

The Relationship Between Visitors' Environmental Attitudes and Their Recreational Motivations: A Case Study in a Korean National Park

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Abstract : This study examines the relationships between visitors' environmental attitudes as measured by the new environmental paradigm (NEP) and their recreational motivations based on data collected from a national park in South Korea. The data analysis indicated that visitors' environmental attitudes and motivation were multi-dimensional structures. The NEP composed of three factors named 'Humans over Nature', 'Balance of Nature', and Limit to Growth'. Visitors' motivation also composed of four factors representing 'Achievement and Stimulation', 'Escape and Enjoying Nature', 'Social and Leadership', and 'Family'. However, there were significant correlations among the factors, suggesting they were independent each other. There were also significant differences in visitors' motivation due to their level of environmental attitudes.

Key words : *Enjoying nature, forest recreation, Halla-san, NEP, REP, visitors' motivation, visitors' environmental attitudes*

Introduction

Why is the recreationist participating in the activity in the area? To better answer this question, a behavioral approach was proposed whereby recreation is defined as "an experience that results from recreational engagements" (Driver & Toucher 1970). This approach is based on psychological theory which suggests that most human behavior is goal-oriented or driven by motivation (Ajzen 1991). Expectancy-value theory (Fishbein & Ajzen 1975) states that individuals may have a variety of motives for participating in an activity. Furthermore, Ditton *et al.* (1992) argued that persons within that activity may seek totally different outcomes.

Stankey & Schreyer (1987) considered motives to be a predisposition to fulfill specific types of needs. Reasons for participating in forest recreation have also been called recreation experience preferences (REF), emphasizing the voluntary nature of behavior based on those preferences (Driver & Brown 1978). REP is based on the concept that recreation is more than participation in an activity, and should be reviewed as an experience

providing various rewards or outcomes to participation (Driver & Brown 1978). That is, we engage in specific recreation activity because we desire outcomes that we perceive will occur as a result of that activity. Therefore, focusing on these outcomes, motivations have been referred to as desired outcomes and desired consequences (Driver & Brown 1978).

It is also important that motivation is the effect of non-motivational factors on motivation (Graefe *et al.* 2000). Variables traditionally used as independent variables (i.e., those that might influence motivations) include past experience, skill level, group type and demographics. For example, Shin (1994) found that motivations for mountaineering vary with level of experience and frequency of participation. The size of the group and whether the group consists of friends, family or strangers affect motivations with the chosen recreation activity (Schuett 1994).

Although many previous studies have examined the relationships between forest recreational motivations and other non-motivational variables, the relationship between motivations and visitors' values and attitudes has been rarely examined. Blamey & Braithwaite (1997), in examining potential outdoor recreation markets from the perspective of social values as opposed to the traditional

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variables (i.e., past experience, skill level, group type and demographics), outlined two paths of psychographic inquiry in describing outdoor recreationists' lifestyles. The first path focused on needs and motives that lead to satisfy these needs, while the other focused on human values and attitudes. However, few studies have been conducted to investigate the relationship between environmental attitudes and forest or outdoor recreation motivations.

According to Ajzens' (1991) theory of planned behavior (TPB), an individual's behavior is largely dependent on his/her intention to perform that behavior which, in turn, is determined by the person's attitudes toward the behavior. Thus, those who hold positive environmental attitudes are more likely to have a desire to learn and experience nature (Eagles & Higgins 1998) or have an intention to pursue an environmentally friendly behavior associated with forest recreation. Therefore, the purpose of this study is to examine the extent to which environmental attitudes as measured by the new environmental paradigm (NEP) are related to forest recreation motivation measured by recreational experience preferences (REP), using data collected from Halla-san National Park in Korea.

