

The Application of the Theory of Planned Behavior to the Construction of Biodiversity Conservation in Nanying Coastal National Scenic Area

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Abstract

The purpose of this study is to analyze the tourist behavior in Nanying coastal national scenic area with respect to biodiversity conservation. In this biological conservation area, local government has implemented a comprehensive program for the promotion of eco-tour and protection of black-faced spoonbills in the region. Above all, 700 black-faced spoonbills are becoming extinct in recent years and international non-government organizations (NGO) consider endangered species should be under international commercial law protection. This research would provide behavioral perspective of biodiversity conservation in order to understand attitudes, subjective norms, and perceived behavioral control of tourists, providing further improvement on eco-tourism. It is hoped that the test of theory of planned behavior (TPB) in the protection of ecological environment can improve the threat to the biodiversity and increased extinction of species.

Keywords: attitude, subjective norm, perceived behavioral control, behavioral intention

I. Introduction:

Since the topics in biodiversity are quite popular and significantly related to valuable global resource and conservation decisions. Two perspectives of biodiversity are classified as important: the first perspective focuses on the area of economic development. Second perspective analyzes the area of moral or social rules of biodiversity conservation. Thus, most of research papers in this area are organized as the following order: cost-minimization, employment creation in biodiversity conservation, environmental benefits besides biodiversity conservation, subsidizing activities that benefit biodiversity, encouraging eco-tourism, involving local communities in the protection activity in order to provide local residents with ownership of the biodiversity [14, 29].

Therefore, this study develops from eco-tourism with the emphasis of tourists'

perception of biodiversity conservation, which considers the global warming, pollution, and trade, could sharply increase extinction probabilities for a sample of 1,100 species. Through this practical emphasis, we can evaluate complex environmental issues involve eco-tourists as stakeholders, responding to the call for social involvement in consultation of biodiversity conservation [13,14].

We analyze the biodiversity issues in the context of psychological approach regarding tourist choices under budget constraints.

II. Literature review

It seems apparent that environmental issues are highly related to subjective value judgment and attitudes. Fishbein and Ajzen proposed the theory of planned behavior in 1980 for the explanation of individual behavior as the intention to act in particular circumstances [1,4,3,2]. The theory of planned behavior represents an important theoretical framework toward understanding of personal attitudes, subjective norm, and behavioral intention. Attitudes are defined as degree of positive evaluation of human behavior. The second dimension of the conceptual framework is subjective norm. Subjective norm (SN) is the construct denoting social influence on the basis of internalization of social value. The third dimension of the conceptual framework is perceived behavioral control (PBC) on the basis of the feasibility to perform human behavior. It is defined as the degree to which a person believes that involving a particular behavior would be free of effort. It is assumed that individual has more positive attitudes and subjective norms tend to have the high degree of perceived behavioral control. Based upon this argument, individual has a high degree of behavioral intention (BI) to perform certain behavior under social influence [6,17].

Applied to the use of attitudes, the perceived behavior control is the variable that individual use of particular mean in achieving the goal with low cost [24, 25].

In this paper, we consider biodiversity conservation as the following meanings:

- (1) Biodiversity is a system of scientific information and a pool of resources that act as inputs to modern agriculture and medicine.
- (2) Biological diversity refers to the variability of biological resources, from genes to ecosystem.
- (3) Biological diversity policy may be responding to the decline of fundamental numbers of biodiversity and devise economic and non-economic incentives to

enable all stakeholders, to be better off with the protection plan.

Obviously, governments tend to determine damages for loss of biodiversity in the modernization of world trade regimes and globalization. The significance of eco-tour at the current time is about the proposition that the more stakeholder are informed about the importance of management of biodiversity, the more likely biodiversity policy instruments can be identified to achieve the goals of conservation and sustainable use.

III. Hypothesis:

H1: Attitude has positive correlations with perceived behavioral control.

H2: Stronger subjective norm has positive correlations with perceived behavioral control.

H3: Attitude has positive correlations with behavioral intention.

H4: Perceived behavior control has positive correlation with behavioral intention.

Based upon the explanation of individual latent variables, this study would apply three corner stones of theory of planned behavior (TPB): attitudes, subjective norms, and perceived behavioral control, assessing biodiversity conservation behavior in Nanying coastal national scenic area.

