

Study on the Relation between Activity Involvement and Place Attachment: With the Pagua Mountain Bikeway in Changhua County as the Focus Area

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ABSTRACT

The purpose of this study is to investigate whether bicycle riders have different levels of due to their involvement in various activities. This is achieved by exploring the causal relations between activity involvement and place attachment, as well as their relevance. The research adopts the questionnaire method to gather data from bicycle riders at the Pagua Mountain Bikeway. The analysis methods include descriptive statistics, one-way ANOVA, Pearson's correlation coefficient, factor analysis, reliability analysis and the structure equation model. In addition, the study puts forward suggestions for further study.

Keywords: *Activity involvement, Place attachment, Pagua Mountain, Bikeway*

INTRODUCTION

Leisure is an indispensable element of human life. Nowadays, people engage in leisure activities in their spare time after work. According to Kyle (1990), outdoor recreational activities are the best ways for modern people to relax, ease the pressure, and obtain added knowledge. In the 21st century, when people pay much attention to environmental protection and energy saving, the level of adherence to these two measures is high, such that many leisure activities require environment-friendly and energy-saving features. Bicycle riding has become a popular activity in recent years. Lin Jianyao (1999) pointed out that riding the bicycle as a leisure sport causes no harm to the environment and is suitable for the entire family because of its ease of operation, accessibility, and high compatibility with other activities. Invented in 1493, bicycles became popular at the end of the 19th century and created worldwide enthusiasm. At present, bicycle riding has become a widespread activity across the world, particularly in the U.S., UK, Holland, Germany, New Zealand, and France (Zhang Xingwen, 2003). In these countries, a complete bikeway system and well-planned lease system have been established. In recent years, more and more Taiwanese have participated in this leisure activity. Bicycles, from their original role as transportation means, have transformed and become a means for leisure and sports. As a result, many counties and cities built special bicycle roads or bikeways. If bicycle transportation is doubled, the social benefit will be achieved and the economic cost of transportation will be reduced. These benefits also include the improvement of human health, and air pollution and energy consumption reduction. These are the reasons why bicycle riding has been given increasing importance.

Bricker and Kerstetter (2000) stated that place attachment is an emotional belonging experience, representing the binding degree that users feel between themselves and certain places. According to Moore and Graefe (1994), the identification of leisure places usually takes a longer time to achieve and involves both emotional and symbolic meanings. Many researchers put forward that place attachment is an emotional binding process to special places, where people feel comfortable and safe (Bernardo, Carmen, Esther & Stephany Hess, 2007).

Hwang, Lee, and Chen (2005) stated that after users form place attachment on certain locations, they will increase the frequency of using them and in turn, will get higher satisfaction. During the conduct of the activities, people will experience familiarity with certain places, seemingly creating a special attachment relation between people and places. This is a commonly existing objective phenomenon. At the onset, when people start to use leisure and recreational places, they normally consider the leisure and recreation functions that the place can provide. However, after their

experience of using it, and if the place has some features that other places cannot provide, the visitors will exhibit a demand of access to the place in for a long term and in a continuous way.

For instance, Sherif and Cantril (1947) introduced the concept of involvement on the basis of the “social judgment theory” to measure one’s attitude. While Xie Zongheng (2003) held the view that the creation of involvement originated from the attitude established or to be learned during the course of social and environmental interactions, such attitude will give guidance to one’s behavioral expressions. Havitz and Dimanche (1990) pointed out that involvement exists when a social goal is related to the individual’s field of interest. Antil (1984) defined involvement as the importance or interest perceived by an individual under certain conditions and stimulations. In addition, Solomon (2002) defined involvement as the “degree of individual importance perceived, and the interest aroused by stimulation under certain circumstances.” The concept of activity involvement can be traced back to 1988 when Selin and Howard integrated the research on self-involvement and leisure.

This aroused extensive discussion and interest in the leisure field. Consequently, McIntyre (1989) defined the degree of leisure involvement as the meaning such an activity has to a person or the emotional relation between them. In addition, he held the view that in the definition, the index of mental element should be used to explain the enduring involvement, affective attachment by visitors to leisure, traveling and sightseeing activities (McIntyre & Pigram, 1992), and commitment. Wang Zhengping Zhu Lixuan (2003) defined traveling as the “personal meaning and affective attachment an individual attaches to an activity.”

