

Study on the Relationships between the Leisure Involvement, Place Attachment, and Leisure Satisfaction of Visitors Engaging in Ecotourism - A Case of Ecotourism in Southern Taiwan

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ABSTRACT: In light of the dissemination of education and environmental concepts, ecotourism that allows visitors to experience local human and natural ecologies has become a booming industry. In addition, leisure activities based on ecotourism have also become more diverse. This study explored the correlations between the leisure involvement, place attachment and leisure satisfaction of visitors who engaged in ecotourism in southern Taiwan. The objective was to understand the contextual relationships between the three variables. After the relevant literature have been consolidated and hypotheses were postulated, a questionnaire was administered to the participants for data collection, and statistical analysis methods were used to validate the overall model. The participants of this study were visitors who engaged in ecotourism in southern Taiwan. A questionnaire was administered to the participants, who were recruited via purposive sampling. SPSS 18.0 and LISREL 8.7 software were used, respectively, to perform a descriptive statistics analysis and a confirmatory factor analysis of the data collected, as well as to validate the relationships between the constructs of this study. The results could serve as a reference for the local and overseas leisure industry. The assessment framework established in this study can also serve as a reference for future studies in this field.

Keywords - Ecotourism, leisure involvement, place attachment, leisure satisfaction

I. INTRODUCTION

1. Research motivation and background

As Taiwan's society shifts toward industrial and commercial developments, ecotourism based on local cultural and natural experiences has progressively gained traction. Developments in ecotourism have also driven rural transformation. Nonetheless, rural ecotourism should take into account sustainable developments in the environment, society, and economy of a region in order to prevent negative impacts and achieve sustainability in touristic activities and environmental resources (Yen, 2019). The concept of ecotourism is rooted in ecological tourism, a term coined by Hetzer in 1965. The Ecotourism Society and the International Union for Conservation of Nature (IUCN) defines ecotourism as "an environmentally responsible form of travel that conserves the environment and sustains the well-being of local residents."

Place attachment refers to the bond between a person and a place or how important a place is to a person. Place attachment consists of two components: (1) Place dependence - a functional attachment embodied in the ability of a place to help people achieve their personal activities; and (2) Place identity - a person's emotional attachment to a place (Vaske & Kobrin, 2001). Du (2019) opined that through social networking mechanisms that are based on social capital, a person's place attachment enables them to engage in local activities and strengthen their adaptation. Leisure involvement is related to the intensity, duration, and frequency of activity engagement. A high level of leisure involvement would increase a person's leisure behavior, which in turn, could generate more leisure benefits (Havitz & Mannell, 2005). Dai, Chen, and Lee (2008) pointed out that leisure involvement is generated when a person engaging in leisure activities feels excited, engaged, and attentive. Leisure involvement thereby influences a person's perception of the importance of a leisure activity, as well as their degree of happiness, self-expression, and the extent to which the activity is connected to the

person's lifestyle. Beard and Ragheb (1980) defined leisure satisfaction as the positive perceptions or feelings evoked and gained by a person engaging in leisure activities. Theoretically, leisure satisfaction is measured through psychological, educational, social, relaxation, physiological, and aesthetic dimensions. Liang (2017) defined leisure satisfaction as the positive perceptions or feelings evoked or gained by a person engaging in leisure activities, that is, the level of satisfaction gained by a person with respect to their current leisure experiences and circumstances. When a person is able to meet his or her demands in various aspects, his or her overall leisure satisfaction would increase. In this regard, this study explored the effects of the leisure involvement and place attachment of visitors engaging in ecotourism on their leisure satisfaction.

2. Research objectives

The participants of this study consisted of visitors who engaged in ecotourism in southern Taiwan. This study explored the effects of leisure involvement and place attachment on the leisure satisfaction of these visitors. The research objectives are as follows:

- (1) To explore the effects of leisure involvement on place attachment.
- (2) To explore the effects of leisure involvement on leisure satisfaction.
- (3) To explore the effects of place attachment on leisure satisfaction.

