How Does the Image of Ecological Resources Influence on Tourists Behavioral Intentions? - The Case of Ulleung-do, South Korea

Shin, Woo-Hwa* · Jang, Min-Sook** · Shin, Woo-Jin***

Abstract

This paper focused on investigating how the tourists' Image of Ecological Resources (IER) influences Tour Satisfaction (TS), Intention to Revisit (IRV), Intention to Recommend (IRC), and Intention to Participate in Ecotourism (IPE), and also clarifying the interrelationships among Tour Satisfaction (TS), Intention to Revisit (IRV), Intention to Recommend (IRC), and Intention to Participate in Ecotourism (IPE). A total of 363 effective responses were collected from the visitors who had just completed a tour Ulleung-do Island in South Korea and two structural equation models (SEMs) were tested. The results showed that the IER not only had direct effects on IRV, IRC, and IPE, but it also had indirect effects through TS on IRV and IRC. This study revealed that IER had direct effects on IPE comparing that IRV and IRC were indirectly affected. Therefore it would be worthy to develop ecotourism programs in Ulleung-do, and the efforts of both local governments and residents should be essential to protecting and maintaining ecological resources.

I. Introduction

The International Ecotourism Society (TIES, 1991) defined ecotourism as "responsible travel to natural areas that conserves the environment and sustains the well-being of local people." In 1996, "ecotourism" was redefined by Ceballos-Lascuratain for the World Conservation Union (IUCN) as "environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features—both past and present), that promotes conservation, has low negative visitor impact, and provides for beneficially active socio-economic involvement of local populations"(Adamson, Gleason & Pellow, 2016).

In general, tourism resources are the elements that attract tourists (Pearce, 1981; Mill and Morrison, 1985). In the case of ecotourism, natural, environmental, and cultural resources are the most important tourism

---
  * Deagu-Gyeongbuk Development Institute
 ** Daegu-Gyeongbuk Development Institute
*** Chonnam National University(Corresponding Author : sayurban@gmail.com)

resources (Blamey, 2001). After the United Nations (UN) declared 2002 the International Year of Ecotourism (IYE), global concerns and expectations regarding to ecotourism increased. In 2011, the South Korean government designated eleven official "Korean Ecotourism Destinations," including Ulleung-do, which serves as the study site for this research.

Ulleung-do is an island located about 160 km from the eastern coast of Korea (92 km from Dokdo Island) and is considered to be one of the most representative islands of Korea. In addition, Ulleung-do is the oldest volcanic island in Korea. As such, indigenous and unique animals and plants, which differ from those found on the mainland, have been well-protected. However, the ecological system has begun to be damaged by a sharp increase in the number of tourists and many development projects. For these reasons, the landscape of Ulleung-do has gradually begun to resemble that of the mainland.

Ulleung-do has still rich and diverse natural resources, and the natural and environmental resources of Ulleung-do remain the primary attraction. Thus, ecotourism programs are likely to attract more sustainable tourist participation if they include experiencing the volcanic topography and the indigenous animals, plants, and culture. Nevertheless ecotourism-related programs have not yet been developed, due primarily to an insufficient understanding of the requirements of ecotourism.

Until now, Ulleung-do has been the object of studies in the field of education (You, 2007),

examined for its tourism resources (Jung et al., 2010), and analyzed for its historical background (Yeo, 2010) and tourism conditions (Hwang, 2012). Alternatively, this study focused on the relationships between the tourists' perceptions of the ecological resources of Ulleung-do and their future behaviors with the intention to participate in ecotourism.

The purposes of this study were: (1) to examine the influence of the image of ecological resources in Ulleung-do over the intention to participate in ecotourism in the future; and (2) to verify how the tourists' satisfaction were interrelated among intention to revisit and recommend the area, and intention to participate in ecotourism in the future; and (3) to provide useful evidence for developing sustainable ecotourism programs in the area.

II. Related Literature and Conceptual Framework

1. Destination Image, Satisfaction, Likelihood of Return, and Recommendations

Destination image can be defined as the psychological understanding of a destination through recognition or the impressions of individual visitors (Alhemoud & Armstrong, 1996; Seaton & Benett, 1996; Fakeye & Crompton, 1991). Destination image often influences tour satisfaction and post-visit behaviors, such as intention to recommend and

intention to revisit (Bigné et al., 2001; Castro et al., 2007; Chi & Qu, 2008; Ashworth & Goodall, 1988; Mansfeld, 1992; Chris et al, 1993). Recommendation is a type of word-of-mouth advertising in which an individual shares with others their specific positive experience; thus recommendations may affect the expectations of others as well as the expectations of the travelers themselves (Bendall-Lyon & Power, 2004).

