A COMPARISON OF LEISURE CONSTRAINTS AMONG THREE OUTDOOR RECREATION ACTIVITIES: WHITEWATER RAFTING, CANOEING AND OVERNIGHT HORSEBACK RIDING

Gyan P. Nyaupane
Doctoral Candidate in Leisure Studies, School of Hotel, Restaurant, & Recreation Management, Pennsylvania State University, 201 Mateer Building, University Park, PA 16802

Dr. Duarte B. Morais
Assistant Professor of Hotel, Restaurant and Recreation Management, School of Hotel Restaurant, & Recreation Management, Pennsylvania State University, 201 Mateer Building, University Park, PA, 16802

Dr. Alan Graefe
Associate Professor in Leisure Studies, Pennsylvania State University, School of Hotel Restaurant, & Recreation Management, Pennsylvania State University, 201 Mateer Building, University Park, PA, 16802

Abstract: The purpose of this study was to compare leisure constraints across three outdoor recreation activities, whitewater rafting, canoeing, and overnight horseback riding, in the context of the three-dimensional leisure constraints model proposed by Crawford and Godbey (1987). The sample consisted of 650 outdoor enthusiasts from 14 U.S. states who showed an interest in outdoor recreation but did not participate in any of these activities in the last two years. A confirmatory factor analysis partially supported the three-dimensional model across the three activities. The model, however, failed to incorporate some of the constraint items. Comparison of leisure constraints showed that the importance of constraints varied across the three activities. Overall, rafting had the most intrapersonal constraints, horseback riding had the most structural constraints, and canoeing had the least constraints overall. Item-wise comparisons revealed different results than the factor-wise comparison. The implications of these findings for further research and providers are discussed.

Introduction

Leisure constraints have been a focus of leisure researchers and practitioners since the last two decades. Most of the leisure constraints research is dedicated to theory development and empirical testing of various theoretical approaches. The most widely accepted theoretical framework of leisure constraints was proposed by Crawford and Godbey (1987). This model was later elaborated by Crawford, Jackson, and Godbey (1991). These authors indicated that leisure constraints could be explained with a 3-dimensional hierarchical model (intrapersonal, interpersonal and structural). Since then, there have been some disputes on the hierarchical model. For example, Raymore, Godbey, Crawford and von Eye's (1993) study of high school students supported the hierarchical model, whereas Hawkins, Peng, Hsieh and EkLund's (1999) study of mentally retarded adults failed to support the model. However, the existence of three categories of constraints was supported (Raymore et. al, 1993) or supported with some modification (Hawkins et al., 1999). Most of these studies focused on the adequacy of the model in explaining constraints across various types of individuals in a general-leisure context.

Only a few studies have investigated if an individual has different constraints for different leisure activities (Jackson,1983; Jackson, 1994; and McCarville & Smale 1993). However, none of these studies compared the constraints within the same individuals. The purpose of this study, therefore, was to test the model proposed by Crawford and Godbey (1987), and to compare these constraints across three different outdoor recreation activities: whitewater rafting, canoeing and overnight horseback riding, within the same individuals.

Background

A significant development in leisure constraints research is the 3-category (intrapersonal, interpersonal and structural) model of leisure constraints proposed by Crawford et al. (1991). These authors proposed that constraints are categorized into three levels: intrapersonal, interpersonal and structural, which are encountered hierarchically. First, intrapersonal constraints are encountered. These include the individual psychological states and attributes that interact with leisure preferences, such as stress, depression, anxiety, religiosity, kin and non-kin reference group attitudes, prior socialization into specific activities, perceived self-skill, and subjective evaluation of the appropriateness and availability of various leisure activities (Crawford & Godbey, 1987, p.122). Since intrapersonal constraints are confronted initially, these are viewed as the most proximal and powerful constraints (Crawford et al., 1991).

When intrapersonal constraints are absent or negotiated, and the activity requires at least one partner, interpersonal constraints are confronted. These include lack of friends and family members to participate in a leisure activity (Crawford & Godbey, 1987). If interpersonal constraints are absent or negotiated, structural constraints occur (Crawford et al., 1991). These include family-cycle stage, family financial resources, season, climate, the schedule of work time, availability of opportunity, and reference group attitudes concerning the appropriateness of certain activities (Crawford & Godbey, 1987, p. 124).

