

IMPACT OF PLACE ATTACHMENT AND RECREATION INVOLVEMENT ON SATISFACTION AND FUTURE BEHAVIOUR: EVIDENCE FROM TAIWANESE RECREATIONAL SURFERS

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ABSTRACT

Place attachment, recreation involvement and satisfaction are key indicators explaining future behaviour in nature-based recreation. This study examined a behavioural model using latent variables of place attachment, recreation involvement, recreation satisfaction and future behaviour of surfers. In total, 1140 usable questionnaires were collected using cluster sampling from July to August 2006 at Nanwan, Jiialeshuei, Miyuewan, and Jinshan beaches, Taiwan. Structural equation modelling using LISREL 8.70 for Windows was employed to examine the behavioural model. Empirical results indicate that place attachment significantly and directly affected recreation satisfaction and indirectly affected future behaviour. Moreover, place attachment significantly and directly affected future behaviour. Recreation involvement significantly and directly affected recreation satisfaction and indirectly affected future behaviour. However, recreation involvement had no impact on future behaviour. Recreation satisfaction significantly and directly affected future behaviour. Managers of surfing destinations maintain and protect coastal areas in order to ensure environmental quality, subsequently promoting place identity and place dependence for recreational surfers.

Key words: Behavioural model; Place attachment; Recreation involvement; Recreational surfer.

INTRODUCTION

Polynesians first engaged in recreational surfing at a beach in Tahiti in approximately 500AD. Around 1000AD, the Tahitians introduced surfing to the Hawaiians (Finney & Houston, 1996). As surfing is an activity largely pursued for pleasure during free time, surfing can be considered as a leisure and recreational activity (Smith, 1990; Lazarow *et al.*, 2008; Phillips & House, 2009; Dredge, 2010). Surfing has recently become increasingly popular worldwide, especially in America, Japan, Australia and South Africa. In the 1960s, American soldiers introduced surfing to Taiwan. Surfing clubs were first established in 1979 to meet the recreational needs of American soldiers staying in Taiwan.

Literature on recreation, generally examined the relationships between place attachment and recreation involvement (Kyle *et al.*, 2003; Kyle *et al.*, 2004a; Hwang *et al.*, 2005). Relationships between involvement and satisfaction (Hwang *et al.*, 2005; Lee & Chang, 2012) and involvement and future behaviour have been examined for recreationists visiting

hiking trails and forest settings (Kyle *et al.*, 2004a; Lee *et al.*, 2007). However, these behavioural models have not been well examined in relation to recreational surfers.

PROBLEM

In view of a lack of research in this area related to recreational surfers, this study used place attachment, recreation involvement, recreational satisfaction and future behaviour as variables in developing a behavioural model for recreational surfers in Taiwan. The main purpose of this study was to examine how place attachment impacts satisfaction and future behaviour, as well as how recreation involvement impacts satisfaction and future behaviour for recreational surfers. Finally, this study presents data that support practical managerial implications and provides recommendations for further study.

This study presents the following research hypotheses based on related and completed empirical studies, which will be discussed in the literature review:

- H₁: Place attachment significantly and directly affects recreation satisfaction (H₁₋₁), and significantly and indirectly affects future behaviour (H₁₋₂);
- H₂: Place attachment significantly and directly affects future behaviour;
- H₃: Recreation involvement significantly and directly affects recreation satisfaction (H₃₋₁), and significantly and indirectly affects future behaviour (H₃₋₂);
- H₄: Recreation involvement significantly and directly affects future behaviour; and
- H₅: Recreation satisfaction significantly and directly affects future behaviour.

LITERATURE REVIEW

This study developed and examined a behavioural theoretical model that represents how critical elements such as place attachment, recreation involvement, and satisfaction contribute to future behaviours. A brief overview of variables in the behavioural theoretical framework follows.

Place attachment

Place attachment is a positive or negative relationship a person has with a location and is often based on satisfaction and fulfilled expectations. Place attachment is a response generated by complex experiences associated with a place, creating an emotional bond (Williams *et al.*, 1992; Kyle *et al.*, 2003). In the field of recreation and leisure, place attachment is embodied in emotions and feelings associated with a recreational setting (Hidalgo & Hernández, 2001). Many leisure scholars argue that place attachment is composed of place identity, which is a person's symbolic or affective attachment to a place, and place dependence, which is associated with the functionality of a place for a recreational activity (Williams *et al.*, 1992; Hidalgo & Hernández, 2001; Kyle *et al.*, 2003; Brown & Raymond, 2007; Yüksel *et al.*, 2010).

