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A Test of the Value-Belief-Norm Theory**

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**ABSTRACT**

*The purpose of this quantitative study is to test the validity of a behavioral theory in the context of environmental hotel management. The lack of theoretical consideration in previous studies on environmental attitudes of hotel/resort managers warrants an investigation of a theory with the potential to better explain behaviors that support the goals of environment management systems. The goal of this research was to document the values, beliefs, personal norms, and environmental management support behaviors of managers in a hospitality setting to test the behavioral theory. Data were collected from a sample of hotel and resort managers in the Phoenix metropolitan area by using a survey of well-documented items from previous research on the theory. Results suggest the theory is successful in explaining environmental management support behaviors. Implications for practitioners as well as researchers are discussed.*

**Keywords:** *environmental management, hotel, theory, managers, sustainability, attitudes.*

## INTRODUCTION

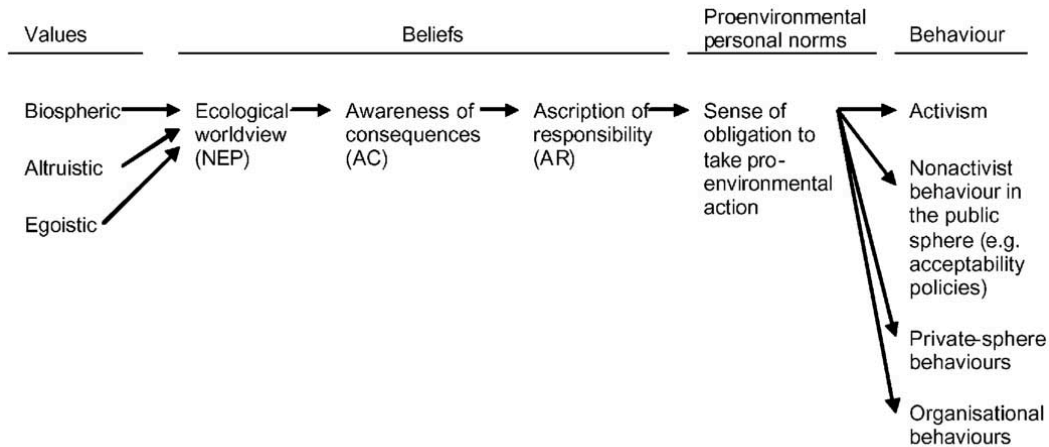
The rapid expansion and diversification of tourism since 1950 (UNWTO, 2009) – and the associated economic, social, and environmental costs and benefits – necessitate research into the impacts of different tourism sectors. For instance, researchers have examined excessive resource use and waste accumulation in the accommodations sector (e.g., Chan & Hawkins, 2001; Kasim, 2009; Kirk, 1995). In response to concerns, about unsustainable business practices, environmental management has emerged as one approach to reduce unacceptable environmental impacts resulting from the accommodations sector (Kirk, 1995). In this context, environmental management is defined as a strategic business model that considers an organization's impacts on the environment in terms of policy-making, planning, training, procedures, communication, reviews, and continual improvements (e.g., Kirk, 1995). The success of this approach relies largely on implementation by employees, which is one reason why attitudinal studies of hotel managers have emerged in the tourism and environmental studies literature (e.g., Bohdanowicz, 2006; Stabler & Goodall, 1997). These studies, however, have tended to lack meaningful psychological explanations of the influence of human values, beliefs, and attitudes on environmental management support behaviors.

To address the lack of theory in the environmental management literature, the objective of this study is to explain the psychological antecedents of environmental management support behaviors in the accommodations sector. This investigation will test the explanatory power of the value-belief-norm (VBN) theory (Stern, 2000; Stern, Dietz, Abel, Guagnano, & Kalof, 1999) in this context. The study uses a cross-section survey research design with data collected from a sample of hotel managers in the Phoenix, Arizona metropolitan area. In addition to demographics, the questionnaire assessed values, beliefs, personal norms, and environmental management support behaviors using Likert scales.

