
	above HUF 400,000	5.59245	2.32697	,119	-,8157	12.0006
HUF 300,001 - 400,000	under HUF 100,000	-8.19286*	2.58231	,015	-15.3042	-1.0815
	HUF 100,000 - 200,000	-7.59272*	2.23553	,007	-13.7491	-1.4363
	HUF 200,001 - 300,000	-5.30674	2.21830	,122	-11.4157	,8022
	above HUF 400,000	,28571	2.53404	1.000	-6.6927	7.2641
above HUF 400,000	under HUF 100,000	-8.47857*	2.67624	,015	-15.8486	-1.1085
	HUF 100,000 - 200,000	-7.87843*	2.34341	,008	-14.3319	-1.4250
	HUF 200,001 - 300,000	-5.59245	2.32697	,119	-12.0006	,8157
	HUF 300,001 - 400,000	-,28571	2.53404	1.000	-7.2641	6.6927

Model Goodness of Fit

	R	R Squared
Place attachment_score by Income	,322	,104

Place attachment to the park, breakdown by frequency of visitations

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	How often do you visit <K10a> National Park?	3954.629	4	988.657	10.008	,000
	Model		3954.629	4	988.657	10.008	,000
	Residual		24202.507	245	98.786		
	Total		28157.136	249	113.081		

a.PA_score How often do you visit <K10a> National Park?

Model Goodness of Fit

	R	R Squared
PA_score How often do you visit <K10a> National Park?	,375	,140

Place attachment to the park, breakdown by locality

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	Local/non-local	665.229	1	665.229	5.857	,016
	Model		665.229	1	665.229	5.857	,016
	Residual		29076.465	256	113.580		
	Total		29741.694	257	115.726		

a.PA_score by Local/non-local

Model Goodness of Fit

	R	R Squared
PA_score by Local/non-local	,150	,022

Place attachment to the park, breakdown by the variable related to the visitations to the given national park under the age of 14

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	K17akat	1023.998	2	511.999	4.536	,012
	Model		1023.998	2	511.999	4.536	,012
	Residual		29462.907	261	112.885		
	Total		30486.905	263	115.920		

Tukey HSD

(I) K17akat		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Not representative	Moderately representative	-3.28009	1.87031	,187	-7.6887	1.1285
	Representative	-4.52527*	1.62984	,016	-8.3671	,6835
Moderately representative	Not representative	3.28009	1.87031	,187	-1.1285	7.6887
	Representative	-1.24518	2.19147	,837	-6.4108	3.9205
Representative	Not representative	4.52527*	1.62984	,016	,6835	8.3671
	Moderately representative	1.24518	2.19147	,837	-3.9205	6.4108

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PA_score by K17akat	,183	,034

Place attachment to the park, breakdown by the variable related to the visitations to national parks in general under the age of 14

ANOVA[a]

		Hierarchical Method				
		Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects K17bkat	844.790	2	422.395	3.719	,026
	Model	844.790	2	422.395	3.719	,026
	Residual	29642.115	261	113.571		
	Total	30486.905	263	115.920		

Tukey HSD

(I) K17bkat		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Not representative	Moderately representative	-1.41560	1.56843	,639	-5.1127	2.2815
	Representative	-4.49988*	1.64991	,019	-8.3890	,6108
Moderately representative	Not representative	1.41560	1.56843	,639	-2.2815	5.1127
	Representative	-3.08428	1.86049	,224	-7.4698	1.3012
Representative	Not representative	4.49988*	1.64991	,019	,6108	8.3890
	Moderately representative	3.08428	1.86049	,224	-1.3012	7.4698

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PA_score by K17bkat	,166	,028

Place attachment to the park, breakdown by length of relationship with the national park

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	Categorized relationship	2348.662	5	469.732	4.307	,001
	Model		2348.662	5	469.732	4.307	,001
	Residual		28138.243	258	109.063		
	Total		30486.905	263	115.920		

Tukey HSD

(I) Categorized relationship		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
first visit	1-5-year-relationship	-8.24242	2.92194	,057	-16.6321	,1473
	6-15-year-relationship	-10.80303*	2.77696	,002	-18.7764	-2.8296
	16-25-year-relationship	-9.79487*	2.85594	,009	-17.9950	-1.5947
	26-35-year-relationship	-11.83333*	2.97583	,001	-20.3777	-3.2889
	35+ year-relationship	-12.32222*	2.91250	,000	-20.6848	-3.9597
1-5-year-relationship	first visit	8.24242	2.92194	,057	,1473	16.6321
	6-15-year-relationship	-2.56061	2.03253	,806	-8.3965	3.2753
	16-25-year-relationship	-1.55245	2.13917	,979	-7.6946	4.5897
	26-35-year-relationship	-3.59091	2.29678	,623	-10.1856	3,0038
	35+ year-relationship	-4.07980	2.21412	,440	-10.4371	2.2775
6-15-year-relationship	first visit	10.80303*	2.77696	,002	2.8296	18.7764
	1-5-year-relationship	2.56061	2.03253	,806	-3.2753	8.3965
	16-25-year-relationship	1.00816	1.93645	,995	-4.5519	6.5682
	26-35-year-relationship	-1.03030	2.10925	,997	-7.0865	5.0259
	35+ year-relationship	-1.51919	2.01893	,975	-7.3161	4.2777
16-25-year-relationship	first visit	9.79487*	2.85594	,009	1.5947	17.9950
	1-5-year-relationship	1.55245	2.13917	,979	-4.5897	7.6946
	6-15-year-relationship	-1.00816	1.93645	,995	-6.5682	4.5519
	26-35-year-relationship	-2.03846	2.21220	,941	-8.3903	4.3134
	35+ year-relationship	-2.52735	2.12626	,842	-8.6324	3.5777
26-35-year-relationship	first visit	11.83333*	2.97583	,001	3.2889	20.3777
	1-5-year-relationship	3.59091	2.29678	,623	-3.0038	10.1856
	6-15-year-relationship	1.03030	2.10925	,997	-5.0259	7.0865
	16-25-year-relationship	2.03846	2.21220	,941	-4.3134	8.3903
	35+ year-relationship	-,48889	2.28476	1.000	-7.0490	6.0713

