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# **Understanding Tourist Environmental Behavior An Application of the Theories on Reasoned Action Approach**

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## **ABSTRACT**

*This paper examined the explanatory power of the theories on reasoned action approach: the theory of reasoned action, the theory of planned behavior, and the reasoned action model in predicting environmental behavior. Data were collected using survey method from 230 tourists visiting Annapurna Conservation Area, Nepal over one month period from mid-December, 2009 to mid-January, 2010. Results showed that the theories on reasoned action approach accounted for considerable amount of variation (39.2% to 44.2 %) in environmental behavior. Among the three models, the reasoned action model explained the highest amount of variation (44.2%) followed by the theory of planned behavior (40.7%), and the reasoned action model (39.2%).*

**Keywords:** *attitude, behavior, TRA, TPB, the reasoned action model, Annapurna*

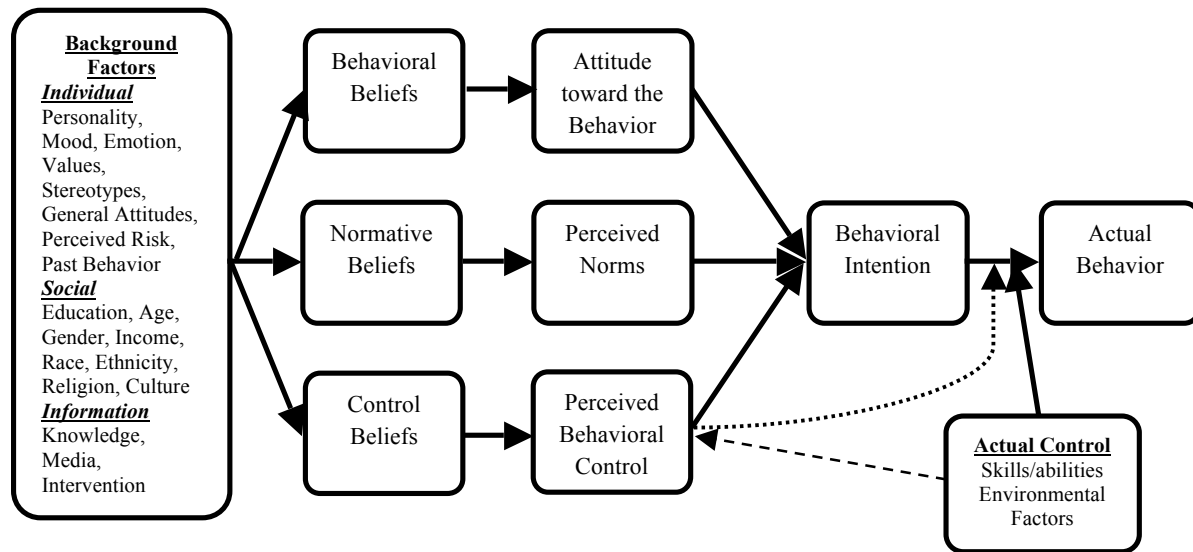
## **INTRODUCTION**

Educating visitors is a key to promote environmentally responsible tourists behavior. Many forms of sustainable tourism, including ecotourism, focus on providing environmental education opportunities and experience to visitors so that these experiences lead toward the behaviors which are environmentally appropriate. However, both the policy makers who design appropriate educational strategies and the organizations responsible for delivering environmental educational programs have been struggling to discover effective factors and tools to influence human behavior.

Several theories have been suggested to guide educational programs aimed at altering human behavior. The theories on reasoned action approach (Figure 1): the theory of reasoned action (TRA; Fishbein & Ajzen, 1975), the theory of planned behavior (TPB; Ajzen, 1991), and the reasoned action model (RAM; Fishbein & Ajzen, 2010) are the most widely used models to predict behavior in the persuasive communication literature. According to the theory of reasoned action, the immediate antecedent of overt behavior is behavioral intention; and the behavioral intention in turn is function of attitudes toward performing the behavior and subjective norms (Fishbein & Ajzen, 1975). The basic assumption in the theory of reasoned action is that the behavioral intentions turns into actual behavior if the behaviors under study are volitional. Accordingly, the model posits that attitudes and subjective norms are produced by the behavioral and normative beliefs, respectively. The theory of planned behavior is an extension of the theory of reasoned action and includes perceived behavior control as a predictor of both behavioral intention and behavior (Ajzen, 1991, 2011). The strength of the TPB model over the TRA model is that the former model can be employed to study the behaviors which are not under volitional control. The reasoned action model is the most recent version of the reasoned action approach that includes background factors (individual, social, and information factors) as predictors of behavior in the theory of planned behavior model (Fishbein & Ajzen, 2010). Further, the model illustrates that behavior-background factor relationship is mediated by the attitudinal, normative, or control beliefs. Both the theory of reasoned action and the theory of planned behavior have

