

# Model of sustainable behavior: Assessing cognitive, emotional, and normative influence in the cruise context

Authors: H. Han, H. Olya, J. Kim, W. Kim

## ABSTRACT

There is a lack of published research on individuals' decision formation for pro-environmental behaviors while traveling on cruise ships. This study included the cognitive, affective, and normative processes related to this, and considered their interrelations in the prediction model of passenger cruising intention in an environmentally responsible way. We estimated the proposed theoretical framework using structural equation analysis. The final model was generated by altering the proposed model. The findings indicated that our conceptual framework had a sufficient level of anticipatory power for green intention and that moral and subjective norms were the most influential determinants of intention. In addition, the important interrelationships among these cognitive, affective, and normative factors were identified. Moreover, anticipated emotions and moral norm were significant mediators. Overall, the results of this study substantially supported our theoretical framework comprising the intricate associations among study variables. Implications for tourism researchers and cruise practitioners are discussed.

**Keywords:** Sustainable development, environmentally responsible behavior; cruise; positive and negative emotions; pro-environmental decision

## Introduction

Consumers are increasingly coming to recognize the severity of environmental problems uncovered over the last few decades and are becoming more aware of ecological issues overall (Chan and Hsu, 2016; Han *et al.*, 2010). These environmental conscious consumers,

1  
2  
3  
4 who are well aware of the fact that the natural world is facing diverse environmental  
5  
6 problems (e.g., water contamination, air pollution, global warming), appear to be searching for  
7  
8 and selecting products or services from ecologically responsible firms, even paying more and  
9  
10 accepting possible inconveniences to do this (Laroche *et al.*, 2001; Lee *et al.*, 2010).

11  
12 Consistent with this green phenomenon in the consumer marketplace, diverse hospitality  
13  
14 and tourism companies are active in greening their operations in a variety of ways, such as  
15  
16 initiating varied environmental programs, implementing ecologically-friendly technologies,  
17  
18 encouraging environmentally responsible practices among customers and employees,  
19  
20 developing sustainable policies and guidelines, and altering operational processes (Chan and  
21  
22 Ho, 2006; Chen and Tung, 2014; Han *et al.*, 2010; Hsieh, 2012; Lee *et al.*, 2010; Kim *et al.*,  
23  
24 2013).  
25  
26

27  
28 In particular, the integration of pro-environmental business technologies and practices  
29  
30 into products or services in the cruise industry has become a significant force for the alleviation  
31  
32 of the industry's huge impact on the ocean and the greater environment. Because of the constant  
33  
34 ecological issues in the cruise industry, which include water pollution, exhaustion of natural  
35  
36 resources, climate change, and enormous demands on water and energy  
37  
38 (Kaldy, 2011), this industry is working incredibly hard to decrease its hazardous  
39  
40 environmental actions and become more eco-friendly (Ahmad, 2014; Klein, 2011). With the  
41  
42 increasing green needs and growing ecological awareness of the consumer market, such  
43  
44 greening efforts can be an imperative method to boost the competitiveness of cruise  
45  
46 businesses (Han *et al.*, 2016). Emerging passengers' pro-environmental cruise trips are  
47  
48 derived from the movement of responsible or sustainable traveling in the tourism marketplace.  
49  
50 Given this green trend in the competitive tourism market, it is essential to clearly understand  
51  
52 passengers' environmentally responsible decision-making processes and behavior as it relates to  
53  
54 the successful pro-environmental marketing/service/operation strategies of cruise lines.  
55  
56  
57  
58  
59  
60

1  
2  
3           Researchers in environmental behavior and psychology generally believe that  
4  
5 individuals' pro-environmental decisions or behavior is often made or conducted relying on  
6  
7 diverse cognitive triggers, affective factors, and normative driver triggers (Fornara *et al.*,  
8  
9 2016; Han, 2015; Lin and Hsu, 2015; Ozaki, 2011; Steg and Vlek, 2009). Extant studies  
10  
11 support the salience of such factors as biospheric or environmental value (De Groot *et al.*, 2007;  
12  
13 Mustonen *et al.*, 2016; Stern, 2000), concern for environmental issues (Zimmer *et al.*, 1994;  
14  
15 Stern *et al.*, 1999), awareness of consequences (Chan *et al.*, 2014; Milfont *et al.*, 2010),  
16  
17 and ascribed responsibility (Bamberg and Möser, 2007; De Groot and Steg, 2008) in  
18  
19 explaining environmentally or socially responsible behavior. In addition, evidence that  
20  
21 supports the importance of positive or negative anticipated forms of emotions (e.g.,  
22  
23 anticipated feelings of pride and guilt) (Harth *et al.*, 2013; Onwezen *et al.*, 2013),  
24  
25 social/subjective norms (Jansson, 2011; Klöckner, 2013; Matthies *et al.*, 2012), and personal  
26  
27 norm (Hunecke *et al.*, 2001; Schwartz, 1977) appears in previous studies.  
28  
29  
30  
31

32           Despite the importance of the cognitive, affective, and normative processes for the  
33  
34 explication of consumer decision formation (Hunter, 2006; Oliver, 1997), little research has  
35  
36 involved this combined approach for understanding of travelers' pro-environmental decision-  
37  
38 making processes. In addition, little research has utilized the multiple dimensional approach  
39  
40 of the cognitive process or employed the conjoint use of moral and social norms as a  
41  
42 normative process. Moreover, the role of anticipated affects in activating moral norm has  
43  
44 rarely been examined in tourism. In sum, there exists a substantial lack of empirical and  
45  
46 published research that has exploited the distinct role of multiple cognitive factors,  
47  
48 anticipated forms of emotions, and normative factors in building cruise travelers' pro-  
49  
50 environmental intentions within one comprehensive theoretical framework.  
51  
52  
53

54           Given these research needs, the general aim of the present study was to build a  
55  
56 conceptual framework comprising the cognitive process, affective process, and normative  
57  
58  
59  
60

1  
2  
3  
4 process in order to offer a clear understanding of travelers' environmentally responsible  
5  
6 decision-making processes while cruising. In particular, this study was designed to test the  
7  
8 possible associations among multi-cognitive dimensions (biospheric value, environmental  
9  
10 concern, awareness of consequences, and ascription of responsibility), anticipated emotions  
11  
12 (positive and negative), and normative factors (social and moral norms), and to examine the  
13  
14 influence of such relationships on cruise customers' decision formation. In addition,  
15  
16 following the associations expected based on the proposed theoretical model and research  
17  
18 outcomes in previous studies, the intricate indirect (mediated) relationships among study  
19  
20 constructs were objected to be tested. Moreover, the comparative importance of the included  
21  
22 constructs was objected to be evaluated.  
23  
24  
25  
26  
27

## 28 **Conceptual Background and Hypotheses**

29  
30  
31 Our conceptual model is exhibited as a graphical picture in Figure 1. Our conceptual  
32  
33 framework is composed of four cognitive factors (i.e., biospheric value, environmental  
34  
35 concern, awareness of consequences, and ascription of responsibility), two affective dimensions  
36  
37 (i.e., positive and negative anticipated emotions), and two normative dimensions (i.e., social  
38  
39 norm and moral norm) as drivers of environmentally responsible intentions.  
40  
41

42 Overall, the model includes a total of nine study variables and sixteen research hypotheses  
43  
44 linking the constructs.  
45  
46  
47

48  
49 **(Insert Figure 1)**  
50  
51  
52

### 53 **Cognitive Dimensions**

54 Biospheric value, environmental concern, awareness of consequences, and ascription of  
55  
56  
57  
58  
59  
60

1  
2  
3 responsibility have long been believed as activators of moral norm and as cognitive drivers of  
4  
5 environmentally responsible decisions (Han, 2014, 2015; Harland *et al.*, 2007; Steg and De  
6  
7 Groot, 2010). According to De Groot *et al.* (2007), biospheric value indicates one's perception  
8  
9 of value related to the biosphere and the environment that are central in his/her life.

10  
11 This biospheric value is one of the major aspects of personal values referring to the criteria that  
12  
13 individuals utilize to choose and justify behaviors and to evaluate the self/others and events  
14  
15 (Schwartz, 1992). This criteria is very general, transcending particular situations, and  
16  
17 it serves as a guide for correct and appropriate behavior (Fornara *et al.*, 2016). Environmental  
18  
19 concern is a global concept that refers to "feelings about many different green issues"  
20  
21 (Zimmer *et al.*, 1994, p. 64). In addition, according to Milfont *et al.* (2010), while awareness  
22  
23 of consequences refers to "people's understanding that their actions might have consequences  
24  
25 for the welfare of others" (p. 124), ascription of responsibility indicates "people's assignment  
26  
27 of responsibility for their actions" (p. 124).