Bigné et al. (2001) found that destination image had a direct effect on the quality of individuals' visits, their overall satisfaction, their intention to revisit, and their intention to recommend. In addition, these researchers found that the overall quality of the visit had an effect on visitors' satisfaction and their intention to revisit; satisfaction had an effect on visitors' intention to recommend; and furthermore, intention to revisit and intention to recommend were interrelated. Castro et al. (2007) conducted a survey of 1,526 visitors to metropolitan areas in southern Spain and found that destination image had an effect on service quality, tourists' overall satisfaction, and their intention to recommend. Chi and Qu (2008) conducted a survey of 345 visitors to major sightseeing areas in Arkansas and other areas in the U.S. and found that destination image directly influenced attribute satisfaction, both destination image and attribute satisfaction had an effect on overall satisfaction, and both attribute satisfaction and overall satisfaction directly affected destination loyalty. Žabkar et al. (2010) conducted a survey of 1,056

respondents who visited four tourist destinations in Slovakia. They found that destination attributes influenced the perceived quality of a destination's offerings; in turn, the perceived quality of the destination's offerings had an effect on both satisfaction and behavioral intentions (i.e., loyalty, intention to revisit, and intention to recommend). Veasna et al (2013) surveyed 398 visitors about the World Heritage area of Taiwan. They found that destination source credibility had an effect on destination satisfaction through both destination image and destination attachment; and furthermore, destination source credibility had an effect on destination attachment through the mediator of destination image.

Some studies have found that not only destination image but also personal characteristics influenced tourists' future behavior. Assaker et al. (2011) conducted a survey of 450 visitors to Europe and used a latent growth model to analyze their immediate intent to return. They found that both novelty seeking and low satisfaction decreased the tourists' immediate intent to return; however, a good destination image increased both future and immediate intent to return. Chen & Phou (2013) conducted a survey of 428 foreign respondents who visited the Angkor Temple region in Cambodia. They found that both destination image and personality had an effect on satisfaction, trust, and attachment to the destination; and that satisfaction, trust, and attachment influenced destination loyalty.

A couple of studies examined the relation

between ecotourism and revisit intention. Wuling et al. (2011) tried to build a model that explains the relations between visitors' revisit intention and coastal ecotourism by combining the theory of planned behavior(TPB) and the theory of customer satisfaction. They found that tourist satisfaction and destination image had direct effects on the revisit intention, and the cognition of coastal ecotourism indirectly influence revisit intention. Huang et al. (2012) investigated the influence of perception of ecotourism and recreation experience over willingness to revisit. From the survey of 342 respondents who experienced recreational farm, they obtained the results that perception of ecotourism had direct and positive effects on recreation experience and revisit intention, and recreation experience also influence tourists' revisit intention.

In sum, destination image performs an important role in influencing satisfaction and future behaviors. In addition, degree of satisfaction can influence various types of future behaviors, such as intention to recommend and intention to revisit.

2. Conceptual Framework

The purpose of this research is to clarify the interrelationships among Image of Ecological Resources, Tour Satisfaction, Intention to Revisit, Intention to Recommend, and Intention to Participate in Ecotourism. Definitions of main terms in this research are as follows. Image of

Ecological Resources (IER) means subjective score given by tourists regarding the natural and environmental resources and landscape of Ulleung-do. Tour Satisfaction (TS) means score given by tourists regarding the degree of overall satisfaction with Ulleung-do's infrastructure and programs. Intention to Revisit (IRV) means response to whether tourists intend to revisit Ulleung-do in the future. Intention to Recommend (IRC) means scores regarding whether tourists have the intention of recommending Ulleung-do to other people. Intention to Participate in Ecotourism (IPE) means response to whether tourists intend to experience any ecotourism programs with an ecotourism interpreter, which is a touring style differed from the current touring style in the Ulleung-do.

To accomplish this main objective, two conceptual models were constructed, based on the related literature regarding tourism and Ulleung-do (see Figure 1) and the set of hypotheses was tested jointly. In this study, the basic hypothesis was that IER would have an effect on TS, IRV, IRC, and IPE. Model 1 was constructed under the hypothesis that IER would have an effect on IRV, IRC, and IPE through the mediator of TS, which is affected by tourists' current experiences.

Model 2 was structured based on the hypothesis that IER had direct effects on IRV, IRC, and IPE, as well as indirect effects through TS. For this analysis, Structural Equation Modeling (SEM), a useful statistical tool for identifying both direct and indirect
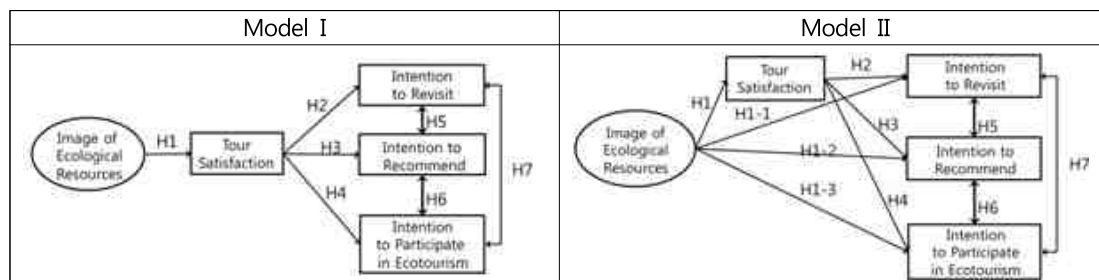
Figure 1. Two Models with Nested Relationships

effects among several variables, was used.

