



**Doctoral School of
Business
Administration**

SUMMARY OF THESES

Kata Kasza-Kelemen

Sustainable consumption in tourism?

**The relationship between place attachment and pro-environmental
behaviour in national parks**

Ph.D. dissertation

Supervisor:

Dr. Ágnes Hofmeister-Tóth
Professor

Budapest, 2015

**Institute of Marketing and Media
Department of Marketing Research and Consumer Behaviour**

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1. BACKGROUND TO THE RESEARCH AND REASONING BEHIND THE THESIS

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).

1.1. RESEARCH OBJECTIVES

The objective of my dissertation is to contribute to a better understanding of the effect of place attachment on pro-environmental behaviour regarding nature-based tourism products, as well as to point to the factors facilitating place attachment in protected natural settings, and national parks in particular. The research direction was determined 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.

1.2. THEORETICAL BACKGROUND OF THE RESEARCH

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 by Ajzen and Fishbein (1980). The theory suggests that behavioural intention to act is a good predictor of actual behaviour. Behavioural intention is, among other factors, determined by the individual's attitude of behaviour. By interpreting place attachment¹ 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).

¹Place attachment refers to *a positive emotional bond between an individual and a particular place* (Low and Altman, 1992). 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) (Ramkissoon et al., 2013).

During my research I tested a part of the TRA model, more precisely the effect of the attitude concerning the place (place attachment) on pro-environmental behavioural intentions. The theoretical model of my research is shown in Figure 1.