28  
29  
30  
31  
32 Biospheric value is the main aspect of value orientation, which indicates the guiding  
33  
34 principles essential in individuals' life, particularly with regard to environmental behavior  
35  
36 (Hedlund, 2011; Schwartz, 1992). Environmental concern is the core in forming ecological  
37  
38 worldview (Stern *et al.*, 1999). Thus, biospheric value and environmental concern are also  
39  
40 known as environmental value and ecological worldview, respectively. Moreover, awareness  
41  
42 of consequences and ascription of responsibility in environmental behavior are  
43  
44 interchangeably used with the terms as problem awareness and perceived ability to reduce  
45  
46 threat, respectively (Han, 2015; Stern 2000). Individuals' pro-environmental decision or  
47  
48 behavior is triggered by moral obligation, which in turn is influenced by such specific cognitive  
49  
50 factors as biospheric value (Schwartz, 1992; Stern, 2000), environmental concern (Kim and  
51  
52 Han, 2010; Mostafa, 2006), awareness of consequences (Chan *et al.*, 2014), and ascribed  
53  
54 responsibility (Han, 2014). Accordingly, the importance of these cognitive factors in  
55  
56  
57  
58  
59  
60

1  
2  
3  
4 pro-environmental behavior has not been overemphasized in the existing literature.  
5  
6  
7

### 8 **Positive and Negative Anticipated Emotions** 9

10  
11 The criticality of the emotional influence on the eco-friendly decision-  
12 making process and behavior has ~~also~~ been supported in a variety of environmental contexts  
13 (e.g., Carrus *et al.*, 2008; Harth *et al.*, 2013; Klöckner and Matthies, 2004). Among a range of  
14 self-conscious emotions, researchers identified that positive anticipated emotions comprising of  
15 pride, accomplishment, confidence, and a sense of worth and negative anticipated  
16 emotions containing guilt, remorse, sorrow, and negativity are particularly relevant to the pro-  
17 environmental sector (Bamberg and Möser, 2007; Han, 2014; Onwezen *et al.*, 2013). It  
18 appeared that these affective factors evoked after the assessment of specific eco-friendly  
19 behavior (Lewis, 1993) are effective in accounting for various pro-environmental decisions  
20 and actions (Bamberg and Möser, 2007; Han, 2014; Harth *et al.*, 2013; Klöckner and  
21 Matthies, 2004; Lerner and Keltner, 2000). Favorable and unfavorable anticipated emotions  
22 represent a crucial way where emotions determine what a decision-maker selects and how  
23 he/she chooses it (Bagozzi *et al.*, 2003).  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

### **Moral Norm and Social Norm**

Moral norm indicates “a specific motivational basis for the realization of behavior, which manifests itself in a feeling of moral obligation” (Hunecke *et al.*, 2001, p. 832). Hunecke *et al.*’s (2001) definition of moral norm is coherent with Schwartz’s (1977) early description that moral norm is one’s personal expectation of a certain behavior in a particular situation, which is experienced as a feeling of personal or ethical obligation. These explications indicate that the central aspect of moral norm is individuals’ sense of personal or ethical obligation to perform a specific behavior. In this regard, the behavioral relevance of moral norm is confined to actions comprising a moral or ethical dimension (Han, 2015; Hunecke *et al.*, 2001).

#### *Social*

norm refers to “the perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991, p. 188). That is, this norm is associated with individuals’ perception regarding what other people think (Thøgersen, 2006). Thus, a distinction has clearly been made between this social norm and the moral norm, whose key aspect is personal moral obligation. Social norm is conceptually coherent with subjective norm within theories derived from self-interest motives (e.g., theory of reasoned action and theory of planned behavior) in that both concepts concern other people’s expectation about one’s action in a given situation (Fornara *et al.*, 2016; Han, 2015; Schultz *et al.*, 2008). This social norm is therefore alternatively utilized with the term subjective norm in the literature (Han, 2015).

1  
2  
3  
4  
5  
6  
7 **Impact of Cognitive Factors on Affective Factors and Moral Norm**  
8

9  
10 Such variables as environmental concern, awareness of consequences, biospheric value, and  
11 ascription of responsibility are cognitions/perceptions (Schwartz, 1977; Stern, 2000), whereas  
12 anticipated emotions are affective factors (Han *et al.*, 2016; Perugini and Bagozzi, 2001). In  
13

14  
15        addition to affective variables, the factors with cognitive nature influence individuals' moral  
16  
17 obligation to take a pro-environmental action; and both cognitive and affective variables are  
18  
19 significantly interrelated (Han, 2014). In other words, anticipated affective reactions are  
20  
21 derived from one's cognitive/perceptual beliefs or assessments; and such relationships results  
22  
23 in a felt obligation toward an environmentally responsible action (Bamberg and Möser, 2007;  
24  
25 Han, 2014; Onwezen *et al.*, 2013). According to these researchers, anticipated emotions form  
26  
27 based on the outcomes of cognitive process in that cognitive factors often strengthen affective  
28  
29 responses in a pro-environmental context. These cognitive variables (e.g., problem awareness,  
30  
31 ascribed responsibility, biospheric/environmental value, ecological concern) also significantly  
32  
33 contribute to increasing personal norm in the formation of pro-social or pro-environmental  
34  
35 decision (Han *et al.*, 2016; Schwartz, 1977; Steg and Vlek, 2009; Stern *et al.*, 1999, Stern,  
36  
37 2000).  
38  
39  
40  
41  
42  
43  
44

45        H1: Cruise travelers' biospheric values have a positive and significant impact on their  
46  
47 positive anticipated emotions.  
48

49        H2: Cruise travelers' environmental concern has a positive and significant impact  
50  
51 on their positive anticipated emotions.  
52

53        H3: Cruise travelers' awareness of consequences has a positive and significant  
54  
55



1  
2  
3 impact on their positive anticipated emotions.  
4

5 H4: Cruise travelers' ascription of responsibility has a positive and significant impact  
6  
7 on their positive anticipated emotions.  
8

9  
10 H5: Cruise travelers' biospheric values have a negative and significant impact on  
11  
12 their negative anticipated emotion.  
13

14 H6: Cruise travelers' environmental concern has a negative and significant impact on  
15  
16 their negative anticipated emotions.  
17

18 H7: Cruise travelers' awareness of consequences has a negative and significant  
19  
20 impact on their negative anticipated emotions.  
21

22  
23 H8: Cruise travelers' ascription of responsibility has a negative and significant  
24  
25 impact on their negative anticipated emotions.  
26

27 H9: Cruise travelers' biospheric values have a positive and significant impact on their  
28  
29 moral norm.  
30

31  
32 H10: Cruise travelers' environmental concern has a positive and significant impact  
33  
34 on their moral norm.  
35

36 H11: Cruise travelers' awareness of consequences has a positive and significant  
37  
38 impact on their moral norm.  
39

40 H12: Cruise travelers' ascription of responsibility has a positive and significant  
41  
42 impact on their moral norm.  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55

## Relationship Between Anticipated Emotions and Moral Norm

Extant literature on environmental studies indicates that anticipated emotions are imperative concepts in explicating one's pro-environmental decision-making process and behavior (Bamberg *et al.*, 2007; Hunecke *et al.*, 2001; Kim *et al.*, 2013). Many studies have explicitly investigated the role of expected post-behavioral affective reactions in relation to norm-activation process and pro-environmental behavior (Han, 2014; Steg and Vlek, 2009; Onwezen *et al.*, 2013). According to Schwartz's (1977) early indication, individuals' positive anticipated feeling stimulates them to conform to their moral obligation; and their negative anticipated emotion motivates them to avoid breaking such personal moral norm. Recently, Han (2014) provided empirical evidence that positive and negative anticipated feelings trigger personal norm, playing an important distinct role in travelers' eco-friendly intention generation process. Positive and negative aspects of anticipated emotions are vital pro-environmental affective factors since they significantly increase a felt personal obligation (moral norm) that directly activates pro-environmental intention or behavior (Onwezen *et al.*, 2013; Thøgersen, 2009; Tracy and Robins, 2004).

H13: Cruise travelers' positive anticipated emotions have a positive and significant impact on their moral norm.

H14: Cruise travelers' negative anticipated emotions have a negative and significant impact on their moral norm.

1  
2  
3  
4  
5 **Relationship Between Social and Moral Norms**  
6

7 Although the results of extant studies on environmental behavior are not always consistent, the  
8 concept of social norm is widely regarded to be a decisive factor of moral norm and pro-  
9 environmental intention or behavior (Bamberg and Möser, 2007; Han, 2014, 2015; Hunecke *et*  
10 *al.*, 2001; Klöckner, 2013). Since social norm delivers the behavioral standards that a salient  
11 social reference group considers as proper in a particular context, one's moral norm is  
12 believed to be developed based on social norm (Fornara *et al.*, 2016). Social norm has been  
13 proven to exert a significant influence on one's feeling of moral obligation for an  
14 environmentally responsible action in diverse contexts (littering, recycling, energy saving,  
15 etc.) (Carrus *et al.*, 2009; Ferguson *et al.*, 2011; Fornara *et al.*, 2011). An impact of social  
16 norm on the activation of moral norm has been embedded in diverse frameworks explicating  
17 pro-social or pro-environmental behaviors (Hunecke *et al.*, 2001; Han, 2015). These studies  
18 demonstrated that social norm acts as an intensifier of moral norm.  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33

34 H15: Cruise travelers' social norm has a positive and significant impact on their  
35 moral norm.  
36  
37  
38  
39

40 **Relationship Between Moral Norm and Environmentally Responsible Intentions**  
41