The following hypotheses were tested through the SEM models and are listed below:

H1. IER has a positive influence on TS.

H1-1. IER has a positive direct effect on IRV.

H1-2. IER has a positive direct effect on IRC.

H1-3. IER has a positive direct effect on IPE.

H2. TS has a positive influence on IRV.

H3. TS has a positive influence on IRC.

H4. TS has a positive influence on IPE.

H5. IRV and IRC are interrelated.

H6. IRC and IPE are interrelated.

H7. IRV and IPE are interrelated.

Ⅲ. Method

1. Study Site and Ecological Resources

Ulleung-do is approximately 160 km off the eastern coast of the Korean Peninsula; as a result, its topography, geological features, ecosystem, and cultural and historical resources are different from those of the mainland. Ulleung-do is an island that was formed by volcanic activity approximately 2.5 million years ago. Its size is approximately 72.82 ㎢.

Ulleung-do is a double volcano. A small summit (Al-bong) exists in a caldera (Nari Basin), which is highly valued in the field of geology because of its rarity. The Nari Basin is the only flatland on Ulleung-do; hence, the oldest villages on the island were formed there many years ago. In addition, because of the heavy coastal and fluvial erosion, Ulleung-do has interesting coastal features, such as coastal cliffs, a marine terrace, a sea stack, and abrasion caves.

Because Ulleung-do is relatively far from the mainland, the Island is able to accommodate both subtropical forests and temperate forests in close proximity to one another. As a result, a large percentage of the island is designated and managed as a Forest Gene Preservation District, Natural Environment Preservation District, first grade National Land Environment Assessment or first grade Natural Ecology (preservation) Resource. Nearly 75% of the total area of Ulleung-do is covered with forests that are home to rare plant species, such as beech and the Japanese hemlock, as well as mature Acer okamotoanum, so Ulleung-do is an ecologically worthwhile tourist destination with

a high diversity of plant species, especially for its size. Ulleung-do has its own indigenous plants, such as aromatic trees, Seomgaeyagwang, Seomdaenggangnamu; the Nari flower of Ulleung, Seombaekrihyang flower; the Seonginbong Peak primeval forest and wood pigeon habitat. These plants were designated and protected as a Natural Monument in South Korea in order to certify their uniqueness.

Four species of fish, 81 species of birds, 822 species of insects, and six species of mammals inhabit Ulleung-do and the area around it. The number of mammals in Ulleung-do is much smaller than in the mainland, and larger mammals cannot live on the island. Representative cultural resources in Ulleung-do include the Tumakjip and Neowajip, which are dwellings built in the 1880s.

2. Sample Design and Data Collection

In this study, the considered target population was the group of individuals who have visited Ulleung-do. However, an accurate size of that population was not ascertained, thus, the sample was selected by both convenience sampling and purposive sampling. First, convenience sampling was conducted by the interviewers' judgments. In the process of convenience sampling, this study excluded the tourists who only stopped over at Ulleung-do on their way to visit Dokdo, another island further to the east. To collect the data, four trained interviewers conducted a survey via

face-to-face interviews for three days (Sept. 12, 2012-Sept. 14, 2012), querying tourists who had just completed an Ulleung-do tour. A total of 410 surveys were collected, but only 363 were used in this analysis after excluding insincere answers. A frequency distribution, factor analysis, reliability analysis, and structural equation model (SEM) were all conducted using SPSS (PASW statistics Ver. 17.0) and AMOS (Ver. 18.0)

3. Measures

The questionnaire consisted of 34 items. The questionnaire was composed of three sections: a) Characteristics of Respondents; b) Actual Conditions of the Ulleung-do Tour, overall satisfaction with the tour, IRV, and IRC; and c) IER and IPE in the future.

1) Visitors' Profiles

The characteristics of the respondents were composed of eight items. Gender was categorized as either male or female. Age was divided into the twenties, thirties, forties, fifties, and over sixty groups. Education was classified as middle school or less, high school, college degree, and graduate degree. The frequency of visits category was classified as once, twice, three times, and over four times. The patterns of travel companion category were divided into alone, with family, with friends, as a group, and other. Length of stay was classified as one night and two days, two nights and three days,

three nights and four days, four nights and five days, and other. The tour type was grouped as free individual tour, coach tour, business trip, and other. Finally, the Purpose of tour was classified as rest and refreshment, physical training, promotion of mutual friendship, enjoyment of excellent natural scenery, education, and historical consciousness.