The end result of constraints, however, is not necessarily nonparticipation. Shaw, Bowen and McCabe (1991) challenged the assumption that reported constraints lead to reduced participation in leisure. Shaw et al. (1991) found that more frequent reporting of at least some perceived constraints is associated with higher rather than lower participation. Scott (1991) proposed that three strategies are used to overcome constraints. These are, acquisition of information, alteration of timing, and acquisition of skill. Jackson et al. (1993) explained this complex process as a negotiation process. Further, Jackson et al. (1993) put

forward a proposition that participation is dependent not on the absence of constraints but on negotiation through them. In addition, interactions take place between the constraints (Jackson et al.,1993). For example, structural constraints play a role to suppress the desire (intrapersonal constraints). In this light, constraints are taken as phenomena that are more likely to result in modified participation than in nonparticipation (Jackson et al., 1993).

Empirical testing of this model, however, has revealed mixed results. Raymore et al.'s (1993) study of high school students supported the hierarchical model. Conversely, Hawkins et al.'s (1999) study of mentally retarded adults failed to support the hierarchical model. Nadirova and Jackson (2000) further proposed that different types of constraints within a single category might occur hierarchically. For example, the experience of structural constraints starts with costs and lack of skill, and then time commitments. This further broadens the leisure constraints negotiation concept in that negotiation not only occurs between categories but also within a category.

Hawkins et al. (1999) extended the definition of interpersonal constraints, which may have multiple meanings depending upon where one is situated relative to the dependence of an individual. For example, Hawkins et al.(1999) argued that dependence of mentally retarded people on caregivers has confounded the meaning of interpersonal constraints since their access to friends is determined by the caregivers. However, since the subjects of the Hawkins et al.'s (1999) study are adults with mental retardation, who have significantly lower intelligence than ordinary people (Godbey, 1999), the findings could not be generalized with the general population

Most of the leisure constraint research has been carried out in a general-leisure context. Only a few studies have been done to compare the constraints across different leisure activities. These studies include Jackson (1983), Jackson (1994), and McCarville and Smale (1993). In both Jackson's (1983) and McCarville and Smale's (1993) studies, each specific barrier was treated separately and compared across several leisure activities. Jackson (1994) compared constraints between outdoor and other forms of leisure activities, and among outdoor recreation activities. Fifteen specific constraints items were grouped into six dimensions of constraints: costs of participating, family and work commitments, facilities, social isolation, geographic isolation, and lack of skills. None of these studies, however, have attempted to compare the leisure constraints within the same individuals. Within a person, constraints for one leisure activity may differ from those for another activity.

This study, therefore, examined whether or not there are differences among the constraints for three activities within the same individuals. In doing so, the three categories constraints proposed by Crawford and Godbey (1987) were tested using confirmatory factor analysis, and three dimensions of constraints as well as individual constraint items were compared across the three activities.

Method

The data were collected with a self-administered questionnaire mailed to self-reported outdoor recreation enthusiasts listed in a targeted database available from a company specializing in survey sampling. The administration process followed a modified Dillman technique consisting of one packet with a letter requesting participation in the study and the instrument, a thank you/reminder card (one week later), and a second packet with a cover letter and an additional copy of the instrument (three weeks after the first mailing). To encourage participation, all communications with potential participants announced that their names would be entered in a lottery for a prize if they returned a completed survey.

The participants were selected with a stratified quota random sampling procedure. The strata consisted of 14 states in the continental U.S. A panel of outfitters was asked to list the states that represented the most important markets for their industry (AZ, CA, CO, FL, GA, IL, MI, MO, NJ, NY, OH, OR, PA, TX). Each state's quota (159 individuals) was defined based on availability of resources for purchasing the addresses. The individuals were randomly selected from a large pool of outdoor recreation enthusiasts from each state. From the 2,200 questionnaires mailed out, 75 were returned because of unusable addresses. Of the 2,125 remaining, 650 were returned and usable for a 30.59% response rate. Although this response rate is moderate for a study of non-participants, it does raise the question of possible non-response bias. Unfortunately, it was not feasible to test for differences between respondents and non-respondents due to limited resources.