IV. Methodology

Measurement

In testing the hypothesis of this study, we apply the questionnaire into the sample of tourists in Nanying Coastal National Scenic Area. From Table 1, we established the reliability and validity of the questionnaire from pilot test. Factor loadings of all items are greater than 0.6, which discuss the correlations between items and respective factors. All in one table, the explained variance of four observed factors (dimensions) can be detailed as: AT (56.106%), SN (67.445%), PBC (65.818%), BI (60.995%). Alpha elaborate internal consistencies, which include: AT (.8684), SN (.7424), PBC (.8669), BI (.8366).

Table 1: Factor Structure and Alpha coefficient

Dimension	Item	Factor Loading	% of Variance	α
AT	D03	.751	56.106	.8684
	D08	.744		
	D11	.807		
	D12	.755		
	D15	.743		
	D17	.708		
	D18 [♪]	.732 [♪]		
SN	F01	.743	67.445	.7424
	F03	.892		
	F05 [♪]	.822 [♪]		
PBC	C01	.778	65.818	.8669
	C02	.875		
	C03	.815		
	C04	.841		
	C05 [♪]	.741 [♪]		
BI	E03	.816	60.995	.8366
	E04	.748		
	E07	.760		
	E09	.716		
	E14 [♪]	.855 [♪]		

From the questionnaire study of attitudes, subjective norms, perceived behavior control, D03 is defined as “tourist guide’s explanation is important for the understanding of biological conservation.” The item D08 is illustrated as “natural food and appropriate weather are crucial factor for the survival of black-faced spoonbills.” Consequently, item D11 is a precise description of the concept that resource of biological diversity is the basic foundation of sustainable development. Within the context of attitude, D12 represents the idea of tourists’ responsibility in rescue of black-faced spoonbills. In addition, D15 demonstrates that local environments should be part of black-faced spoonbills activities. D17 item shows that eco-environment is a vital asset of our society. At the last part of attitude dimension, D18 is a variable that provides the interdependence relationships between biodiversity and ecosystem.

In the subjective norm dimension, it is assumed that F1 is recognized as the attitude of my family members and friends in terms of my participation in eco-tours of black-faced spoonbills. The item of F3 is a statement about my personal intention of

future participation of black-faced spoonbills activities and group influence. F5 is written as the meaning of personal willingness to participate in the biodiversity class, which is supported by county government.

It is important to recognize that perceived behavioral control is a variable for personal facilitating attitude in biodiversity. C1 shows that biodiversity is useful for cognitive heuristics and positive influence on education. Item C2 indicates that biodiversity is important for sustainable development. C3 describes the situation that environment pollution would decrease the number of biological species. Furthermore, we define the wetland as an ecosystem that it helps maintain the number of species. This is C4. Finally, item C5 shows that personal attitude in supporting of government policy in biological conservation.

In the dimension of behavioral intention, we assume that E3 is about the personal inquiry in the community for the collection of information about black-spoonbills. E4 is a statement about personal persuasion of avoiding disturbing behavior in conservation area. From the perspective of behavioral intention, it shows that E7 is about the service charges of black-spoonbills activities. And E14 discusses the issue of whether or not to ask for the assistance of professionals in eco-tours.

Sampling

The sample size was developed from Nanyang Coastal National Scenic Area with random sample of 103 respondents during the February 2004. In measurement terms, the sample has 70 valid respondents. Validity of this sample reaches 68 percent of all respondents.

Research design

The design of this study specifies the relationships among variables. The aim here is to determine whether the theoretical relationship specified at the conceptualization stage is indeed supported by the empirical data. LISREL has been used for path analysis with observed variable (PA-OV). Path analysis is used to provide visual representations of hypothesized models. From the perspective of multivariate analysis, path analysis provides a summary of the expected linkage among variables [20]. The various elements of the model are developed on the basis of the corresponding algebraic equations. In particular, the path analysis is defined as a research tool that can decrease possibilities for specification error by highlighting omitted relationships [30, 31].

V. Empirical results:

This study provides a systematic estimation of four variables.