2) Actual Conditions of the Ulleung-do Tour, TS, IRV, and IRC

The Actual Conditions of the Ulleung-do Tour section of the questionnaire was composed of 15 items and was measured from 1(worst) to 4(excellent). To get specific direction (positive or negative) for the question without neutral answer, 4 score scale was applied. The 15 questions dealt with the variety of lodging offered, reasonableness of the price of lodging, information regarding the variety of tours, convenience of information services, convenience of public transportation, reasonableness of local prices, variety of shopping options, variety of food options, reasonableness of food prices, variety of resting places, variety of attractions, variety of events and festivals, variety of nighttime sightseeing options, variety of tour programs, and reasonableness of total cost. TS and IRC responses were graded from 1(worst) to 5(excellent). IRV responses were categorized either as Yes or No. Reasons for refusing revisit responses were grouped as "Seasickness," "No more attractions," "It's enough to visit

Ulleung-do once in my life," and "Lack of tour-related infrastructure and unkindness of residents."

3) IER and IPE in the Future

IER in Ulleung-do was examined via five items: clean natural environment(CE), enough historic cultural resources(HR), beautiful natural landscape(NL), various animal and plant resources(A&P), and unique volcanic topography(VT). All questions were measured from 1(worst) to 4(excellent). Responses to IPE while accompanied by an ecotourism interpreter in the future were either Yes or No. Preference for an ecotourism course was also investigated, and the courses were classified as observing wild plants, observing wild animals, observing volcanic topography, and experiencing farming and fishery.

IV. Results

1. Descriptive Analysis

1) Visitors' Profiles

Table 1 shows the characteristics of respondents who experienced tours in Ulleung-do. 214 respondents(59.0%) were men and 149(41.0%) were women; thus, the number of men was larger than the number of women. Approximately 73% of respondents were older than 40 years old: 32%(116 people) were over 50 years old, 21.5%(78 people) were between 40 and 49 years old, and 18.7%(68 people) were over 60 years old. Over 60% of respondents

had advanced educational qualifications (college and graduate degrees). Approximately 63.1% of respondents(229 people) had visited Ulleung-do for the first time; however, the probability of revisiting was much lower, as is shown in Table 2. Only 23.1%(84 people) were revisiting, and approximately 6%(20 people) had visited three or more times. The pattern of travel to Ulleung-do showed that most respondents traveled with other people (30.6% with family, 28.4% with friends, and 27.5% as part of a

Table 1. Characteristics of Respondents

Character-istics	Respondents Structure
Gender	Male(59.0%), Female(41.0%)
Age	20~29yrs(12.1%), 30~39yrs(18.7%) 40~49yrs(21.5%), 50~59yrs(32.0%) Over 60yrs(15.7%)
Education	Middle School or less(3.9%) High School(35.3%) College degree(8.5%) Graduate degree(52.3%)
Number of Visits	Once(63.1%), Twice(23.1%) 3 Times(5.5%), Over 4 Times(8.3%)
Pattern of Travel	Alone(10.5%), w/Family(30.6%) w/Friends(28.4%), As a Group(27.5%)
Length of Stay	2days(18.7%), 3days(57.3%) 4days(16.0%), 5days(4.7%), Others(3.3%)
Tour Type	Free Individual Tour(44.6%) Coach Tour(37.7%) Business Trip(12.4%), Others(5.2%)
Purpose of Tour	Rest and Refreshment(34.2%) Physical Activity(tracking etc.)(4.1%) Promotion of Mutual Friendships(19.8%) Enjoyment of excellent natural scenery(30.0%) Education(natural monuments, etc)(3.3%) Inspiration of hitorical consciousness(8.5%)

Table 2. Constructs, Items and Scales Used in the Questionnaire

Constructs	Items
Actual conditions of an Ulleung-do Tour	Variety of lodging Reasonableness of price of Lodging Variety of tour information Convenience of information services Convenience of public transportation Reasonableness of local prices Variety of shopping Variety of food Reasonableness of food prices Variety of resting places Variety of attractions Variety of events and festivals Variety of nighttime sightseeing Variety of tour programs Reasonableness of total cost
Tour Satisfaction and Intention to Recommend	Tour Satisfaction Intention to recommend
Image of Ecological Resources in Ulleung-do	Clean natural environment (air, etc.) Enough historic cultural resources Beautiful natural landscape Various animal and plant resources Unique volcanic topography

group), as opposed to 10.5% who visited alone. The category of Tour Type showed that approximately 45% of respondents chose independent travel, but a similar proportion of respondents also chose a coach tour. This result indicates that the two tour types are popular in Ulleung-do. Most respondents preferred to stay three days (57.3%). As to the purpose of their visit to Ulleung-do, over 60% of respondents answered Rest and Refreshment (34.2%) or Enjoying Excellent Natural Scenery (30.0%).

