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An Investigation of the Relationship between Place Attachment (PA) and Pro-Environmental Behavioural Intentions (PEBI) and its Implications towards Over-Tourism

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Introduction

The growth in the tourism industry in Korea paved the way for Seoul to host the 7th UNWTO Global Summit on Urban Tourism in 2018. Key issues were raised during the summit to better understand and manage over-tourism and shape the future of urban tourism, reflecting the 2030 Urban Agenda vision. The summit helped to reassert the tourism industry in sustainability of cities. Over-tourism is one of the most controversial issues with regard to sustainability within the tourism sector recently. This over-tourism phenomena have created an 'anti-tourism' movement and 'tourism-phobia' to residents within local districts with its negative impacts.

Why do local residents have offensive and negative attitudes towards over-tourism and the tourist? Why has this phenomenon occurred? Individual residents have formed social and emotional attachments towards a place, and therefore generally have a sense of repulsion, or resistance, towards the negative external influences that might ruin a local environment. This paper seeks to investigate the starting point of that place attachment (PA) towards 'anti-tourism'; therefore, the research model starts from place attachment. There is no doubt that pro-environmental behaviour and the individual resident's intention bring about positive effects on the environment in the region. From this perspective, research on place attachment (PA) and pro-environmental behavioural intentions (PEBI) in urban tourist destinations within the context of over-tourism, is necessary to improve city sustainability and enhancement of residents' living environment. To date there are few studies measuring the relationship from a psychological aspect between (PA) and (PEBI) with the over-tourism phenomenon.

Lake Seokchon, is the only artificial lake in Seoul, located in Songpa-gu, the centre of the city. The lake is considered one of the famous city attractions. There are various events held at this site year around, such as the 'Rubber Duck' event, and cherry blossom festival. This paper constructs an empirical research model for measuring the relationship between Seoul residents' PA to Lake Seokchon and their PEBI to better understand the residents' and what this means for over-tourism.

Literature Review

Place Attachment (PA)

There is no unified discipline that defines place attachment, hereafter (PA), thus far. Environmental psychologists tend to define PA as a process of valuing a place that encompasses functional and emotional meaning, or "bonding" to a place (Vaske & Kobrin, 2001; Williams & Roggenbuck, 1989; Yuksel & Bilim, 2010). Most previous studies in the field have considered two different dimensions towards place attachment: place dependence and place identity (Vaske

& Kobrin, 2001; Williams & Roggenbuck, 1989; Williams & Vaske, 2003; Yuksel & Bilim, 2010). Place dependence represents an individual's actions or behavioural tendencies; whereas place identity is defined as an individual's self-identity in relation to the particular physical environment (Halpenny, 2010). Some researchers attempted various sub-dimensions of place attachment to the above given dichotomous classifications. Raymond, Brown, and Weber (2010), for example, integrate the concept of social bonding onto PA, thereby creating 'place belongingness' and 'place familiarity' as new psychological sub-dimensions of it. Place belongingness refers to a feeling of membership or affiliation with a place where people feel connection with the environment; place familiarity refers to a form of acquaintances and remembrances related to a place (Hammitt, Kyle, & Oh, 2009). This study uses a high-order factor model to measure PA. A high-order factor analyse model consists of factors, which when ranked according to stages, only takes into consideration those factors based on earlier factors within the stage, or process. In other words, a second, or third order factor would depend on an entity that proceeded it, a first-order factor. In this paper, PA is classified as a second order factor, whereas place dependence, place identity, place belongingness, and place familiarity are all classified as a first order factor.

Pro-environmental Behaviour and Norm Activation Model (NAM)

Many studies have been conducted in the research field of pro-environmental behaviour with theories related to human behaviour, attitude, and norm. The theory of reasoned action (TRA), theory of planned behaviour (TPB), value-belief-norm theory (VBN), and norm activation model (NAM) are four theories commonly used to explain the relationship of an individual's norm and behaviour. TRA and TPB concern about subjective norm; while VBN and NAM concern with personal norm. Therefore, VBN and NAM may offer a better explanation for good intention (e.g. environment friendly citizenship) towards pro-environmental behaviour in a specific situation. VBN explains awareness of consequences and ascription of responsibility as precedence factors of personal norm (Stern, 2000). NAM is an expanded perception for the personal norm that consists with ascription of responsibility, problem awareness (awareness of consequences), outcome efficacy and self-efficacy (Harland, Staats, & Wilke, 2007). Schwartz and Howard (1981) also indicate these four factors are four key situational variables of human behaviour.