Recreation involvement

Involvement, the degree to which an individual engages in an activity, can be based on the purchase or use of related products and services (Kerstetter & Kovich, 1997), participation

frequency (McIntyre & Pigram, 1992), and recreationist awareness of a recreational setting (Kyle *et al.*, 2004b). Factors such as exterior prospects, personal values, needs, personality, and self-awareness affect the recreation involvement of individuals (Dimanche *et al.*, 1991). Increased recreation or activity involvement leads to increased sensitivity to activity attributes, increased perception of activity importance, increased recreation commitment and, subsequently, increased loyalty to a recreation destination (Bricker & Kerstetter, 2000; Lee *et al.*, 2007). Thus, studies of activity involvement have significant implications for understanding recreational and leisure behaviours. Leisure scholars have recently applied structural equation modelling (SEM) to examine the causal relationships between activity involvement and place attachment (Kyle *et al.*, 2003; Hwang *et al.*, 2005) and between activity involvement and destination loyalty (Iwasaki & Havitz, 2004; Kyle *et al.*, 2004a; Lee *et al.*, 2007; Lee & Chang, 2012). Therefore, recreation involvement is an important construct for interpreting recreationists' experiences and has been employed to explain recreationists' behaviours.

Recreation satisfaction

Satisfaction is regarded as the outcome of a comparison between customers' expectations and their actual experiences (Parasuraman *et al.*, 1985). Satisfaction is an important indicator for assessing recreational activities and has garnered the interest of many scholars. It is important to assess the factors that impact satisfaction, as they may be plentiful, given the broad cultural diversity of recreationists (Cronin & Taylor, 1992). Conversely, recreation satisfaction is a significant predictor of choice of a recreational destination (Cole & Crompton, 2003) and destination loyalty (Kyle *et al.*, 2004a; Lee *et al.*, 2007; Lee, 2009a,b; Lee & Chang, 2012). Consequently, recreation satisfaction is considered an important variable in recreation and leisure studies.

Future behaviour

Future behaviour in this study is related to whether, after participating in an activity, a recreationist will choose to participate in that activity again. Recreationists typically express their loyalty to a recreational activity (Baker & Crompton, 2000). Repeat visits (or purchases), recommendations and positive word-of-mouth are manifestations of loyalty. Loyalty is recognised as a very useful indicator for assessing marketing strategies in the leisure industry (Baker & Crompton, 2000; Bigné *et al.* 2001; Um *et al.*, 2006). Several leisure studies have employed leisure (activity) involvement (Kyle *et al.*, 2004a; Lee *et al.*, 2007; Lee & Chang, 2012) as an antecedent variable to assess and predict future leisure behaviour. The impact of this variable on future behaviour associated with different nature-based recreational areas needs further clarification.

Development of the research model

Williams *et al.* (1992) indicated that recreationists typically have attachments to particular places that make them unlikely to choose other places for recreation. Moreover, when the attachment of recreationists to a place is high, their willingness to revisit that place is also high (Williams *et al.*, 1992; Eisenhauer *et al.*, 2000). Place attachment has served as a predictor of behavioural phenomena (Jorgensen & Stedman, 2001). For example, place attachment was used as an antecedent variable in assessing the behavioural loyalty of

recreationists of the Appalachian Trail (Kyle *et al.*, 2004a). Additionally, Hwang *et al.* (2005) indicated that place attachment significantly impacted the interpretation satisfaction of recreationists visiting national parks. However, these causal relationships for recreational surfers have not been examined.

Considerable research indicates that recreation involvement reflects a recreationist's opinion of a recreational activity (Hwang *et al.*, 2005; Lee *et al.*, 2007; Lee & Chang, 2012). Consequently, recreation involvement is an important variable in discussing recreational experiences. Empirical studies have indicated that recreation involvement significantly impacts satisfaction in youth sport (Green & Chalip, 1998). Hwang *et al.* (2005) indicated that tourist involvement positively and significantly impacts the satisfaction of recreationists visiting national parks. Furthermore, some studies have demonstrated that activity involvement is the antecedent variable of destination loyalty (Iwasaki & Havitz, 2004; Kyle *et al.*, 2004a; Lee *et al.*, 2007; Lee & Chang, 2012).

Satisfaction often results in increased numbers of recreationists revisiting a destination and recommending a destination to other recreationists engaged in the same recreational activity (Bigné *et al.*, 2001). Moreover, some scholars suggested that an individual can be attached to a place, but can simultaneously be dissatisfied with its current environmental quality (Stedman, 2002). Other scholars indicated that an individual needs to be satisfied with a place to want to revisit it frequently thereby building an attachment to the place (Tribe & Snaith, 1998). Consequently, if a person is satisfied with a place, she or he will likely form a place attachment and revisit that place. Empirical studies indicated that recreation satisfaction significantly impacts future behaviour associated with diverse leisure and recreation areas (Kyle *et al.*, 2004a; Lee, 2007; Lee *et al.*, 2007; Lee, 2009a,b; Lee & Chang, 2012). However, few studies have examined these relationships in the context of surfing.