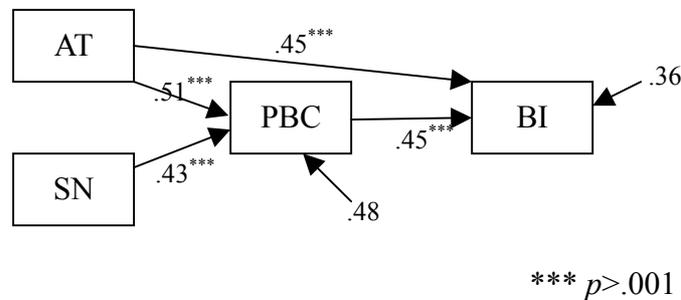


Figure 1 Analysis of Path Diagram

According to the diagram above, we build a tentative relationship structure between two independent variables and one mediated variable for this study. Attitude (AT) and subjective norm (SN) affect perceived behavior control (PBC) directly, while PBC shape the strength of behavior intention (BI) significantly.

It is estimated that attitude is the most important variable in this diagram to decide the behavior intention of tourists. In contrast, perceived behavioral control (PBC) acts as mediated variable in determining relationships among attitude (AT), subjective norm (SN), and behavior intention (BI).

In this diagram, we found that path coefficient of PBC also has a significant influence on BI. This implies that AT should be able to steer the direction of BI in a positive and significant way.

Subjective norm is the least important variable for the construction of positive and significant relationship with PBC. However, this study cannot provide the substantial evidence to support the existence of relationships between SN and BI. In summary of all evidence above, we conclude that SN is not a viable variable for the testing of theory of planned behavior.

According to LISREL analysis, statistical indexes provide specific information on the estimation of differences between hypothetical model and observed data. Six indexes are summarized as follows: First, Chi-Square = 0.565 ($P = 0.452$), which explains that hypothetical model can reflect observed data clearly. Second, Goodness of Fit Index (GFI) = 0.996 indicates significantly close to 1.00 and demonstrates

observed data are precisely fit the hypothetical model. Furthermore, Adjusted Goodness of Fit Index (AGFI) = 0.959 represents an ideal fitting model. In comparative analysis, we found that NFI index shows the difference between hypothetical model and baseline model. In this study, Norm Fit Index (NFI) = 0.995 indicates a close fit and accept the hypothetical model. In addition, we can get similar results from Root Mean Square Residual (RMR) and Standardized RMR on the basis of the Goodness-of-Fit perspective. Root Mean Square Residual (RMR) = 0.0145 and Standardized RMR = 0.0145 present the lowest value. It shows the highly fit situation exist between hypothetical model and observed data.

Table.2 Illustration of (Effective Size) at Different Variables

Independent variable	Mediated variable	Dependent variable
	Perceived behavior control	Behavior intention
Attitude		
Direct effect	.51	.45
Indirect effect	-	.23
Total effect	.51	.68
Subjective norm		
Direct effect	.43	-
Indirect effect	-	.19
Total effect	.43	.19
Perceived behavior control		
Direct effect		.45
Indirect effect		-
Total effect		.45

Table 2 shows direct effect and indirect effect of attitude, subjective norm, perceived behavior control, and behavioral intention. First, attitude (AT) to perceived behavior control (PBC) and behavior intention (BI) has very obvious direct effect. At the same time, perceived behavior control on behavior intention has also created obvious direct effect. In addition, attitude on behavioral intention has both direct and indirect effect, which include .45 and .23 (see table 2).

Second, we do not have any sufficient empirical data to prove that subjective norm has any direct effect on behavioral intention. However, subjective norm can affect behavioral intention (BI) through perceived behavioral control (PBC) and create indirect effect.

In sum, we conclude that attitude is the most significant variable in creation of its total

effect on behavioral intention (BI).

Conclusion:

According to our discussion above, the theory of planned behavior (TPB) is a useful framework for the understanding of biological conservation. The empirical evidence demonstrates that attitude is the most important factor for the shaping of behavior intention. Thus, we suggest that it is not easy to organize the biological conservation rules at the local level; however, we can improve the behavior intention of tourists on the basis of understanding of their attitude in biological conservation.

We suggest that the presentation of biological conservation is an important communication channel for diffusion of new ideas in the field. Moreover, we suggest that biological conservation is still at the emerging stage and need to be implemented in tourist attitude structure in order to change their behavior intention.

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