35+ year-relationship	first visit	12.32222*	2.91250	,000	3.9597	20.6848
	1-5-year-relationship	4.07980	2.21412	,440	-2.2775	10.4371
	6-15-year-relationship	1.51919	2.01893	,975	-4.2777	7.3161
	16-25-year-relationship	2.52735	2.12626	,842	-3.5777	8.6324
	26-35-year-relationship	-,48889	2.28476	1.000	-6.0713	7.0490

*. The mean difference is significant at the 0.05 level.

Model Goodness of Fit

	R	R Squared
PA_score by Categorized relationship	,278	,077

Annex 19: Tables of two-way and multiple analysis of variance
Source: own elaboration

Place attachment to the park, breakdown by locality and frequency of visitations

ANOVAa

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	(Combined)	4053.008	5	810.602	8.186	
		Local/non-local	754.200	1	754.200	7.616	,006
		How often do you visit <K10a> National Park?	3298.808	4	824.702	8.328	,000
	2-Way Interactions	Local/non-local * How often do you visit <K10a> National Park?	207.410	3	69.137	,698	,554
	Model		4260.417	8	532.552	5.378	,000
	Residual		23766.603	240	99.028		
	Total		28027.020	248	113.012		

Factor Summary[a]

		Eta	Beta Adjusted for Factors
PA_score	Local/non-local	,164	,050
	How often do you visit <K10a> National Park?	,378	,404

a. PA_score by Local/non-local, How often do you visit <K10a> National Park?

Model Goodness of Fit

	R	R Squared
PA_score by Local/non-local, How often do you visit <K10a> National Park?	,380	,145

			Local/non-local		
			Local visitor	Non-local visitor	Total
How often do you visit <K10a> National Park?	Less than once every 3 years	Count	0	19	19
		% within How often do you visit <K10a> National Park?	0.0%	100.0%	100.0%
	Once every three years	Count	2	25	27
		% within How often do you visit <K10a> National Park?	7.4%	92.6%	100.0%
	Once a year	Count	9	53	62
		% within How often do you visit <K10a> National Park?	14.5%	85.5%	100.0%
	Few times a year	Count	44	59	103
		% within How often do you visit <K10a> National Park?	42.7%	57.3%	100.0%
	At least once a month	Count	32	3	35
		% within How often do you visit <K10a> National Park?	91.4%	8.6%	100.0%
Total		Count	87	159	246
		% within How often do you visit <K10a> National Park?	35.4%	64.6%	100.0%

Place attachment to the park, breakdown by length of the relationship with the national park and by age

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	(Combined)	3839.037	9	426.560	4.265	,000
		Categorized relationship	2348.662	5	469.732	4.696	,000
		Age category	1490.375	4	372.594	3.725	,006
	2-Way Interactions	Categorized relationship * Age category	3143.027	19	165.422	1.654	,045
	Model		6982.064	28	249.359	2.493	,000
	Residual		23504.842	235	100.021		
	Total		30486.905	263	115.920		

a. K12_score by Categorized relationship, Age category

Factor Summary[a]

		Eta	Beta Adjusted for Factors
PA_score	Categorized relationship	,278	,286
	Age category	,215	,223

a. PA_score by Categorized relationship, Age category

Model Goodness of Fit

	R	R Squared
PA_score by Categorized relationship, Age category	,355	,126

Place attachment to the park, breakdown by relationship with the national park, by age and by active/inactive status

ANOVA[a,b]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
K12_score	Main Effects	(Combined)	3942.485	10	394.249	3.758	,000
		Categorized relationship	2348.662	5	469.732	4.477	,001
		Age category	1490.375	4	372.594	3.551	,008
		D10a	103.448	1	103.448	,986	,322
	Model		3942.485	10	394.249	3.758	,000
	Residual		26544.420	253	104.919		
	Total		30486.905	263	115.920		

Factor Summary[a]