The introduction of the paper should explain the nature of the problem, previous work, purpose, and the contribution of the paper. The contents of each section may be provided to understand easily about the paper. (10)

II. LITERATURE REVIEW

1. Ecotourism

According to the International Ecotourism Society ecotourism is defined as a form of responsible travel that conserves the environment and sustains the well-being of local residents. Zhong and Chen (2017) defined ecotourism as a form of tourism that is centered on nature-based environmental education, whereby the culture and resources of a recreational area is protected through tour commentaries, management, and planning, thereby minimizing the impacts of tourism while educating visitors to cherish and preserve the environment and achieve sustainable utilization of ecological resources. Lu (2011) suggested that ecotourism is a form of tourism based on the natural environment of a region and involves joint cooperation between multiple entities, so as to enable visitors to appreciate and experience the natural environment, history, and cultural background of a region while educating them with correct concepts on ecotourism and protection of natural environments. As a result, visitors would develop responsible touristic behaviors and reciprocate the economic benefits generated from ecotourism by aiding local community developments, thus achieving sustainable developments in the local environment, society, and economy.

2. Leisure involvement

The term involvement was first discussed in Sherif and Cantril's (1947) social judgment theory. The scholars viewed involvement as a behavioral standard that measures a person's differences and attitudes. Bricker and Kerstetter (2000) pointed out that the level of activity involvement increases the level of place attachment. Tseng, Lee, and Jen (2019) developed a three-dimensional (attraction, self-expression, and centrality to lifestyle) leisure involvement scale that could be applied in leisure involvement-related studies. Chang, Huang and Yang (2016) highlighted that when local residents engage in a certain activity, they would develop a feeling toward a specific place that other places cannot provide. In addition, the same study showed that the level of place attachment and involvement had significant and positive effects on the sense of place attachment. McIntyre and Pigram (1992) defined leisure involvement as the level of excitement, attention, and engagement perceived by a person engaging in an activity. The authors further developed the three dimensions of leisure involvement - attraction, centrality, and self-expression. In a study centered on the associations between religious activity involvement, place attachment, and satisfaction, Ting (2017) showed that activity involvement would affect a person's satisfaction and place attachment, while the degree of place attachment would affect their satisfaction. Chu and Liu (2016) studied the effects of tourists' leisure involvement and recreational experiences in cultural heritage areas on their place attachment and revisit intentions. The results demonstrated that the tourists' leisure involvement had significant effects on their place attachment. Based on the reviewed literature, this study divided the construct of leisure involvement into three observed variables - attraction, centrality, and self-expression. Based on the aforementioned empirical evidence, this study proposes two hypotheses as follows:

H1: Leisure involvement has a significant effect on place attachment.

H2: Leisure involvement has a significant effect on leisure satisfaction.

3. Place attachment

Stedman (2002) held that place attachment is based on a person's perceptions and feelings regarding a place, while place identity is a salient factor that determines the level of attachment. Place attachment is the

sense of identity generated by a person on the emotional level based on the meanings of the person's interactive experiences with the environment (Stedman, 2003). Place attachment comprises three components: A physical place, human activities, and the related meanings and attachments (Brandenburg & Carroll, 1995). Chang and Chen (2019) argued that place attachment consists of three dimensions - social bond, place identity, and place meaning. According to Ting and Chiu (2016), a person starts to have place attachment after they have developed feelings or affections toward a place, and would subsequently develop dependent behaviors associated with the place. Place attachment was found to exert positive effects on satisfaction and revisit intentions. Yi (2016) noted that place attachment is the functional dependence and emotional identity a person has on a place or environment. Place attachment is affected by the essence of a place as well as its social quality, and is conceptualized through the two constructs of place dependence and place identity. Kyle and Mowen (2005) highlighted that place dependence, emotional attachment, and place identity are central to studies pertaining to place attachment. Williams, Patterson, Roggenbuck, and Watson (1992) illustrated place attachment as a person's sense of belongingness toward a certain location, that is, the extent of the bond perceived by a user in relation to a place, the users' emotions toward an environment, and the feelings and meanings symbolized by the environment toward the user. Shumaker and Taylor (1983) opined that place attachment refers to the positive and affective bonds between a person and their living environment. Chang (2017) classified place attachment into the two constructs of place identity and place dependence and demonstrated that place attachment positively affects satisfaction. Chiang (2019) pointed out that activity involvement positively affects place attachment, which in turn, positively affects satisfaction. Based on the aforementioned discourse, this study divided the construct of place attachment into three observed variables - social bond, place identity, and place dependence. Based on the aforementioned empirical evidence, this study proposes the following hypothesis:

H3: Place attachment has a significant effect on leisure satisfaction.

4. Leisure satisfaction

Satisfaction is a term that describes a person's perception and acceptance after using a product or engaging in an activity. The difference between the actual value derived and the expected value will affect a person's satisfaction. Lee, Shafer, and Kang (2005) delineated that leisure satisfaction can be regarded as a leisure experience generated from the level of preference or satisfaction by a person engaging in leisure activities. Chen (2017) pointed out that leisure satisfaction is the positive perceptions or feelings evoked and gained by a person engaging in leisure activities. The author then constructed a leisure satisfaction scale that consists of six different constructs - psychology, education, social interactions, relaxation, physiology, and aesthetic. Wu (2010) elucidated that leisure satisfaction is the positive feelings or opinions shaped, evoked, or gained by a person engaging in leisure activities. Franken and Van Raaij (1981) described leisure satisfaction as a relative notion that is defined as the discrepancy between expectation and reality. Dissatisfaction arises when reality fails to live up to expectation, and vice versa. The criteria that determine satisfaction or dissatisfaction include personal expectations derived from previous experiences, personal achievements, or perceived satisfaction from leisure activities. Shen (2017) pointed out that leisure satisfaction is the subjective feelings and level of satisfaction generated by a person while engaging in a leisure activity that they like. Leisure satisfaction can be measured through five constructs - psychology, education and physiology, relaxation, aesthetic, and society. Based on the reviewed literature, this study divided the construct of leisure satisfaction into five observed variables - aesthetic, psychology, relaxation, education, and society.

III. RESEARCH METHOD

1. Research Framework

Figure 1 presents the conceptual framework of this study, which posits that leisure involvement affects place attachment and leisure satisfaction, and that place attachment affects leisure satisfaction.

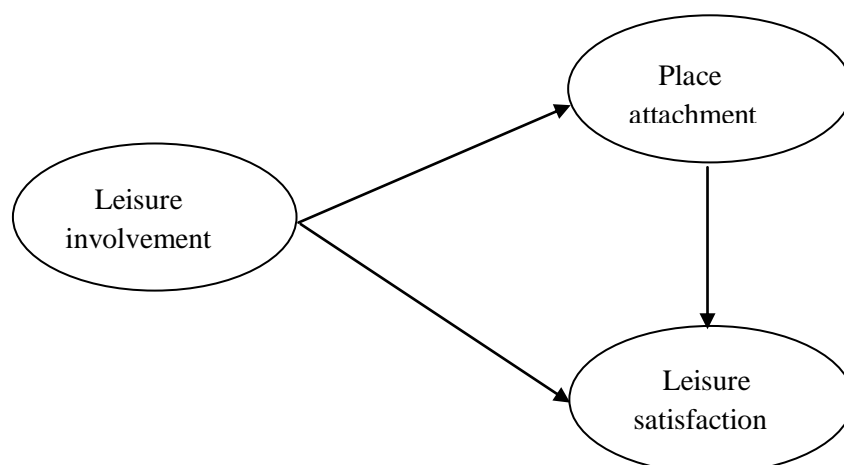


Figure 1. Research framework

2. Questionnaire design and data collection

The questionnaire in this study was developed by referring to relevant studies and validated scales with good reliability and validity. The questionnaire items were scored on a seven-point Likert scale by the participants in accordance with their subjective perceptions of the items. A score of 1 represents "extremely disagree"; 2 represents "strongly disagree"; 3 represents "disagree"; 4 represents "neutral"; 5 represents "agree"; 6 represents "strongly agree"; and 7 represents "extremely agree."

