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Articles and essays

Factors Affecting Residents Environmental Behavior in Coastal Tourism Destinations

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Abstract

Brazilian coastal zone is considered a relevant place of visitation, one of the most desirable places for national and international tourists. However, there is significant environmental impact generated by the activity, mainly in relation to solid waste generation, water pollution and undue construction, among others. In this sense, the aim of this study was to investigate the relations of dependence between antecedents capable of influencing residents environmental behavior in coastal tourist destinations. For that, a quantitative study was proposed, using hypothetical-deductive method, because of some theoretical models are used to propose some hypotheses. The study object was residents of Baía Formosa, site, a tourist destination in consolidation process, located at Rio Grande do Norte state, Brazil, using a non-probalistic sampling, which resulted in the application of 288 questionnaires. The data collection instrument was composed by dimensions and variables based on Theory of Planned Behavior and Place Attachment construct. The variables composing these dimensions were evaluated using a eleven-point metric scale (based on the Likert scale), which ranged from 0 (I strongly disagree) to 10 (I fully agree), according to the level of agreement with a proposed sentence to characterize each tested variable. The collected data were analyzed by Structural Equation Modeling method. Results show that the cognitive variables have a greater explanatory power of residents environmental behavior than affective variables.

Keywords: Residents Environmental Behavior; Coastal Tourist Destinations; Environmental management.

Resumo

Fatores que Afetam o Comportamento Ambiental de Residentes em Destinos Turísticos Costeiros

Considerada um relevante local de visitação, a zona costeira brasileira é um dos espaços mais procurados por turistas nacionais e internacionais. Entretanto, observa-se significativo impacto ambiental gerado pela atividade humana, principalmente no que se refere à geração de resíduos sólidos, poluição das águas e construções indevidas, entre outros. Nesse sentido, o objetivo deste estudo foi investigar as inter-relações entre fatores capazes de influenciar o comportamento ambiental de residentes em destinos

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turísticos costeiros. Para tanto, propôs-se um estudo quantitativo, utilizando o método hipotético-dedutivo, uma vez que são utilizados modelos teóricos para propor hipóteses. O estudo teve como objeto os residentes do município de Baía Formosa, destino turístico em consolidação, localizado no litoral sul do estado do Rio Grande do Norte, Brasil, e utilizou uma amostragem do tipo não probabilística, que resultou na aplicação de 288 questionários. O instrumento de coleta de dados foi um questionário composto por dimensões baseadas na teoria do comportamento planejado, sendo adicionado o constructo "apego ao lugar". As variáveis que compuseram essas dimensões foram avaliadas por meio de uma escala métrica de onze pontos (baseada na escala Likert), a qual variou entre 0 (Discordo plenamente) a 10 (Concordo plenamente), conforme o nível de concordância com uma frase proposta para caracterizar cada variável. Os dados coletados foram analisados pelo método da modelagem de equações estruturais. Os resultados apontam que as variáveis de caráter cognitivo têm maior poder explicativo do comportamento ambiental de residentes no destino analisado do que as de caráter afetivo.
Palavras-chave: Comportamento Ambiental de Residentes; Destinos Turísticos Costeiros; Gestão Ambiental.

Resumen

Factores que afectan el comportamiento ambiental de residentes en destinos turísticos costeros

La zona costera brasileña es considerada un relevante local de visitación, uno de los espacios más buscados por turistas nacionales e internacionales. Sin embargo, se observa un significativo impacto ambiental generado por la actividad, principalmente en lo que se refiere a la generación de residuos sólidos, contaminación de las aguas y construcciones indebidas, entre otros. En este sentido, el objetivo de este estudio fue el de investigar las interrelaciones entre factores capaces de influenciar el comportamiento ambiental de residentes en destinos turísticos costeros. Para ello, se propuso un estudio cuantitativo, utilizando el método hipotético-deductivo, ya que se utilizan algunos modelos teóricos para proponer algunas hipótesis. El estudio tuvo como objeto, los residentes del municipio de Baía Formosa, destino turístico en consolidación, ubicado en el litoral sur del Estado de Rio Grande do Norte, Brasil, utilizando un muestreo del tipo no probalístico, que resultó en la aplicación de 288 cuestionarios. El instrumento de recolección de datos fue un cuestionario compuesto por dimensiones basadas en la Teoría del Comportamiento Planeado, agregando el constructo Apego al Lugar. Las variables que compusieron estas dimensiones fueron evaluadas por medio de una escala métrica de once puntos (basada en la escala Likert), la cual varía entre 0 (desacuerdo plenamente) a 10 (estoy totalmente de acuerdo), según el nivel de concordancia con una frase propuesta para caracterizar cada variable. Los datos recolectados fueron analizados por el método del modelado de ecuaciones estructurales. Los resultados apuntan que las variables de carácter cognitivo tienen un mayor poder explicativo del comportamiento ambiental de residentes en el destino analizado, que variables de carácter afectivo.
Palabras clave: Comportamiento Ambiental de Residentes; Destinos Turísticos Costeros; Gestión ambiental.

INTRODUCTION

Global societies have been undergoing an intense transformation process, mainly due to an economic system that seeks to increase the competitiveness of organizations. According to The Worldwatch Institute (2013) it is estimated that, between 1992 and 2012, there has been an increase of 1.6 billion people

in the world, implying the addition of 50 trillion dollars of global GDP. This growth was gradual, generated a greater consumption of goods and services and, consequently, increasing use of natural resources.