In Korea, participation in forest recreation activities has increased dramatically over the past few decades, and the current growth rate has been projected to increase further. For example, in the year of 2007, the number of visitations to 103 recreational forests across Korea was 5,775,417, increasing 13.8% of the previous year (Korea Forest Service 2008). Traditional forest recreation activities, such as hiking and camping in national parks and recreational forests, which are the major outdoor delivery systems in Korea, are expected to show substantial increase (Korea National Park Research Institute 2007). To meet visitors' needs and optimize their recreation satisfaction, managers must be able to identify the motivations driving to forest recreation areas. Understanding what visitors seek through recreation can provide useful guidance to a variety of planning and management tasks, such as measuring supply and demand for forest recreation, developing management objectives, and preventing and managing conflicts between visitors.

Methods

1. Study area

Hallasan National Park consists of 149 square kilometers of rugged mountains and valleys in Jeju Island, South Korea. The summit (1,950 meters) of the mountain is the highest point in South Korea. The mountain is located exactly in the middle of the island and can be accessed from all sides fairly easily. Hallasan is one of

the most popular mountains for hiking in Korea, particularly with all the local vacationers who come to Jeju Island on holidays and for honeymoons. Hallasan National Park has a wide range of attractions and has a large number of visitors throughout the year (804,887 visitors in 2007). Park visitors engage in pursuits such as day-hiking, backpacking, and nature-picturing. Park managers are faced with conflicts from visitor pressure for services and facilities, and the capacity of the park to meet visitor expectations. A key reason why this park was selected for the study is that the popularity of the park has generated heavy use with a potential of overuse and serious environmental degradation. The results of this visitors' motivation examination will help park managers to define clear management objectives and how to meet them.

2. Instruments

Respondents' environmental attitudes were measured using Korean NEP scale. The Korean NEP scale developed by Shin (2001) based on the original NEP scale (Dunlap *et al.* 2000). The NEP scale consists of 12 items, with each item having five answer categories ranging from "strongly agree" to "strongly disagree". The score of 12 would mean a strong attitude that humans are above nature and therefore don not have to care as they use up resources. By contrast, a score of 60 would mean that the strongest attitude that humans are a part of nature and therefore must consider it in the use of resources.

Hallasan National Park visitors' motivations were measured using a 17-item scale selected from the REP scales (Manfredo *et al.* 1996). Each item was measured using 5-point Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3. Data collection

The sample of 422 visitors to Hallasan National Park was surveyed during the spring and summer of 2008. Contact with survey respondents was made at trailheads by trained interviewers. The selected visitors were first briefed about the study, and those agreeing to participate were then interviewed. The interview refusal rate was less than 1%. Non-response bias is therefore low.

The sampling scheme for the survey was stratified by survey sites, weekday-weekend use, and relative use throughout the day. Each day of the sampling period was divided into two sampling blocks: morning (7:30 a.m. to 12:30 p.m.) and afternoon (1:00-6:00 p.m.). The selection of sampling sites was based on use estimates obtained from park managers. The historic use patterns for each sampling site determined how much time would be spent at each interview location. For example, if 10% of an area's previous use was at trailhead A, then 10%

of the interview effort occurred at trailhead A.

4. Data analysis

Data analysis consisted of several steps. First, the NEP scale and REP scale were factor analyzed using a principal component factor analysis (with varimax rotation) with an eigenvalue of 1.00 or more being used to identify potential factors. Second, based upon the results from the principal component analysis, factor scores were computed for Pearson's correlation coefficients to examine scales' internal consistency. Third, respondents were classified into three groups-low score NEP group, middle score NEP group, and high score NEP group- based on total NEP scores using 33 and 66 percentiles (Kim *et al.* 2006). Finally, Duncan's one-way analysis of variance was performed test to determine any differences in the recreational motivation factor scores by level of environmental attitudes (i.e., low score NEP group, middle score NEP group, and high score NEP group).

Results

1. Socio-demographic characteristics

The population for this study consisted of visitors to Hallasan National Park. There were 422 respondents in this study: 66 per cent were men, 34 per cent were

women. Majority of the respondents were in their age of 50s (32 per cent), 40s (30 per cent) and 30s (21 per cent). Most of the respondents were high school (36.5 per cent) or college (59.8 per cent) graduates. These demographic characteristics are similar to those found in previous national park visitor studies in Korea (Kwon *et al.* 2003, Shin *et al.* 2001).