been proved as parsimonious and effective models to predict a wide range of behaviors in diverse fields (Armitage & Conner, 2001; Sheppard, Hartwick, & Warshaw, 1988). However, the recently proposed reasoned action model is yet to be tested for its explanatory power in terms of influencing human behavior.

**Figure 1**  
**The Reasoned Action Model**



Source: Fishbein & Ajzen (2010)

The purpose of this study is to examine the explanatory power of the theories on reasoned action approach so that the factors influencing environmental behavior can be identified, and effective and appropriate educational programs can be used to influence those factors.

## METHODS

The data for the study were collected from Annapurna Conservation Area, Nepal using survey method. The respondents were the tourists of age 18 years or above visiting the area between mid-December 2009 and mid-January 2010. The surveys were self-administered by the randomly selected visitors in four different sites: Ghandruk, Tadapani, Ghorepani, and Pokhara. A total of 250 surveys were distributed to the visitors; and 230 of them were gotten back resulting a response rate of 92 %. Five observations were dropped because of a large number of missing values and four outliers were also discarded for further analysis.

The psychological variables measured for the study were environmental knowledge, environmental attitude, perceived norm, perceived behavioral control, and environmental behavior. All variables were self-reported measures. A 5-item Likert scale was used to measure environmental knowledge. The ecotourism scale (Jackson, 2007; Sirakaya, 1997) was modified to measure environmental attitude. Similar to the environmental knowledge scale, the adapted environmental attitude scale was also a Likert scale with 20 items. Responses in both knowledge and attitude ranged from strongly disagree (1) to strongly agree (5). Cronbach's alphas ( $\alpha$ ) of the knowledge and attitude scales in the current sample were .77 and .74, respectively. Perceived norm was measured by three items and perceived behavioral control was measured by five items. These scales were semantic differential type with five response options. The reliability was .76 for subjective norm scale and .80 for perceived behavioral control scale. A 20-item scale was developed from the work of Kaiser and his colleagues to measure environmental behavior (Kaiser, 1998; Kaiser & Gutscher, 2003; Kaiser & Wilson, 2004). The adapted behavior scale

was a 5-point rating scale with five responses: never (1), seldom (2), occasionally (3), often (4), and always (5). Cronbach's alpha ( $\alpha$ ) of the behavior scale was .67 for the current sample of ecotourists.

The background factors included in the study were six sociodemographic (gender, age, income, education, member, and residence), and four trip-related (tour guide, repeat visitor, trip duration, and group size) variables.

The data analysis involves descriptive statistics, correlations, and multiple linear regression. Regression analysis began with an examination of correlations between the criterion, i.e. environmental behavior, and the psychological, sociodemographic and trip-related variables. Only the variables having a significant bivariate correlation with environmental behavior were considered eligible for regression analysis. Hierarchical (sequential) multiple linear regression analysis was conducted to examine the relationship between environmental behavior and four psychological (environmental attitude, perceived norm, perceived behavioral control, and environmental knowledge), one socio-demographic (member), and two trip-related (trip duration and group size) variables.

## RESULT

The majority of the respondents were female (54%). The respondents' age ranged from 18 years to 81 years with a mean age of 37.65 years. Income distribution was highly skewed with mean US\$70,863 and median US\$40,555. The proportion of respondents with high school or below education was relatively small (14%). The respondents having an associate or undergraduate degree and master or PhD degree were 33% and 53%, respectively. About one fifth of the respondents (21 %) had a membership of an environmental, conservation, or wildlife organization. More than half of the respondents (56 %) were from big cities, whereas the 29% and 15% were residents of medium city and rural area respectively.

About three-fourth (74%) of the respondents were accompanied by a tour guide and more than a quarter of them (27%) had visited the Annapurna Conservation Area before. The visitors in a short (1-4 days), medium (5-9 days) and long (10 or more days) trips respectively were 27%, 44%, and 29%. Similarly, 42% of the visitors were travelling alone or in pairs, 25% were in small groups (3-6 people), and 33% were in large groups with seven or more people.