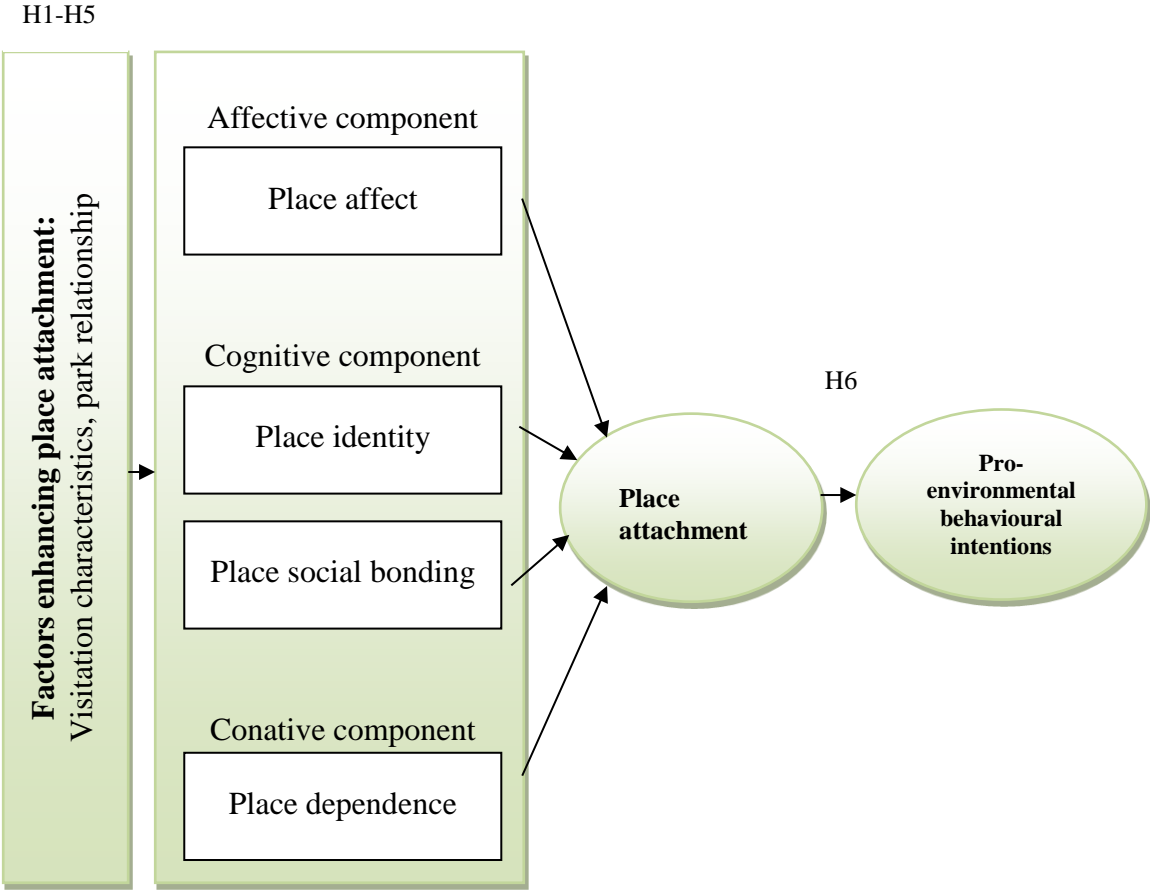


Figure 1: Theoretical model of my research
 Source: own elaboration

Based on the findings by 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, 2010). Furthermore, Ramkissoon et al. (2013) proved that place attachment has a higher influence on high effort behaviours (for example participation in community events, volunteering in projects) than on low effort activities (waste management, decreasing consumption etc.). The study of the link between high and low effort behaviours has received little academic attention so far. The other theoretical foundation of this research is based on Thøgersen’s

(1999) *Spillover Effect*. This theory enables us to further explain the patterns of the commitment process. Based on this theory, an individual's pro-environmental attitude or behaviour in one area can be a good predictor of their general environmental attitude and pro-environmental behaviour in other areas. Provided that place attachment generates a pro-environmental behavioural pattern (in our case: a high effort pro-environmental behaviour), as a result, this effect may spill over to other areas such as to low effort behaviours.

2. METHODOLOGY

2.1. DATA COLLECTION

My intention was to examine my research questions in Hungary in relation to the visitors of the ten national parks of different characteristics. Due to the number of venues to be studied, the data collection was carried out in the form of an on-line survey (CAWI) between June 17-28, 2015. The electronic survey was forwarded by market research company NRC to its panel members. The size of sample was 300 persons. A filter question was applied as a condition of participation. The survey involved all respondents who have visited any of the domestic national parks for the past 12 months. As a result, the sample clearly reflects the scope of visitors visiting domestic national parks in the past year although the sample cannot be deemed to be representative either in terms of the Hungarian population or in terms of the visitors of Hungarian national parks.

2.2. RESEARCH QUESTIONS AND HYPOTHESES

The central purpose of this study is to examine the relationship between an individual's place attachment and pro-environmental behavioural intentions. 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 the research objective, the following research questions were formulated:

- What is the extent of place attachment regarding visitors of the domestic national parks in the sample?
- How to describe the pro-environmental activities and behavioural patterns related to the national parks in question?

- What differences can be identified between pro-environmental behaviours in national parks and at the place of residence?
- What is the effect of place attachment on pro-environmental behavioural intentions in the context of national parks?
- How do high and low effort behaviours interact with each other? Which behavioural type can be used to describe the effect of place attachment?
- To what extent can certain visitation patterns, relationship and socio-demographic variables predict place attachment?

Hypotheses were discussed under two topics. The first group of hypotheses (H1-H5) examines the effect of external variables predicting place attachment. These hypotheses are meant to give a more accurate picture of 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 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. Consumers can differ widely concerning their characteristics of visitations to national parks. The frequency (Moore and Graefe, 1994) and the duration of visitations (Williams et al., 1992), childhood interactions (Chawla, 1992; Lee and Allen, 1999; Hofmeister-Tóth et al., 2012), the distance from national parks (Manzo, 2005), as well as park relationships (Moore and Graefe, 1994; Kaltenborn, 1997; Mesch and Manor, 1998) are factors that can predict attachment. Related hypotheses are as follows:

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

- H2: There is a positive relationship between the duration of visitations to national parks and the extent 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.
- H4a: Childhood relationship with a given national park has a positive effect on the extent of place attachment.
- H4b: Childhood relationship with national parks in general has a positive effect on the extent 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 intention

Based on the findings by 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 to a certain extent by the possible interaction with the environment there and this fact may provide special psychological, social and physiological benefits. As a result of the interactions with the destination's tourism resources, visitors may associate the then undistinguished place with meanings following which an attachment can develop to the place/type of place (Tuan, 1977; Kyle et al., 2004). Literature on place attachment however points out that care for the place is rising as place attachment increases. In this vein, *hypothesis group H6* examines how a more intense attachment to national parks affects pro-environmental behavioural intentions.

- H6: Place attachment as a second-order factor positively influences 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 low effort pro-environmental behavioural intentions.

3. RESULTS

3.1. GENERAL CHARACTERISTICS OF VISITATION TO NATIONAL PARKS

In order to understand respondents' visitation patterns, I examined the visitation frequency to certain domestic national parks as well as the parks visited in the past 12 months. 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. 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.

To study place attachment I asked the respondents to mark one of the national parks visited in the past 12 months that they feel the closest to themselves. Among the aforementioned parks Bükk, Balaton-felvidék and Hortobágy National Parks received the highest scores. 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. 8 respondents did not answer this question. 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-thirds of the respondents were single-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 remaining 3.8% indicated other categories (daily visitors, multiple-day visitors staying at a distance from the park greater than 60km etc.). 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). The age of respondents at the time of their first visit was determined based on the age of respondents and the number of years since the first visit. The average age

of the first visit was 29.72 years (SD=18.12). Thus, the majority of respondents indicated parks in the survey that they visited as adults. This result 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.

The strength of commitment to a national park was determined based on the values of the place attachment scale by adding up the evaluation figures given to the scale items for each individual. 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 level². As for the demographical attributes, there were significant differences in the values of place attachment according to age, income and region of the place of residence. Based on *age groups*, respondents between the ages of 60-69 demonstrated the strongest attachment to national parks. A significant difference was found between them and the age group of 50-59. Based on the *per capita income of a household*, place attachment was found to be decreasing as the income increases. There was a significant difference between the category under 100,000 HUF (300 EUR) and the category above 300,000 HUF (1000 EUR). This can be explained by the fact that people on lower incomes are less mobile which increases place dependence to recreation venues within their region that is the functional attachment to a place (Halpenny, 2006).

Regarding pro-environmental behaviour in national parks we can state that the majority of the behavioural patterns were limited to low effort behaviours whereas dynamic activities less expected by society were salient in the age group above 60. This tendency was reflected in several previous national studies, in which it was also the younger population that demonstrated less environmental awareness (Piskóti, 2015; Hofmeister-Tóth et al., 2012). Moreover it can be stated that demographic variables showed a greater number of significant differences in pro-environmental behaviour in national parks than at the place of residence. While the differences were noticeable at the place of residence based on age only, national parks demonstrated more differences based on region, income and the presence of children under 14. Based on the breakdown of incomes, people with 300,000-400,000 HUF (1000-1300 EUR) per capita monthly income demonstrated the

²The average place attachment to the place of residence in the sample was $M_{Scale}=37.57$ (SD=10.182).

least pro-environmental behaviour. A significant difference was found between them and the category of 100,000-300,000 HUF (300-1000 EUR). However it can be stated in general that pro-environmental behaviour is least common in the category above 300,000 HUF (1000 EUR). A significant difference was equally shown based on the presence of a child under 14 in a household. Among people with children, pro-environmental behaviour was significantly lower in national parks. In addition to analysing the activities during the last visit, I also examined the behavioural intentions concerning the next future visit. Limited change was observable in behavioural intention compared to the actual behaviour, typically in regard to the management of scattered waste.