Yang Yuanfang (2004) stated that dynamic leisure sports can facilitate one’s body to have better metabolism, accelerate the healthiness of physiological functions, provide more relaxation, and achieve the best leisure effect in one’s spirit and soul. Driver and Brown (1975) stated that the need for leisure activities by human beings was partly due to the motivation of individuals to experience leisure activity on the psychological level. In his study, Yang Yuanfang (2004) found out that a linear relation between internal motivation for leisure and leisure experience exists, and the demands of participation in leisure sports are driven by the internal motivation, where the ultimate goal of such a participation is to gain the best experience.

Will bicycle riders gradually create the affective perceptions on places or environments where they find their demands are met? Will they perceive such places as their own and finally create the sense of belongingness? To summarize the foregoing discussion, the involvement degree is normally in direct proportion to satisfaction. However, what is the relation between activity involvement and place attachment? This is the issue the research is going to explore.

Research Objective

The goal of this research is to determine whether the attachment to places of individual bicycle riders has different levels due to their various activity involvements by exploring the relevancy between involvement and place attachment of the bicycle riders at the Buagua Mountain bikeway. The research adopts the analysis method of structural equation modeling to understand the relevancy that influences the variables of riding activity involvement and place attachment.

METHODOLOGY

Research Objectives

The main area for the conduct of the research was the Pagua Mountain Bikeway, Changhua County, and the research subjects were the bicycle riders at the bikeway and bicycle groups within the Changhua County who ride through this route. The research utilized the questionnaire methodology for two distinct groups. The first group was the bicycle riding leagues in Changhua who organize riding events for the Buagua Mountain Bikeway. The second group was composed of riders who ride through the Pagua Mountain Bikeway and take their rest at the scenic areas of the Buddha eagle viewing area, four-side Buddha, Jindun area, Fruit Mountain, and surrounding places.

The pilot test was undertaken for two weeks and was started in May 1997. The research scope was limited to riders at the Pagua Mountain Bikeway to whom questionnaires were distributed. A total of 140 questionnaires were sent out, and 138 were collected back with an overall response rate of 98.57 %. Three invalid questionnaires were excluded;

thus, the total valid questionnaires were 135. As such, the effective response rate was 96.42 %. After factor analysis and reliability analysis of the pilot test, 28 questions were confirmed. After the pilot test, 548 questionnaires were sent out and collected from July 1 to 31. Of the total, 487 were collected back; thus, the response rate was 88.87 %. After the preliminary analysis and sorting out of the questionnaire, 476 were valid while 11 were invalid.

Research Tools

The research is carried out through the use of quantitative and structured questionnaire. Based on the background description and the research objectives, the content of the questionnaire was drafted based on the literature review and on the comments of experts and scholars. The final questionnaire consists of three parts: degree of bicycle riding activity, place attachment and place identification, and riders' personal information Table1, Questionnaire investigation will be carried out through interview mode, in which the interviewers will provide proper identification and present the objectives of the study. After this, the interviewees will be allowed to answer the questionnaire independently. Only when the interviewees encounter unclear points will the interviewers explain the points accordingly.

Table 1: Questionnaire Items and Contents

Questionnaire items	Contents
(1) Degree of involvement	Attraction degree, centricity of life, self-cognition
(2) Place attachment	Place attachment, place identification
(3) Basic data of riders	Gender, present living place, occupation, age, education, marital status, riding mode and frequency (multiple choices), number of people in the group that often rides together

Data Processing

The final questionnaire was prepared after the pilot test, in which invalid questions were deleted after project analysis, factor analysis, and reliability analysis. The writer used the SPSS for Windows (12.0 version) statistics software package to analyze the collected effective questionnaires. Based on the research objectives, research questions, and quantity of questionnaire, the statistical methods and research plan to be used are descriptive statistics, project analysis, factor analysis, reliability analysis, and the one-way ANOVA.

FINDINGS

Background Analysis of the Riders at the Pagua Mountain Bikeway

Gender : There were 445 males, accounting for 89 % of the total, while the females are accounted for at 55 or 36.3 % of the total. Age : Forty seven riders are below 20 years old (9.4 %); 339 belong to the 21 to 30 year-old groups (67.8 %); 89 from the 31 to 40 year-old bracket (17.8 %); and 25 were aged above 41 years old (5.0 %). Occupation : Students comprise the majority with 286 riders (57.2 %). The rest is divided as follows: 77 are from the military, civil service, and education field (15.4 %); 74 from the service field (14.8 %); 46 from the industry and commerce (9.2 %); and 17 are freelancers and those who work in the fields of agriculture, forestry, fishing, and animal husbandry (3.4 %).