In order to test differences between constraints for participation in three different outdoor recreation activities it was necessary to narrow down our sample to those respondents who reported not participating in rafting, canoeing, or horseback riding during the last two years. A total of 354 individuals from the initial pool of respondents fit this condition and were therefore selected for analysis.
The sample consisted mostly of females (57%) with a mean age of 49 years (SD= 14.86, range 21 to 89). The majority (51.8%) had a total household annual income of $75,000 and over, 44.7% had an income of $35-74,000, and only 3.5% had an income lower than $35,000. The vast majority of the sample (94.5%) were Caucasian/Whites, followed by Hispanic (2.0%), African American (1.7%), Native American 0.9%, and 0.6% Asian. With respect to home residence, most of the participants lived in suburban areas (32.2%), followed by small cities (18.7%), small towns (18.1%), large cities (16.1%), and rural areas (14.1%). Slightly more than half of the respondents had a college degree (52.9%), followed by graduate degree (28.1%), and high school diploma or lower (19%).

Operationalization of Dependent Variables

Respondents' constraints for participation in the three outdoor activities were assessed through the use of three identical multi-item ordinal scales (Table 1). For each item, the respondents were asked to indicate how strongly they agreed or disagreed with each reason listed in the

survey (1=strongly disagree to 5=strongly agree). They were also allowed to indicate "not applicable." The items were adapted from previous literature (Crawford & Godbey, 1987; Crawford et al.,1991). Since these measurements were adapted from previous literature it was deemed most appropriate to test the model's fit with the data using Confirmatory Factor Analysis.

Analysis and Results

An examination of the fit of the measurement model with 3 dimensions and 13 items revealed poor fit with the rafting data ($\chi2(63)$= 417.71, CFI=.76, NNFI=.76). In an attempt to improve the fit of the model without violating the theoretical accuracy of the scale, items that were responsible for large residuals and had the tendency to load in more than one factor were removed (Bentler & Chou, 1987). After deleting one item from the intrapersonal subscale the fit of the model improved significantly (Table 2). Additional improvements in model fit were accomplished by deleting three more items from the structural constraints dimension. The result was a more parsimonious model consisting of the original three dimensions and with a good fit with the data ($\chi2(24)$=102.42, GFI=.95, CFI=.93, NNFI=.93). This structural model was then applied to data for the same individuals' constraints to participate in canoeing and in horseback riding. The fit of those models was also acceptable: $\chi2(24)$=89.71, GFI= .94, CFI=.94, NNFI=.94 for canoeing, and $\chi2(24)$=135.31, GFI=.93,, CFI=.92, NNFI=.92 for horseback riding (Figure 1; Table 3).

Table 1. Constraint scales

Dimension	Item
Intrapersonal	The activity is too physically demanding
	The activity involves too much risk
	I don't like water sports/ I am intimidated by horses
	I can't swim/ride horses[a]
	I don't know what to expect
Interpersonal	I have no one to go with
	My family and friends are not interested in going
Structural	There are no such areas near me for this activity[a]
	The activity is too costly
	Family commitments keep me from going[a]
	The expenses of traveling and staying are too great
	I have no information about the outfitters who offer this activity
	I have no time to go[a]

[a]Items deleted after Confirmatory Factor Analysis

Table 2. Comparison of nested models of constraints to participation in whitewater rafting

Model	Scaled $\chi2$	df	GFI	CFI	NNFI	$\chi2$ Diff. test
Initial model (Crawford et al.,1991)	417.71	63	.86	.76	.76	
Model 2 – 1intrapersonal item deleted	242.89	52	.90	.84	.85	174.82*
Model 3 – 3 structural items deleted	102.42	24	.95	.93	.93	140.47*

*p<.05

Table 3. Summary of the overall fit indices estimated for the constraints to participation in all activities

Model	n	GFI	CFI	NNFI	$\chi2$/df	RMSEA
Whitewater rafting	478	.95	.93	.93	4.27	.09
Flat water canoeing	377	.94	.94	.94	3.74	.09
Horseback riding	491	.93	.92	.92	5.64	.10

Table 4. Comparison of three dimensions of constraints in three outdoor recreation activities

Constraints	Rafting	Canoeing	Horseback Riding	F
(Factors)	Mean (SD)	Mean (SD)	Mean (SD)	
Intrapersonal	2.67 (0.90)	2.35 (0.49)	2.49 (0.88)	19.55***
Interpersonal	2.95 (1.13)	2.92 (1.06)	3.04 (1.11)	1.88
Structural	3.04 (0.81)	2.82 (0.86)	3.09 (0.81)	20.80***