3.2. EXAMINATION OF THE PREDICTIVE POWER OF EXTERNAL FACTORS BY ANALYSIS OF VARIANCE

Hypotheses H1-H5 were aimed to study the relationship between external factors and place attachment. While hypotheses H1, H2 and H3 analyse the predictive power 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. In order to explore the *relationship between place attachment and external factors*, I performed one- and multi-way analyses of variance (ANOVA). Based on the results, among other visitation-related attributes a significant difference in place attachment was found in connection with the *frequency of visitations*. 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* and between place attachment and the *distance from the place of residence*. 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.

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). In order to better understand the higher values appearing consistently in the 60-69 age group, another variable, namely the active/inactive employment status was introduced into the analysis. I assumed that variations in place attachment values were partially caused by elderly people having more leisure time due to their inactive status. However, active/inactive status had no significant effect on place attachment within the dimension defined by these three variables.

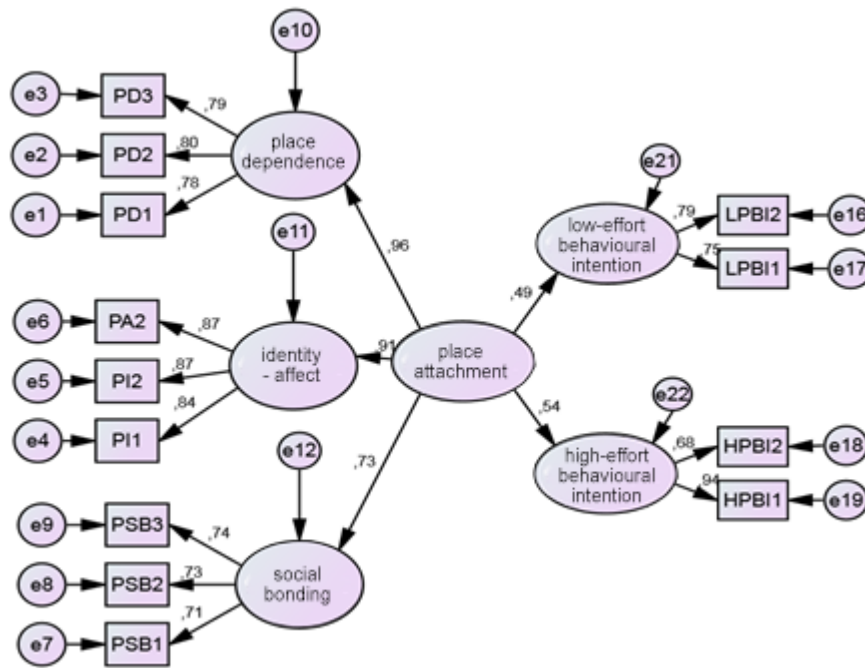
In the analysis of the relationship between *childhood visitations* and place attachment significant effects regarding the given park and national parks in general were found. The more a respondent was prone to visit a given park or national parks in general in their childhood, the higher their values 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 a significant difference was found between groups visiting national parks in childhood and groups not visiting them in childhood. The combined

examination of the two variables resulted in a significant main effect only in case of the general visitation to national parks variable, and no interaction was accounted for between the two variables. This can be caused by the fact that respondents primarily listed those parks that they had relationship with as adults.

As a last step in the examination of predictors I performed a hierarchical analysis of variance to identify partial effects of visitation (frequency of visitations), relationship (length of relationship) and demographic (income, age) variables. The most powerful variables were included 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. According to partial effects, the frequency of visitations had the biggest individual effect (12.6%), followed by the income (8.3%). However, in the dimension defined by the four variables, age and the relationship with the national park lost its significant effect on place attachment.

3.3. RESULTS OF STRUCTURAL EQUATION MODELLING (SEM)

The method of structural equation modelling (hereinafter referred to as SEM) was applied to test for dependencies between place attachment and pro-environmental behavioural intentions. My research was aimed to test a theory-based model, which enabled me to work with reflective measurement models during my analyses. As a first step I tested the reliability and validity of the used scales and measuring model. This was followed by the elaboration of a structural model and test of model fit. The model was deemed fit based on the indicators specified in the literature (Cronbach, 1951; Fornell and Larcker, 1981; Bentler, 1990; Baumgartner and Homburg, 1996; Henseler et al., 2009; Hair et al., 2010).