Education : Thirteen riders have junior high school education (2.6 %); 97 have senior high school education (19.4 %); 333 have college education (66.6 %); and 57 have graduate school education (11.4 %). Present living place : Changhua County is where the majority of the bikers live: 392 riders or 78.4 %, while 62 (12.4 %) come from Taichung County. The rest hails from Nantou County: 30 (6.0 %),

Yunlin County: 11 (2.2 %), and other counties and cities: 5 (1 %). Marital status: Unmarried bikers total to 376 riders (75.2 %), while 124 are married (24.8 %). Riding mode and frequency : The results show that riding alone most of the time is the more prevalent mode and frequency at 254 persons (50.8 %), while the rest ride with groups: 207 persons ride with friends (41.4 %), 164 persons, with their families and/or relatives (32.8 %), and 116 persons with friends from bicycle leagues (23.2 %). Number of people in group riding : One hundred thirty six riders often ride alone (27.2 %). On the other hand, the group riders consist of 309 who often ride with a group of 2 to 5 persons (61.8 %), 38 riders with 6 to 9 persons (7.6 %), and 17 riders with a group composed of more than 10 people (3.4 %).

Personal Background Attributes and Activity Involvement Analysis

Gender and activity involvement analysis : Taking gender as the independent variable and activity involvement as the dependent variable, the verification result shows that the gender division has reached an obvious level at the facet of “activity involvement” ($p=.001<.05$). Further looking into the difference in bicycle riders according to the division of genders at the facet of “activity involvement,” the average grade of the males at the “activity facet” is higher than that of the females. This shows that bicycle riding has higher attraction to males.

Age and activity involvement analysis : Taking age as the independent variable and activity involvement as the dependent variable to conduct the one-way ANOVA, the verification result shows that the difference in age of riders does not have an obvious influence on riding activity ($p=.714>.05$). Occupation and activity involvement analysis : Taking occupation as the independent variable and activity involvement as the dependent variable to formulate the one-way ANOVA, the verification result shows that the difference in the occupation of riders does not have an obvious influence on riding activity ($p=.504>.05$).

Education and activity involvement analysis : With education as independent variable and activity involvement as the dependent variable to formulate one-way ANOVA, the verification result shows that the difference in education of riders does not have an obvious influence on riding activity ($p=.207>.05$). Present living place and activity involvement analysis : The verification result of the one-way ANOVA, which takes the present living place as the independent variable and activity involvement as the dependent variable, reveals that the difference in living place of riders at present has obvious influence on riding activity ($p=.018<.05$).

Marital status and activity involvement analysis : With marital status as the independent variable and activity involvement as the dependent variable to conduct the one-way ANOVA, the verification result shows that the difference in education of riders does not have an obvious influence on riding activity ($p=0.773>.05$).

Number of riders in a group and activity involvement analysis Taking the number of riders as the independent variable and activity involvement as the dependent variable to formulate the one-way ANOVA, the verification result shows that the difference in number of people riding together does not have an obvious influence to riding activity ($p=.574>.05$).