In terms of occupation, the majority of respondents were employed in a company or a corporation (25.4 per cent) and in government sectors (21.8 per cent). Approximately 62.5 per cent of the respondents were white-collar workers. In addition, 62.5 per cent of the respondents reported having a monthly personal income between 2 millions Won (approximately US\$2,000) and 4 millions Won (approximately US\$4,000).

Most of the respondents visited to the park with friends (29.9 per cent) or family members (24.6 per cent). Regarding to duration of staying in the park, majority of the respondents reported two (36.1 per cent) or three (40.3 per cent). Finally, almost all respondents were urban residents.

2. Environmental attitudes and motivation factor analyses

Principal-components factor analyses were performed to identify the number and nature of the constructs under-

Table 1. New Environmental paradigm factor loading items on rotated (Varimax) Factors.

Item	Factors ^a			Mean ^b SD	
	1	2	3		
The balance of nature is very delicate and easily upset	.69	.17	.11	3.81	0.84
When humans interfere with nature, it often produces disastrous consequences	.81	.22	.12	4.20	0.75
Human must live in harmony with nature in order to survive	.74	.22	.18	4.35	0.64
Mankind is severely abusing the environment	.71	.01	.15	3.94	0.81
Humans have the right to modify the natural environment to suit their needs	.12	.78	.01	3.71	1.15
Mankind was created to rule over the rest of nature	.23	.81	.01	4.01	0.98
Plants and animals exist primarily to used by humans	.01	.79	.01	3.71	1.13
Humans need not adapt to the natural environments because they can make it to suit their needs	.17	.68	.01	3.76	1.15
We are approaching the limit of the number of people the earth can support	.16	-.01	.62	3.53	0.94
To maintain a healthy economy, we have to develop a "steady state" economy where industrialized growth is controlled	.19	-.01	.74	3.51	0.92
The earth is like a spaceship with only limited room and resources	.40	.01	.66	3.76	0.91
There are limits to growth beyond which our industrialized society cannot expand	.01	.01	.71	3.29	1.07
Eigenvalues	3.71	2.16	1.15		
% of variance	30.94	17.99	9.59		
Cronbach alpha	.78	.79	.69		

^aItems that have a high loading on a factor are in bold-face type.

Factor 1= Humans over Nature

Factor 2= Balance of Nature

Factor 3= Limit to Growth

^bPossible score range from 1.00 to 5.00

Table 2. Forest recreation motivation factor loading items on rotated (Varimax) factors

Item	Factors ^a				Mean ^b SD	
	1	2	3	4		
To experience excitement	.58	-.01	.38	.27	2.66	1.18
To develop my potentials	.76	-.01	.30	.26	2.63	1.10
To test ability	.75	.01	.01	.21	3.24	1.13
To avoid boring time	.67	.20	.28	-.11	2.86	1.13
To develop knowledge of things	.78	.12	.17	.01	3.10	1.11
To be close to nature	.01	.64	-.19	.32	3.64	0.88
To be away from urban environment	-.14	.75	.32	-.12	3.64	0.88
To be away from daily routine	-.01	.81	.11	-.01	3.74	0.88
To keep physically fit	.36	.49	-.37	.12	4.05	0.75
To be creative	.39	.55	.01	.01	3.45	0.91
To take rest	.17	.63	-.01	.14	3.78	0.80
To be with members/friends	.14	.27	.36	-.01	3.49	1.06
To meet other people	.15	.13	.70	.32	2.55	1.08
To show others you can do it	.31	-.01	.79	.01	2.05	1.07
To get with respectful people	.25	-.01	.83	.01	1.89	1.00
To learn about nature with children	.14	.17	.39	.74	2.65	1.14
To be with family	.22	.01	.01	.81	3.18	1.19
Eigenvalues	5.03	2.61	1.58	1.20		
% of variance	29.57	15.33	9.32	7.05		
Cronbach alpha	.84	.75	.74	.66		

^aItems that have a high loading on a factor are in bold-face type.