2Figure 2: Structural model
 Source: AMOS / 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 visitors' low- and high-effort pro-environmental 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: *place attachment as a second-order factor positively influences the visitor's low- and high-effort pro-environmental behavioural intentions.*

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.

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. 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.

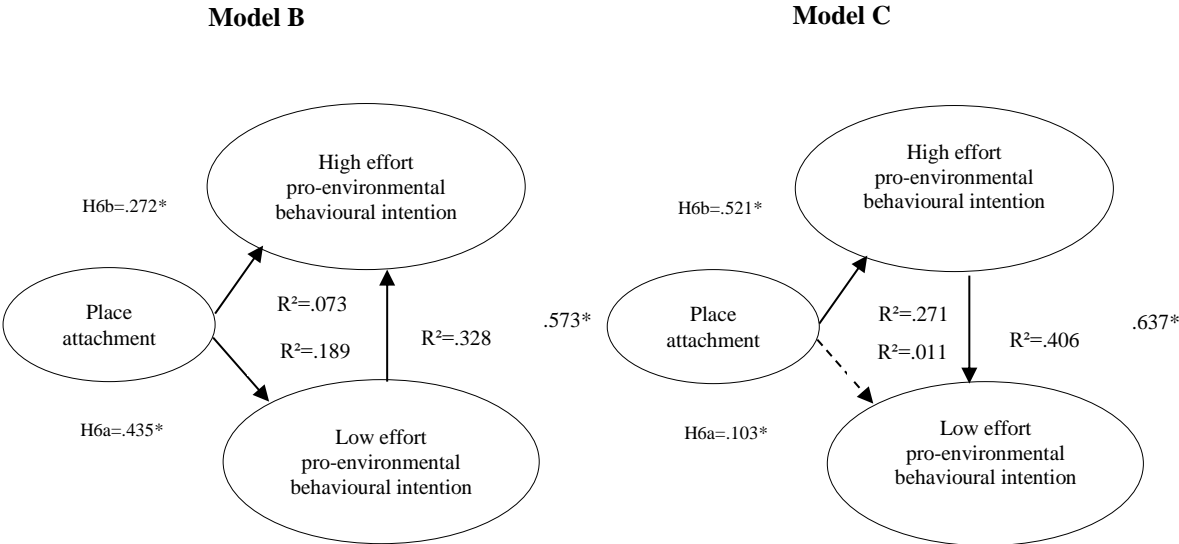


Figure 2: Illustration of effects in a structural model (models B and C)

Significant paths are marked with solid lines while non-significant paths are marked with dashed lines.

* $p < .001$

Source: own elaboration

In case of model B (see Figure 2) the full effects between latent variables studied always proved to be significant. 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.

Based on model C place attachment remains to have a strong significant effect on high-effort behavioural intentions ($t=5.504$, $p<0.001$, $\beta=0.52$), while its significant effect on low-effort activities disappears ($t=1.2$, $p>0.05$, $\beta=0.10$). 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. 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 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.*

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

1 1: Summary of research hypotheses

Source: own elaboration

3.4. PRACTICAL SIGNIFICANCE OF THE RESULTS

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. The total direct and indirect effects of the variables examined revealed that the desired behavioural intention can be better projected if the effect of place attachment unfolds in connection with high-effort activities, for example through the participation in a project relating to the operations of a national park. Low-effort behaviours such as picking up garbage left by others then ought to be considered as spillovers of high-effort activities.

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

3.5. LIMITATIONS OF THE STUDY AND FUTURE RESEARCH DIRECTIONS

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 segmentation based on visitors' place attachment may bring about an additional research direction, namely the study of how behaviours may spill over in different place attachment groups and what type of commitment patterns are taking shape within the groups.

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