Analysis of the Relations Between Activity Involvement and Place Attachment

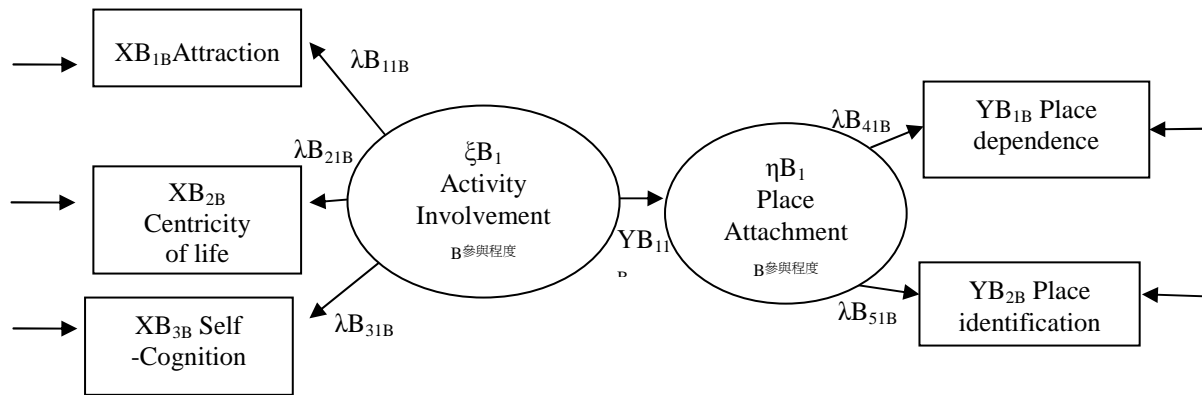
In Table 2, we can see that the facet of activity involvement has positive correlation with that of place attachment.

Table 2: Analysis of Relation between Activity Involvement and Place Attachment

	Place identification		Place dependence		Place attachment	
	Person value	Obviousness	Person value	Obviousness	Person value	Obviousness
Attraction	.609	.000	.328	.000	.528	.000
Centricity of life	.529	.000	.446	.000	.577	.000
Self-cognition	.447	.000	.370	.000	.472	.000
Activity involvement	.480	.000	.618	.000	.632	.000

Structural Equation Model Analysis of Activity Involvement and Place Attachment

The research takes the standardized scores of “attraction,” “centricity of life,” and “self cognition” to measure the latent variables of “activity involvement.” In addition, it employs the standardized scores of the two facets of “place identification” and “place dependence” to measure the latent variables of “place attachment” and conducts the AMOS structural equation model analysis based on the theoretical model of the research. The entire structural model is shown in Graph 1.



Graph 1: Structural Model of Activity Involvement and Place Attachment

In examining the entire model fitness standards, the research adopts 6 appraisal indexes. These are χ^2 value rate, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), and root mean square residual (RMR) to make the entire fitness appraisal of the model. The data of each reviewing index are listed below in Table 3.

Table 3: Entire Fitness Appraisal Index

Appraisal index	Analysis result	Appraisal result
χ^2 value rate	χ^2 value=66.538; DF=4 χ^2 value rate =16.634	Unqualified (χ^2 value rate <5)
GFI	.928	Qualified(>.9)
AGFI	.809	Unqualified (<.9)
CFI	.928	Qualified (>.9)
RMR	.317	Unqualified (>.005)
RMSEA	.177	Unqualified (>.008)

- (1) χ^2 value rate: χ^2 value rate is the value obtained after the X^2 value is divided by the degree of freedom. Normally, if the X^2 rate is smaller than 5, the entire model has considerable explanatory power in explaining the observed data.
- (2) GFI, AGFI, and CFI index: when employing GFI, AGFI, and CFI indexes as the judgment index, the closer the value is to 1, the better is the fit to the actual data. Thus, values larger than 0.90 are more credible. In this research, the indexes are GFI=0.928, AGFI=0.809, and CFI=0.928. With only the AGFI not able to reach 0.9, which is the acceptable level, the entire model has a fair fitness.
- (3) Root mean square residual: the RMR value is the square root of the variation of the residual value against the average covariance, representing the value of the residual. In this case, the closer to 0 the value becomes, the better the model's fitness. The RMR value of the research is 0.317.
- (4) Root mean square error of approximation: when the value of the RMSEA is near 0, the better the model's fitness. The RMSEA value in this research is 0.177.

The research obtains the information through the model modification index to improve the fitness of the model, while the AMOS software provides the suggestions to route the adjustment. Based on the adjustment index in the AMOS analysis, an MI of over 5 shows that the residual needs adjustment (Qiu Haozheng, 2003). It can be also explained as the variation of relevancy in the statistical meaning and, as such, is suggested to be added into the model. As for the model of this research, AMOS suggests that the 5 routes should be adjusted. However, the theoretical base is needed to support the adjustment. As a result, the research takes the largest value out of the suggested adjustment index. Thus, only one route is adjusted: whether correlation between place identification and attraction exists. Table 4 shows the sorted out list based on the AMOS-suggested adjustment index.