Factor 1= Achievement and Stimulation; Factor 2= Escape and Enjoying Nature; Factor 3= Social and Leadership; Factor 4= Family

^bPossible score range from 1.00 to 5.00

lying environmental attitudes (NEP) and motivation (REP), and to identify those items that constitute identifiable sets of environmental attitudes and recreational motivations. The results of the factor analyses for the NEP and REP scales are presented in Table 1 and Table 2, respectively.

As reported in Table 1 the 12 NEP items loaded on three factors, which are labeled 'Humans over Nature', 'Balance of Nature', and 'Limit to Growth'. Factor 1, accounting for 30.94 per cent of total variance, is comprised of four items which represent a theme of "Human over Nature". Factor 2, accounting for 17.99 per cent of total variance, describes a "Balance of Nature" theme. Factor 3, with 9.59 per cent of total variance, portrays a "Limits to Growth" theme. The Cronbach's alpha values for each of the three factors are 0.78, 0.79, and 0.69, respectively, suggesting adequate internal reliability. The factor structure of the NEP is generally consistent with Shin's (2001) previous finding on Korean national park visitors. This, to some extent, supports to validity and generalizability of the NEP as it applied to Korean people.

Regarding 17 REP items, four factors were obtained, namely 'Achievement and Stimulation', 'Escape and Enjoying Nature', 'Social and Leadership', and 'Family'. The four factors explain 62.27 per cent of the total variance, with factor 1 (i.e., Achievement and Stimulation), account-

ing 29.57 per cent, the largest portion of all four factors. The Chronbach's alpha values of the four factors are 0.84, 0.75, 0.74, and 0.66, respectively, suggesting adequate internal reliability. The relatively low alpha value for the fourth factor is because of the small numbers of items loading on the factor.

3. Correlation analyses among factors

Correlation coefficients among the factors for NEP and REP scales were obtained to examine internal consistency. As it can be seen in Table 3 and Table 4, factors in each scale were statistically significantly inter-correlated, suggesting interdependence and internal consistency. For example, 'Humans over Nature' and 'Balance of Nature', and 'Limits to Growth' in NEP were

Table 3. Correlation matrix among the three factors of environmental attitudes (NEP)

	Humans over Nature	Balance of Nature	Limit to Growth
Humans Over Nature	1.00		
Balance of Nature	.39***	1.00	
Limit to Growth	.42***	.05	1.00

*** \leq .001; ** \leq .01; * \leq .05

Table 4. Correlation matrix among the four factors of recreation motivation (REP)

	Achievement & Stimulation	Escape & Enjoying Nature	Social & Leadership	Family
Achievement & Stimulation	1.00			
Escape & Enjoying Nature	.26***	1.00		
Social & Leadership	.49***	.12*	1.00	
Family	.41***	.24***	.39***	1.00

*** \leq .001; ** \leq .01; * \leq .05

Table 5. Analysis of variance (ANOVA) for Forest recreation motivation by environmental attitudes levels

Motivation Factors ^a	L-Group (n=104)	M-Group (n=98)	H-Group (n=126)	F	Prob.
	Mean \pm SD	Mean \pm SD	Mean \pm SD		
Achievement & Stimulation	15.13 \pm 3.90	14.49 \pm 4.75	13.57 \pm 4.53	3.69*	.026
Escape & Enjoying Nature	22.39 \pm 3.10	22.88 \pm 3.35	23.13 \pm 3.41	1.39*	.025
Social & Leadership	10.87 \pm 2.93	9.64 \pm 2.86	9.11 \pm 2.92	10.62***	.001
Family	5.99 \pm 1.84	5.53 \pm 1.94	5.71 \pm 2.08	1.38	.252

^aPossible ranges of each factor scores: Achievement and Stimulation=5-25; Escape and Enjoying Nature=6-30; Social and Leadership=4-20; Family=2-10

*** \leq .001; ** \leq .01; * \leq .05

highly correlated. However, 'Balance of Nature' and 'Limits to Growth' did not show any correlation statistically. In terms of recreational motivation (REP), all four factors were statistically significantly inter-correlated each other. In other words, four factors of recreationists' motivations were highly independent each other.

