A Study on the Relationship Between Bicyclists' Degree of Involvement and Place Attachment—A Case Study on the Kaohsiung Hedi Park

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ABSTRACT

Degree of involvement refers to the extent of a user's attention on some activities, while place attachment refers to the emotional significance that he/she assigns to the environment he/she uses. This study studied the relationship between bicyclists' degree of involvement in activities and their attachment to places. Likewise, it sought to present a substantial understanding of the causal relationship between the two factors based on the structural model that we created. To achieve this, we explored the correlation between the degree of involvement in leisure activities (attractiveness, self-expression and centrism) and place attachment (place dependence and place identity). Thereafter, a discussion was presented on the difference in place attachment due to the different degrees of involvement. The bicyclists in Kaohsiung Hedi Park served as the study's research objects. In employing the convenience sampling method, 600 questionnaires were distributed. A total of 599 valid copies were collected, accounting for 99.8% return rate. The questionnaires were analyzed using the SPSS 12.0 software. The study's result: Our study shows that the apparent difference in the degree of involvement was due to the bicyclists' different features of participation and demographic backgrounds. On the other hand, the apparent difference in place attachment was a result of their different degrees of involvement.

Keywords: *bicyclists, degree of involvement, place attachment*

INTRODUTION

In recent years, bicycling has become a popular activity in many countries, with Holland, Japan, Germany, and England having established perfect bicycle lane systems. In the face of soaring oil prices and the promotion of energy saving and CO_2 emission reduction, the bicycle is once again gaining popularity worldwide. In fact, more and more people in Taiwan are involved in this activity, with bicycle lane construction being paid more attention to. However, from being a vehicle, bicycles since their invention in the early 19^{th} century have gradually become a tool of entertainment and sports. This is further evident in the study of Huang Qirong (2002) in which 72% of the sampled population is found to have bicycles. Indeed, people possessing bicycles are common in Taiwan. Combining bicycles with leisure activities has many benefits and unlimited potential for further development. The Sports Committee of the Executive Yuan (2002) released the Annual Governance Plan of 2004, with its third target being the promotion of sports and leisure bicycle lanes in Taiwan. Five years after its promotion, bicycling gradually became popular in China, with more and more people getting involved in the activity, and cities and towns establishing bicycle lanes (dedicated or not) on the basis of the geographical environment. Of note, different gradients and conditions of bicycle lanes resulted in a natural environment of different difficulties for bicyclists. Bicycling is also hampered by other leisure activities (for example motoring, hiking, or other leisure activities). With this in mind, bicyclists should choose the environment in accordance with their own level of skills and preferences (Chen Xinyi, 2004).

A study about bicycling by Bricker & Kerstetter (2000) explored the relationship between the level of professionalization and place attachment. According to their study, the association between individuals and the environment is always reflected in their sentiment toward the place (venue) or affiliation with the outdoor environment. This affiliation or individual attachment could help us understand the significance of the outdoor environment to bicyclists and provide important information for planning of natural resources.

Apart from these studies, most are aware that bicycling has become an important leisure activity. This is apparent in Taiwan alone, where studies about bicycles abound, with more than half of the literature related to the bicycle industry and hardware. It is unfortunate, however, that no study is carried out on bicycling as a form of leisure sports. Few studies about the place attachment of bicyclists during their involvement are available. It is on this direction that we carried out this study.