		Eta	Beta Adjusted for Factors
K12_score	Categorized relationship	,278	,291
	Age category	,215	,179
	D10a	,155	,078

a. PA_score by Categorized relationship, Age category, D10a

Model Goodness of Fit

	R	R Squared
PA_score by Categorized relationship, Age category, D10a	,360	,129

Place attachment to the park, breakdown by relationship with the national park, by age and by active/inactive status

ANOVA[a,b]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
PA_score	Main Effects	(Combined)	6931.047	17	407.709	5.077	,000
		How often do you visit <K10a> National Park?	3934.890	4	983.723	12.249	,000
		D15a	1749.490	4	437.372	5.446	,000
		Age category	649.227	4	162.307	2.021	,094
		Categorized relationship	597.439	5	119.488	1.488	,196
	Model		6931.047	17	407.709	5.077	,000
	Residual		13894.116	173	80.313		
	Total		20825.162	190	109.606		

a. PA_score by How often do you visit <K10a> National Park?, D15a, Age Category, Categorised relationship

Factor Summary[a]

			Beta
		Eta	Adjusted for Factors
PA_score	How often do you visit <K10a> National Park?	,435	,355
	D15a	,326	,288
	Age category	,216	,201
	Categorized relationship	,279	,187

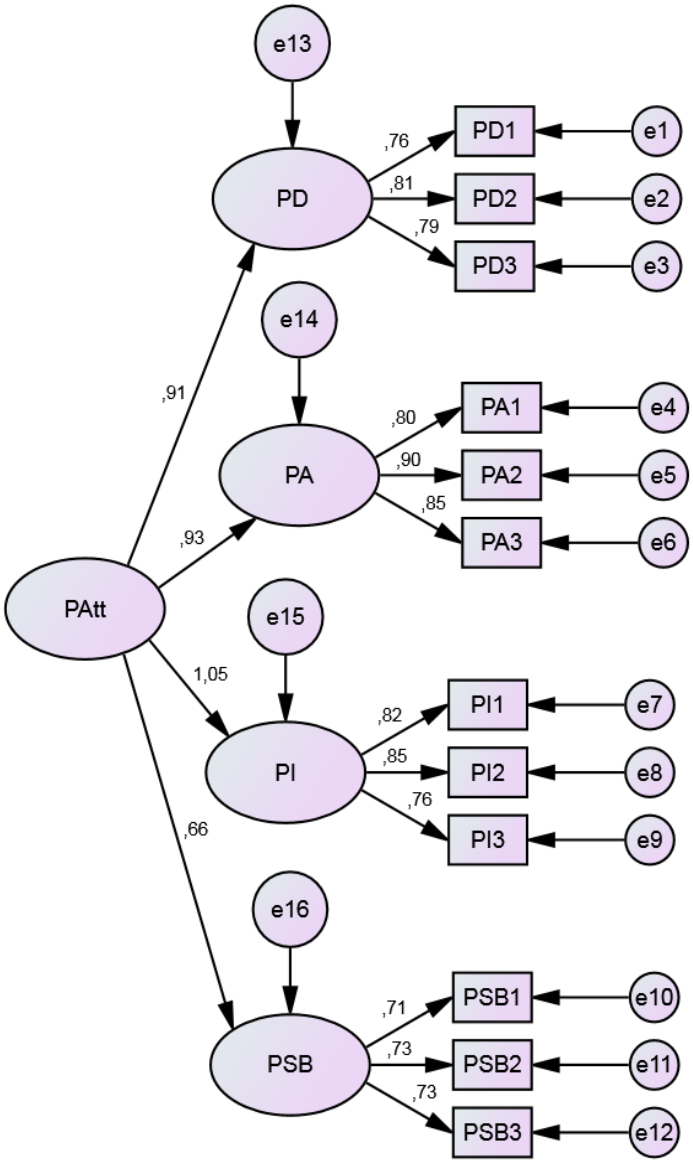
Model Goodness of Fit

	R	R Squared
PA_score by How often do you visit <K10a> National Park?, D15a, Age Category, Categorised relationship	,577	,333

Annex 20: Exploratory factor analysis (EFA) results of park-specific pro-environmental behavioural intentions

	Factors	
	1	2
Volunteer to reduce my use of a favorite spot in XX Park if it needs recover from environmental damage	,864	,118
Volunteer to stop visiting a favorite spot in XX Park if it needs recover from environmental damage	,848	,109
Encourage others to reduce their waste and pick up their litter when they are at XX Park	,737	,340
Pick up litter at XX Park left by other visitors.	,646	,316
Tell my friends not to feed the animals in this National Park or similar parks.	,637	,474
Sign petitions in support of XX Park and similar protected area.	,486	,474
Participate in a public meeting about managing XX Park	,111	,793
Volunteer my time to projects that help XX Park or similar parks and nature areas	,307	,787
Write letters in support of XX Park	,121	,783
Contribute donations to ensure protection of places like XX Park	,371	,729
Pay increased fees if they were introduced and used for park programs	,500	,560
Learn more about XX Park natural environment	,423	,483

Annex 21: Initial confirmatory factor model



Initial confirmatory factor model with the first-order, four sub-dimension factor solution of place attachment scale.