42 Researchers agree that this moral norm is the most proximal antecedent of pro-environmental  
43 intention or behavior (Choi *et al.*, 2015; Fornara *et al.*, 2016; Fransson and Biel, 1997;  
44 Schwartz and Bardi, 2001; Stern, 2000). According to Fransson and Biel's (1977) early  
45 indication, one's moral norm is associated with his/her personal belief about what is the  
46 right thing to do for his/her positive self-evaluation; and this morality affects pro-social  
47 decision/behavior. In their recent study about anticipating intention for the improvement of  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2 household energy efficiency, Fornara *et al.* (2016) empirically demonstrated that  
3  
4 homeowners' moral obligations are an important direct trigger of their intention to use  
5 renewable energy. Individuals often engage in a specific pro-environmental behavior since  
6 they feel moral obligation to act properly when they have a feeling of responsibility for the  
7 harmful consequences of their behaviors on the natural environment (Schwartz and Bardi,  
8 2001; Stern, 2000).  
9  
10  
11  
12  
13  
14

15  
16 H16: Cruise travelers' moral norm has a positive and significant impact on their  
17 environmentally responsible intentions.  
18  
19

## 20 21 **Methodology**

### 22 23 **Questionnaire Development and Measurement**

24  
25 The survey questionnaire including an introductory letter, measures for study variables, and  
26 queries for demographic information was developed. The initial version of our questionnaire  
27 was pre-tested with graduate students whose major is hospitality and tourism and with cruise  
28 trip experience within the last three years. After a slight improvement was made based on the  
29 pre-test result, the questionnaire was subjected to an expert-review process. Industry and  
30 academic cruise experts thoroughly reviewed the questionnaire. The final version of the  
31 survey questionnaire was developed after these experts' minor corrections. All measures  
32 used in this study are exhibited in the Appendix. Multiple-item measures and a seven-point  
33 scale were employed for all variables within the research model. The details are as follows:  
34  
35 Biospheric value included four items adapted from Jakovcevic and Steg (2013) and Stern  
36 *et al.* (1999). Environmental concern was measured using three items employed from  
37 Cordano *et al.* (2011) and Stern *et al.* (1999). Awareness of consequences contained four  
38 items adapted from Bamberg and Schmidt (2003) and Han *et al.* (2016).  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1 Ascribed responsibility was assessed with three items employed from Onwezen *et al.*  
2  
3  
4 (2013) and Van Riper and Kyle (2014). Positive anticipated emotion was evaluated with  
5  
6 four items adapted from Onwezen *et al.* (2013) and Perugini and Bagozzi (2001). Negative  
7  
8 anticipated emotion was evaluated using four items employed from Onwezen *et al.* (2013)  
9  
10 and Perugini and Bagozzi (2001). Social norm included three items adapted from Ajzen  
11  
12 (1991) and Han (2014). Moral norm was measured with four items employed from Onwezen  
13  
14 *et al.* (2013) and Van Riper and Kyle (2014). Environmentally responsible intentions  
15  
16 contained three items adapted from Minton and Rose (1997) and Stern *et al.* (1999).  
17  
18  
19

### 20 **Data Collection and Sample Characteristics**

21 We tested our theoretical model with the data collected from a Web-based survey method.  
22  
23

24 Using the survey system and database of an online market research company, an e-mail  
25  
26 invitation of the survey was sent to general US cruise passengers. Only passengers who had  
27  
28 taken a cruise within the last year were invited to participate in the survey and complete the  
29  
30 questionnaire. Survey instructions and description of the research were given to all  
31  
32 participants in the initial stage of the survey when they clicked the survey link. The data for this research  
33  
34 was collected through this process. As a result, a total of 307 completed  
35  
36  
37 responses were obtained. After the elimination of multivariate outliers using a Mahalanobis distance  
38  
39 check and unusable cases, a total of 302 responses were ultimately retained for the further analysis.  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3  
4 Among the participants in the usable sample (n = 302), 39.7% were male cruise  
5 travelers; and 60.3% were female cruise travelers. All of them indicated that their most recent  
6 cruise trip was within the past 12 months, a requisite of survey participation. Specifically,  
7 5.6% of the respondents indicated that they traveled on a cruise within the last month; 29.8%  
8 reported within the past three months; 59.3% indicated within the last six months; and 84.8%  
9 reported within the past nine months in a cumulative manner. Regarding the frequency of  
10 cruise product use for the past five years, 36.5% indicated that they had taken a cruise  
11 vacation twice, followed by once (26.9%), three times (17.9%), four times (8.0%), five times  
12 (3.7%), and six times or more (7.0%). The majority of the participants' age category was 25 –  
13 44 years old (43.4%), followed by 45 – 64 years (34.4%), 24 years or younger (9.3%), and 65  
14 years or older (12.9%). In terms of participants' income level, the highest category was over  
15 \$100,000 (23.2%), closely followed by an income between \$55,000 and \$69,999 (21.2%).  
16 Most participants reported their ethnic background as Caucasian/White (74.5%). Lastly, in  
17 terms of education level, a majority of the respondents possessed a bachelor's degree (41.7%)  
18 or graduate degree (15.6%).  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

# Results

## Confirmatory Factor Analysis

To analyze the collected data, SPSS and AMOS were utilized. The measurement model was produced. Findings of the confirmatory factor analysis (CFA) with the maximum likelihood estimation approach indicated that the model contained a sufficient level of fit to the data ( $\chi^2 = 945.693$ ,  $df = 397$ ,  $p < .001$ ,  $\chi^2 / df = 2.382$ , RMSEA = .068, CFI = .938, IFI = .938, TLI = .927). The CFA results and inter-correlations matrix among research variables are reported in Table 1. Internal consistency among observed variables for each latent construct was first evaluated. Our calculation revealed that values of composite reliability were all greater than .600 (biospheric value = .886, environmental concern = .786, awareness of consequences = .889, ascription of responsibility = .934, positive anticipated emotion = .933, negative anticipated emotion = .941, social norm = .939, moral norm = .907, environmentally responsible intentions = .951). Thus, internal consistency of the measures for each construct was evident. Subsequently, average variance extracted (AVE) values were calculated. The AVE shows the amount of shared (common) variance among each construct indicators (Hair et al. 2010). The calculated values were all above the minimum threshold of .500 (biospheric value = .662, environmental concern = .563, awareness of consequences = .670, ascription of responsibility = .877, positive anticipated emotion = .776, negative anticipated emotion = .800, social norm = .837, moral norm = .710, environmentally responsible intentions = .865), thus supporting the convergent validity. These values were then compared to the squared correlation between unobserved latent factors. As reported in Table 1, the AVE values

1  
2  
3  
4 were all greater than these correlations. Discriminant validity was accordingly supported.  
5

6 The  $\chi^2/df$  value of 2.382 in the measurement model falls within an acceptable range  
7 of 2 – 5 (Marsh and Hocevar, 1998), and other practical fit indices were adequate. The  
8 reliability values were well above .600 as suggested by Hair et al. (2010). All standardized  
9 factor loadings were significant ( $p < .01$ ). This indicated the convergence of the indicators  
10 (observed variables) with their associated underlying factors (Anderson and Gerbing, 1988).  
11 This result with the appropriate fit of the measurement model provided empirical evidence of  
12 unidimensionality, demonstrating the presence of a single strait underlying each set of  
13 measurement items (Hattie, 1985).  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

26 **(Insert Table 1)**  
27  
28  
29

### 30 **Structural Equation Modeling**

31  
32 A structural model was produced. Findings of the structural equation modeling (SEM) with  
33 the maximum likelihood estimation method revealed that the proposed structural model  
34 included an acceptable level of fit to the data ( $\chi^2 = 1039.352$ ,  $df = 407$ ,  $p < .001$ ,  $\chi^2/df = 2.554$ ,  
35 RMSEA = .072, CFI = .928, IFI = .929, TLI = .918). After preliminary data analysis, two  
36 new paths were added by taking the modification indices into account, which were wholly  
37 justifiable for literature-based theoretical reasons. The goodness-of-fit of this revised model  
38 was satisfactory ( $\chi^2 = 1024.416$ ,  $df = 405$ ,  $p < .001$ ,  $\chi^2/df = 2.529$ , RMSEA = .071, CFI = .930,  
39 IFI = .930, TLI = .919). The insertion of the paths strengthened the general model fit and fit  
40 indices ( $\Delta\chi^2 = 14.936$ ,  $df = 2$ ,  $p < .01$ ). The details about the results of this final model  
41 predicting cruise travelers' environmentally responsible intentions are shown in Figure 2  
42 and Table 2.  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

(Insert Figure 2)

(Insert Table 2)

This model has a satisfactory level of explanation power for intentions in that the variables within the framework explained about 76.1% of the variance in intentions. In addition, approximately 84.1% of the total variance in moral norm was accounted for by its predictors. Moreover, cognitive factors explained about 37.5% and 9.6% of the variance in positive and negative anticipated emotions, respectively. The hypothesized associations among research variables were subsequently tested. The associations between cognitive factors and positive anticipated affect were evaluated (H1 – H4). Results indicated that positive anticipated emotion was a significant function of biospheric value ( $\beta = .279, p < .01$ ), environmental concern ( $\beta = .180, p < .01$ ), and awareness of consequences ( $\beta = .272, p < .01$ ), thus supporting hypotheses 1, 2, and 3. Yet, the impact of ascribed responsibility on positive anticipated emotion ( $\beta = .031, p > .05$ ) was not significant. Thus, hypothesis 4 was not supported.