***p< 0.001

Table 5. Comparison of item wise constraints to participation in three outdoor recreation activities

Constraints	Rafting	Canoeing	Horseback Riding	
Items	Mean (SD)	Mean (SD)	Mean (SD)	F
The activity is too physically demanding	2.80 (1.13)	2.34 (1.08)	2.60 (1.16)	17.38***
The activity involved too much risk	2.99 (1.13)	2.31 (1.01)	2.33 (0.99)	70.86***
I do not like water sports/I'm intimidated by horses	2.13 (1.20)	2.10 (1.13)	2.35 (1.15)	7.22***
I can't swim/paddle canoe/ride horses	2.30 (1.35)	2.35 (1.11)	2.96 (1.29)	35.30***
I don't know what to expect from this activity	2.74 (1.17)	2.58 (1.15)	2.61 (1.2)	2.14
I have no one to go on a trip	2.83 (1.25)	2.74 (1.18)	2.91 (1.2)	2.67
My family and friends are not interested in this activity	3.06 (1.23)	3.07 (1.13)	3.17 (1.19)	1.08
There are no such areas near me for this activity	3.09 (1.32)	2.57 (1.16)	2.95 (1.12)	19.00***
The activity is too costly	2.95 (1.00)	2.56 (0.95)	2.91 (1.04)	26.81***
Family commitments keep me from this activity	3.26 (1.17)	3.20 (1.15)	3.19 (1.16)	0.82***
The expenses of traveling and staying are too great	3.02 (1.01)	2.60 (1.00)	2.77 (1.03)	24.54***
I have no information about the outfitters who offer this activity	3.13 (1.12)	3.26 (1.17)	3.60 (1.12)	22.26***
I have no time to go for this activity	3.35 (1.12)	3.31 (1.10)	3.31 (1.15)	0.29

***p< 0.001

Repeated Measures Analysis of Variance was used to test differences across activities for each of the dimensions and items. The results showed significant differences among the activities for intrapersonal constraints (F (2,600)=19.55, p<.001) (Table 4). The respondents had significantly higher intrapersonal constraints for rafting (m=2.67) than horseback riding (m=2.49) or canoeing (m=2.35). Post-hoc tests showed that the differences are significant for all three activities. No differences among activities were found with respect to the importance of interpersonal constraints. Lastly, the importance of structural dimensions differed across activities (F(2,610)=20.80, p<.001). Post-hoc tests showed that horseback riding (m=3.09) and rafting (m=3.04) received significantly higher average scores in this dimension than did canoeing (m=2.82). However, the difference between horseback riding and rafting was not significantly different.

The comparison of individual constraint items across the activities showed mixed results (Table 5). Among the five items under the intrapersonal constraints, two items showed consistent results with the categorical results, two items had reverse results, and one item had no significant difference. The items associated with physical demands and risk are consistent with the category results, with rafting being the highest and canoeing the lowest. However, for the items associated with no interest/intimidation and skill, horseback riding showed the highest constraints among the three activities.

Like the factor-wise comparisons, neither of the interpersonal constraint items differed significantly across activities (Table 5). For the structural constraints, rafting had the highest constraint for availability of the activity close to home, and activity and travel costs. This is different from the overall structural dimension, where horseback riding had the highest constraints. However, lack of information about the outfitters was felt the most for horseback riding. The results showed no significant difference for the item related to lack of time.

Discussion

The results partially supported the 3-dimensional model proposed by Crawford and Godbey (1987). The improved model, first tested with rafting, fit for all the three activities. Three factors explaining leisure constraints were found for each activity. However, the model could not incorporate some of the constraints items into three dimensions, as some of the items did not fit into the three factors. The structural dimension proved to be more complex than anticipated since three out of six items did not fit into the model. These items were "unavailability of area close to home," "family commitments," and "lack of time." Cost, lack of time and unavailability of areas are the most frequently reported structural constraints in the literature but these three items were not correlated with each other. Lack of time was the most important leisure constraint but it did not fit with the other structural items and was therefore deleted. Similarly, perceived skill did not fit into the intrapersonal category, which leaves some doubts on this constraint dimension. The interpersonal category had internal homogeneity since both of the items fit into the category.