METHODOLOGY

Study sites

Taiwan has many coastal areas suitable for surfing. The four main beaches are in Jinshan, Miyuewan, Jiialeshuei, and Nanwan. Jinshan is located on Taiwan's northern coast. There were 13 surfing clubs at the time of this study. Miyuewan, which is located on Taiwan's north-eastern coast, has a moon-shaped bay. As the undersea topography varies considerably, waves often reach heights of 2-3 meters. Miyuewan was home to seven surfing clubs at the time of this study. Jiialeshuei, located on the south-eastern coast, has a beach with good waves and a consistent climate. International surfing competitions were held in this area in 2006, 2007 and 2008, which is home to four surfing clubs. Nanwan, located in southern Taiwan, is a famous beach and recreational area. Nanwan had two surfing clubs at the time of this study. These four sites were selected for this study because they are considered the most popular surfing destinations in Taiwan.

Survey instrument

A questionnaire was developed using the latent variables of place attachment, recreation involvement, recreation satisfaction, future behaviour, recreational characteristics, and

demographics of surfing recreationists. A pre-test was conducted on June 24 and 25, 2006, at Nanwan and Jiialeshuei. Randomly sampled recreational surfers at the beaches answered the questionnaires between 12:00 to 18:00. In total, 80 usable questionnaires were collected. An item analysis was conducted to improve questionnaire items and Likert scales. The questionnaires were then revised based on the feedback from two surfing clubs managers and one researcher, and comments from recreational surfers concerning the item comprehensibility. The final questionnaire comprised four sections (*place attachment*, *recreation involvement*, *recreation satisfaction*, and *future behaviour*), which will be described in the following sections.

An 8-item *place attachment* scale was developed to measure the place attachment of recreational surfers. This place attachment scale utilised items from Kyle *et al.* (2003). Place attachment, which was composed of place dependence and place identity, was measured with 4 items for each of the latter. Item responses were on a 7-point Likert scale, ranging from 1 for “strongly disagree” to 7 for “strongly agree”. Items in *recreation involvement* were drawn from scales used by McIntyre and Pigram (1992) and Kyle *et al.* (2003). Recreation involvement consisted of attraction (5 items), self-expression (6 items), and centrality (3 items). Item responses were also based on a 7-point Likert scale as in the previous case. Using items from Dorfman (1979) and Whisman and Hollenhorst (1998), several different aspects of *recreation satisfaction* were assessed. Recreation satisfaction included: recreational experience (13 items); club image (3 items); convenience (4 items); facility and product (4 items); price (3 items); and overall satisfaction (1 item). Responses to items were measured using a 7-point Likert scale, ranging from 1 for “very dissatisfied” to 7 for “very satisfied”. Based on studies by Baker and Crompton (2000), 4 items (including willingness to revisit the same surfing site, willingness to consider surfing as their first choice among leisure alternatives, willingness to recommend this surfing site and willingness to convey positive word-of-mouth to other recreational surfers) were used to measure the *future behaviour* of recreational surfers. Item responses were on a 7-point Likert scale, ranging from 1 for “strongly disagree” to 7 for “strongly agree”.

Sampling survey

This survey was conducted during July-August 2006, as surfing is primarily a summer activity in Taiwan. A cluster sampling method was used. First, a total of 18 Saturdays or Sundays in this period were considered the total cluster units. Next, 3 days (as clusters) were chosen for questionnaire distribution at each study site. Recreational surfers at the Nanwan and Jiialeshuei beaches were surveyed on July 1, 22 and 23, 2006; surfers at the Miyuewan beach were surveyed on August 5, 6 and 12, 2006; surfers at the Jinshan beach were surveyed on August 13, 19 and 20, 2006. All recreational surfers were administered the questionnaire between 12:00 and 18:00 (most recreational surfers surf during this period) on the selected days. The questionnaire was administered to respondents in person by researchers. In total, 1290 questionnaires were handed out. Of these, 145 respondents refused to fill out a questionnaire and 5 questionnaires were incomplete, leaving 1140 usable questionnaires.

Development of the research instrument

Based on sample size (N=1140), the survey of this study can be accurate within a 2.9% sampling error with 95% confidence. The final questionnaires were revised through item

analysis, and comments made by one scholar and two surfing club managers, who indicated that this research instrument had an acceptable content validity. The Cronbach's alpha values of place attachment, recreation involvement, recreation satisfaction and future behaviour were 0.90, 0.94, 0.96, and 0.90 respectively; all exceeded the 0.70 benchmark (De Vellis, 1991) indicating that the research instrument had good reliability.