The questionnaire consisted of four constructs: the participants' basic information, leisure involvement, place attachment, and leisure satisfaction. The basic information of the participants were their gender, age, and education level. With regard to the main variables, three scales pertaining to leisure involvement, place attachment, and leisure satisfaction were designed and revised according to the theme of this study. Leisure involvement was measured through the three aspects of attraction, centrality, and self-expression. The scale consisted of 15 items and was developed based on the methods of measuring leisure involvement in the studies by Sherif and Cantril (1947); McIntyre and Pigram (1992); Bricker and Kerstetter (2000); Huang and Yang (2016); Chu and Liu (2016); Ting (2017); and Tseng, Lee, and Jen (2019). Place attachment was measured through the three aspects of social bond, place identity, and place dependence. The scale consisted of 12 items and was developed based on the methods of measuring place attachment in the studies by Williams, Patterson, Roggenbuck, and Watson, (1992); Brandenburg and Carroll (1995); Stedman (2002); Stedman (2003); Kyle and Mowen (2005); Ting and Chiu (2016); Yi (2016); Chang (2017); Chang and Chen (2019); and Chiang (2019). Leisure satisfaction was measured through the five aspects of psychology, education, society, relaxation, physiology, and aesthetic. The scale consisted of 30 items and was developed based on the methods of measuring leisure satisfaction in the studies by Lee, Shafer, and Kang (2005); Chen (2017); Wu (2010); Franken and Van Raaij (1981); and Shen (2017). The questionnaire was administered to participants who were recruited via purposive sampling. SPSS 18.0 and LISREL 8.7 software were used, respectively, to perform descriptive statistics analysis and confirmatory factor analysis of the data collected, as well as to validate the relationships between the constructs of this study. The questionnaire was completed by visitors who engaged in ecotourism in southern Taiwan. A total of 500 questionnaires were administered to the visitors. After removing 25 invalid questionnaires, 312 valid responses were recovered, indicating a response rate of 92.58%.

3. Reliability and validity analysis

In terms of reliability, the Cronbach's α of each variable are as follows: leisure involvement = 0.88; place involvement = 0.88; leisure satisfaction = 0.94 The reliability analysis results showed that all the measurement variables in this study had a Cronbach's α greater than 0.7 (Hair, Black, Babin, Anderson & Tatham, 2006). Therefore, the questionnaire responses had a good stability and consistency. The validity analysis was performed through exploratory factor analysis (EFA). As indicated by the KMO value of 0.839 and the statistically significant Bartlett's test of sphericity results ($p=0.000 < 0.05$), it was appropriate to perform factor analysis on the data. Varimax rotation was also performed on the questionnaire items. The standardized factor loadings obtained after rotation were all greater than 0.6 (Hair, et al., 2006), which shows that the extracted items had sufficient importance. For the sake of validity, this study required questionnaire items to have a standardized factor loading that exceeds 0.6 and a communality score that exceeds 0.6; items were also removed based on the rotated factor matrix (Table 1). The total explained cumulative variance was 69.504%, which

indicates that the three latent variables extracted in this study had good explanatory power (Hair, et al., 2006). The three latent variables extracted were "leisure involvement," "place attachment," and "leisure satisfaction."