## LITERATURE REVIEW

Stern and colleagues developed the value-belief-norm (VBN) theory in the late nineties (Stern, 2000; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). The theory has been used to study the factors that effect social movements, specifically environmental behavior (Stern et al., 1999). The VBN theory draws from value theory (Schwartz, 1992), norm-activation theory (Schwartz, 1977), and the New Ecological Paradigm (NEP) perspective (Dunlap & Van Liere, 1978; Dunlap, Van Liere, Mertig & Jones, 2000), and proposes a chain model (see Figure 1) with direct connections between five variables that are antecedents of environmental behaviors (Stern, 2000). These variables are values (biospheric, altruistic, and egotistic), ecological worldviews (NEP), adverse consequences for valued objects (AC), perceived ability to reduce the threat (AR), and personal norms (the sense of obligation to take pro-environmental actions) (Stern, 2000). These variables, in the causal chain, have been shown to explain pro-environmental behaviors (Eriksson, Garvill, & Nordlund, 2006; Steg, Dreijerink & Abrahamse, 2005; Stern, et al., 1999). The pro-environmental behaviors that are associated with the VBN theory are: environmental activism, nonactivist public-sphere behaviors, private-sphere behaviors, and behaviors in organizations (Stern, 2000). Although this theory is often tested to understand individual environmental behaviors, as applied to this study the theory was used to understand the environmental values, beliefs, and norms of hotel managers and their effect on environmental management support behaviors within organizations.

**Figure 1**  
**Value-belief-norm theory causal chain (Steg, Dreijerink, & Abrahamse, 2005).**



## METHODOLOGY

In general, this research is concerned with the following question: Can environmental management support behaviors be explained by the VBN theory? To answer this, certain hypotheses about the relationships among the variables in the VBN model were tested. The first two hypotheses test the actual VBN theory causal chain, while the subsequent four hypotheses test mediating effects between variables (Steg et al., 2005): (1) Each variable in the VBN causal chain model is related to the next variable; (2) each variable may be directly related to variables further down the causal chain; (3) personal norms mediate the relationship between AR beliefs and behaviors; (4) AR beliefs mediate the relationship between AC beliefs and personal norms; (5) AC beliefs mediate the relationship between NEP and AR beliefs; and (6) NEP mediates the relationship between values and AC beliefs.

Data was collected from July to September 2011. The responses came from a non-probability convenience sample. A non-probability technique was used due to the study's limited resources to sample the entire population of hotel managers. The researcher contacted potential respondents by unsolicited on-site visits. Respondents were briefed on the nature of the survey, how the data will be handled, and how much time the managers would need to answer the questions. Managers that could not fill out a survey at the time of visit were given a copy of the survey to complete on a later date. After 6 nonconsecutive weeks of survey distribution and collection, a total of 60 usable surveys were collected out of 115 managers contacted, for a response rate of 52%.

## RESULTS

Data analysis was conducted using Version 19 of SPSS. First, descriptive statistics, correlations, and Cronbach's alpha calculations were performed to test the reliability of the survey scales. Due to a low Cronbach's alpha score among the egotistical value items, the egotistic values variable was removed from the analysis. Next, a series of regressions were performed to test the VBN theory's causal chain hypotheses. Variable mediation hypotheses (Steg et al., 2005) were tested using recommendations and procedures based on Baron & Kenny (1986) and the Sobel t Statistic (Sobel, 1982 *as cited in* Baron & Kenny, 1986). Although the

authors acknowledge there are alternative techniques (e.g., path analysis or SEM) that could have been used in this study, the small sample size did not allow for these techniques.

The participants' (N=60) ages ranged from 24 to 56, with education levels ranging from high school/GED to master's degree. The length of employment as a manager ranged from less than 1 year to 22 years, and the six most common job titles were: general manager, front office/desk manager, operations manager, assistant general manager, sales manager, and guest services manager.

The properties participating in the study were identified as private ownerships (28.3%), chains (25%), franchises (28.3%), and management contracts (16.7%) by the managers. Out of all participating hotels, 45% had a AAA diamond rating of 3 and 23.3% were without a designation. The number of rooms and beds ranged from 52 to 1000 and 76 to 1500, respectively. Managers identified the number of employees as "less than 25" and "26-50" most frequently with 70% of the responses. Lastly, the most frequent target markets were identified as: Business (50.8%) domestic (20.3%), and leisure (18.6%).