Data analysis

Statistical analysis of data was performed using Statistical Package for Social Sciences (SPSS), 12.0 for Windows. Place attachment, recreation involvement and recreation satisfaction involved a large number of measurement variables. An exploratory factor analysis was performed to extract a few important factors from a larger number of observed variables (in this case scale items). It assumes that the factors are correlated with the larger number of observed variables. The few important factors make the interpretations of the data more concrete (Agresti & Finlay, 1997). Subsequently, these factors were treated as indicators that could be used to measure a construct during the structural equation modelling analysis (Hwang *et al.*, 2005; Lee, 2009b). In this study, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.88 for place attachment, 0.92 for recreation involvement and 0.96 for recreation satisfaction. Bartlett's test of sphericity yielded significant values for *place attachment* ($\chi^2=6066$, $df=28$, $p<.001$), *recreation involvement* ($\chi^2=12368$, $df=91$, $p<.001$) and *recreation satisfaction* ($\chi^2=23853$, $df=351$, $p<.001$).

Thereafter, an exploratory factor analysis of the multi-item dimensions of place attachment, recreation involvement and recreation satisfaction was performed to reduce the number of variables serving as measurement variables for SEM analysis of the overall model. Principal axis factoring was used as it is recommended for behavioural research aiming to extract factors for SEM analysis (Iacobucci, 2001). After applying factor analysis, only factors with *eigenvalues* exceeding 1 were retained. An oblimin with Kaiser normalisation rotation was used for axis rotation since the resulting factors were assumed correlated.

Two factors were extracted from items measuring *place attachment*. The first factor was place identity (*eigenvalue*=4.74, variance=59.22%), and the second was place dependence (*eigenvalue*=1.04, variance=12.96%). These two factors were used as variables to measure place attachment.

Three factors were extracted from items measuring *recreation involvement*. The first factor was attraction (*eigenvalue*=7.74, variance=55.62%), the second was self-expression (*eigenvalue*=1.61, variance=11.46%), and the third was centrality (*eigenvalue*=1.08, variance=7.68%). These extracted factors were used as variables to measure recreation involvement.

Four factors were extracted from items measuring *recreation satisfaction*. The first factor was recreational facility (*eigenvalue*=13.24, variance=49.04%), the second was surfing club's service (*eigenvalue*=2.16, variance=7.99%), the third was surfing experiences (*eigenvalue*=1.53, variance=5.67%), and the fourth was surfing cost (*eigenvalue*=1.17, variance=4.35%). These four factors plus single-item overall satisfaction were used as variables to measure recreation satisfaction.

The proposed model was examined using Standards equation modelling (SEM) to test both theoretical relationships in the model and overall model fit. The program Linear Structural RELations (LISREL), 8.52 for Windows was used for the SEM analysis. All parameters were estimated using the maximum likelihood method. To determine the direction and significance of relationships, all hypotheses were tested simultaneously. Thus, a path analysis was conducted using variables that simultaneously consider all hypotheses.

RESULTS

Structure model fit

Many statistics can be applied to assess the adequacy of a structural model (McDonald & Ho, 2002). The most commonly employed statistic is χ^2 . The χ^2 goodness-of-fit test evaluates the adequacy of the theorised model's creation of a covariance matrix and estimated coefficients in comparison with the observed covariance matrix. However, since sample size may affect the χ^2 value, a large sample can render this test inadequate for assessing model fitness (Hu & Bentler, 1999). Many scholars have divided the χ^2 value by degrees of freedom to accommodate large sample sizes (McDonald & Ho, 2002).

Marsh and Hocevar (1985) suggested that a χ^2/df rating of less than 5 is favourable for a large sample. Other statistics, such as goodness of fitness index (GFI), adjusted goodness of fitness index (AGFI), comparative-fit index (CFI), incremental fit index (IFI), root mean square error of approximation (RMSEA), and standardised root mean square residual (SRMR), have been used to assess model fitness. In this study, only the χ^2 test ($\chi^2=313.91$, $df=67$; $p<0.001$) was unable to determine the goodness-of-fit of the model, perhaps because the sample size was large. Nevertheless, the other goodness-of-fit statistics, including χ^2/df (4.7), NFI (0.98), NNFI (0.98), GFI (0.96), AGFI (0.94), NFI (0.98), NNFI (0.98), CFI (0.99), IFI (0.99), RMSEA (0.06), and SRMR (0.04) indicated that the model had an acceptable fitness.