2) Actual Conditions of Ulleung-do Tour, TS, IRV, and IRC

To measure tourist satisfaction with the infrastructure and services related to tours of Ulleung-do, 15 items were used (see Table 2). Among the 15 items, convenience of information services(2.32) received the highest score and reasonableness of local prices(1.91) received the lowest(see Table 3). The average scores relating to most of the actual conditions were close to 2(poor), which can be interpreted to mean that visitors had negative feelings regarding the infrastructure and services in Ulleung-do. The overall TS was 2.89, which is slightly low, but IRC(3.19) was relatively high. For questions regarding revisiting, over 60% of respondents gave positive answers. Among the

Table 3. Descriptive Statistics for Actual Conditions, Tour Satisfaction, and Intention to Recommend

Items	Mean	Std Dev
Variety of lodging	2.13	.671
Reasonableness of price of Lodging	2.12	.738
Variety of tour information	2.29	.742
Convenience of information services	2.32	.749
Convenience of public transportation	2.31	.732
Reasonableness of local prices	1.91	.740
Variety of shopping	2.28	.716
Variety of food	2.27	.769
Reasonableness of food prices	2.01	.767
Variety of resting places	2.23	.741
Variety of attractions	2.26	.685
Variety of events and festivals	2.01	.656
Variety of nighttime sightseeing	1.97	.672
Variety of tour programs	2.31	.762
Reasonableness of total cost	2.10	.778
Tour Satisfaction	2.89	.885
Intention to recommend	3.19	.957

Table 4. Intention to Revisit and Reasons for Refusing to Revisit

Characteristics	Structure
Intention to revisit (N=363)	Yes(62.0%) No(48.0%)
Reasons for refusing to revisit (N=138)	Seasickness(15.9%) No more attractions(18.7%) It's enough to visit Ulleung-do once in my life(18.1%) Lack of tour infrastructure and unkind residents(42.8%)

138 people who indicated that they would not revisit Ulleung-do, 42.8% indicated their reason to be "lack of tour infrastructure and unkind residents." "No more attractions" was the answer given by 23.2% of respondents, and "It's enough to visit Ulleung-do once in my life" was indicated by 18.1% of respondents (see Table 4).

The reason why IRV and IRC showed higher scores than overall TS could be that the lack of island infrastructure and unkind residents lowered the overall satisfaction with the tour, but the excellent natural environment and ecological resources in Ulleung-do were significant enough to inspire tourists to revisit or recommend the island to others.

3) IER and IPE in the Future

To examine the intention to participate in ecotourism, the image of resources in Ulleung-do was evaluated from 1(worst) to 4(excellent). Clean Natural Environment (e.g., clean water, air) received the highest score (3.39), and Enough Historic Cultural Resources received the lowest score (2.66) (see Table 5).

Table 5. Descriptive Statistics for Image of Ecological Resources in Ulleung-do

Items	Mean	Std Dev
Clean natural environment (air, etc.)	3.39	.619
Enough historic cultural resources	2.66	.738
Beautiful natural landscape	3.37	.637
Various animal and plant resources	3.14	.707
Unique volcanic topography	3.27	.643

From the results, it could be seen that the respondents positively evaluated the clean natural environment, beautiful natural landscape, unique volcanic topography, and various animal and plant resources; however, the respondents evaluated slightly lower the historic cultural resources such as Tumakjip, Neowajip, and the Russo–Japanese War historic site. It seems that the historic cultural resources are somewhat undervalued despite their scarcity.

For the question about IPE, approximately 83% of respondents answered yes. In addition, for a preferred ecotourism program, over 70% of respondents chose observation of volcanic topography(42.1%) and observation of wild plants(31.3%) (see Table 6).

2. Correlation and Factor Analysis

Correlation analysis was conducted to verify the relationships IER, TS, IRC, IRV, and IPE. Correlations were also explored among Clean Environment(CE), Historic Resources(HR), Natural Landscape(NL), Animals and Plants(A&P), Volcanic Topography(VT), TS, IRC, and IRV. The results showed that most variables were positively correlated at the 0.01

Table 6. Intention to Participate in Ecotourism in the Future and the Preferred Ecotourism Program

Characteristics	Structure
Intention to participate in an ecotourism program accompanied by an ecotourism interpreter	Yes(82.9%) No(17.1%)
Preferred ecotourism program	Observation of wild plants(31.1%) Observation of wild animals(16.8%) Observation of volcanic topography(42.1%) Experiences farming and fishing(9.9%)

significance level, except there was no correlation (r=0.077) between VT and TS. The correlation coefficients among independent variables TS, IRC, IRV and IPE did not exceed 0.8, which means multicollinearity was not expected. IPE is positively correlated with A&P, VT, and TS at the 0.05 level, but with IRV at the 0.01 significance level. Based on these results, it can be expected that a good IER would have a positive effect on TS, IRV, and IPE.
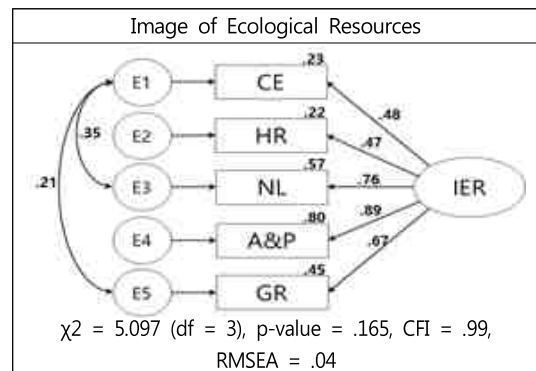