The proposed relationships between cognitive factors and negative anticipated emotion were evaluated (H5 – H8). Findings showed that both environmental concern ( $\beta = -.195, p < .05$ ) and ascribed responsibility ( $\beta = -.293, p < .01$ ) exerted a significant influence on negative anticipated emotion. Hence, hypotheses 6 and 8 were supported. However, the influence of biospheric value ( $\beta = -.113, p > .05$ ) and awareness of consequences ( $\beta = -.070, p > .05$ ) on negative anticipated emotion was not significant. Therefore, hypotheses 5 and 7 were not supported. The hypothesized impact of cognitive factors on moral norm was assessed (H9 – H12). Our results revealed that biospheric value ( $\beta = .096, p < .01$ ), environmental concern ( $\beta = .328, p < .01$ ), awareness of consequences ( $\beta = .300, p < .01$ ), and ascribed responsibility ( $\beta = .122, p < .01$ ) have a positive and significant influence on

1  
2  
3  
4 moral norm. These results supported hypotheses 9, 10, 11, and 12.  
5

6         The impact of anticipated emotions was assessed (H13 – H14). It was found that  
7  
8         while positive anticipated emotion is significantly associated with moral norm ( $\beta = .106$ ,  $p$   
9  $< .01$ ), negative anticipated emotion was not significantly related to moral norm ( $\beta = .040$ ,  
10  $p > .05$ ). Thus, hypothesis 13 was supported, but hypothesis 14 was not supported.  
11  
12         Regarding the social norm and moral norm relationship (H15), moral norm was found to be  
13 a significant function of social norm ( $\beta = .253$ ,  $p < .01$ ). Thus, hypothesis 15 was supported.  
14  
15         The hypothesized influence of moral norm on environmentally responsible intentions was  
16 tested (H16). The direct link was found to be significant ( $\beta = .706$ ,  $p < .01$ ), supporting  
17 hypothesis 16. The two added paths from negative anticipated emotion ( $\beta = -.107$ ,  $p < .01$ )  
18 and social norm ( $\beta = .197$ ,  $p < .01$ ) to intentions were also significant.  
19  
20  
21  
22  
23  
24  
25  
26  
27

28         The indirect influence of research variables on pro-environmental intentions was  
29 examined. Our results showed that social norm significantly influenced intentions indirectly  
30 through moral norm ( $\beta_{SN-MN-ERI} = .179$ ,  $p < .01$ ). Thus, moral norm played a significant  
31 mediating role in this relationship. In addition, our findings showed that biospheric value ( $\beta$   
32  $BV-PAE \ \& \ NAE-MN-ERI = .097$ ,  $p < .05$ ), environmental concern ( $\beta_{EC-PAE \ \& \ NAE-MN-ERI} = .261$ ,  $p$   
33  $< .01$ ), and awareness of consequences ( $\beta_{AC-PAE \ \& \ NAE-MN-ERI} = .237$ ,  $p < .01$ )  
34 significantly influenced pro-environmental intentions via anticipated emotions and moral  
35 norm. These results supported a significant mediating role of both anticipated emotions and  
36 moral norm in these relationships. Lastly, regarding the total impact of study constructs, as  
37 reported in Table 2, the moral norm included the greatest influence on intentions ( $\beta = .706$ ,  
38  $p < .01$ ), followed by social norm ( $\beta = .376$ ,  $p < .01$ ).  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54

## 55 **Discussion**

### 56 **Summary of the Research**

1  
2  
3 The present study provides a deeper understanding of individuals' decision-making process  
4  
5 for cruise traveling in an environmentally responsible way. Specifically, this study identified the  
6  
7 possible distinctive role of variables within cognitive, affective, and normative processes in  
8  
9 triggering cruise travelers' environmentally responsible intentions. In addition, the present  
10  
11 study tested the interrelationships among constructs within such processes. The proposed  
12  
13 theoretical framework was significantly improved by integrating additional paths. The  
14  
15 associations within the improved model were generally supported. The model explained a  
16  
17 satisfactory amount of total variance to explain why individuals intend to  
18  
19 engage in environmentally responsible cruise traveling accepting some possible  
20  
21 inconveniences.  
22  
23  
24  
25

### 26 **Relative Importance of Moral Norm**

27  
28 Moral norm emerged as the most influential predictor of individuals' environmentally  
29  
30 responsible intentions while cruise traveling. This finding supported the notion that one who  
31  
32 perceives a moral imperative to behave in an eco-friendly way feels morally obliged to act in  
33  
34 a consistent manner (Fornara *et al.*, 2016; Van der Werff *et al.*, 2013).  
35  
36

37 Regarding the triggers of moral norm within our conceptual framework, it appeared that  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55

1  
2  
3  
4 cognitive factors such as biospheric value, environmental concern, awareness of  
5  
6 consequences, and ascribed responsibility along with positive anticipated emotion and social  
7  
8 norm significantly increase cruise travelers' sense of moral obligation for pro-environmental  
9  
10 behavior.

11  
12 social variables. For instance, by using diverse channels/methods, helping current and  
13  
14 potential cruise customers (1) know that protecting the environment or respecting the Earth is  
15  
16 valuable, (2) understand that mankind is severely abusing the natural environment and  
17  
18 resources, (3) be aware that the tourism industry, including cruises, generates huge impacts  
19  
20 on the environment causing environmental deterioration, (4) know that every traveler is  
21  
22 jointly responsible for such environmental harm, (5) know that traveling in a sustainable way  
23  
24 generates feelings of pride, and (6) recognize that most people in society definitely want  
25  
26 travelers to protect the environment can be an efficient way to increase their moral obligation,  
27  
28 which in turn significantly boosts their willingness to practice environmentally responsible  
29  
30 actions while traveling on a cruise.  
31  
32  
33  
34  
35  
36

### 37 **Impact of Anticipated Emotions**

38  
39 Concerning the role of anticipated emotions, the direct connection between positive  
40  
41 anticipated emotion and moral norm was revealed. In contrast, there was no direct  
42  
43 relationship between negative anticipated emotion and moral norm. The direct connection  
44  
45 from this negative anticipated emotion to environmentally responsible intention was  
46  
47 nevertheless significant. This result is partially in accordance with previous research that  
48  
49 identified the direct relationship between anticipated emotions and moral/personal norm in  
50  
51  
52  
53

1  
2  
3 explaining environmental behavior (Bamberg *et al.*, 2007; Han, 2014; Onwezen *et al.*, 2013).

4  
5 Enriching our knowledge regarding the role of anticipated emotions, our findings informed  
6  
7 that cruise passengers' positive predicted form of emotions contributes to activating their  
8  
9 moral norm by directly eliciting their moral obligation to behave pro-environmentally while  
10  
11 traveling, whereas their negative anticipated emotions directly triggers passengers'  
12  
13 environmentally responsible decisions without a connection with moral norm.  
14  
15

### 16 17 18 19 **Mediating Effect of Variables**

20  
21 Moral norm and anticipated emotions appeared as important mediators in the proposed  
22  
23 theoretical framework. In particular, moral norm significantly mediated the impact of social  
24  
25 norm on environmentally responsible intentions; and both anticipated emotions and moral  
26  
27 norm together significantly mediated the influence of biospheric value, environmental  
28  
29 concern, and awareness of consequences on intentions. This finding is in line with previous  
30  
31 studies that stressed the important mediating impact of moral norm or anticipated emotions  
32  
33 (Han, 2014; Hunecke *et al.*, 2001; Klöckner, 2013; Steg and De Groot, 2010; Zhang *et al.*,  
34  
35 2013). While being aware of the mediating characteristics of these constructs, researchers  
36  
37 need to carefully exploit them when building a conceptual framework for the elucidation of  
38  
39 customers' pro-environmental decision formation and behavior.  
40  
41  
42  
43  
44

### 45 46 **Impact of Social Norm**

47  
48 Concerning the hypothesized role of social norm, it appeared that social norm significantly  
49  
50 increases moral norm, which in turn enhances environmentally responsible intentions via  
51  
52

1  
2  
3  
4 moral norm. Some research in the existing literature has asserted the conjoint use of social  
5  
6 norm and moral norm as a normative process for the explication of environmental decision-  
7  
8 making and behavior (Bamberg *et al.*, 2007; López-Mosquera and Sánchez, 2012).  
9  
10 Consistently, the present study addressed the importance of social norm in making cruise  
11  
12 travelers feel morally obliged to behave ecologically, directly influencing their willingness  
13  
14 for environmentally responsible actions while cruising. Results of this study substantially  
15  
16 supported the theoretical models in the extant literature framed on both pro-  
17  
18 social/environmental and self-interest motives (e.g., Bamberg and Möser, 2007; Fornara *et al.*,  
19  
20 2016; Han, 2015; Hunecke *et al.*, 2001).  
21  
22  
23  
24  
25