Table 1 shows the result of hierarchical (sequential) multiple linear regression analysis conducted to examine the relationship between environmental behavior and the selected psychological, sociodemographic and trip-related variables. At first (Model 1), environmental behavior was regressed on environmental attitude and perceived norm—the psychological constructs based on the theory of reasoned action. The  $F$  test was significant,  $F(2, 214.8) = 72.54, p < .001$ , and environmental behavior was predicted with considerable accuracy (adjusted  $R^2 = .392$ ). Both attitude ( $B = .474, p < .001$ ) and perceived norm ( $B = .170, p < .001$ ) had a positive association with behavior. The addition of perceived behavioral control in second step (Model 2) slightly improved the model,  $F(3, 211.8) = 48.24, p < .001$ ; the gain in prediction was 1.5%. In this model, the significant positive associations of behavior with attitude and perceived norm remained unchanged and a similar relationship was found between behavior and perceived behavioral control ( $B = .090, p = .012$ ).

An additional psychological variable, i.e. environmental knowledge, was added in the third step (Model 3). The  $F$  test was significant,  $F(4, 204.7) = 36.36, p < .001$ , but there was no gain in explanatory power of the model (adjusted  $R^2 = .411$ ) and the coefficient on environmental knowledge ( $B = .040, p = .188$ ) was also nonsignificant. This is indicative of lack of association between knowledge and behavior after controlling for the effect of three psychological variables in the theory of planned behavior. Given a small correlation between behavior and knowledge ( $r = .19, p < .05$ ) and a nonsignificant correlation between knowledge and attitude ( $r = .14, p > .05$ ), perceived norm ( $r = .12, p > .05$ ), and perceived behavioral control ( $r = .07, p > .05$ ), no conclusion could be drawn regarding the effect of attitude, perceived norm, and perceived behavioral control on behavior-knowledge relationship.

**Table 1**  
**Hierarchical Regression Analysis for Predicting Environmental Behavior from Psychological, Sociodemographic, and Trip-Related Variables**

Variable		Modal 1	Modal 2	Model 3	Modal 4	Modal 5	Modal 6
		<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Attitude		.474*** (.057)	.460*** (.059)	.451*** (.061)	.441*** (.061)	.414*** (.058)	.440*** (.075)
Perceived norm		.170*** (.034)	.130*** (.037)	.125*** (.037)	.127** (.036)	.106** (.035)	.116** (.041)
Perceived behavioral control		-	.090** (.036)	.089*** (.035)	.081* (.036)	.091** (.034)	.091** (.034)
Knowledge		-	-	.040 (.030)	.042 (.030)	.027 (.030)	.030 (.031)
Member		-	-	-	.086 (.055)	.057 (.055)	.055 (.055)
Trip duration	TRP1	-	-	-	-	-.010 (.057)	-.006 (.058)
	TRP2	-	-	-	-	Reference Group	Reference Group
	TRP3	-	-	-	-	.150** (.047)	.153** (.049)
Group size	GRP1	-	-	-	-	.115* (.054)	.116 (.054)*
	GRP2	-	-	-	-	.042 (.056)	.043 (.056)
	GRP3	-	-	-	-	Reference Group	Reference Group
TRP3*Perceived norm		-	-	-	-	-	-.038 (.070)
GRP1*Attitude		-	-	-	-	-	-.070 (.103)
Constant		3.881 (.021)	3.881 (.021)	3.881 (.021)	3.863 (.023)	3.768 (.047)	3.771 (.047)
R <sup>2</sup>		.397	.415	.422	.429	.465	.467
Adjusted R <sup>2</sup>		.392	.407	.411	.415	.442	.439

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Member: 1 = member of an environmental organization, 0 = otherwise; trip duration (3 dummies): TRP1 = short trip (1-4 days), TRP2 = medium trip (5-9 days), and TRP3 = long trip (10 or more days); group size (3 dummies): GRP1 = individual or pair (1-2 people), GRP2 = small group (3-6 people), and GRP3 = large group (7 or more people).

The sociodemographic variable ‘member’ was added to the model in fourth step (Model 4). The  $F$  test was significant,  $F(5, 207.6) = 30.32, p < .001$ , and as in previous model there was no improvement in explanatory power of the model (adjusted  $R^2 = .415$ ). The coefficient on member was nonsignificant which indicates that the association between behavior and member as observed in bivariate analysis was mediated by the psychological constructs in the TRA and the TPB.