4. Methods of data analysis

In order to prevent the data from affecting the model estimation and testing results, prior to LISREL model analysis, the kurtosis and skewness of the observed variables in the responses were tested to check if the research data were in line with the basic assumptions, as well as to select the method of estimation (Huang, 2002). Generally speaking, in parameter estimation, the error variance must not have a negative value, the standard error must not be too large, and the standardized coefficient must not exceed 0.95 (Bagozzi & Yi, 1988). As shown in Table 2, the standard error of each parameter had a positive value and was statistically significant (each test of significance t-value was greater than 1.96). Moreover, Table 3 shows that the standardized coefficients were all smaller than 0.95. Therefore, the estimates met the above criteria and the model had passed the goodness-of-fit test. In this study, the overall model fit was assessed through three indices: means of absolute fit measures, incremental fit measures, and parsimonious fit measures (Huang, 2002). In general, the fit of the model's internal structure can be assessed through individual item reliability, reliability of latent variable, average variance extracted of latent variable, as well as whether all the estimated parameters had attained statistical significance. The research hypotheses were validated by testing the model assumptions.

According to Kline (1998), a variable is considered to be extremely skewed if the absolute value of its coefficient of skewness is greater than 3, while a kurtosis with a coefficient greater than 10 is deemed problematic. The analysis results of the observed variables are presented in Table 2. The mean of the variables ranged from 5.0976 to 6.1880; the standard deviation ranged from 0.03036 to 0.04925; the coefficient of skewness ranged from -0.028 to -1.134; the coefficient of kurtosis ranged from -1.159 to 0.623. This shows that the 11 observed variables did not have large coefficients of skewness and kurtosis and were normally distributed. Hence, it is appropriate to use the maximum likelihood estimation (MLE) approach in this study.

Table 1. Reliability and validity analysis of the questionnaire items

Item	Leisure involvement	Place attachment	Leisure satisfaction	Communality
Attraction	0.869			0.727
Centrality	0.782			0.762
Self-expression	0.822			0.690
Social bond		0.875		0.773
Place identity		0.848		0.783
Place dependence		0.757		0.714
Aesthetic			0.797	0.828
Psychology			0.895	0.879
Relaxation			0.852	0.857
Education			0.787	0.791
Society			0.838	0.859

Table 2. The mean, standard deviation, coefficient of skewness, and coefficient of kurtosis of the observed variables

Construct	Mean	SD	Coefficient of skewness	Coefficient of kurtosis
LI333 (Leisure involvement)	-----			
LI1 (Attraction)	5.0976	0.03738	-0.132	-1.051
LI2 (Centrality)	5.3125	0.04029	-0.228	-1.159
LI3 (Self-expression)	5.2054	0.03935	-0.028	-0.929
PA333 (Place attachment)	-----			-0.084
PA1 (Social bond)	5.6380	0.03865	-0.529	0.085
PA2 (Place identity)	5.7866	0.04019	-0.701	-0.268
PA3 (Place dependence)	5.7327	0.04925	-0.700	0.057
LS555 (Leisure satisfaction)				
LS1 (Aesthetic)	6.1728	0.03303	-0.898	
LS2 (Psychology)	6.1531	0.03228	-0.864	-0.039

LS3 (Relaxation)	6.1697	0.03145	-0.974	0.325
LS4 (Education)	6.1380	0.03036	-0.859	0.078
LS5 (Society)	6.1880	0.03270	-1.134	0.623

IV. RESULTS AND DISCUSSION

1. Analysis of participants' basic data

161 female (51.6%) and 151 (48.4%) male participants responded to the questionnaire in this study. Most (127, 40.1%) of the participants were in the 41 to 50 years age group. A majority (102, 32.3%) of the participants held a college degree (or higher).

2. Testing the goodness-of-fit of the overall model

According to the recommendations of scholars, at least three of the following indices should be employed as criteria for evaluating the fit of the overall model (Huang, 2006).

(1) Absolute fit indices

a. AGoodness of fit index (GFI) - In general, scholars often recommend that a GFI greater than 0.9 represents a good fit. In this study, the GFI of the theoretical model was 0.95, which indicates a good fit.

b. Root mean square residual (RMR) - A RMR smaller than or equal to 0.05 indicates a good fit. In this study, the RMR of the theoretical model was 0.014, which indicates a good fit.

c. Root mean square error of approximation (RMSEA) - Hu and Bentler (1999) suggested that an acceptable RMSEA should be smaller than or equal to 0.06. If the RMSEA of a model ranges from 0.05 to 0.08, then the model is regarded to have a decent fit. In this study, the RMSEA of the theoretical model was 0.066, which indicates a reasonable fit.