### 26 **Importance of the Cognition – Affect Relationship**

27  
28 Regarding the proposed impact of cognitive factors on affective dimensions, the relationships  
29  
30 were partially supported. In particular, it was revealed that the presence of cruise customers’  
31  
32 biospheric value, concern for the environment, and problem awareness evokes their positive  
33  
34 anticipated feelings for sustainable actions while cruising; the presence of their ecological  
35  
36 concern and ascribed responsibility for the existing environmental problems forms their  
37  
38 unfavorable anticipated feelings for environmentally irresponsible behaviors while traveling  
39  
40 on a cruise. This result is consistent with existing studies that emphasized the pivotal role of  
41  
42 the cognition – affect relationship in individuals’ decision-making processes not only in  
43  
44 consumer behavior (Hunter, 2006; Oliver, 1997, 1999) but also in environmental behavior  
45  
46 (Bamberg and Möser, 2007; Onwezen *et al.*, 2013). Overall, our finding demonstrated the  
47  
48 necessity of involving the combination of cognitive and affective processes into the  
49  
50 theoretical framework of cruise travelers’ eco-friendly decision-making processes.  
51  
52  
53  
54  
55

### 56 **Limitations**

57  
58  
59  
60

1  
2  
3 The present research was not free from limitations. First, like other socio-psychological  
4  
5 studies/theories relating to individuals' decision-making processes (e.g., Ajzen, 1991; Ajzen  
6  
7 and Fishbein, 1980; Perugini and Bagozzi, 2001; Schwartz, 1977), this research investigates  
8  
9 travelers' general decision formation. Future research should focus either on repeat purchase  
10  
11 or pre-purchase decision-making processes to better assess environmentally responsible  
12  
13 behavior. Second, survey respondents were from various regions across the US. Do cross-  
14  
15 national differences exist? Additional research is necessary to determine whether or not the  
16  
17 study results can be generalized to different nations. Third, while all pre-test participants were  
18  
19 knowledgeable academics, general/actual cruise customers were not part of the pre-test  
20  
21 process. Future research should include pre-test participants who more accurately represent  
22  
23 the average US cruise traveler.  
24  
25  
26  
27  
28  
29

## 30 **Conclusion**

31  
32 The present study considerably adds to our comprehension of travelers' environmentally  
33  
34 responsible decision-making processes in the cruise sector by putting cognitive factors,  
35  
36 affective drivers, and normative factors together into one comprehensive theoretical framework.  
37  
38 That is, this study effectively utilized the imperative drivers of pro-environmental  
39  
40 behaviors and successfully examined the intricate relationships among them for better  
41  
42 understanding of passengers' willingness to behave pro-environmentally while cruise  
43  
44 traveling. Previous studies involved one of the affective-centered, cognitive-focused, or  
45  
46 normative-centered views to explicate pro-environmental decision/behavior. The present  
47  
48 research provides empirical evidence that considering such views simultaneously is even more  
49  
50 capable of explaining the customer decision-making process. This research was the first  
51  
52 to employ such integrative views in the cruise context. This research thus includes strong  
53  
54 meanings in theory and practice in the cruise industry.  
55  
56  
57  
58  
59  
60

1  
2  
3  
4  
5  
6  
7 **Appendix**

---

8 Biospheric value

9 *Please indicate to what extent the following are important as guiding principles in your life.*

10 *Not very important [1] – Very important [7]*

11 Preventing pollution

12 Respecting the Earth

13 Unity with nature

14 Protecting the environment

---

16 Environmental concern

17 *Strongly disagree [1] – Strongly agree [7]*

18 The balance of nature is very delicate and easily upset.

19 Humans are severely abusing the environment.

20 The Earth is like a spaceship with limited room and resources.

---

22 Awareness of Consequences

23 *Strongly disagree (1) – Strongly agree (7)*

24 The cruise industry can cause ocean pollution, climate change, and exhaustion of natural  
25 resources.

26  
27 Cruise tourism can possibly generate huge environmental impact on the ocean and the wider  
28 environment.

29 The cruise industry can cause environmental deterioration (e.g., waste from rooms, dining,  
30 and other ship facilities, excessive use of energy/water/fuel).

---

32 Ascription of responsibility

33 *Strongly disagree (1) – Strongly agree (7)*

34 I believe that every cruise traveler is partly responsible for the environmental problem  
35 caused by the cruise industry.

36 I feel that every cruise traveler is jointly responsible for the environmental deterioration  
37 caused by cruise trips.

38 Every cruise traveler must take responsibility for the environmental problems caused by  
39 cruise trips.

---

42 Positive anticipated emotion

43 *Image that you are traveling on a cruise in an environmentally responsible way that*  
44 *minimizes its negative impact on the ocean and wider environment. How would you feel?*

45 *Not at all (1) – Very much (7)*

46 I feel proud.

47 I feel accomplished.

48 I feel confident.

49 I feel worthwhile.

---



---

Negative anticipated emotion

*Image that you fail to travel on a cruise in an environmentally responsible way that minimizes its negative impact on the ocean and wider environment. How would you feel?*  
Not at all (1) – Very much (7)

I feel guilty.

I feel remorseful.

I feel sorry.

I feel bad.

---

Social norm

*Strongly disagree (1) – Strongly agree (7)*

Most people who are important to me think I should perform environmentally responsible practices while traveling on a cruise.

Most people who are important to me would want me to perform environmentally responsible practices while traveling on a cruise.

People whose opinions I value would prefer me perform environmentally responsible practices while traveling on a cruise.

---

Moral norm

*Strongly disagree (1) – Strongly agree (7)*

I feel an obligation to take pro-environmental actions while traveling on a cruise.

Regardless what other people do, because of my own values/principles I feel that I should behave in an environmentally friendly way while traveling on a cruise.

I feel that it is important to make cruises environmentally sustainable, reducing the harm to the ocean and wider environment.

I feel morally obliged to minimize human impact on marine resources while traveling on a cruise.

---

Environmentally responsible intentions

*Strongly disagree (1) – Strongly agree (7)*

To protect the environment, I am willing to follow the cruise instructions to perform required environmental practices while traveling on a cruise.

To be environmentally responsible, I would be willing to accept any inconvenience (e.g., recycling, reducing water/energy use, decreasing wastage, reusing towels/linens) on a cruise.

To be environmentally responsible, I will make an effort to practice eco-friendly actions while traveling on a cruise.

---

## References

Ahmad, M., 2014. Green ships fuelled by LNG: Stimulus for Indian coastal shipping. *India Quarterly* 70(2): 105-122.

Ajzen, I., 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50(2): 179–211.

Ajzen, I., Fishbein, M., 1980. *Understanding Attitude and Predicting Social Behavior*. Prentice-Hall: Englewood Cliffs, NJ.

Anderson, J.C., Gerbing, D.W., 1988. Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin* 103(3): 411-423.

- 1  
2  
3  
4 Bagozzi, R.P., Dholakia, U.M., Basuroy, S., 2003. How effortful decisions get enacted: The  
5 motivating role of decision processes, desires, and anticipated emotions. *Journal of*  
6 *Behavioral Decision Making* 16: 273-295.  
7  
8 Bamberg, S., Möser, G., 2007. Twenty years after Hines, Hungerford, and Tomera: A new  
9 meta-analysis of psycho-social determinants of pro-environmental behavior. *Journal*  
10 *of Environmental Psychology* 27: 14–25.  
11  
12 Bamberg, S., Schmidt, P., 2003. Incentives, morality or habit? Predicting students' car use  
13 for university routes with the models of Ajzen, Schwartz, and Triandis. *Environment*  
14 *and Behavior* 35: 264–285.  
15  
16 Bamberg, S., Hunecke, M., Blobaum, A., 2007. Social context, personal norms and the use  
17 of public transportation: Two field studies. *Journal of Environmental Psychology*  
18 27: 190–203.  
19  
20 Carrus, G., Bonnes, M., Fornara, F., Passafaro, P., Tronu, G., 2009. Planned behavior and  
21 local norms: An analysis of the space-based aspects of normative ecological  
22 behavior. *Cognitive Processing* 10: 198-200.  
23  
24 Carrus, G., Passafaro, P., Bonnes, M., 2008. Emotions, habits and rational choices in  
25 ecological behaviours: The case of recycling and use of public transportation.  
26 *Journal of Environmental Psychology* 28: 51-62.  
27  
28 Chan, E.S.W., Hsu, C.H.C., 2016. Environmental management research in hospitality.  
29 *International Journal of Contemporary Hospitality Management* 28(5): 886-923.  
30  
31 Chan, E.S.W., Hon, A.H.Y., Chan, W., Okumus, F., 2014. What drives employees' intentions to  
32 implement green practices in hotels? The role of knowledge, awareness, concern and  
33 ecological behavior. *International Journal of Hospitality Management* 40: 20-28.  
34  
35 Chan, W.W., Ho, K., 2006. Hotels' environmental management systems (ISO 14001):  
36 creative financing strategy. *International Journal of Contemporary Hospitality*  
37 *Management* 18(4): 302-316.  
38  
39 Chen, M., Tung, P., 2014. Developing an extended theory of planned behavior model to  
40 predict consumers' intention to visit green hotels. *International Journal of*  
41 *Hospitality Management* 36: 221-230.  
42  
43 Choi, H., Jang, J., Kandampully, J., 2015. Application of the extended VBN theory to  
44 understand consumers' decisions about green hotels. *International Journal of*  
45 *Hospitality Management* 51: 87-95.  
46  
47 Cordano, M., Welcomer, S., Scherer, R., Parada, V., 2011. Understanding cultural  
48 differences in the antecedents of pro-environmental behavior: A comparative  
49 analysis of business student in the United States and Chile. *Journal of*  
50 *Environmental Education* 41: 224-238.  
51  
52 De Groot, J.I.M., Steg, L., 2008. Value orientations to explain beliefs related to  
53 environmental significant behavior: How to measure egoistic, altruistic, and  
54 biospheric value orientations. *Environment and Behavior* 40: 330-354.  
55  
56 De Groot, J.I.M., Steg, L., Dicke, M., 2007. Morality and reducing car use: Testing the norm  
57  
58  
59  
60