Final model

Figure 1 shows the final structural model. Structural equation modelling (SEM) analysis demonstrates that place attachment significantly, positively, and directly affected recreation satisfaction ($\gamma=0.32$; $t=6.72$; $p<0.001$) and indirectly affected future behaviour ($p<0.001$); thus, *hypothesis 1* was tested and accepted. Place attachment also significantly, positively, and directly affected future behaviour ($\gamma=0.61$; $t=14.02$; $p<0.001$); thus, *hypothesis 2* was tested and accepted. Recreation involvement significantly, positively, and directly affected recreation satisfaction ($\gamma=0.38$; $t=7.43$; $p<0.001$) and significantly, positively and indirectly affected future behaviour ($p<0.001$); thus, *hypothesis 3* was tested and accepted. Recreation involvement has an insignificant effect on future behaviour ($\gamma=0.05$; $t=1.3$; $p>0.05$); thus, *hypothesis 4* was tested and rejected. The squared multiple correlation was 0.40 for recreation satisfaction, indicating that 40% of the variance in recreation satisfaction can be attributed to place attachment and recreation involvement. Recreation satisfaction significantly, positively, and directly affects future behaviour ($\beta=0.26$; $t=7.40$; $p<0.001$), thus, *hypothesis 5* was tested and accepted. The squared multiple correlations resulted in 0.67 for future behaviour, indicating that 67% of the variance in future behaviour can be explained by recreation satisfaction.

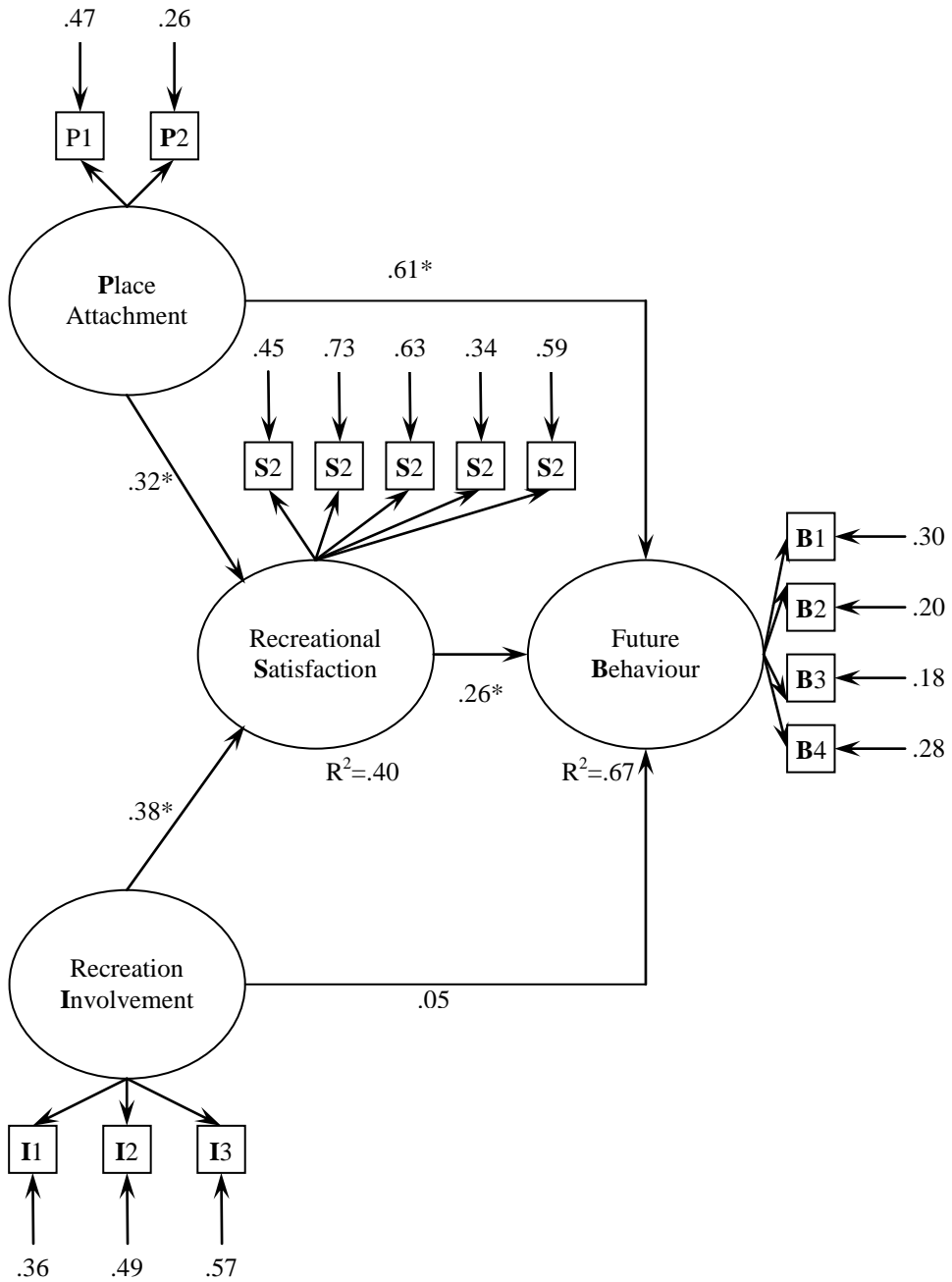


FIGURE 1: FINAL MODEL
 (* $p < .001$)