LITERATURE REVIEW

The theme of Earth Day 2008 is "Climate Change," with a call on all people to save energy and reduce CO_2 emission. It is on this vein that bicycling, which has been popular for years, can make a huge contribution. For instance, during holidays, people seeking fresh air drive to suburbs far away from cities. Bicycling, on the one hand, does not

consume energy nor pollute the air. It is additionally a healthy aerobic sport. In relation to this, one study by Deborah, Patricia, and John (1993) about field bicyclists provided recommendations to administrators, with the results indicating that nearly half of the interviewees believed they properly used bicycles in leisure activities. Their results further revealed that 22% thought bicycles were excessively used, about 30% believed the excessive use would result in damage of environmental resources, while 60% observed conflicts between bicyclists and non-bicyclists. Other studies about the subject are available, such as the investigation by Steve, Michael, David, and Debbie (1995) which focused on the individual features, preferences and attitudes of field bicyclists in state forests. Another analysis, this time authored by Chavez (1996), experimentally explored on field bicyclists' direct and indirect communication-type management, with emphasis on the plan of use and activity of field bicyclists in state forests as well as the support of the main regions' administrators to this leisure activity. Also, a study on bicycling sightseers in New Zealand by Ritchie (1998) primarily gave advice on the planning and management of bicycle lanes in New Zealand.

In their social psychological studies, Sherif and Cantril (1947) raised the concept of "involvement" based on the "Social Judgment Theory" to examine individual attitudes. In the "Social Judgment Theory," scholars believe that "involvement" originated from the attitude formed or learned from interaction within the social environment; this attitude then guides individual behaviors (Xie Zongheng, 2003). Pertaining to this, Bavtor then introduced the concept of involvement into the "Consumer Behavior Theory," leading to its practical application in "consumer study." As explained by Bloch and Bruce (1984), involvement in "consumer study"-related fields" is largely correlated to consumers' choices (such as brand loyalty, purchase habit, preferred type of product, and advertisement). Meanwhile, consumers' involvement refers to the importance and interests given by individuals based on their recognition of one special product or service. With different levels of involvement, consumers would have different behaviors (Wang Yuping, 2002). That is, with higher level of involvement, consumers have higher motives to understand, pay attention to, and collect the product information of. As for a different level of involvement, consumers have different consumption behaviors, attitudes, and decision-making processes (Fang Yiyao, 2002).

The concept of "leisure involvement" began from Selin and Howard's (1988) "ego involvement" and leisure studies, arousing widespread attention and interest on the sightseeing sector. With this concept, scholars in the leisure sector further explained the enduring involvement (McIntyre, 1989), affective attachment (McIntyre & Pigram, 1992), and commitment of tourists in leisure and sightseeing activities. Leisure involvement actually refers to the personal meaning and affective attachment of an individual with one activity (Wang Zhengping, Zhu Lixuan, 2003). In addition, Gunter and Gunter (1980) discussed the individual's level of involvement by "participation" and "non-participation," as well as pointed out that leisure involvement should include other elements such as behavior, recognition, and feeling. In classifying "leisure involvement," Kim, Scott, and Crompton (1997) mainly explored the relationship between involvement of social psychology, involvement of behavior, and the commitment and future intention in studying the Bird Festival of Texas bird show. It is from this investigation that "leisure involvement" is divided into "involvement of behavior" and "involvement of social psychology." Hummon (1992) defined "place attachment" as an individual's affective involvement and belonging to a place. It is also the combination of the user's recognition and sentiment toward a special place, which describes the user's feeling of the environment (Williams & Waston, 1992). This is why individuals develop "place dependence" if they have particular functional needs on a place from the environment aspect, and "place identity" if they develop the sense of identity and belonging to a place (Li Yonghong et al, 1997, Moore et al 1994).

Once examined from the user's viewpoint, place attachment could be regarded as a behavior. This attachment is demonstrated when an individual increases his place attachment and integrates himself with the environment (Lu Yiru, 2001). With regard to the formation of place attachment, Shannon and Edward (1995) pointed out that it is produced when some positive significance is given to a place, thereby enhancing the positive affective bonding with a place. Once this bonding is formed, a place has its own features.

STUDY'S METHOD

Study's architecture and assumption. The study's architecture and assumptions are based on the review of literature and summary of this study, as seen Fig. 1.