1  
2  
3 activation model of prosocial behavior. In Columbus, F. (Ed.), Transportation  
4 research trends. NOVA Publishers.  
5

6 Ferguson, M.A., Branscombe, N.R., Reynolds, K.J., 2011. The effect of intergroup  
7 comparison on willingness to perform sustainable behavior. *Journal of*  
8 *Environmental Psychology* 31: 275-281.  
9

10 Fornara, F., Carrus, G., Passafaro, P., Bonnes, M., 2011. Distinguishing the sources of  
11 normative influence on pro-environmental behaviors: The role of local norms in  
12 household waste recycling. *Group Processes and Intergroup Relations* 14: 623-635.  
13

14 Fornara, F., Pattitoni, P., Mura, M., Strazzera, E., 2016. Predicting intention to improve  
15 household energy efficiency: The role of value-belief-norm theory, normative and  
16 informational influence, and specific attitude. *Journal of Environmental Psychology*  
17 45: 1-10.  
18

19  
20 Fransson, N., Biel, A., 1997. Morality and norm violation. *Göteborg Psychological Reports*  
21 27(3): 1-10.  
22

23 Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., 2010. *Multivariate Data Analysis* (7<sup>th</sup>  
24 ed.). Prentice-Hall: Upper Saddle River.  
25

26 Han, H., 2014. The norm activation model and theory-broadening: Individuals' decision-  
27 making on environmentally-responsible convention attendance. *Journal of*  
28 *Environmental Psychology* 40: 462-471.  
29

30 Han, H., 2015. Travelers' pro-environmental behavior in a green lodging context:  
31 Converging value-belief-norm theory and the theory of planned behavior. *Tourism*  
32 *Management* 47: 164-177.  
33

34  
35 Han, H., Hsu, L., Sheu, C., 2010. Application of the theory of planned behavior to green  
36 hotel choice: Testing the effect of environmentally friendly activities. *Tourism*  
37 *Management* 31: 325-334.  
38

39  
40 Han, H., Lee, M.J., Hwang, J., 2016. Cruise travelers' environmentally responsible decision-  
41 making: An integrative framework of goal-directed behavior and norm activation  
42 process. *International Journal of Hospitality Management* 53: 94-105.  
43

44  
45 Harland, P., Staats, H., Wilke, H.A.M., 2007. Situational and personality factors as direct or  
46 personal norm mediated predictors of pro-environmental behavior: Questions derived  
47 from norm-activation theory. *Basic and Applied Social Psychology* 29(4): 323-334.  
48

49 Harth, N.S., Leach, C.W., Kessler, T., 2013. Guilt, anger, and pride about in-group  
50 environmental behavior: Different emotions predict distinct intentions. *Journal of*  
51 *Environmental Psychology* 34: 18-26.  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3  
4 Hattie, J., 1985. Methodology review: Assessing unidimensionality of tests and items.  
5 *Applied Psychological Measurement* 9: 139-164.  
6
- 7 Hedlund, T., 2011. The impact of values, environmental concern, and willingness to accept  
8 economic sacrifices to protect the environment on tourists' intentions to buy  
9 ecologically sustainable tourism alternatives. *Tourism and Hospitality Research*  
10 11(4): 278-288.  
11
- 12 Hsieh, Y-C., 2012. Hotel companies' environmental policies and practices: A content  
13 analysis of their web pages. *International Journal of Contemporary Hospitality*  
14 *Management* 24(1): 97-121.  
15
- 16 Hunecke, M., Blöbaum, A., Matthies, E., Höger, R., 2001. Responsibility and environment:  
17 Ecological norm orientation and external factors in the domain of travel mode  
18 choice behavior. *Environment and Behavior* 33: 830-852.  
19
- 20 Hunter, G.L., 2006. The role of anticipated emotion, desire, and intention in the relationship  
21 between image and shopping center visits, *International Journal of Retail and*  
22 *Distribution Management* 34(10): 709-721.  
23  
24
- 25 Jakovcevic, A., Steg, L., 2013. Sustainable transportation in Argentina: Values, beliefs, norms  
26 and car use reduction. *Transportation Research Part F* 20: 70-79.  
27
- 28 Jansson J, 2011. Consumer eco-innovation adoption: Assessing attitudinal factors and  
29 perceived product characteristics. 20: 192-210.  
30
- 31 Kaldy, J., 2011. Using a macroalgal N bioassay to detect cruise ship waste water effluent  
32 inputs. *Marin pollution Bulletin* 62: 1762 -1771.  
33
- 34 Kim, Y., Han, H., 2010. Intention to pay conventional-hotel prices at a green hotel – a  
35 modification of the theory of planned behavior. *Journal of Sustainable Tourism*  
36 18(8): 997-1014.  
37
- 38 Kim, Y., Njite, D., Hancer, M., 2013. Anticipated emotion in consumers' intentions to  
39 select eco-friendly restaurants: Augmenting the theory of planned behavior",  
40 *International Journal of Hospitality Management* 34: 255–262.  
41
- 42 Klein, R.A., 2011. Responsible cruise tourism: Issues of cruise tourism and sustainability.  
43 *Journal of Hospitality and Tourism Management* 18: 107-116.  
44
- 45 Klöckner, C.A., 2013. A comprehensive model of the psychology of environmental behavior  
46 – A meta-analysis. *Global Environmental Change* 23: 1028-1038.  
47
- 48 Klöckner, C.A., Matthies, E., 2004. How habits interfere with norm directed behavior – A  
49 normative decision-making model for travel mode choice. *Journal of Environmental*  
50 *Psychology* 24: 319–327.  
51
- 52 Laroche, M., Bergeron, J., Barbaro-Forleo, G., 2001. Targeting consumers who are wiling  
53 to pay more for environmentally friendly products. *Journal of Consumer Marketing*  
54 18(6): 503–520.  
55
- 56 Lee, J., Hsu, L., Han, H., Kim, Y., 2010. Understanding how consumers view green hotels:  
57 How a hotel's green image can influence behavioral intentions. *Journal of Sustainable*  
58  
59  
60

- 1  
2  
3 *Tourism* 18(7): 90-914.  
4  
5 Lerner, J.S., Keltner, D., 2000. Fear, anger, and risk. *Journal of Personality and Social*  
6 *Psychology* 81(1): 146-159.  
7  
8 Lewis, M.A., 1993. Self-conscious emotions: Embarrassment, pride, shame, and guilt. In  
9 Haviland, M.L.J.M. (Ed.), *Handbook of Emotions*, The Guilford Press: New York, NY.  
10  
11 Lin, H-Y., Hsu, M-H., 2015. Using social cognitive theory to investigate green consumer  
12 behavior. *24*: 326-343.  
13  
14 López-Mosquera, N., Sánchez, M., 2012. Theory of planned behavior and the value-belief-  
15 norm theory explaining willingness to pay for a suburban park. *Journal of*  
16 *Environmental Management* 113: 251-262.  
17  
18 Marsh, H.W., Hocevar, D., 1988. A new, more powerful approach to multitrait-  
19 multimethod analyses: Application of second-order confirmatory factor analysis.  
20 *Journal of Applied Psychology*, 73: 107-117.  
21  
22 Matthies, E., Selge, S., Klöckner, C.A., 2012. The role of parental behavior for the  
23 development of behaviour specific environmental norms – The example of recycling  
24 and re-use behavior. *Journal of Environmental Psychology* 32: 277-282.  
25  
26 Milfont. T.L., Sibley, C.G., Duckitt, J., 2010. Testing the moderating role of the  
27 components of norm activation on the relationship between values and  
28 environmental behavior. *Journal of Cross-Cultural Psychology* 41: 124-131.  
29  
30 Minton, A.P., Rose, R.L., 1997. The effects of environmental concern on environmentally  
31 friendly consumer behavior: An exploratory study. *Journal of Business*  
32 *Research* 40(1): 37-48.  
33  
34 Mostafa, M., 2009. Shades of green: A psychographic segmentation of the green consumer  
35 in Kuwait using self-organizing maps. *Expert Systems with Applications* 36: 11030-  
36 11038.  
37  
38 Mustonen N, Karjaluoto H, Jayawardhena C, 2016. Customer environmental values and  
39 their contribution to loyalty in industrial markets. *25*: 512-528.  
40  
41 Oliver, R.L., 1997. *Satisfaction: A Behavioral Perspective on the Consumer*. McGraw-Hill:  
42 New York, NY.  
43  
44 Oliver, R.L., 1999. Whence consumer loyalty?., *Journal of Marketing* 63: 33-44.  
45  
46 Onwezen, M.C., Antonides, G., Bartels, J., 2013. The norm activation model: An exploration of  
47 the functions of anticipated pride and guilt in pro-environmental behavior. *Journal*  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3  
4 *of Economic Psychology* 39: 141–153.
- 5  
6 Ozaki, R., 2011. Adopting sustainable innovation: What makes consumers sign up to green  
7 electricity? *20*: 1-17.
- 8  
9 Perugini, M., Bagozzi, R.P., 2001. The role of desires and anticipated emotions in goal-  
10 directed behaviors: Broadening and deepening the theory of planned behavior.  
11 *British Journal of Social Psychology* 40: 79–98.
- 12  
13 Schultz, P.W., Khazian, A.M., Zaleski, A.C., 2008. Using normative social influence to  
14 promote conservation among hotel guests. *Social Influence* 3(1): 4-23.
- 15  
16 Schwartz, S.H., 1977. Normative influence on altruism. In Berkowitz, L. (Ed.), *Advances*  
17 *in Experimental Social Psychology* 10, Academic Press: New York, NY: 221-279.
- 18  
19 Schwartz, S.H., 1992. Universals in the content and structure of values: Theoretical  
20 advances and empirical tests in 20 countries. *Advances in Experimental Social*  
21 *Psychology* 25: 1-65.
- 22  
23 Schwartz, S.H., Bardi, A., 2001. Value hierarchies across cultures: Taking a similarities  
24 perspective. *Journal of Cross-Cultural Psychology* 32: 268-290.
- 25  
26 Schwartz, S.H., Howard, J.A., 1981. A normative decision making model of altruism. In  
27 Rushton, J.P., Sorrentino, R.M. (Eds), *Altruism and Helping Behavior*, Lawrence  
28 Erlbaum: Hillsdale, NJ: 89-211
- 29  
30 Steg, L., De Groot, J.I.M., 2010. Explaining prosocial intentions: Testing causal relationships  
31 in the norm activation model. *British Journal of Social Psychology* 49: 725-743.
- 32  
33 Steg, L., Vlek, C., 2009. Encouraging pro-environmental behavior: An integrative review and  
34 research agenda. *Journal of Environmental Psychology* 29: 309-317.
- 35  
36 Steg, L., De Groot, J.I.M., Dreijerink, L., Abrahamse, W., Siero, F., 2011. General antecedents  
37 of personal norms, policy acceptability, and intentions: The role of values, worldviews,  
38 and environmental concern. *Society and Natural Resources* 24: 349-367.
- 39  
40 Stern, P.C., 2000. Toward a coherent theory of environmentally significant behavior.  
41 *Journal of Social Issues* 56(3): 407-424.
- 42  
43 Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A., Kalof, L., 1999. A value-belief-norm  
44 theory of support for social movements: The case of environmentalism. *Research in*  
45 *Human Ecology* 6(2): 81–97.
- 46  
47 Stern, P.C., Dietz, T., Kalof, L., Guagnano, G.A., 1995. Values, beliefs, and pro-  
48 environmental action: Attitude formation toward emergent attitude objects. *Journal*  
49 *of Applied Social Psychology* 25: 1611-1636.
- 50  
51 Thøgersen, J., 2006. Norms of environmentally responsible behavior: An extended taxonomy.  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