There is needed to be a fundamental component to complete the explanation of an individual's pro-environmental behaviour above the norm activation model. Schultz (2001) identified environmental concerns into three sub-dimensions of egoistic concerns, altruistic concerns, and biospheric concerns. Based on VBN theory, the environmental behaviour has general relations with an individual's environmental concerns as a part of their value and belief (i.e. environmental belief). De Groot and Steg (2008) have found empirical evidence that shows environmental concerns relate to awareness of consequences and ascription of responsibility. Hence, this study denominated dimensions that explains pro-environmental behavioural intentions (PEBI) as 'consciousness of environmental responsibility (CER)', and composed four situational and environmental variables on environmental concerns (EC), environmental problem awareness (EPA), outcome efficacy (OE), and ascription of responsibility (AR). Based on the theoretical backgrounds above, this study proposes following hypotheses:

Hypothesis 1. Place attachment significantly influences environmental concerns.

Hypothesis 2. Place attachment significantly influences environmental problem awareness.

Hypothesis 3. Place attachment significantly influences outcome efficacy.

Hypothesis 4. Place attachment significantly influences ascription of responsibility.

Four dimensions of CER have an effective relationship with pro-environmental behavioural intentions. Therefore, this study derives the following hypotheses:

Hypothesis 5. Environmental concern significantly influences pro-environmental behavioural intentions.

Hypothesis 6. Environmental problem awareness significantly influences pro-environmental behavioural intentions.

Hypothesis 7. Outcome efficacy significantly influences pro-environmental behavioural intentions.

Hypothesis 8. Ascription of responsibility significantly influences pro-environmental behavioural intentions.

Methodology

Proposed Conceptual Model

This research constructed a structural equation model. The hypothesised relationships relevant to this study are identified in the Figure 1. Expanding on the theoretical backgrounds as discussed in the literature review section, this study proposes 8 hypotheses in total. The conceptual model described hypothetical relationships among the residents' PA to Lake Seokchon and their consciousness of environmental responsibility, and furthermore their relationship to PEBI.
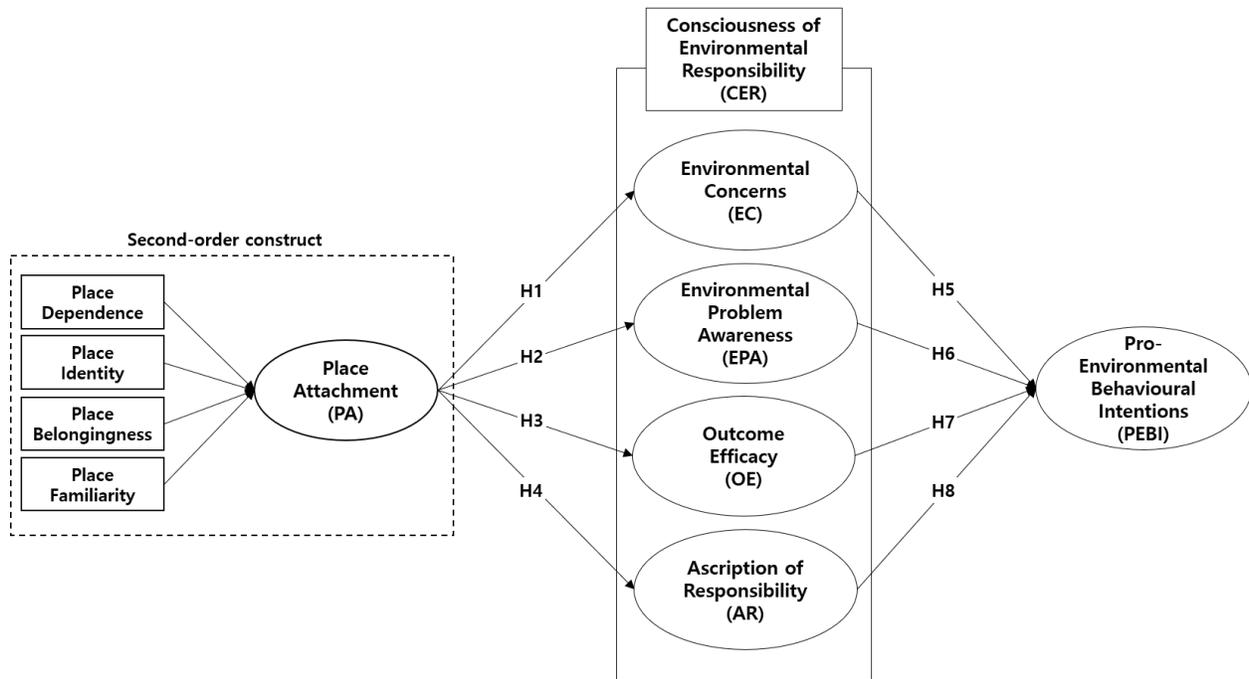
Figure 1. Proposed conceptual model.