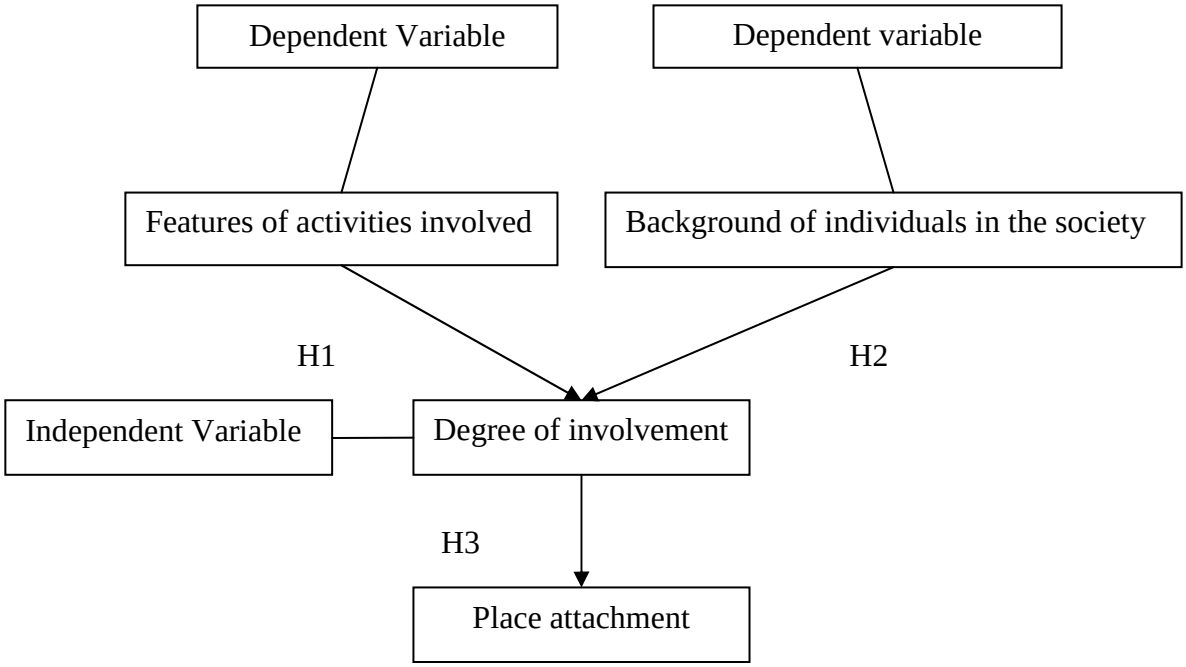

Fig 1. Study's Architecture

Based on the above study's architecture, the assumptions are as follows:

Assumption 1: Different bicyclists and different features of activities involved will result in a remarkable difference in the degree of involvement.

Assumption 2: Different bicyclists and different individual backgrounds will result in a remarkable difference in the degree of involvement.

Study's procedure

The participants in this study are mainly bicyclists who do bicycling as a leisure activity. Bicyclists who use bicycles as commuting vehicles are not included. For the sake of convenience, the samples are either taken by questionnaire survey or random sampling. The sampling site is the Hedi Park of Kaoshiung. Information is collected by questionnaire survey. Convenience sampling, which is a method purely based on convenience, is done with samples chosen by virtue of "easy acquisition or observation." In this study, either the researchers asked ready, eager and nearby respondents (therefore the samples are not decided in advance), or the respondents answered the questionnaire themselves.

(1). Questionnaire description

1. Early questionnaires

In this study, a total of 100 early questionnaires are distributed in fixed locations at the Hedi Park, Kaoshiung, from the 15th to 20th of February 2008, and the samples were taken by convenience sampling. Out of the 100 copies distributed, 91 valid questionnaires were collected, accounting for 97% valid response rate. Item and credibility analysis of the earlier questionnaire form was done by considering respondent questions and suggestions. After improper items were deleted and the wording of the questions was adjusted, the earlier questionnaire version was changed to a formal questionnaire.