*Journal of Environmental Psychology* 26: 247-261.

Thøgersen, J., 2009. The motivational roots of norms for environmentally responsible behavior. *Basic and Applied Social Psychology* 31(4): 348-362.

Tracy, J.L., Robins, R.W., 2007. The psychology structure of pride: A tale of two facets. *Journal of Personality and Social Psychology* 92: 506–525.

Van der Werff, E., Steg, L., Keizer, K.E., 2013. It is a moral issue: The relationship between environmental self-identity, obligation-based intrinsic motivation and pro-environmental behavior. *Global Environmental Change* 23: 1258-1265.

Van Riper, C.J., Kyle, G.T., 2014. Understanding the internal processes of behavioral engagement in a national park: A latent path analysis of the value-belief-norm theory. *Journal of Environmental Psychology* 38: 288-297.

Zhang, Y., Wang, Z., Zhou, G., 2013. Antecedents of employee electricity saving behavior in organizations: An empirical study based on norm activation model. *Energy Policy* 62: 1120-1127.

Zimmer, M.R., Stafford, T.F., Stafford, M.R., 1994. Green issues: Dimensions of environmental concern. *Journal of Business Research* 30(1): 63-74.

**TABLE 1. THE MEASUREMENT MODEL RESULTS**

	BV	EC	AC	AR	PAE	NAE	SN	MN	ERI
Biospheric value	1.000								
Environmental concern	.431 (.186)	1.000							
Awareness of consequences	.449 (.202)	.357 (.127)	1.000						
Ascription of responsibility	.364 (.132)	.268 (.072)	.525 (.276)	1.000					
Positive anticipated emotions	.489 (.239)	.342 (.117)	.472 (.223)	.332 (.110)	1.000				
Negative anticipated emotions	-.103 (.011)	-.158 (.025)	-.040 (.002)	-.137 (.019)	-.219 (.048)	1.000			
Social norm	.518 (.268)	.413 (.171)	.464 (.215)	.507 (.257)	.487 (.237)	-.181 (.033)	1.000		
Moral norm	.585 (.342)	.568 (.323)	.679 (.461)	.569 (.324)	.564 (.318)	-.016 (.001)	.687 (.472)	1.000	
Environmentally Responsible Intentions	.560 (.314)	.590 (.348)	.612 (.375)	.454 (.206)	.550 (.303)	-.092 (.008)	.675 (.456)	.795 (.632)	1.000
Mean	5.940	5.818	5.599	4.919	5.509	2.256	4.942	5.559	5.753
SD	.908	.942	1.026	1.494	1.093	1.487	1.428	1.148	1.153
CR	.886	.786	.889	.934	.933	.941	.939	.907	.951
AVE	.662	.563	.670	.877	.776	.800	.837	.710	.865

Note1. BV = biospheric value, EC = environmental concern, AC = awareness of consequences, AR = ascription of responsibility, PAE = positive anticipated emotion, NAE = negative anticipated emotion, SN = social norm, MN = moral norm, ERI = environmentally responsible intentions

Note2. Goodness-of-fit statistics:  $\chi^2 = 945.693$ ,  $DF = 397$ ,  $p < .001$ ,  $\chi^2/DF = 2.382$ , RMSEA = .068, CFI = .938, IFI = .938, TLI = .927

Note3. Squared correlations are in parentheses.



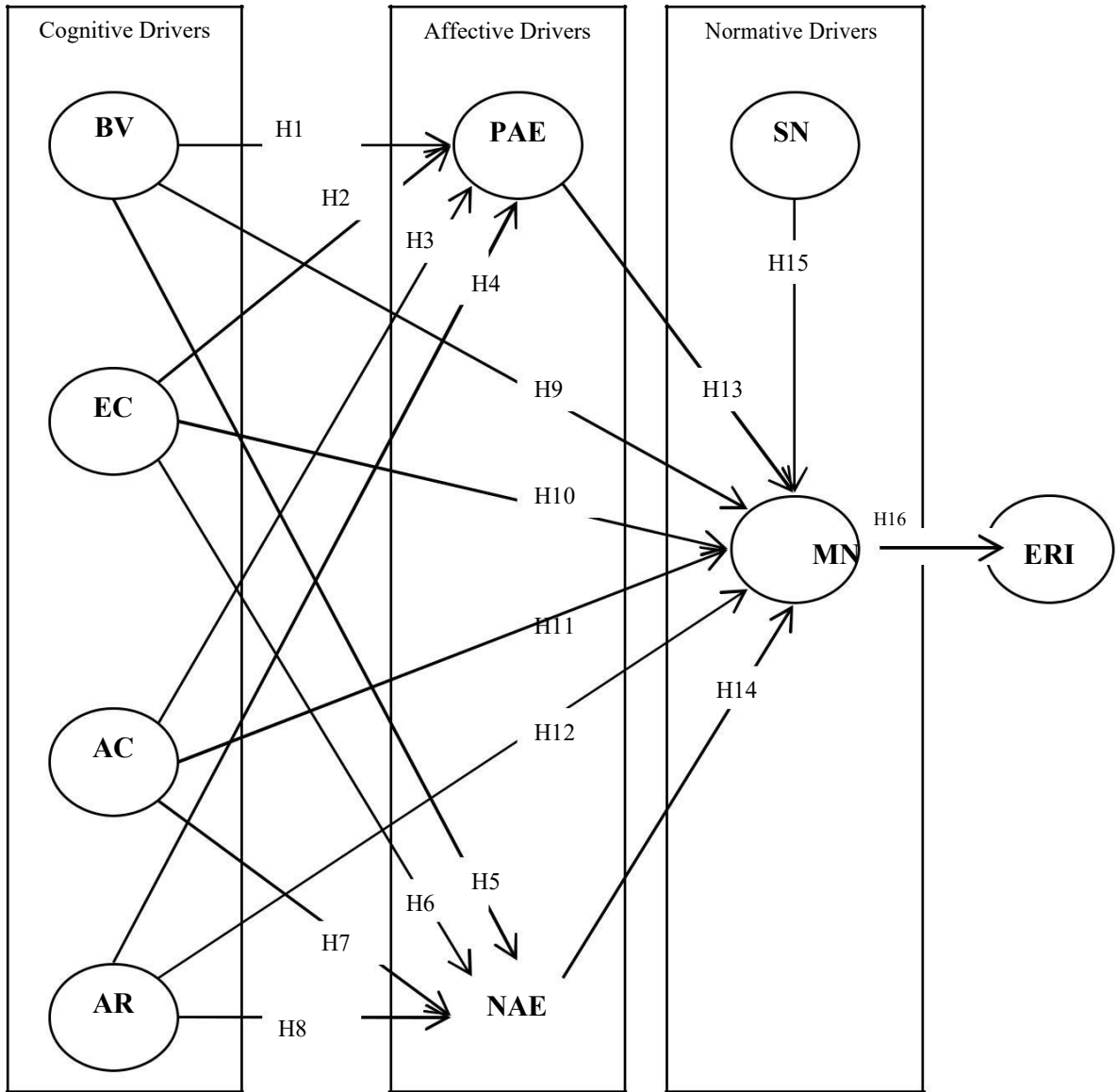
**TABLE 2. THE STRUCTURAL MODEL RESULTS**