Measurement and Data Collection

This research used multi-item scales that were verified in previous studies with basic sociodemographic questionnaires. Place attachment was measured with 12 items under the four sub-dimensions of place dependence, place identity (Raymond et al., 2010; Vaske & Kobrin, 2001; Williams, Anderson, McDonald, & Patterson, 1995; Williams & Roggenbuck, 1989; Willams & Vaske, 2003), place belongingness and place familiarity (Hammitt et al., 2009; Raymond et al., 2010). Consciousness of environmental responsibility was measured by four dimensions and 21 items. Environmental concern was measured by 12 items under three sub-dimensions: biospheric, egoistic, and altruistic concerns (Schultz, 2000). Environmental problem awareness measured by 3 items adopt from Shin, Im, Jung, and Severt (2018). Self-efficacy was measured by 3 items (Harland et al., 2010; Lee, 2001), and outcome efficacy measured by 3 items (Harland et al., 2010). Ascription of responsibility was measured using 3 items (Shin et al., 2018; Zhang, Liu, & Zhao, 2018). Pro-environmental behavioural intentions were measured using 6 items (Pan, Chou, Morrison, & Lin, 2018; Ryu et al., 2016).

Data for this study were collected through field and online surveys from Seoul residents who had visited Lake Seokchon at least once in the past two years. This paper adopted multiple data collection approaches to improve reliability. Responses for the field survey were collected on site at Lake Seokchon, and Jamsil Station, which is a subway station located close to Lake Seokchon. Surveys were targeted at Seoul residents. An online survey questionnaire was distributed to university lecturers and postgraduate students in the tourism sciences field, and respondents are asked to refer acquaintances to the survey as well. The data analysis was carried out using AMOS (v25).

Results

Through the survey, 523 questionnaires were collected in total, but the incomplete questionnaires were eliminated: therefore 516 questionnaires (98.66%) were used in the analysis. The statistical characteristic of the sample is described as Table 1. In terms of gender, 37.8% of respondents were male, and 62.2% were female. The majority of respondents were in their twenties (35.9%) and thirties (34.7%). About 41.5% of the respondents had a bachelor's degree and 42.8% a graduate degree. The largest group of respondents were students (33.7%), followed by office workers (22.3%) and professionals or technicians (20.7%). About half of the respondents (51.2%) were living in Songpa-gu, where the Lake Seokchon is located, the other half of the residents (48.8%) were living in other districts in Seoul.