Figure 2. SEM Measurement Model for Image of Ecological Resources
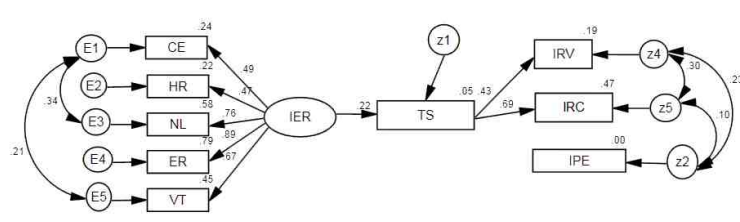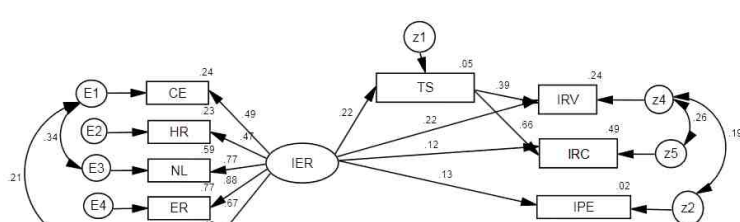
Model	Model Fit	Hypothesis Verification	
Model I	χ2=53.399, df=23, p=.000, CFI=.970, RMSEA=.060	H1	Fulfilled
		H2	Fulfilled
		H3	Fulfilled
		H4	Not Fulfilled
		H5	Fulfilled
		H6	Fulfilled (p<.10)
		H7	Fulfilled
Model II	χ2=32.734, df=21, p=.049, CFI=.989, RMSEA=.039	H1	Fulfilled
		H1-1	Fulfilled
		H1-2	Fulfilled
		H1-3	Fulfilled
		H2	Fulfilled
		H3	Fulfilled
		H4	Not Fulfilled
		H5	Fulfilled
		H6	Not Fulfilled
		H7	Fulfilled

Figure 3. Model Fit and Hypothesis Verification for Model1 and Model2

To test whether five items were sufficient to represent IER, an exploratory factor analysis was conducted(See Figure 2). The values used for the selected fit indices were χ^2=5.097, p=0.165, CFI=0.99, and RMSEA=0.04. These results clearly indicated that the single factor model for IER explained the data well without any autocorrelation, thus, the reliability was reasonable (α= 0.804).

3. Structural Equation Models

In this study, two structural equation models (SEMs) were tested to identify the effects of IER on TS, IRC, IRV, and IPE in the future. As shown in Figure 3, both SEMs could be useful because both models satisfied a guiding principle (CFI > 0.90) that is considered to indicate a reasonably good fit (Hu & Bentler, 1999); and both had RMSEA values between 0.05 and 0.80, which suggests a reasonable error of approximation (Browne & Cudeck, 1993). Models 1 and 2 were situated in a nested relation and both models could be compared directly with a chi-square value comparison. The chi-square value of Model 2 was 20.665, which was higher than that of Model 1, and Model 2 had two degrees of

freedom, which was lower than that of Model 1. Because the criterion chi-square value for two degrees of freedom at the 0.05 level is only 5.99, Model 2 was seen to be excellent, compared with Model 1. In addition, Model 2 had a higher CFI and a lower RMSEA than Model 1; therefore, in view of this stability, Model 2 was considered to be better than Model 1. In the two models, there was no direct relationship between TS and IPE. In Model 1, IRC had a positive relationship at the 0.1 significance level with the intention to participate, but in Model 2 this relationship disappeared because of the direct influence of IER on IPE(see Figure 3).

From the parameter estimates in Model 2, eight hypotheses could be verified. First, IER was evaluated higher, correspondingly, so was TS(H1), IRV(H1-1), and IRC(H1-2). IPE(H1-3) also received a high score(see Table 10). Second, the higher TS score, the higher the

Table 7. Direct, Indirect, and Total Effects of Major Variables

Independent Variable	Dependent Variable	Direct Effects	Indirect Effects	Total Effects
Image of Ecological Resource	Tour Satisfaction	.224	.000	.224
	Intention to Revisit	.224	.087	.312
	Intention to Recommend	.122	.148	.270
	Intention to Participate in Ecotourism	.128	.000	.128
Tour Satisfaction	Intention to Revisit	.390	.000	.390
	Intention to Recommend	.663	.000	.663

scores of IRV(H2) and IRC(H3). Finally, IRV and IRC were interrelated(H5), and IRV and IPE were interrelated(H7).