DISCUSSION

This study is an initial attempt to examine how place attachment and recreation involvement affect recreation satisfaction and the future behaviour of recreational surfers in Taiwan. Assessing this behavioural model will contribute to literature on surfing and nature-based recreation.

First, an empirical finding obtained by this study was that place attachment directly affected recreation satisfaction and indirectly affected the future behaviour of recreational surfers. This supports a finding in a leisure study by Hwang *et al.* (2005), who reported that place attachment affects the interpretation satisfaction of visitors to national parks, indicating that a causal relationship exists between place attachment and interpretation satisfaction of recreationists visiting national parks. However, Hwang *et al.* (2005) restricted satisfaction to interpretation satisfaction; this could not fully represent satisfaction as other satisfaction dimensions of satisfaction were not included. Conversely, this study applied multiple dimensions (recreational facility, surfing clubs service, surfing experiences, surfing cost and overall satisfaction) to represent surfer satisfaction. However, few studies have examined the structural relationship between place attachment, recreation satisfaction and future behaviour. The final model in this study indicates that satisfaction has a partly mediating effect on place attachment and future behaviour. Hence, this study examined the causal relationships between place attachment, recreation satisfaction and future behaviour with place attachment as an antecedent variable of recreation satisfaction and the future behaviour of surfers, thereby contributing to the body of knowledge associated with nature-based recreation areas.

Second, empirical results indicated that recreation involvement significantly and directly affected recreation satisfaction, thereby supporting the behavioural model developed for the national parks recreationist and wine tourists in Taiwan (Hwang *et al.*, 2005; Lee & Chang, 2012). This study suggests that recreation involvement impacts recreation satisfaction in nature-based recreational areas. Additionally, this relationship between recreation involvement and recreation satisfaction is in agreement with other consumer behaviours such as purchase behaviour (Russell-Bennett *et al.*, 2007) and behaviour of youth sport (Green & Chalip, 1998). This study suggests that recreation involvement impacts recreation satisfaction with nature-based recreation and consumer behavioural models reflecting international and multicultural perspectives.

Recreation involvement indirectly affects future behaviour, indicating that the indirect effect of recreation involvement on future behaviour is recreation satisfaction. Hence, recreation satisfaction plays a significant mediating role in this causal relationship. Recreation involvement affects future behaviour positively and directly but not significantly; this finding disagrees with those in previous studies indicating that recreation involvement has a significant and positive impact on destination loyalty and the future behaviour of hikers along the Appalachian Trail (Kyle *et al.*, 2004a) and on visitors to a forest setting (Lee *et al.*, 2007). This may account for the positive future behaviour, which is mainly affected by recreation involvement through recreation satisfaction. Moreover, the total effects (direct and indirect) of recreation involvement on future behaviour are significant. Obviously, recreation involvement impacts future behaviour of recreational surfers in Taiwan, this finding is similar

to the effect of recreation involvement on future behaviour of recreationists in trails and forest settings.

Finally, recreation satisfaction significantly and directly affects future behaviour, suggesting that recreation satisfaction effectively predicts the future behaviour of recreational surfers. This analytical result is in agreement with findings in previous studies of other nature-based recreational behaviours (Lee, 2006, 2007, 2009a,b; Lee *et al.*, 2007; Lee & Chang, 2012). Furthermore, recreation satisfaction was identified as a significant mediating variable in other nature-based recreational studies (Lee, 2006, 2007, 2009b; Lee *et al.*, 2007). Therefore, satisfaction clearly plays a significant mediating role in behavioural models in nature-based recreation studies, as well as for surfing.

CONCLUSIONS

Few studies have examined how place attachment and recreation involvement affect the future behaviour of recreational surfers. This study assessed the behavioural model for recreational surfers. According to empirical findings, the relationships among place attachment, recreation involvement, recreation satisfaction and future behaviour have been examined and discussed. Study findings, which advance the understanding of behavioural models of recreational surfers, suggest that place attachment significantly and directly affected recreation satisfaction and indirectly affected future behaviour. Additionally, place attachment significantly and directly affected future behaviour. Although recreation involvement significantly and directly affected recreation satisfaction and indirectly affected future behaviour, recreation involvement did not significantly affect future behaviour. Recreation satisfaction significantly and directly affected future behaviour, and was a significant mediating variable in the behavioural model of recreational surfers in Taiwan.