Table 1. Sample profile

Variable	n	Percentage
Gender		
Male	195	37.8
Female	321	62.2
Age		
20-29 years old	185	35.9
30-39 years old	179	34.7
40-49 years old	106	20.5
Older than 50 years	46	8.9
Education level		
High school degree or less	22	4.3
2- or 3-year college	59	11.4
Bachelor's degree	214	41.5
Graduate degree	221	42.8
Occupation		
Office job	115	22.3
Profession/Technician	107	20.7
Self-employed	54	10.5
Homemaker	44	8.5
Student	174	33.7
Other	22	4.3
Residency		
Near the lake (live in Songpa-gu)	264	51.2
Other (live in other area of Seoul)	252	48.8

As Figure 1 shows that the hypothesised model predicted to be true that the four factors for PA were driven by a second-order factor for PA. Confirmatory factor analysis (CFA) of PA provides a good fit to the data (x^2=63.726 [df =26, p<.001], RMSEA=.05, CFI=.99, IFI=.99, NFI=.99, TLI=.99, GFI=.98). For the CFA result, PD (.976) is the most important factor of PA. The second most important factor of PA is PI (.957), the third most important is PB (.937). PF (.790) showed to be the least important factor of these four factors. These results support the theoretical background for PA and its second-order construct in this research.

Table 2. Confirmatory factor analysis: items and standardised loadings.

Construct and scale item	Loading
Place Attachment (PI)	
Place Dependence (PD)	
PD1. Lake Seokchon is the best place for the activities I like to do.	.679
PD2. A lot of my life is organised around Lake Seokchon.	.803
PD3. Lake Seokchon makes me feel like no other place can.	.855
Place Identity (PI)	
PI1. Lake Seokchon means a lot to me.	.915
PI2. I am very attached to Lake Seokchon.	.963
PI3. I identify strongly with Lake Seokchon.	.896
Place Belongingness (PB)	
PB1. I feel like I belong at Lake Seokchon	.810
PB2. When I am at Lake Seokchon, I feel that I become a part of it.	.890
PB3. I feel connected to Lake Seokchon.	.963
Place Familiarity (PF)	
PF1. I could draw a rough map of Lake Seokchon.	.845
PF2. I visited Lake Seokchon many times and quite familiar with it.	.937
PF3. I know Lake Seokchon well just like the back of my hand.	.963
Consciousness of Environmental Responsibility	
Environmental Concerns (EC)	
("I am concerned about the environment for . . .")	
Biospheric concerns	
EC1. Animals	.435
EC2. Plants	.672
EC3. Marine life	.652
EC4. Birds	.676
Egoistical concerns	
EC5. Myself	.805
EC6. My future	.850
EC7. My lifestyle/daily life	.840
EC8. My health	.811
Altruistic concerns	
EC9. All people	.838
EC10. Children	.815
EC11. My community	.852
EC12. My children	.731
Environmental Problem Awareness (EPA)	
EPA1. Tourism industry can cause ocean pollution, climate change, and exhaustion of natural resources.	.894
EPA2. Tourism industry can cause environmental deteriorations.	.920
EPA3. Tourism industry can possibly have huge environmental impacts on the ocean and wider environment.	.923
Self-Efficacy/Ability (SE)	
SE1. If I wanted, I could do green (pro-environmental behaviour) in most instances during the next six months.	.796

SE2. I can do green to prevent environmental pollution.	.814
SE3. I can explain the cause of environmental pollution to others.	.701

Outcome Efficacy (OE)

OE1. I believe that my green behaviour will contribute in keeping the environment clean.	.871
OE2. More than other actions I could take, I can do green to help clean environment.	.839
OE3. I believe that my green behaviour will affect to others.	.773

Ascription of Responsibility (AR)

AR1. I feel joint responsibility for the environmental problems.	.833
AR2. I feel that every citizen and tourists have joint responsibility for the environmental deteriorations.	.894
AR3. I feel that every citizen and tourists must take responsibility for the environmental problems caused by tourism activities.	.903

Pro-Environmental Behavioural Intentions (PEBI)