2. Formal questionnaire

In this study, questionnaires were distributed under the principle of convenience in random sampling from the 1st to 31st of March 2008. A total of 600 formal questionnaires were distributed. After copies with incomplete answers were deleted, the total valid copies amounted to 599, with the average recovery rate of 99.8%.

(2). Data analysis

This study employed narrative statistical analysis to analyze the features of bicyclists' involvement, variable correlation analysis, detection of independent t, single-factor variable, and causal relationship between bicyclist's involvement and place attachment. The analysis software used is the SPSS12.0.

Study's results and analysis

(1) Analytic result of bicyclists' involvement features

The variables for the features of bicyclists' involvement in the valid questionnaires collected in this study included monthly times of involvement, period of continuous involvement, number of participants, identity of partners, time per activity, and so on. The analytical results of relevant descriptive statistics are presented in succeeding tables.

1. Monthly visits of bicyclists

As 2 among valid samples, 369 visitors paid 1 to 2 visits per month accounting for 61.6%, 159 visitors paid 3 to 4 visits per month accounting for 26.5%, and 71 visitors paid more than 5 visits per month accounting for 11.9%. The study indicated that bicyclists tended to pay 1 to 2 visits per month possibly because bicycling is still a novel leisure activity and that most people do not regard it yet as a habitual sport.

2. Bicyclists' continuous involvement

It is apparent that 198 bicyclists had continuous involvement from 1 to 6 months accounting for 33.1%, 166 for less than 1 month accounting for 27.7%, 120 from 7 to 12 months accounting for 20.0%, and 115 for more than 1 year accounting for 19.2%. The study signified increasing involvement of more bicyclists in this new leisure activity.

3. Number of bicyclists in joint involvement

Valid samples, 234 bicyclists attended two-person activities accounting for 39.1%, 163 attended three-person activities accounting for 27.2%, 107 attended one-person activities accounting for 17.9%, and 95 attended four-person activities accounting for 15.9%. The study revealed that most bicyclists are able to find companions for the activity.

4. Identity of partners

As valid samples, 272 were with family members accounting for 45.4%, 192 were with friends accounting for 32.1%, 90 were with classmates or colleagues accounting for 15.0%, and 45 were with other identities accounting for 7.5%. The study indicated that bicyclists are mostly with family members.

5. Time of bicyclists in each activity

It can be valid samples that 235 bicyclists spent 1 to 2hr accounting for 39.2%, 217 bicyclists spent 2 to 3hr accounting for 36.3%, 130 spent less than 1hr accounting for 21.7%, and 17 spent more than 3hr accounting for 2.8%. The study showed that most bicyclists spent 1 to 2hr in each activity.

Involvement feature variable correlation analysis

Table 1. Involvement Feature Variable Correlation Analysis

		A1	A2	A3	A4	A5
A1	Pearson Correlation Sig. (2-tailed)		.730**	.393**	.232**	.398**
	N	1	.000	.000	.000	.000
		.599	.599	.599	.599	.599
A2	Pearson Correlation Sig. (2-tailed)	.730**		.399**	.150**	.435**
	N	.000	1	.000	.000	.000
		.599	.599	.599	.599	.599
A3	Pearson Correlation Sig. (2-tailed)	.393**	.399**		.007	.558**
	N	.000	.000	1	.864	.000
		.599	.599	.599	.599	.599
A4	Pearson Correlation Sig. (2-tailed)	.232**	.150**	.007	1	.182**
	N	.000	.000	.864	.	.000
		599	599	599	599	599
A5	Pearson Correlation Sig. (2-tailed)	.398**	.435**	.558**	.182**	
	N	.000	.000	.000	.000	1
		.599	599	599	599	.599