4. Environmental attitudes and motivation

Table 5 presents the summary of ANOVA statistics concerning any differences in each factor of recreational motivation among respondent environmental level groups. Respondents were classified into three groups-low score NEP group, middle score NEP group, and high score NEP group-based on total NEP scores using 33 and 66 percentiles (cf. Kim *et al.* 2006, Luo & Deng 2008).

All factors, except 'Family', showed significant differences due to respondents' environmental attitude levels (see Table V, $p \leq .05$). Higher environmental attitude respondents tended to rate 'Escape and Enjoying Nature' motivation more important than those of lower environmental attitude respondents. On the other hand, lower environmental attitude respondents tended to rate 'Achievement and Stimulation' and 'Social and Leadership' motivation more important than those of higher environmental attitude respondents. However, motivation for 'Being with Family' is not significantly different due to respondents' level of the environmental attitudes.

Discussion

This study identified the factors structures comprised of visitors' environmental attitudes measured by NEP

(Dunlap *et al.* 2000) and recreational motivation measured by REP (Manfredo *et al.* 1996) to Hallasan National Park in Jeju Island, South Korea. This study also examined the relationships between the visitors' level of environmental attitudes and their recreational motivation. The data indicate that visitors' environmental attitudes and motivation were multi-dimensional structures. However, there were significant correlations among the factors, suggesting they were independent each other. There were also significant differences in visitors' motivation due to their level of environmental attitudes. For example, visitors' with higher environmental attitude tended to report 'Escape and Enjoying Nature' motivation more important than those of lower environmental attitude. Two propositions were made to enhance the predictive power of environmental attitudes in relation to forest recreation motivation. The propositions are: (1) environmental attitudes and as well as forest recreational motivation should be measured rather generally; and (2) the recreational motivation should be influenced by visitors' environmental attitudes. The result of this study supports all two propositions.

In terms of the psychometric properties of the NEP and REP, the results from this study are no large differences in previous studies. In a study of developing Korean NEP scale, using a sample of visitors to a national park in South Korea, Shin (2001) reported three factors and similar factor structures from this study. More recently, Luo & Deng (2008) also supports three factor structures in NEP with data from a sample of visitors to a national park in China. Regarding REP, Luo & Deng (2008) modified the original REP (Manfredo *et al.* 1996) to

administer to Chinese samples and reported four factor structures, as the same of this study. On the basis of these findings, the NEP and REP can be recommended for further use in South Korea.

Research on environmental attitudes in the context of recreation in general, and forest recreation in particular has emerged as an important topic in recent years. However, few studies have been attempted to connect visitors' attitudes toward the environment to their recreational motivation, although Formica and Uysal (2002) encouraged researchers to incorporate environmental attitudes into recreation studies since one's attitude about nature and use of resources may influence destination selection process. In response to this request, this study examined visitors' environmental attitudes and their recreation motivations, and the relationship between the two.

As Stein and Lee (1995) have argued, managers cannot provide fulfillment of visitors' motivation or need directly but they can manage recreation settings to create opportunity for the visitors to fulfill particular motivation or need. The results of this study are useful to managers in their efforts to provide recreation opportunities for visitors to achieve beneficial outcomes through fulfilling their recreational motivation.

The results of this study can be of help not only in park management but also park planning. For example, the relationship between visitors' environmental attitudes and motivation difference could be used by park or forest recreation planners to develop criteria on how recreation resource attributes fulfill to visitors' motivation or needs. Designation of zoning and other management alternatives to prevent visitors' conflicts can be decided by managers based on such attitude-motivation information. Research on how such linkages guide park planning would be of use.

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