Hypotheses	Independent variables	Dependent variables	Standardized estimates	T-values
H1	Biospheric value	Positive anticipated emotion	.279	3.948**
H2	Environmental concern	Positive anticipated emotion	.180	2.614**
H3	Awareness of consequences	Positive anticipated emotion	.272	3.641**
H4	Ascription of responsibility	Positive anticipated emotion	.031	.480
H5	Biospheric value	Negative anticipated emotion	-.113	-1.488
H6	Environmental concern	Negative anticipated emotion	-.195	-2.517*
H7	Awareness of consequences	Negative anticipated emotion	-.070	-.843
H8	Ascription of responsibility	Negative anticipated emotion	-.293	-3.978**
H9	Biospheric value	Moral norm	.096	2.064**
H10	Environmental concern	Moral norm	.328	6.723**
H11	Awareness of consequences	Moral norm	.300	5.856**
H12	Ascription of responsibility	Moral norm	.122	2.768**
H13	Positive anticipated emotion	Moral norm	.106	2.386*
H14	Negative anticipated emotion	Moral norm	.040	1.085
H15	Social norm	Moral norm	.253	4.768**
H16	Moral norm	Environmentally responsible intentions	.706	11.095**
Newly added path 1	Social norm	Environmentally responsible intentions	.197	3.301**
Newly added path 2	Negative anticipated emotion	Environmentally responsible intentions	-.107	-2.997**
<p>Total impact on ERI:            MN = .706**            SN = .376**            PAE = .075            NAE = -.078            BV = .097*            EC = .261**            AC = .237**            AR = .065</p>			<p>Total variance explained:            R<sup>2</sup> for ERI = .761            R<sup>2</sup> for MN = .841            R<sup>2</sup> for PAE = .375            R<sup>2</sup> for NAE = .096</p>	
<p>Indirect impact:  <math>\beta_{SN-MN-ERI} = .179^{**}</math>  <math>\beta_{PAE-MN-ERI} = .075</math>  <math>\beta_{NAE-MN-ERI} = .028</math>  <math>\beta_{BV-PAE\&amp;NAE-MN-ERI} = .097^{*}</math>  <math>\beta_{EC-PAE\&amp;NAE-MN-ERI} = .261^{**}</math>  <math>\beta_{AC-PAE\&amp;NAE-MN-ERI} = .257^{**}</math>  <math>\beta_{AR-PAE\&amp;NAE-MN-ERI} = .065</math></p>			<p>Goodness-of-fit statistics (proposed model): <math>\chi^2 = 1039.352</math>, <math>DF = 407</math>, <math>p &lt; .001</math>, <math>\chi^2/DF = 2.554</math>, RMSEA = .072, CFI = .928, IFI = .929, TLI = .918</p> <p>Goodness-of-fit statistics (revised model): <math>\chi^2 = 1024.416</math>, <math>DF = 405</math>, <math>p &lt; .001</math>, <math>\chi^2/DF = 2.529</math>, RMSEA = .071, CFI = .930, IFI = .930, TLI = .919</p>	

Note. BV = biospheric value, EC = environmental concern, AC = awareness of consequences, AR = ascription of responsibility, PAE = positive anticipated emotion, NAE = negative anticipated emotion, SN = social norm, MN = moral norm, ERI = environmentally responsible intentions

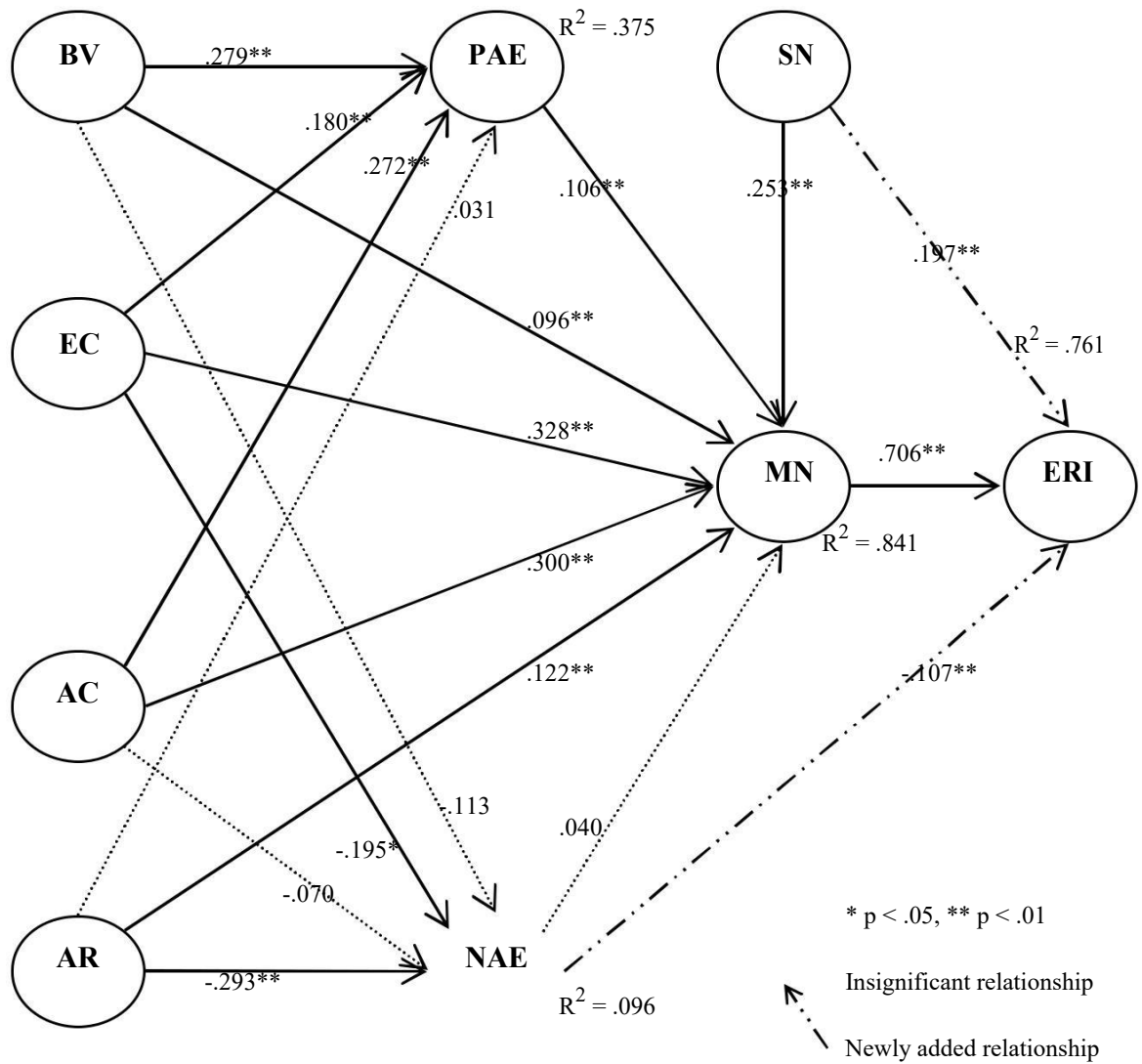
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**FIGURE 1. Conceptual Model**



Note. BV = biospheric value, EC = environmental concern, AC = awareness of consequences, AR = ascription of responsibility, PAE = positive anticipated emotion, NAE = negative anticipated emotion, SN = social norm, MN = moral norm, ERI = environmentally responsible intentions

FIGURE 2. The Structural Model Assessment (Revised Model)



Note1. BV = biospheric value, EC = environmental concern, AC = awareness of consequences, AR = ascription of responsibility, PAE = positive anticipated emotion, NAE = negative anticipated emotion, SN = social norm, MN = moral norm, ERI = environmentally responsible intentions

Note2. Goodness-of-fit statistics (proposed model):  $\chi^2 = 1039.352$ ,  $DF = 407$ ,  $p < .001$ ,  $\chi^2/DF = 2.554$ , RMSEA = .072, CFI = .928, IFI = .929, TLI = .918

Note3.  $R^2$  values for AFP, AFG, MN, and ERI in the proposed model were .375, .096, .859, and .709, respectively.

Note4. Goodness-of-fit statistics (revised model):  $\chi^2 = 1024.416$ ,  $DF = 405$ ,  $p < .001$ ,  $\chi^2/DF = 2.529$ , RMSEA = .071, CFI = .930, IFI = .930, TLI = .919

Note5. Chi-square difference test between the original and revised models:  $\Delta\chi^2 = 14.936$  ( $\Delta DF = 2$ ),  $p < .01$ .