**. Correlation is significant at the 0.01 level (2-tailed).

Result analysis

As shown from the matrix data in Table 1 the Pearson Correlation Siq. of five variables are all positively relevant. The P-value from the two-tailed detection of significance is 0.000<0.01, while the linear relationship between variables is quite significant. Relationship between involvement features and degree of involvement. Based on the detection of independent T in the previous chapter, it is the understanding that there is basically a different level of involvement that often leads to remarkable differences in place attachment. To further demonstrate the significance, we carried out Single Factor Variable Analysis, and again added the option of four dimensions (involvement feature, degree of involvement, place attachment, and demographic background) to calculate the maximum and minimum. We then divided all grades into low group (0%~25%), medium group (25%~75%), and high group (75%~100%), simplified them into four variables, recoded them, and finally carried out Single Factor Variable Analysis (descriptive statistics of the involvement feature and degree of involvement, test of homogeneity of variances of the involvement feature and degree of involvement).

Descriptives

Table 2. Degree of involvement

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	173	1.8960	.77056	.05858	1.7803	2.0116	1.00	3.00
2.00	191	2.0366	.69866	.05055	1.9369	2.1364	1.00	3.00
3.00	235	2.2213	.75247	.04909	2.1246	2.3180	1.00	3.00
Total	599	2.0684	.75202	.03073	2.0081	2.1288	1.00	3.00

Test of Homogeneity of Variances

Table 3. Degree of involvement

Levene Statistic	Df1	Df 2	Sig.
6.724	2	596	.001

Result analysis：

The null hypothesis in the test of homogeneity of variances is that all variants of each matrix are equal. As shown in the table, P=0.001<0.05 which defeated the null hypothesis, that is, the variances of a matrix are significantly different.

ANOVA

Table 4. Degree of involvement

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	10.829	2	5.415	9.858	.000
	Linear Tern Unweighted	10.546	1	10.546	19.200	.000
	Weighted Deviation	10.767	1	10.767	19.603	.000
Within Groups		.062	1	.062	.113	.736
Total		327.364	596	.549		
		338.194	598			

Result analysis:

It can be seen in the above table that intergroup significance P=.000<0.05, and the involvement feature and degree of involvement are significantly different.

Multiple Comparisoms

Table 5. Degree of involvement

	(I) Characteristic	(J) Characteristic	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1.00	2.00	-.1407	.07779	.168	-.3235	.0421
		3.00	-.3253*	.07424	.000	-.4998	-.1509
	2.00	1.00	.1407	.07779	.168	-.0421	.3235
		3.00	-.1846*	.07220	.029	-.3543	-.0150
	3.00	1.00	.3253*	.07424	.000	.1509	.4998
		2.00	.1846*	.07220	.029	.0150	.3543
LSD	1.00	2.00	-.1407	.07779	.071	-.2935	.0121
		3.00	-.3253*	.07424	.000	-.4711	-.1795
	2.00	1.00	.1407	.07779	.071	-.0121	.2935
		3.00	-.1846*	.07220	.011	-.3264	-.0428
	3.00	1.00	.3253*	.07424	.000	.1795	.4711
		2.00	.1846*	.07220	.011	.0428	.3264

*.The mean difference is significant at the .05 level.

Result analysis:

Based on the result of significance of multiple comparisons in column 4 of the above table and the under the significance level of 0.05, it is evident from the conclusion of double mean comparison of Fisher LSD and Tukey HSD that only high group 3, low group 1, and medium group 2 have no significant differences, while medium group 2 and low group 1 have significant differences.

Relationship between degree of involvement and place attachment. Descriptive statistics on the degree of involvement and place attachment was done, as well as the test of homogeneity of variances of the degree of involvement and place attachment.

