



Rethinking Protected Areas in a Changing World

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An Assessment of the Efficacy of the Theory of Planned Behavior to Predict Intentions to Visit State Parks

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Problem statement

The individual and social benefits of outdoor recreation participation have been well documented by various authors and researchers (Driver, Brown, and Peterson 1991). U.S. state park systems are one of the most important public outdoor recreation resources in the nation. The state park systems play a vital role in providing recreation benefits to the American population by offering tremendous varieties of outdoor recreation opportunities. The state parks in Oregon are especially well known in this regard. The unique natural and historical resources of Oregon state parks provide a wide range of recreation opportunities to the in-state as well as out-of-state visitors. However, in order to participate in outdoor recreation activities, people must first pay visits to the state parks. As such, encouragement to people to visit parks has been one of the major foci of recreation area managers and planners. Growing efforts to identify the determinants of recreation participation, including visits to state parks and recreation areas. To date, many theories and models have been applied to describe recreation participation; however a comprehensive model applicable in a wider variety of activities and situations is still lacking (Henderson, Presley and Bialeschki 2004, Iso-Ahola 1988). In this context, it would be a useful exercise to examine whether the theory of planned behavior (TPB) model, a model successfully applied in many disciplines can be used to describe peoples' state park visit behavior, while generating some other basic management information.

Objectives

The specific objectives of the study were the following:

- Identify the characteristics of the state park visitors in Oregon and the their purpose of visiting these state parks.
- To assess the role of TPB model in describing the state park visit behavior of the visitors in the Oregon state parks.

Theoretical background of the study

In light of the lack of a conclusive knowledge base explaining leisure and recreation behavior, a better theoretical foundation is essential in leisure research (Henderson, Presley and Bialeschki 2004; Iso-Ahola 1988). In this regard, the theory of planned behavior (TPB), which has been applied to a variety of behavior studies and has received widespread support

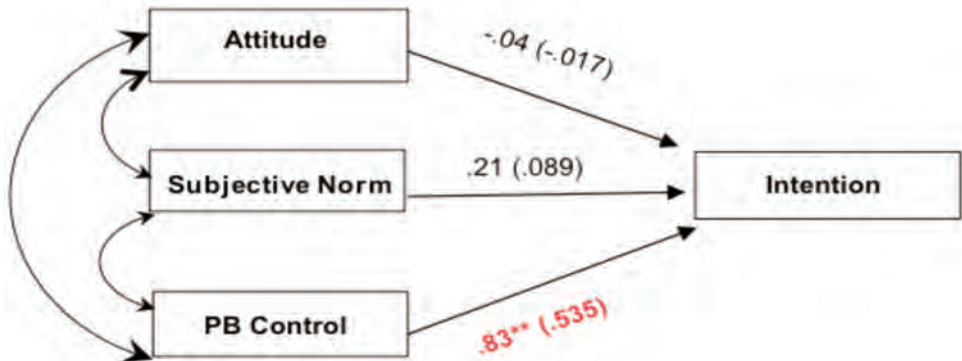
for its predictive ability, may provide an alternative approach to understand the predictors of the recreation participation.

The theory of planned behavior in its present form is an extension of the theory of reasoned action (TRA), which was proposed by Fishbein and Ajzen (1975). Later, Ajzen (1985) extended the TRA into TPB by adding a non-volition predictor, perceived behavioral control (PBC). According to this theory, a human *behavior* is a function of an individual's *intention* to perform a behavior in question. This makes *intention*, a central construct in the theory, which can be reliably predicted by a combination of three predictors, namely *attitude*, *subjective norms*, and *perceived behavioral control* related to a specific behavior (Figure 1).

A meta-review of research by Armitage and Conner (1999), and Conner and Armitage (1998) provided a strong support for the predictive validity of the TPB in terms of percentage of variance explained. They found that *intention*, which represents a person's motivation in the sense of her or his conscious plan or decision to exert effort to enact a behavior, is a reliable predictor of a behavior. They also noted that *PBC*, which represents an individual's perception of the extent to which participation in a given behavior is easy or difficult, was a reliable predictor of both *intention* and *behavior*. *PBC* was found more influential in describing intentions and behaviors. *PBC* also lowered the role of subjective norms and attitude especially in the cases where non-volitional forces were more active. On the other hand, *subjective norms and attitude* played significant roles in describing intentions and behavior and reduced the effect of *PBC* where volitional forces were more important.

Some recent recreation behavior studies have made attempt to use the TPB to understand the antecedents of selected recreation behaviors (e.g., Kouthouris and Spontis 2008; Alexandris, Barkoukis and Tsormpatzoudis 2007; Hrubers and Ajzen 2001; Ajzen and Driver 1992) with mixed results. None of the studies had however addressed how effectively the predictors of TPB model could describe the state park visit behavior of the people.

Figure 1. Theory of planned behavior Model (adopted from Ajzen and Driver 1992).