In brief summary, IER had a positive effect on the current level of TS as well as on future behaviors, including IRV, IRC, and IPE in the future. TS mediated the effect of IER on IRV and IRC.

IER influenced IRC, but this was mediated by TS; however, the image of ecotourism had a more direct effect on IRV (See Table 7). In addition, IPE was only directly influenced by IER, without any indirect effects.

V. Discussion and Conclusion

The purpose of this study was to verify the relationships among IER, TS, and future activities (i.e., IRV, IRC, and IPE). Seven hypotheses were constructed on the basis of the related literature, and then two alternative models were constructed and analyzed to verify the hypotheses.

In the two models, IER had a direct positive effect on TS. This is consistent with the results of Castro et al. (2007), Chi & Qu (2008) and Žabkar et al. (2010). In this study, it was found that various IER in Ulleung-do increased the visitors' overall TS. In particular, when the direct effects of IER on IRV and IRC were tested in Model 2, the positive influence of IER became clear. This result is consistent with the study by Castro et al. (2007) concerning the direct effects of image of destination on IRC,

the study by Žabkar et al. (2010) regarding the direct effects of perceived quality of the destination's offerings on behavioral intentions (such as revisiting or recommending), and the study by Assaker et al. (2011) about the direct relationship between image of destination and IRV.

In this study, the indirect effect of IER on three future behaviors (IRV, IRC, and IPE), through the variable of TS, was tested in Model 1. Both the direct and indirect effects of IER on the same three future behaviors were analyzed in Model 2. As shown in Model 1, IER had an effect on IRV and IRC through TS. This finding is similar to the results of Bigné et al. (2001) and Žabkar et al. (2010) in which the image of the tourist destination influences tourists' satisfaction with their tour and consequently their future IRV and IRC. Also considering that ecotourism connotes ecological and environmental resources, the finding that IER influence IRC is similar to what Wuling et al. (2011) and Huang et al. (2012) stated in their study results.

The results obtained from Model 2 were very similar to those found by Bigné et al. (2001) and Žabkar et al. (2010). In the Bigné et al. (2001) study, although a mediator (quality of destination) was included among variables such as destination image, TS, IRV, and IRC, the relationships between the variables were similar to the findings of this study. In the study conducted by Žabkar et al. (2010), the effects of the destination attributes on the image of the tour destination were tested, which differed

from this study; however, evaluating for image, the relationship between TS and intention to perform certain future behaviors (i.e., IRV and IRC) were similar to the results of this study. In sum, because the tourists' current experiences relating to their IER influence both their TS and their future behavior (such as their IRV and their IRC), one can conclude that maintaining and preserving excellent ecological resources in Ulleung-do is very important.

IER was found to have a direct effect on TS and IPE; however, no relationship was found between TS and IPE. This may be because current tour programs in Ulleung-do include only a few ecological resources and there are no staff available to explain the significance of these resources. TS in this study reflected only the present tour conditions in Ulleung-do, and any additional information about ecotourism programs was not provided. A high percentage of the participants in this study indicated an IPE in the future, and the relationship between IER and IPE was confirmed. Therefore, the relationship between IER and IPE should be reexamined after ecotourism programs have begun regularly operating in Ulleung-do.

These study results could be useful to individuals formulating government policy. First, even though general satisfaction with tour-related facilities, transportation, and programs is presently low, image of ecological resources is high. Hence, to increase tourists' intentions to revisit and recommend, ecological resources should continually be protected and maintained and current tour conditions in

Ulleung−do should be improved. Doing so would increase tour satisfaction. Secondly, an ecotourism program based on ecological resources should be developed. In spite of the rich ecological resources in Ulleung−do, tourists have not yet had a chance to fully experience Ulleung−do's charm. This is perhaps because of the policy makers' possible lack of understanding about the complexities and nuances of ecotourism. From this survey, tourists indicated a more significant interest in ecotourism programs with ecotourism interpreters available to help them understand Ulleung−do, rather than the current tour programs available on the Island. In Model 2, intention to participate in ecotourism was influenced by IER and related to intention to revisit. Therefore, once a full spectrum of ecotourism programs is in operation, a high rate of ecotour participation and an even higher rate of revisiting is expected.