Table 3. Model parameter estimates

Parameter	Non-standardized parameter	Standard error	t-value	Standardized parameter
λ_1	1.00	-----	-----	0.94
λ_2	0.89	0.05	16.50	0.77
λ_3	0.97	0.05	19.33	0.86
λ_4	1.00	-----	-----	0.94
λ_5	0.98	0.05	20.55	0.88
λ_6	1.04	0.06	16.63	0.76
λ_7	1.00	-----	-----	0.87
λ_8	1.07	0.04	24.55	0.94
λ_9	1.00	0.04	22.70	0.91
λ_{10}	0.89	0.05	19.46	0.84
λ_{11}	1.01	0.05	21.24	0.88
γ_1	0.22	0.68	3.38	0.21
γ_2	0.28	0.05	5.74	0.34
β_1	0.17	0.05	3.64	0.21

Note: t-value > 1.96 (*p<0.05); t-value > 2.58 (**p<0.010)

Table 4. R² and constructed reliability

Construct	R ²	Constructed reliability	Average extracted variance
Leisure involvement (LS333)_		0.747	0.89
LS1	0.88		
LS2	0.59		
LS3	0.74		
Place attachment		0.737	0.90
LM1	0.88		
LM2	0.78		
LM3	0.58		
Leisure satisfaction		0.792	0.95
LP1	0.75		
LP2	0.89		

LP3	0.83	
LP4	0.71	
LP5	0.78	

(2) Relative fit indices

- Normed fit index (NFI) - In general, a model with a NFI greater than 0.9 is considered acceptable. In this study, the theoretical model was acceptable as the NFI was 0.97.
- Non-normed fit index (NNFI) - In general, a model with a NNFI greater than 0.9 is considered acceptable. In this study, the theoretical model was acceptable as the NNFI was 0.98.
- Comparative fit index (CFI) - In general, a model with a CFI greater than 0.9 is considered acceptable. In this study, the theoretical model was acceptable as the CFI was 0.98.

(3) Parsimonious fit indices

- Parsimony normed fit index (PNFI) - Scholars generally suggest that a PNFI greater than 0.5 indicates that a model is acceptable. In this study, the theoretical model was acceptable as the PNFI was 0.72.
- Parsimony goodness-of-fit index (PGFI) - Scholars generally suggest that a PGFI greater than 0.5 indicates that a model is acceptable. In this study, the theoretical model was acceptable as the PGFI was 0.59.
- Normed chi-square (χ^2/df_m) - Scholars generally suggest that a normed chi-square smaller than 3 indicates that a model has a good fit. In this study, the theoretical model had a good fit as indicated by the normed chi-square of 2.31.

Testing the goodness-of-fit of the overall model provides clarity regarding the fit between the observed data and the theoretical model. Based on the data above, it is evident that the theoretical model in this study had an acceptable overall fit,

3. Testing the fit of the internal structure of the overall model

As recommended by Huang (2002), a test of a model's internal fit should include the following criteria: 1. All the estimated values of the parameters. 2. The standardized residuals. 3. The reliability of each individual observed variable. 4. The composite reliability. 5. The average variance extracted (AVE). As shown in Table 4, the t-values of all parameters ranged from 3.38 to 24.55 and attained a level of significance; the absolute values of the standardized errors ranged from 0.04 to 0.68 and were smaller than the required value of 2.58 (Bagozzi & Yi, 1988). The R² of the 11 observed variables listed in Table 4 ranged from 0.58 to 0.89, which met the recommendation whereby the R² of each observed variable should be greater than 0.2 (Bentler and Wu, 1993); the construct reliability of the three latent variables were 0.747, 0.737, and 0.792, respectively, which met the recommendation whereby a construct reliability should be greater than 0.5 (Hair et al., 1998). AVE represents the percentage of latent variables that can be detected by observed variables. In this study, the AVE of the three latent variables were 0.89, 0.90, and 0.95, respectively, which met Fornell and Larcker's (1981) recommendation whereby an AVE must be greater than 0.5. Based on the data above, the model developed in this study had a good internal quality.