Methodology

On-site survey. On-site interviews of Oregon State Park Department (OPRD) visitors were conducted from July 24 to Aug 4, 2008, in six state parks (Rooster Rock, Vista House, Bridal Veil, Lewis and Clark, Women's Forum, and Starvation Creek) located near Portland, Oregon. Two interviewers spent two hours in each site on each alternate day from 10 a.m. to 6 p.m. Altogether 179 visitors were interviewed, out of which 172 were usable. The questionnaire consisted of questions related to demography, past visit, purpose of visit, and items related to TPB model variables, self esteem, and interpersonal and structural constraints. The instrument (questionnaire) was pretested, and necessary revisions were made twice, first among the WVU students, and second with park visitors on first day of the survey.

Constructs and measurement. The TPB model constructs (attitude, subjective norms, PBC and intentions) were measured using items and scales borrowed from Ajzen and Driver (1992). The dependent construct, intention, was measured with three items. The independent construct, attitude, was measured with three items, subjective norms with five items, and PBC with three items (Table 1). In all cases, the seven-point Likert-type scale was used where a score of one stood for strong disagreement with the statement and seven stood for strong agreement. Table 1 shows the number of items for each construct and the reliability of the scales and items used.

Data analysis. Data analysis included both descriptive and inferential statistics using SPSS, Version 16. Construct validity and reliability were assessed using factor analysis and *Chronbach's alpha*. Model fit was assessed using *Structural Equation Modeling (SEM)* with the help of Analysis of Moment Structures (AMOS) software. SEM is an extension of *GLM* (regression modeling) which performs two steps simultaneously in AMOS (Arbuckle 2006). These include *measurement modeling*, which performs validating the measurement model

Table 1. Items used to measure the dependent and independent variables and their reliability.

Constructs	Items	Mean	S.D.	Reliability
Attitude: For me visiting a SP in 3 months period would be:	Unpleasant or Pleasant	6.6	0.7	Chronbach's Alpha .924
	Boring or Interesting	6.4	1.0	
	Unenjoyable or Enjoyable	6.6	0.9	
	Harmful or Beneficial	6.4	1.1	
	Bad or Good	6.5	1.0	
	Useless or Useful	6.3	1.1	
	Overall Mean	6.5	.79	
Subjective Norm: People important to me:	Think that I should visit a SP in next 3 months	6.1	1.2	Cronbach's alpha .859
	Would approve my SP visit in next 3 months	6.4	0.9	
	Would support my SP Visit in next 3 months	6.4	1.0	
	Want me to visit to visit a SP in next 3 months	6.0	1.2	
	Would visit a SP in next 3 months	5.4	1.6	
Overall Mean	6.1	.98		
Perceived Behavioral Control	How confident are you that you can visit a SP?	5.6	1.9	Chronbach's alpha .874
	How true is that you would visit a SP?	6.1	1.5	
	How true is that the decision making factors to visit a SP are under your control?	5.8	1.7	
	Overall Mean	5.9	1.5	
Intention	I have intention to visit a SP	5.2	2.3	Chronbach's alpha .959
	I will try to visit a SP	5.3	2.2	
	I am planning to visit a SP	4.7	2.4	
	Overall Mean	5.1	2.21	

using confirmatory factor analysis (CFA), and *structural modeling*, involving model fit testing using chi-square goodness-of-fit. The chi-square value should not be significant if there is a good model, however chi-square model testing is regarded as a conservative approach, and it is very common to obtain a significant chi-square when the sample size is larger. Because of this, Kline (1998) and Jaccard and Wan (1996) have recommended to use at least three or four other fit-tests for a more reliable assessment of the model.

Path coefficients (regression weights) were calculated using *maximum likelihood estimates*. The model testing hypothesis was: “*how likely it is (the odds) that observed values of the dependent variable may be predicted from the observed values of the independent variables.*” In other words, how well does the data fit with the model.

Findings

Characteristics of the respondents. The sample included about 58% male and 42% female respondents. Interestingly there were more out-of-state respondents (58%) than the in-state respondents (42%). The sample was dominated by white (85%), married (67%), educated (63% with graduate or higher degrees), mature (80% above 30 years old), and repeat visitors (79%). Majority of the respondents came in small to medium size groups, ranging from 2-10 persons with families or friends, or both. Some visitors also came in large groups for some cultural, educational, or religious purposes (e.g., religious and ethnic-society conventions and meetings; Table 2). Among the ten purposes asked, *spending time with family and friends, enjoying nature, and enjoying nature/open space* were the three most important reasons people visited Oregon state parks, near Portland.

Visitors’ attitude, subjective norms, PBC, and intentions to visit state parks. Table 1 shows that, in general the respondents’ had a positive intention to visit the state park in next three months time (overall mean 5.1) and they possessed very positive attitudes towards visiting the state parks in Oregon within next three months time (mean 6.5). Likewise, they perceived that most people who were important to them supported their behavior of state park

Table 2. Percentage of respondents by different demographic features.