IMPLICATIONS AND RESEARCH DIRECTIONS

According to the proposed behavioural model, recreation satisfaction significantly and directly affected future behaviour, and therefore, managers of surfing clubs can improve recreational surfer satisfaction by enhancing the services, facilities, and surfing experiences that will positively impact the future behaviour of recreational surfers.

Satisfaction and future behaviour were significantly affected by place attachment. This paper thus suggests that managers of surfing destinations maintain and protect the coastal environment to ensure environmental quality, and subsequently promote place identity and place dependence for the recreational surfers (Tribe & Snaith, 1998; Stedman, 2002). This will likely elicit positive emotions from recreational surfers and promote their satisfaction and loyalty to local surfing beaches.

As this paper has shown, recreation involvement impacted on recreation satisfaction and future behaviour. Recreation involvement is reflected in a recreationist's preference for a recreational activity. Similar to other nature-based recreational activities, recreation involvement tends to be high among recreational surfers. This study suggests that a marketer may enhance recreation involvement by offering surfing package tours, environmental

education classes, or advanced surfing courses to subsequently increase satisfaction and enhance the positive future behaviour among the recreational surfers.

Finally, this study developed a behavioural model for assessing the relationships among place attachment, recreation involvement, recreation satisfaction, and future behaviour of Taiwanese recreational surfers. Relatively more rigorous model testing is required using different samples in different nations to assess the efficacy of behavioural models in other cultures.

REFERENCES

- AGRESTI, A. & FINLAY, B. (1997). *Statistical methods for the social sciences*. Upper Saddle River, NJ: Prentice Hall.
- BAKER, D.A. & CROMPTON, J.L. (2000). Quality, satisfaction and behavioural intentions. *Annals of Tourism Research*, 27(3): 785-804.
- BIGNÉ, J.E.; SÁNCHEZ, M.I. & SÁNCHEZ, J. (2001). Tourism image, evaluation variables and after purchase behaviour: Interrelationship. *Tourism Management*, 22(6): 607-616.
- BRICKER, K.S. & KERSTETTER, D. (2000). Level of specialization and place attachment: An exploratory study of white water recreationists. *Leisure Sciences*, 22: 233-257.
- BROWN, G. & RAYMOND, C. (2007). The relationship between place attachment and landscape values: Toward mapping place attachment. *Applied Geography*, 27: 89-111.
- COLE, S.T. & CROMPTON, J.L. (2003). A conceptualization of the relationships between service quality and visitor satisfaction, and their links to destination selection. *Leisure Studies*, 22(1): 65-80.
- CRONIN, J.J. & TAYLOR, S.A. (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, 53: 55-68.
- DE VELLIS, R.F. (1991). *Scale development*. Thousand Oaks, CA: Sage.
- DIMANCHE, F.; HAVITZ, M.E. & HOWARD, D.R. (1991). Testing the Involvement Profile (IP) Scale in the context of selected recreational and tourist activities. *Journal of Leisure Research*, 23: 51-66.
- DORFMAN, P.W. (1979). Measurement and meaning of recreation satisfaction. *Environment and Behaviour*, 11(4): 483-510.
- DREDGE, D. (2010). Place change and tourism development conflict: Evaluating public interest. *Tourism Management*, 31: 104-112.
- EISENHAUER, B.W.; KRANNICH, R.S. & BLAHNAI, D.J. (2000). Attachments to special places on public lands: An analysis of activities, reasons for attachment, and community connections. *Society and Natural Resources*, 13: 421-441.
- FINNEY, B. & HOUSTON, J.D. (1996). *Surfing: A history of the ancient Hawaiian sport*. Petaluma, CA: Pomegranate Communications.
- GREEN, B.C. & CHALIP, L. (1998). Antecedents and consequences of parental purchase decision involvement in youth sport. *Leisure Sciences*, 20: 95-109.
- HIDALGO, M.C. & HERNÁNDEZ, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology*, 21: 273-281.
- HU, L. & BENTLER, P.M. (1999). Cut-off criteria in fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling*, 6(1): 1-55.