### **VBN theory test**

Person norms explained 27% of the variance in environmental management support behaviors. When all variables were regressed according to the VBN causal chain, 21% of the variance in environmental management support behaviors was explained (effect size:  $f^2 = .27$ ). The only significant contributor to this model was personal norms. Ascription of responsibility beliefs explained 45% of the variance in personal norms ( $f^2 = .82$ ). When all preceding variables were regressed along with AR, 62% of the variance in personal norms was explained ( $f^2 = 1.63$ ). Awareness of consequences beliefs explained 19% of the variance in AR beliefs. The addition of the preceding variables explained 26% of the variance in AR Beliefs. The NEP explained 27% of the variance in AC beliefs. When the preceding variables were included in the regression, 39% of the variance in AC beliefs was explained. Lastly, Altruistic and biospheric value orientations explained 21% of the variance in the NEP.

### **Mediation test**

Tests of hypotheses three through six all suggest mediation effects. These results are based on the level of adherence to the conditions stated in Baron & Kenny (1986) and the significance of the Sobel t statistic. The relationship between AR beliefs and environmental management support behaviors was mediated by personal norms:  $t = 3.909, p < .000$ . The relationship between AC and PN was mediated by AR:  $t = 3.397, p < .000$ . The relationship between NEP and AR was mediated by AC:  $t = 3.010, p = .002$ . Lastly, the mediating relationship of NEP between values and AC was examined using two mediation test statistics for each of the value orientations. It was shown that NEP mediated the relationship between altruistic values and AC ( $t = -2.699, p = .006$ ) and biospheric values and AC ( $t = -2.951, p = .003$ ).

## **DISCUSSION**

Results of this study indicate that the VBN theory was successful in explaining environmental management support behaviors in the accommodations sector of the tourism

industry. The results showed significant relationships between each variable in the VBN theory. Contrary to Steg et al. (2005), the explanatory power of the model decreased when other predictor variables were entered into the regression. This may be due to latent interactions between variables that resulted in a dilution of the variance. Additionally, biospheric value orientation was not a significant contributor to personal norms, however AC beliefs were significant. Suggesting that those who are aware of negative consequences feel more obligated to reduce environmental threats from within their organization. Similar to Steg et al. (2005), the significant contribution of personal norms to support behaviors was also unusually high (27% explained variance) compared to other tests (e.g., Nordlund & Garvill, 2003). In addition, the mediation hypotheses were also confirmed; reinforcing the results of the VBN theory test.

The variance explained in personal norms was 62% when the remaining variables were entered into the model. These results suggest personal norms are stronger when managers are aware of consequences and feel responsible for environmental threats.

Perceived responsibility for negative environmental problems was higher among managers who were aware of the problems. Awareness was higher among altruistically oriented managers that expressed a concern for the environment (NEP). Lastly, it appears only the biospheric value orientation was a significant contributor to the NEP. This is inline with Steg et al. (2005), as well as their claim that concern for others (altruistic values) is not related to the NEP.

## CONCLUSION

The significant relations observed between the VBN causal chain variables leads to the conclusion that this theory is an acceptable predictor of environmental management support behaviors. The implications of this study's results extend to: companies considering the implementation or review of environmental management systems and researchers investigating the use of theory in corporate environmental efforts. In regard to the former, these results suggest the VBN theory may be useful in the review process of an environmental management system as a measure of employee's willingness to support the system over time. This theory may also be useful as a training and screening tool for new employees; by having potential employees respond to the survey items used in this study, companies will be able to clarify their role in supporting an environmental management system.

With respect to researchers, the present study has shown one example of how theory could be used to explain behaviors within organizations. The ability of researchers to accurately test the VBN theory within other organizations is paramount in the pursuit of a theoretical explanation of environmental management support behaviors. It is the hope of the authors that the VBN test presented here will be a guide for future investigations of corporate personnel and environmental support behaviors.

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