4. Path validation

Figure 2 shows the empirical results of this study. The parameter estimations reveal several findings. (1) In terms of the effect of leisure involvement on place attachment, the completely standardized coefficient was 0.21 ($t = 3.38$), and attained a level of significance, hence Hypothesis 1 is supported and the effect is present. (2) In terms of the effect of leisure involvement on leisure satisfaction, the completely standardized coefficient was 0.34 ($t = 5.74$), and attained a level of significance, hence Hypothesis 2 is supported and the effect is present. (3) In terms of the effect of place attachment on leisure satisfaction, the completely standardized coefficient was 0.21 ($t = 3.64$), and attained a level of significance, hence Hypothesis 3 is supported and the effect is present. All three hypotheses in this study are supported by the results. Therefore, the empirical results were in line with our expectations.

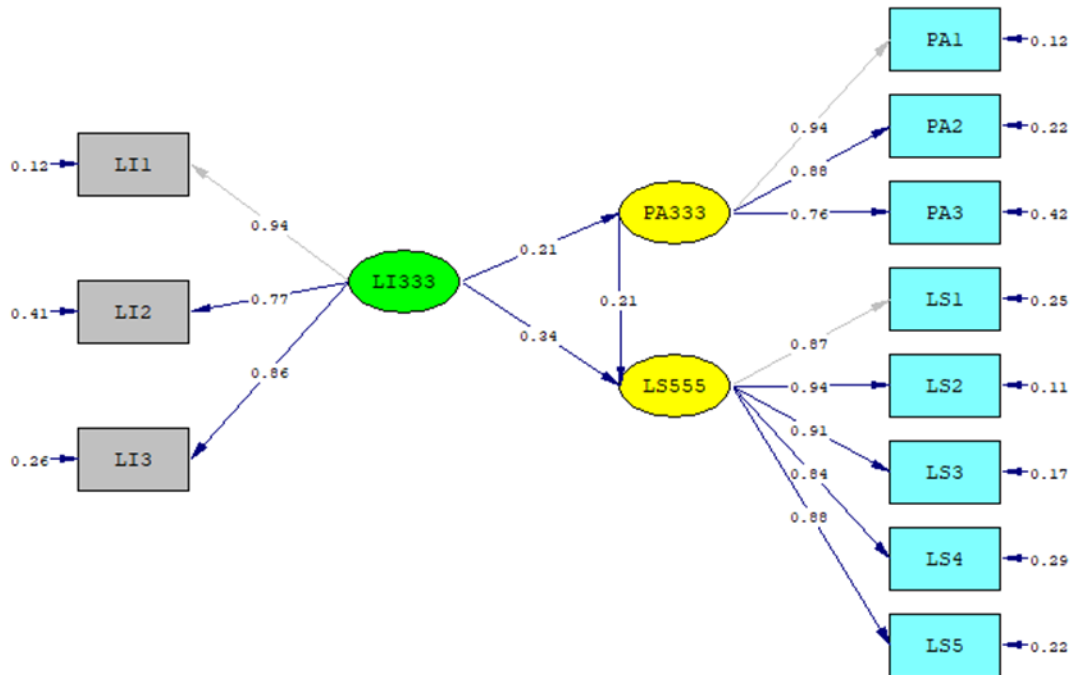


Figure 2. Standardized path diagram

Few studies have explored the links between the leisure involvement, place attachment, and leisure satisfaction of visitors engaging in local and overseas ecotourism. Therefore, based on the latent variables of leisure involvement, place attachment, and leisure satisfaction, this study established and validated a model on the leisure behaviors of golden agers, investigated the causal relationships between the constructs, and attempted to effectively construct and predict an ecotourism-based leisure involvement model, which could serve as a reference for relevant institutions.