PEBI1. I will pick up the garbage for the environment.	.582
PEBI2. I will check wastes of food residues when I leave places.	.868
PEBI3. I will take non-biodegradable garbage home and dispose.	.658
PEBI4. I will not destroy nature, animals, and plants.	.838
PEBI5. I will relieve myself at designated areas.	.795
PEBI6. I am willing to encourage or persuade others to adopt behaviours that prevent and solve environmental problems.	.780

CFA was conducted to assess measurement variables underlying the research model, and verify the unidimensionality of the scales for each construct. Table 2 shows the specific measurement variables with their standardised factor loadings. The results indicate that the measurement model provided a good fit to the data (x^2=1843.828 [df =306, p<.001], RMSEA=.08, CFI=.91, IFI=.91, NFI=.89, TLI=.87, GFI=.83). As previous studies (e.g. Browne & Cudeck, 1993; Hair, Black, Babin, & Anderson, 2006; MacCallum, Brown, & Sugawara, 1996) recommended, a RMSEA below .08 shows a good fit and between .08 to .10 is a mediocre fit for the model. While assessing CFA, eight items were eliminated in total to improve the value of goodness-of-fit. In terms of convergent validity, the composite reliability (CR) of research constructs ranged from .87 to .95, and average variance extracted (AVE) ranged from .68 to .98, those exceeded the recommended threshold of .7 for CR and .5 for AVE (Fornell & Larcker, 1981; Hair et al., 2006). As has been recommended in previous studies (e.g. Fornell & Larcker, 1981), discriminant validity was assessed by comparing the AVE and squared values of correlations between constructs. As shown in Table 3, the square root of the AVE for each construct exceeded the correlation between constructs and proved sufficient discriminant validity.

The remarkable point of this study is that SE has been eliminated from the research model due to discriminant validity. Squared correlation value between SE and OE exceeded relevant AVE value, and eliminating SE showed better development than the case of eliminating OE. Schwartz and Howard (1981) also noted that the four key situational variables of human behaviour may not operate simultaneously. Moreover, Steg and De Groot (2010) identified that problem awareness, ascription of responsibility, and outcome efficacy played the most important role in the formation of pro-social and pro-environmental intentions.

Table 3. Correlations, reliability, and validity for salient constructs.

	PA	EC	EPA	OE	AR	PEBI
PA	1					
EC	.348**(.121)	1				
EPA	.379**(.144)	.462**(.213)	1			
OE	.402**(.162)	.659**(.434)	.469**(.220)	1		
AR	.293**(.086)	.719**(.517)	.401**(.161)	.648**(.420)	1	
PEBI	.352**(.124)	.561**(.315)	.235**(.055)	.578**(.334)	.502**(.252)	1
AVE	.814	.733	.794	.734	.944	.683
CR	.946	.950	.920	.892	.920	.866

Note: Values in parentheses indicate the square of correlations for each construct.