This study has certain limitations. First, Ulleung−do is an island located four hours from the mainland, hence, the tourists' relatively high expectations about the Island have to be fulfilled so as to make the long trip worthwhile. This could negatively affect tourists' intentions to revisit and recommend. Although more than 50% of respondents gave positive answers to questions regarding revisiting the Island, the fact that one ship a day provides the only means of transportation is likely to be perceived as an unfavorable condition from the tourists' point of view. Second, a large portion of respondents were in their fifties (50−59 years old). Image of the destination, tour satisfaction, intention to revisit, intention to recommend, and intention to participate in ecotourism could all differ greatly by the age groups of the tourists. As 50% of respondents were in their fifties and respondents generally chose to travel via coach tour, a rich variety of opinions from various age groups were not to be found and included in this research. Third, the variables, such as weather conditions, perceptions in safety, and so on, that could affect tour satisfaction and intention to revisit were not dealt with in this study. Nevertheless, the access to Ulleung−do via air is now significantly improving the choices for transportation, it is expected that the tourists' opportunities to visit the Island and various age groups will increase. Additionally, ecotourism programs are still in various stages of development. Therefore, these limitations could be overcome in future studies and further analyses will be possible regarding the experience of ecotourism that use a greater number of variables and more diverse age groups.

References

1. Adamson. J., Gleason, W., and Pellow, D., 2016. *Keywords for Environmental Studies*, NYU Press.
2. Ashworth, G. and Goodall, B., 1988. "Tourist images: marketing considerations." in

Marketing in the tourism industry: the promotion of destination regions, edited by B. Goodall and G. Ashworth, 213−238. London, UK: Routledge.

3. Assaker, G., Vinzi, V., and O'Connor, P., 2011. "Examining the effect of novelty seeking, satisfaction, and destination image on tourists' return pattern: A two factor, non−linear latent growth model", *Tourism Management*, 32(4): 890−901.

4. Bendall−Lyon, D. and Powers, T., 2004. "The impact of structure and process attributes on satisfaction and behavioral intentions", *Journal of Services Marketing*, 18(2): 114−121.

5. Bigné, J., Sánchez, M., and Sánchez, J., 2001. "Tourism image, evaluation variables and after purchase behavior: inter−relationship", *Tourism Management,* 22(6): 607−616.

6. Blamey, R., 2001. "Principles of ecotourism." in *The encyclopedia of ecotourism,* edited by D. Weaver, 5−22. Wallingford, UK: CABI Publishing.

7. Browne, M. and Cudeck, R., 1993. "Alternative ways of assessing model fit." in *esting structural equation models*, edited by K. Bollen, and J. Long, 136-162. Newbury Park, CA: Sage.

8. Castro, C., Armario, E., and Ruiz, D., 2007. "The influence of market heterogeneity on the relationship between a destination's image and tourists' future behavior", *Tourism Management*, 28(1): 175−187.

9. Chi, C., and Qu, H., 2008. "Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach", *Tourism Management*, 29(4): 624−636.

10. Chen, C., and Phou, S., 2013. "A closer look at destination: Image, personality, relationship and loyalty", *Tourism Management*, 36: 269−278.

11. Chris, C., Jon, F., David, G., and Stephen, S., 1993. *Tourism: Principles & practice.* London, UK: Pitman Publishing.

12. Hwang, S., 2012. "Studies on current state and basement of ecotourism in Ulleung−do and Dok−do", *Discuss and Policy in Social Science in Korea*, 5(1): 189−210.

13. Jung, S., Koo, K., Kim, Y., Hur, T., and Joo, S., 2010. "Analysis of Community Structure for Ecotourism Resource at Pinus thunbergii Forest area in Ulleung−do", *The Journal of Korean Institute of Forest Recreation*, 14(1): 55−61.

14. Lee, W., 2007. *A topography Teacher, Woo Pyeong Lee's Korean Topography Stroll.* Kyeonggi−do, Korea: Prunssop Publishing.

15. Mansfeld, Y., 1992. "From motivation to actual travel", *Annals of Tourism Research,* 19: 399−419.

16. Mill, R., and Morrison, A., 1985. *The Tourism System: An Introductory Text.* Englee Cliffs: Prentice−Hall. Inc.

17. Douglas, P., 1981. *Tourist Development.* London, UK: Longman Inc.

18. Veasna, S., Wu, W., and Huang, C., 2013. "The impact of destination source credibility on destination satisfaction: The mediating effects of destination attachment and destination image", *Tourism Management,* 36: 511−526.

19. Wuling, Z., Keyi, W. and Shanshan, L., 2011. "Planning Decision of Visitors Revisit Intention: An Empirical Study on the Coastal Ecotourism", *Management Review*, 3: 011.

20. Yeo, S., 2010. "A study on how to Develop and Use the Story Contents of the legend of 'King Woohae' in the Kingdom of Woosan", *emunhak.* 56: 489−524.

21. You, Y., 2007. "A Study on the Activation Plan of Edutainment Tourism in Ulleungdo", *Korea Academic Society of Tourism Management,* 22(1): 177−197.

22. Žabkar, V., Brenčič, M., and Dmitrović, T., 2010. "Modelling perceived quality, visitor satisfaction and behavioral intentions at the destination level", *Tourism Management,* 31(4): 537−546.