Based on the empirical assessment and analysis results of the measurement model, all the estimated parameters relevant to the fit of the model's internal structure (individual item reliability and validity; reliability of latent variable; average variance extracted of latent variable) had met their respective threshold values. Therefore, the model had an acceptable internal quality. The overall model's fit was validated and deemed acceptable, which signifies that the model had a good fit. The results of the path analysis on the causal relationships between the constructs supported all three hypotheses proposed in this study, that is, Hypothesis 1 - The visitors' leisure involvement had a significant effect on their place attachment; Hypothesis 2 - The visitors' leisure involvement had a significant effect on their leisure satisfaction; Hypothesis 3 - The visitors' place attachment had a significant effect on their leisure satisfaction. The model on the visitors' leisure involvement indicated that leisure involvement affects place attachment directly and significantly, and affects leisure satisfaction indirectly and significantly through place attachment; while place attachment affects leisure satisfaction directly and significantly. The factor loadings of the three observed variables pertaining to the visitors' leisure involvement - attraction, centrality, and self-expression were 0.94, 0.77, and 0.86, respectively. Therefore, when the visitors engaged in ecotourism, attraction was the main factor affecting their leisure involvement, followed by self-expression and centrality. The factor loadings of the three observed variables pertaining to the visitors' place attachment - social bond, place identity, and place dependence, were 0.94, 0.77, and 0.86, respectively. Therefore, when the visitors engaged in ecotourism, social bond was the most salient factor affecting their place attachment. The factor loadings of the five observed variables pertaining to the visitors' leisure satisfaction - aesthetic, psychology, relaxation, education, and society were 0.87, 0.94, 0.91, 0.84, and 0.88, respectively. Based on this finding, the psychological aspect of leisure satisfaction was the most important factor affecting the visitors' leisure satisfaction, followed by the relaxation, social, aesthetic, and education aspects.

V. CONCLUSION AND RECOMMENDATION

1. Conclusion

The premise of this study was to explore the relationships between the leisure involvement, place attachment, and leisure satisfaction of tourists who engaged in ecotourism and its relevant leisure activities. The causal relationships between the three latent variables of leisure involvement, place attachment, and leisure

satisfaction were established. After verifying the research hypotheses through structural equation modeling (SEM), the following conclusions were derived:

(1) The visitors' leisure involvement had a significant and positive effect on their place attachment. This finding is consistent with those obtained in previous studies (such as the works of Chang, Huang and Yang, 2016; Lee, 2018; and Chin, 2018).

(2) The visitors' leisure involvement had a significant and positive effect on their leisure satisfaction. This finding is in line with those obtained in previous studies (such as the works of Tsai & Kuo, 2016; Tseng, 2015; and Ru and Chen, 2016).

(3) The visitors' place attachment had a significant and positive effect on their leisure satisfaction. This finding is similar to those obtained in previous studies (such as the works of Chang, 2017; and Chiang, 2019).

2. Recommendations

This study recommends that subsequent studies can compare the similarity and differences between the touristic activities associated with different forms of ecotourism, such as visiting Taiwan's mountains, forests, wetlands, oceans, and abundant and precious natural ecologies. Subsequent studies can explore whether the leisure involvement of visitors who engaged in different forms of ecotourism affects their place attachment and leisure satisfaction. With regard to practical applications, we suggest that the government should use leisure satisfaction as a marketing strategy, while also taking into account the relaxation benefits that those who engage in ecotourism can gain. This would allow for visitors' personal needs to be met and enhance their leisure benefits, as well as providing a reference for relevant authorities and scholars. This study merely surveyed visitors who engaged in ecotourism in southern Taiwan. Hence, it is recommended that subsequent studies should expand the scope of research to include visitors throughout the whole island, so as to establish a more complete model on the causal relationships between the visitors' leisure involvement, place attachment, and leisure satisfaction when engaging in ecotourism leisure activities.

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