Table 4: List of Suggested Adjustment Index

Route	M.I.
Place identification - attraction	17.777
Place identification – self-cognition	5.554
Attraction – centricity of life	4.533
Centricity of life – self-cognition	5.275
Self cognition - centricity of life	4.041

After this route has been adjusted, the model's fitness obviously improved. Table 3 and 4 represent the verification result of the entire SEM model fitness standards after route adjustment. The result shows that the X^2 value rate, AGFI, CFI, and RMSEA have conformed to the standards of fine construct reliability.

Table 5: Entire Fitness Appraisal List after Route Adjustment

Appraisal index	Analysis result	Appraisal result
X^2 value rate	χ^2 value=12.363; DF=3 X^2 value rate=4.121	Qualified (X^2 value rate <5)
GFI	.990	Qualified (>.9)
AGFI	.952	Qualified (>.9)
CFI	.989	Qualified (>.9)
RMR	.133	Unqualified (>.005)
RMSEA	.079	Qualified (<.008)

DISCUSSION

Discussion on the Research Findings

In this chapter, we will first explain the background information of the bicycle riders, their riding features, and activity involvement, and then illustrate the analysis results including activity involvement, place attachment, and relation between activity involvement and place attachment.

The research demonstrates that among the tested samples, the riders are mostly male, and the ratio of male against female is 8:1. Most of the riders are young people, with ages from 21 to 30 years old; most of them are students (occupation), with a high educational background (college level). Moreover, the present living place is Changhua County. They are mostly unmarried, with the scale between unmarried against married being 3:1. With regard to the riding features, most of the riders choose to ride alone, while the most common number of riders in a group is between 2 to 5 persons. The analysis result of the personal features of the riders in the research is in accordance with the findings of Lin Jiangyao (1999) that most bicycle riders are the youth with high education from urban centers. However, the result showing that riding alone is the most popular contrasts with that of Lin Jiangyao (1999), which found out that riders prefer riding together with their families and relatives.

Relation between activity involvement and place attachment Activity involvement and place attachment are positively correlated. This shows that riding activity involvement has a positive relation with attachment to the place.

Verification of Research Problems

The questions pointed out as per the research objectives have been verified, and the results are presented below:

Personal background attributes and activity involvement. The research shows that the "gender" and "present living place" of riders have influence upon activity involvement. After the investigation, we found that the majority of the riders at the Pagua Mountain Bikeway are male. This could mean that the Pa Gua Mountain Bikeway has more attraction to males than to females. Therefore, we can infer that riding at the Pagua Mountain Bikeway is a little difficult for female riders. This results to the preference of the female riders for other bikeways. In addition, the investigation also finds that riders at the Pagua Mountain Bikeway mostly live in the Changhua County, from which we can deduce that the degree of riding activity involvement is affected by the place of residence.

The research shows that the three facets of activity involvement have obvious influence and positive correlation to the two facets of place attachment. In addition, activity involvement and place attachment have obvious positive causal relations. It shows that the rider with the highest degree of activity involvement has more attachment to riding places. At the same time, it also demonstrates that “attraction” has the obvious positive relation to place identification and place attachment, which means that when riders are attracted by the riding activities, they will experience identification with and dependence on the place. “Centricity of life” has obvious positive relation with place identification and place attachment, which means that when riders take riding activity as the focus of their lives, they will naturally be attracted to the specific riding place. “Self cognition,” which has obvious positive relation to place identification and place attachment, means that when riders have certain cognition upon the activities they are engaged in, such perception will influence their identification with the place, as well as on their place dependence.

Suggestions

As previously discussed, most of the riders at the Pagua Mountain Bikeway are males with a ratio of 8:1. The bikeway is a bit rough, and the bicycles always share the road with vehicles. For female riders, the above two points may be the reasons why most of them do not come here. We recommend that the concerned parties should provide better signage at the Pagua Mountain Bikeway, such as direction signs, warning signs, road maps, and mileage signs so that female riders can ride comfortably and safely in this route.

The research shows that the riders of the Pagua Mountain Bikeway are mostly residents of the Changhua County. A small number comes from other counties or cities. This means that activity involvement exerts obvious positive influence on place attachment. It is suggested that management authorities should promote riders’ familiarity of the place through advertisements and related activities such as organizing bicycle riding competitions at the Pagua Mountain Bikeway, together with various arts and sports events in the county. This will attract riders from other counties and cities to ride at the Pagua Mountain Bikeway.

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