The structural model was assessed to verify the relationships among PA, EC, EPA, OE, AR, and PEBI. The SEM results and goodness-of-fit of model (x^2=1757.767 [df=5.726, p<.001], CFI=.91, IFI=.92, NFI=.90, TLI=.88, GFI=.84, RMSEA=.08) are shown in Figure 2 and Table 4. The SEM results indicate all hypotheses were supported, and shows H7 has a reserve effect on the relationship between EPA and PEBI.
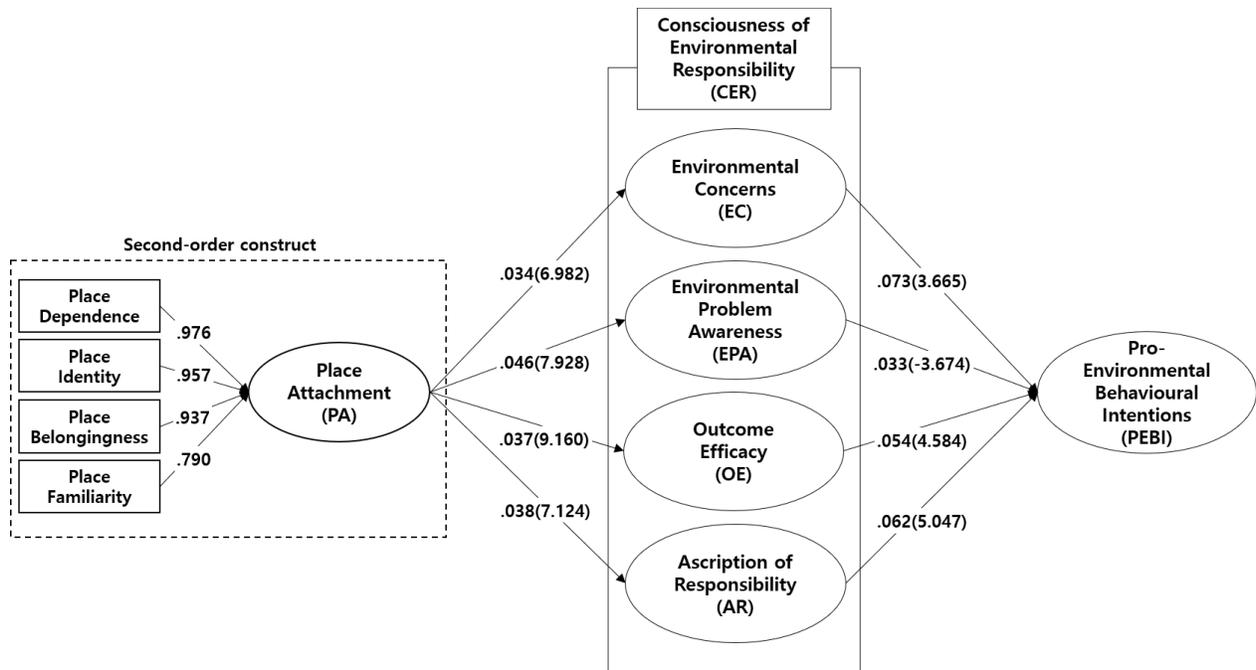

Figure 2. The results of the proposed model.

Table 4. Standardised parameter estimates for structural model.

Paths		Standardised estimate	T-value	Hypothesis
H1	PA → EC	.034	6.982***	Supported
H2	PA → EPA	.046	7.928***	Supported
H3	PA → OE	.037	9.160***	Supported
H4	PA → AR	.038	7.124***	Supported
H5	EC → PEBI	.073	3.665***	Supported
H6	EPA → PEBI	.033	-3.674***	Supported
H7	OE → PEBI	.054	4.584***	Supported
H8	AR → PEBI	.062	5.047***	Supported

Note: *p<.05, **p<.01, ***p<.001; x^2=1757.767, df=307, x^2/df=5.726, CFI=.91, IFI=.92, NFI=.90, TLI=.88, GFI=.84, RMSEA=.08

Conclusion and Discussion

This study investigated the relationship between place attachment (PA) and pro-environmental behavioural intentions (PEBI) that resulted in two findings.

First, Seoul residents' place attachment (PA) had significant impact on their consciousness of environmental responsibility (CER), and each variable of CER has meaningful effects to pro-environmental behavioural intentions (PEBI). This result shows the stronger the PA people feel, the more impacts on CER they receive and the higher PEBI people would have. Moreover, the result provides us a better understanding theoretically as to why residents tend to reject over-tourism answering the main research question. For residents, it seems they have strong PEBI to the region with their PA. Another interesting result is, EPA depreciated residents' PEBI; whereas EC, OE, and AR had a positive impact on PEBI in this study. From these results, this paper suggests that residents feel they need not personally behave pro-environmentally, as long as they think the environmental problem is being caused by a number of people.

Second, the traditional Norm Activation Model (NAM) has been re-verified and a concept was introduced in this research. As the traditional theory of NAM, by Schwartz and Howard (1981), argued that all of 4 constructs (problem awareness, self-efficacy, outcome efficacy, and ascription of responsibility) may not operate at the same time, SE was eliminated in this paper. However, environmental concern (EC) was a new component added to this study, and suggests it as a variable for CER. Through this study environmental concerns (EC) may be considered as a new sub-dimension of CER.

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