Descriptives

Table 6. Degree of involvement

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	177	1.9435	.75165	.05650	1.8320	2.0550	1.00	3.00
2.00	188	2.1383	.76138	.05553	2.0288	2.2478	1.00	3.00
3.00	234	2.1068	.73633	.04814	2.0120	2.2017	1.00	3.00
Total	599	2.0684	.75202	.03073	2.0081	2.1288	1.00	3.00

Test of Homogeneity of Variances

Table 7. Degree of involvement

Levene Statistic	Df1	Df2	Sig.
.675	2	596	.510

Result analysis:

The null hypothesis in the test of homogeneity of variances is that the variances of a matrix are equal. We know from the above table that P=.0510>0.05, which defeated the null hypothesis, that is, the variances of a matrix are significantly different.

ANOVA

Table 8. Degree of involvement

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	4.025	2	2.013	3.590	.028
	Linear Term Unweighted	2.688	1	2.688	4.795	.029
	Weighted	2.385	1	2.385	4.253	.040
	Deviation	1.641	1	1.641	2.926	.088
Within Groups		334.168	596	.561		
Total		338.194	598			

Result analysis:

It can be seen from the above table that intergroup significance P=.000<0.05 and significant differences existed in the level of involvement.

Multiple Comparisons

Table 9. Degree of involvement

	(I) demographics	(J) demographics	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Lower Bound
Tukey HSD	1.00	2.00	-.1948*	.07842	.035	-.3791	-.0105
		3.00	-.1633	.07459	.074	-.3386	.0119
	2.00	1.00	.1948*	.07842	.035	.0105	.3791
		3.00	.0315	.07334	.904	-.1409	.2038
	3.00	1.00	.1633	.07459	.074	-.0119	.3386
		2.00	-.0315	.07334	.904	-.2038	.1409
LSD	1.00	2.00	-.1948*	.07842	.013	-.3488	-.0408
		3.00	-.1633*	.07459	.029	-.3098	-.0168
	2.00	1.00	.1948*	.07842	.013	.0408	.3488
		3.00	.0315	.07334	.668	-.1126	.1755
	3.00	1.00	.1633*	.07459	.029	.0168	.3098
		2.00	-.0315	.07334	.668	-.1755	.1126

*.The mean difference is significant at the .05 level.

Result analysis:

Based on the result of significance of multiple comparisons in column 4 of the above table and under the significance level of 0.05, we can see from the conclusion of double mean comparison of Fisher LSD and Tukey HSD

that only high group 3, low group 1, and medium group 2 in the demographic background have no significant differences, and that medium group 2 and low group 1 have significant differences. Relationship between the degree of involvement and place attachment. Descriptive statistics of the degree of involvement and place attachment is done, as well as the test of homogeneity of variances of degree of involvement and place attachment.

CONCLUSION AND RECOMMENDATION

Kyle, Bricker, Grafe, and Wickham (2004) emphasized in their studies about some indirect evidences demonstrating that involvement leads to dependence on facilities. In addition, when the degree of involvement in one activity increases, the individual's dependence on the facilities of this activity increases as well. However, the study failed to point out that the increase in leisure involvement remarkably influences place identity. However, compared with the findings of this study, it is found that the degree of involvement remarkably influences place attachment. In place attachment, the recognition of "I love bicycling in bicycle lanes" is the highest. This is an indication that users in general believe that the environment, facilities, and bicycle lane resources in Hedi Park conform to bicycling conditions. Nonetheless, some facilities should be strengthened. Based on the study results, place attachment facilitates the formation of place identity. The departments involved must start from the most basic planning of the bicycle lane environment, facilities, and other resources as well as improve the psychological identity of Hedi Park to its users. We have two corresponding recommendations:

(1) Enclosure of the bicycle lane: Using Hedi Park as an example, although other vehicles are prohibited by law to use the bicycle lanes, some people still pass through bicycle lanes just for convenience. This presents quite a danger to tourists currently engaged in leisure activities there. We anticipate that this matter should be paid attention to by competent departments.

(2) Set-up of sanitation facilities. There is only one small public toilet in Hedi Park, which poses quite an inconvenience to many tourists flooding the Hedi Park during the holidays. Competent departments should build toilets in other areas or improve the current facilities.

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