- HWANG, S.N.; LEE, C. & CHEN, H.J. (2005). The relationship among tourists' involvement, place attachment and interpretation satisfaction in Taiwan's national parks. *Tourism Management*, 26(2): 143-156.
- IACOBUCCI, D. (2001). Factor analysis. *Journal of Consumer Psychology*, 10(1&2): 75-82.
- IWASAKI, Y. & HAVITZ, M.E. (2004). Examining relationships between leisure involvement, psychological commitment and loyalty to a recreation agency. *Journal of Leisure Research*, 36(1): 45-72.
- JORGENSEN, B.S. & STEDMAN, R. (2001). Sense of place as an attitude: Lakeshore property owners' attitudes toward their properties. *Journal of Environmental Psychology*, 21: 233-248.
- KERSTETTER, D.L. & KOVICH, G.M. (1997). The involvement profiles of Division I women's basketball spectators. *Journal of Sport Management*, 11: 234-249.
- KYLE, G.; GRAEFE, A. & MANNING, R. (2004a). Predictors of behavioural loyalty among hikers along the Appalachian Trail. *Leisure Sciences*, 26: 99-118.
- KYLE, G.; GRAEFE, A.; MANNING, R. & BACON, J. (2003). An examination of the relationship between leisure activity involvement and place attachment among hikers along the Appalachian Trail. *Journal of Leisure Research*, 35(3): 249-273.
- KYLE, G.; GRAEFE, A.; MANNING, R. & BACON, J. (2004b). Effect of activity involvement and place attachment on recreationists' perceptions of setting density. *Journal of Leisure Research*, 36: 209-231.
- LAZAROW, N.; MILLER, M.L. & BLACKWELL, B. (2008). The value of recreational surfing to society. *Tourism in Marine Environments*, 5(2-3): 145-158.
- LEE, T.H. (2006). Assessing a river tracing behavioural model: A Taiwan example. *Anatolia*, 17(2): 18-24.
- LEE, T.H. (2007). Ecotourism behavioural model of forest recreation areas in Taiwan. *International Forestry Review*, 9(3): 771-785.
- LEE, T.H. (2009a). A structural model for examining how destination image and interpretation service affect future behaviour: A case study of Taiwan's Taomi eco-village. *Journal of Sustainable Tourism*, 17(6): 727-745.
- LEE, T.H. (2009b). A structural model to examine how destination image, attitude, and motivation affect the future behaviour of tourists. *Leisure Sciences*, 31(3): 215-236.
- LEE, T.H. & CHANG, Y.S. (2012). The influence of experiential marketing and activity involvement on the loyalty intentions of wine tourists in Taiwan. *Leisure Studies*, 31(1): 103-121.
- LEE, J.; GRAEFE, A.R. & BURNS, R.C. (2007). Examining the antecedents of destination loyalty in a forest setting. *Leisure Sciences*, 29: 463-481.
- MARSH, H.W. & HOCEVAR, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First and higher order factor models and their invariance across groups. *Psychological Bulletin*, 97: 562-582.
- MCDONALD, R.P. & HO, M.H.R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7: 64-82.
- MCINTYRE, N. & PIGRAM, J.J. (1992). Recreation specialisation re-examined: The case of vehicle-based campers. *Leisure Sciences*, 14: 3-15.
- PARASURAMAN, A.; ZEITHAML, V.A. & BERRY, L.L. (1985). A conceptual model of service quality and its implication for future research. *Journal of Marketing*, 49: 41-50.
- PHILLIPS, M.R. & HOUSE, C. (2009). An evaluation of priorities for beach tourism: Case studies from South Wales, UK. *Tourism Management*, 30: 176-183.

- RUSSELL-BENNETT, R.; MCCOLL-KENNEDY, J.R. & COOTE, L. V. (2007). Involvement, satisfaction, and brand loyalty in a small business services setting. *Journal of Business Research*, 60: 1253-1260.
- SMITH, S.L.J. (1990). *Dictionary of concepts in recreation and leisure studies*. New York, NY: Greenwood Press.
- STEDMAN, R.C. (2002). Toward a social psychology of place: Predicting behaviour from place-based cognitions, attitude and identity. *Environment and Behaviour*, 34(5): 561-581.
- TRIBE, J. & SNAITH, T. (1998). From SERVQUAL and HOLSAT: Holiday satisfaction in Varadero, Cuba. *Tourism Management*, 19(1): 25-34.
- UM, S.; CHON, K. & RO, Y. (2006). Antecedents of revisit intention. *Annals of Tourism Research*, 33(4): 1141-1158.
- WHISMAN, S.A. & HOLLENHORST, S.J. (1998). A path model of white water boating satisfaction on the Cheat River of west Virginia. *Environmental Management*, 22: 109-117.
- WILLIAMS, D.R.; PATTERSON, M.E.; ROGGENBUCK, J.H. & WASTON, A.E. (1992). Beyond the commodity metaphor: Examining emotional and symbolic attachment to place. *Leisure Sciences*, 14: 29-46.
- YÜKSEL, A.; YÜKSEL, F. & BILIM, Y. (2010). Destination attachment: Effects on customer satisfaction and cognitive, affective and conative loyalty. *Tourism Management*, 31 (2): 274-284.