Sex	Male 58%		Female 42%		
Race/Ethnicity	White 79%		Others 21%		
Visit Origin	Oregon 43%		Other states 2%		Foreigner 5%
Age	Mean Age: 43 yr.		Std. Deviation: 13.1		
Visited before?	Yes 70%		No 30%		
Number of visits in past 1 year	No Visit	1-5 times	6-10 times	11-20 times	> 20 times
	5.7%	65.0%	15.4%	3.3%	10.6%
Visit Type	Alone 6.4%		Group 93.6%		
Group Size (number of persons)	Mean Gr. Size: 5.3		Std. Dev. 6.5		
	Single	Small Gr. (2-5)	Med. Gr. (6-10)	Large Gr. (>10)	
Three Most Important Purposes	Purposes		1 st Important purpose	2 nd Important purpose	3 rd Important purpose
	Enjoy nature		39%	21%	10%
	Enjoy nature/open space		32%	16%	10%
	Escape from normal life		19%	36%	6%

visit and liked to see them visiting state park (6.1). The respondents also expressed that all the factors that affected their decision to visit a state park in Oregon within next three months period were to a large extent under their control (mean 5.9).

Model fit. The R^2 value (.322) of the TPB model in Table 3 shows that attitude, subjective norms and PBC together can explain about 32% variance in the intentions to visit the state parks. The model testing chi-square statistics for the original model ($\chi^2 = 319.4$) is significant which indicate that the data poorly fits with the model. Considering the earlier discussed limitations of the chi-square test, CMIN/DF ratio, CFI, IFI and RMSEA were used for a more reliable assessment of the model fit.

Generally, a CMIN/DF ratio (chi-square divided by degree of freedom) smaller than 2 is regarded as good fit and smaller than 3 is acceptable (Kline 1998). The CFI, which compares the researcher’s model with a default model, ranges from 0 to 1. The CFI close to 1 indicates a very good fit and conventionally the CFI should be greater than .9 to accept a model-fit. Likewise, IFI requires being close to .9 to accept a model. Conventionally, there is good model fit if RMSEA is less than or equal to .05 and adequate fit if RMSEA is close to .08.

The RMSEA vale of .10 indicates that the model cannot be very well described with the data (Table 3). However, all other fit tests show that that people’s intention to visit state parks can be adequately described with this model. For example, the CMIN/DF ratio (2.8) indicates that the data moderately fits with the model in comparison to a saturated model. Likewise, the CFI (.92) and IFI (.92) both also indicate that the model is adequately acceptable in comparison to a default model.

Examination of the standardized path coefficients in Figure 1 shows that only PBC has a strong significant effect on visitors’ intention (.535) to visit state parks in Oregon within next three months. Attitude and subjective norms were found to play no significant role in describing intention. This finding is consistent with the findings of Ajzen and Driver (1992) in their study of the participation in five recreation behaviors. Among the five recreation activities, they found that PBC was more powerful and significant predictor of *intention* to spend time in beach while subjective norm and instrumental attitude had no significant role. Additionally, the role of the affective attitude lowered as PBC was added to the analysis. Similar results were found by Blanchard et al., (2008) in their study of physical activity behavior. These authors discovered a strong role of PBC in determining the intention to participate in physical activity among the African-American while subjective norms and instrumental attitudes were again non-significant. Likewise, Kouthouris and Spontis (2008) reported that PBC played a more crucial role in describing intention to participate in outdoor recreation

Table 3. Model fit statistics and path coefficients.

Model Fit Statistics	Original
R^2 (variance explained)	.322
χ^2 (CMIN)	319.410
CMIN/DF	2.827
CFI	.92
IFI	.92
RMSEA	.103

Note: * significant at .05 alpha level and ** significant at .01 alpha level

than the subjective norms and attitude. One likely explanation for this result might be that state park visit is a non-volitional behavior which is under influence of some non-volitional forces like availability of resources, perceived constraints, and information to visit the state park because of which PBC has a very strong influence on this behavior while subjective norms and attitude have no significant roles to play.

Conclusions and recommendations

The Oregon state parks are equally popular among in-state and out of state visitors. A majority of the visitors are married and visit in social groups. The three most important purposes of visits to the Oregon state parks are, spend time with families and/or friends, enjoy nature and enjoy open space. The visitors had a very positive attitude towards Oregon state parks and had intention to visit state parks in Oregon within next three months time. For the Oregon state park visitors felt more structural constraints than the inter-personal constraints.

The state park visit appears to be a non-volitional behavior. About 32% of the variation in the state park visit behavior can be described using the theory of planned behavior model. The larger role of the PBC indicates that something more than just attitude and subjective norms, various forces such as the availability of resources, perceived and realized constraints, availability of information, knowledge, health condition and information and skills play big role the formation of intention to visit a state park.

From the management perspective, the findings of the study indicate that the facilities and services in the states parks in Oregon, near urban centers should be designed to meet the requirement of social groups than individual needs.

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