Overall, rafting showed the highest intrapersonal constraints, horseback riding had the highest structural constraints, and canoeing was always the activity with the lowest constraints. However, the item-wise comparison was not always consistent with the factor-wise comparison. For example, although overall intrapersonal constraints were significantly higher for rafting, two intrapersonal constraints were higher for horseback riding than for rafting. These were, no interest/intimidation and perceived skill. Likewise, overall, horseback riding had the highest structural constraints but this holds true only for three out of six items in the item-wise comparison. The most important intrapersonal constraint for horseback riding was

perceived lack of skill. This item had no contribution to the structural dimension score since the item was deleted. Therefore, comparison of factor analysis-based dimensions concealed the importance of item-by-item constraints, as Jackson (1994) asserted. Nonetheless, the most important finding of this study was that the three types of constraints were different across the three activities for the same group of individuals.

Conclusions

The purpose of this study was to test the three-dimensional model proposed by Crawford and Godbey (1987), and to compare leisure constraints across three outdoor recreation activities, whitewater rafting, canoeing, and overnight horseback riding with the same individuals. The results partially supported the three-dimensional model proposed by Crawford and Godbey (1987). The modified model developed using confirmatory factor analysis fit for all three activities. The three-dimensional model, however, failed to incorporate all the items. Most worrisome is that half of the items within the structural dimension did not fit into the model. Therefore, the structural constraints dimension should be revised and the possibility of multiple subcategories should be explored.

Comparison of leisure constraints across the three outdoor recreation activities showed that the role of constraints differed even within similar activities. Overall, rafting had the most intrapersonal constraints since it was perceived as higher risk and too physically demanding. However, with the intrapersonal category, perceived skill and intimidation constraints were higher for the horseback riding. Canoeing was perceived as the least constrained activity. Interpersonal constraints were not significantly different across the activities. For the structural constraints, overall, horseback riding was the most constrained activity because of lack of information about the outfitters who offer the activity. However, rafting was perceived as costly and inaccessible. There was no difference across the activities in terms of time constraints. Since the factor-wise comparisons concealed the importance of individual constraints, it is suggested to examine the constraints item-wise rather than only within categories.

Overall, the findings indicate that outdoor recreation providers should consider each activity differently for the purpose of marketing. For example, whitewater rafting and canoeing are similar activities but the constraints that keep people from participating in these activities are quite different. Canoeing is the least constrained activity among the three activities. However, lack of time and lack of friends and family to participate in the activities play similar roles for three activities. Rafting was perceived as too physically demanding and risky; therefore information on the actual physical demands and risks might help people to overcome these intrapersonal barriers. Similarly, while the cost constraint was similar for rafting and horseback riding, the expense of traveling to suitable resource areas was a big issue to the rafters. This information suggests that outfitters should reconsider their pricing and transportation services. For horseback riding, the two most important intrapersonal constraints that keep people from participating are intimidation and not having the skill to ride horses. The most important structural constraint for horseback riding is a lack of information about the outfitters who offer this activity. Therefore, providers could prepare information on horseback riding and the opportunities for developing skill in order to overcome these constraints.

References

Bentler, P. M., and C. Chou (1987). Practical issues in structural modeling. *Sociological Methods and Research*, 16, 78-117.

Crawford, D. W., & Godbey, G. (1987). Reconceptualizing barriers to family leisure. *Leisure Sciences*, 9,119-127.

Crawford, D. W., Jackson, E. L. & Godbey (1991). A hierarchical model of leisure constraints. *Leisure Sciences*, 13, 309-320.

Godbey, G. (1999). Comments on Hawkins et al.,"Leisure constraints: A replication and extension of construct development". *Leisure Sciences*, 21, 193.

Hawkins, B. A., Peng, J., Hsieh, C., & Eklund, S. J. (1999). Leisure constraints: A replication and extension of construct development. *Leisure Sciences*, 21, 79-192.

Jackson, E. L. (1983). Activity-specific barriers to recreation participation: A survey of past research. *Leisure Sciences*, 6, 47-60.

Jackson, E. L. (1994). Constraints on participation in resource based outdoor recreation. *Journal of Applied Recreation Research*, 19, 215-245.