Two trip-related attributes: trip duration (3 dummies) and group size (3 dummies) were entered in the fifth step (Model 5). The  $F$  test was significant,  $F(9, 207.9) = 22.98, p < .001$ ; and the trip-related variables collectively explained 2.7% of the variance in environmental behavior beyond psychological and sociodemographic variables (adjusted  $R^2 = .442$ ). The coefficient on one of the dummies in trip duration TRP3, trip duration 7 or more days, was significant ( $B = .150, p = .002$ ) indicating that visitors on longer trips performed more pro-environmental behavior than those on shorter trips. Additionally, the coefficient on GRP1 (group size ‘1- 2

people') was also significant ( $B = .115$ ,  $p = .036$ ) suggesting that the 'solo or pair' travelers behave in more environmentally responsible way than the group travelers.

To examine the effect of trip-related attributes on relationship between environmental behavior and psychological variables, two interaction terms 'TRP3\*Perceived norm' and 'GRP1\*Attitude' were included in the final model (Model 6). The reasons to include only these interaction terms in the subsequent analysis were (a) the only trip-related variables found to be significant predictor of environmental behavior were TRP3 and GRP1, and (b) the variables TRP3 and GRP1 had significant point biserial correlations respectively with perceived norm and attitude only. Though the  $F$  test was significant for the final model,  $F(11, 206.1) = 18.90$ ,  $p < .001$ , the explanatory power of the model remained the same with addition of interaction terms (adjusted  $R^2 = .439$ ). Additionally, none of the regression coefficient on the interaction terms was statistically significant. Moreover, the addition of interaction terms did not change the relations of behavior with psychological and trip-related variables in Model 5. The results indicate that the trip-related attributes independently contributes to the variation in environmental behavior, and the TRA and TRB variables neither mediates nor moderates the relation between behavior and trip-related variables. Additionally, the results also suggest that the model including three psychological—attitude, perceived norm, and perceived behavioral control—and two trip-related attributes—trip duration and group size—as in Model 5 could be the better reasoned action model to explain ecotourism behavior in tourism research.

## DISCUSSION AND CONCLUSION

This study compared the three theories on reasoned action approach—the theory of reasoned action, the theory of planned behavior, and the reasoned action model—for their relative explanatory power. By supporting previous findings on other behaviors, the theory of reasoned action exhibited considerable explanatory power to predict environmental behavior (Sheppard et al., 1988). The results also supported that perceived behavioral control can improve prediction of behavior above the level obtained on the basis of attitude and subjective norm suggesting that the TRB has better explanatory power than the TRA in predicting environmental behavior (Ajzen, 1991, 2011). The findings could not provide clear explanation for the dubious relations between knowledge, attitude and behavior. It was found that environmental behavior is related to environmental knowledge. However, the relationship is very weak and it can be mediated by one or more types of beliefs in reasoned action approach. Consistent with previous findings (e.g., Barr, 2007; Cottrell, 2003), it is found that environmental behaviors may vary across various sociodemographic groups, but the relationships barely exist after controlling for beliefs. In addition to the psychological constructs in TPB, two trip-related attributes: trip duration and group size were independently associated with environmental behavior. There is no doubt that the TRA and the TRB parsimoniously account for a significant amount of variation on behavior. Beyond that the reasoned action model with the incorporation of trip-related attributes as predictors of behavior not only increases explanatory power of the model but also helps to achieve the goals of sustainable tourism by identifying additional factors which should be considered while conducting educational program to promote environmentally responsible tourists behavior.

## IMPLICATIONS

Understanding of psychological and sociodemographic factors determining environmental behavior would help policy makers, educators, and other concerned stakeholders to devise and deliver appropriate educational program to influence visitor behavior. This study demonstrates that attitude, perceived norms and perceived behavioral control are determinants of behavior. We recommend that the focus of educational interventions in a tourism context should be placed on changing behavioral, normative, and control beliefs to influence attitude, perceived norm, and perceived behavioral control, respectively. Considering a poor relationship between knowledge and behavior, we can infer that environmental knowledge at times may influence in behavioral decision, but being well informed is neither an assurance nor a prerequisite for effective action. Nonsignificant relationships between behavior and sociodemographic

characteristics suggest that the educational programs should be indiscriminately targeted to all visitors. In terms of trip-related characteristics, we recommend to pay special attention to visitors in short trips and large groups.

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