Jackson, E. L., Crawford, D. W., & Godbey (1993). Negotiation of leisure constraints. *Leisure Sciences*, 15, 1-11.

McCarville, R. E., & Smale, J. A. (1993). Perceived constraints to leisure participation within five activity. *Journal of Park and Recreation Administration*, 11(2)40-59.

Nadirova, A. & Jackson, E. L. (2000). Alternative criterion variables against which to assess the impacts of constraints to leisure. *Journal of Leisure Research*, 32, 396-405.

Raymore, L., Godbey, G., Crawford, D.& von Eye, A. (1993). Nature and process of leisure constraints: An empirical test. *Leisure Sciences*, 15, 99-113.

Scott, D. (1991). The problematic nature of participation in contract bridge: A qualitative study of group-related constraints. *Leisure Sciences*,13, 321-336.

Shaw, S. M., Bonen, A., & McCabe, J. F. (1991). Do more constraints mean less leisure? Examining the relationship between constraints and participation. *Journal of Leisure Research*, 23, 286-300.

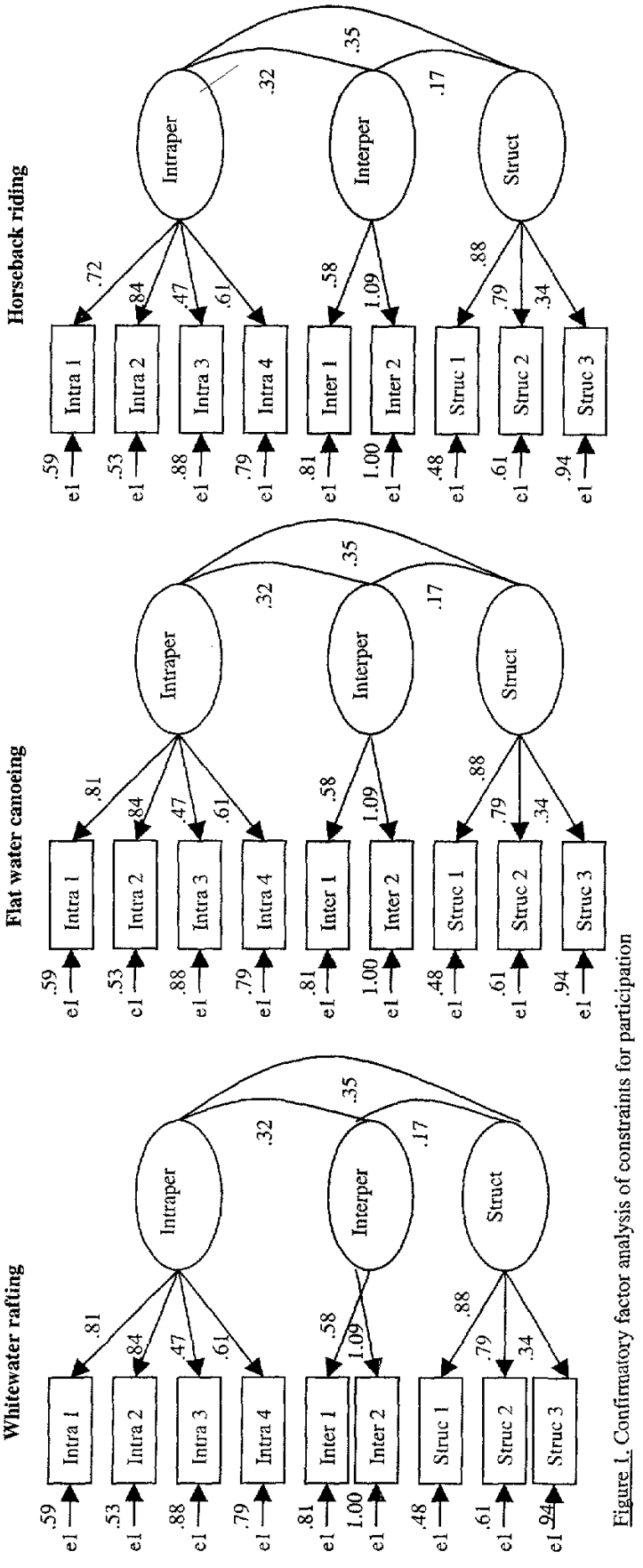

Figure 1. Confirmatory factor analysis of constraints for participation