Besides the demographic factor, the economic development of some activities, such as tourism, stands out because of the great potential to foster the economy of a country that, in the case of Brazil, represents approximately 3.7% of national GDP (Ministry of Tourism, 2016). Tourism growth is becoming significant in natural spaces because people are moving towards "green environments" in an attempt to escape from urban problems, such as stress, violence and physical and mental conditions (Carvalho, 2016).

However, this phenomenon has contributed to the accelerated growth of the urbanization process, generating, in certain cases, the degradation of spaces, especially the devastation of fauna and flora (Le Hollenhorst, Harris, McLaughlin, & Shook, 2006; Fandé & Pereira, 2014). The Brazilian coastal zone also became the stage for exploration of this public, constituting one of the areas most affected by anthropic action. The environmental relevance of these coastal limits is immediately evident, since they cover an area of 8,698 km^2, comprising a space of approximately 388,000 km^2 of ecosystems and 44 million inhabitants (Oliveira & Nicolodi, 2012).

In fact, environmental problems cannot be associated only with the accelerated growth of urbanization, but also with human conduct or behavior (Maloney & Ward, 1973), which has been encouraging the elaboration of studies aimed at understanding to what extent human action can affect the environment. In terms of urban management, to obtain better results, it is necessary to define a type of behavior oriented to the maintenance of natural resources, reaching the idea of environmental behavior, as can be observed in Bonnes and Bonaiuto (2002), Corral-Verdugo and Pinheiro (1999) or pro-environmental behavior, as in Karp (1996).

Based on this proposition, the objective of the present study was to investigate the interrelationship among factors capable of influencing the environmental behavior of residents in coastal tourist destinations.

THEORETICAL FRAMEWORK

Environmental Impacts on Coastal Tourist Destinations

The process of tourism development has been consolidating in many territories over time, based on the anthropocentric and economics-based thought of nature as an inexhaustible source of resources (Le et al., 2006). Even if positive economic indicators were observed, negative impacts were generated in the natural environment, especially in areas where the main attractions are in the coastal zones. Among the negative impacts caused by tourism in coastal regions, the installation of infrastructure stands out, as well as the lack of it, in the case of generation, collection and adequate disposal of solid waste and sewage (Vasconcelos & Coriolano, 2008).

Environmental impacts on coastal destinations are highlighted in studies such as Smith (1992), Duim and Calders (2002), Moura-Fe and Pinheiro (2013), Fandé and Pereira (2014). These works, besides identifying the causes of the negative

impact (increase of solid residues, petroleum industry, tourism expansion and real estate growth), also discuss the effectiveness of some alternatives considered "sustainable", generally implanted in these areas with the purpose of redressing environmental problems, affecting the life of the receiving population. Some actions have been proposed to minimize the environmental impacts of the activity, such as creation of environmental protection areas, deepening of studies on techniques for prevention and conservation of natural areas, inspection of potentially polluting activities, creation of eco-economic zoning, education programs and environmental monitoring, among others.

These instruments corroborate more proactive measures and lead to more positive results for organizations, since environmental management is a process of applying innovation to achieve sustainability, social responsibility and creation of competitive advantage through continuous learning and development, embracing environmental goals and strategies integrated with the organization's goals and strategies (Haden, Oyler, & Humphreys, 2009, p. 11).

Keene and Pullin (2011) argue that the effectiveness of environmental programs and policies arise because many programs are not tested and are also hampered by technical, cultural and political barriers. Therefore, the way to achieve efficiency and make environmental practices more diligent, despite being a slow process, is, in addition to information flow and self-organization, the cooperation and integration of the parties involved in the process.

Implementing environmental management actions in a coastal tourist destination is complex, since it involves innumerable visions and strategies, being able to embrace differentiated objectives, varying according to the conceptions of each manager. Regarding the human behavior, it is understood that environmental management, as an instrument for valuation of environmental interests, is effective in attracting people with ethical conduct towards a destination, as well as in stimulating residents' pro-environmental behavior.

For Pol (2003), the study of human behavior is fundamental for the implementation of environmental management, since, for the elaboration of projects, there is a need to evaluate the social acceptance of the process. Moreover, the procedures, strategies and standards used by environmental management are based on the change of values and attitudes of individuals in relation to the natural environment. The author points out that the production of an ecologically correct product can be summarized in a cycle which involves trends of potential and actual customers, and also encompasses possible behaviors that may interfere with this process.

Considering that ethnic and cultural differences are also important, since, for example, indigenous peoples exercise special powers and conduct on the environment and their rights are supported by laws, as well as nature is understood as fundamental for sustaining their culture. These aspects can be linked to management for the conservation of natural resources. For this, it is necessary to know laws and how to reconcile in situations of conflict, such as strong activism and interests of groups considered hegemonic (Richmond et al., 2013).

Hence, it can be seen that the efficiency of environmental management is directly related to the means and processes used to understand human behavior and to flex it for the benefit of the natural environment, as well as for the benefit of humanity.

Factors affecting the environmental behavior of residents

The basis of a balanced society is directly related to how people conduct themselves through the situations around, how they relate to family members and neighbors, and how they deal with political and ideological problems, as well as how they behave in relation to environment (artificial, natural and cultural).

When it comes to planning tourist regions, this balance turns significantly to participation and / or social responsibility. Community participation in tourism planning may entail a number of benefits, including improved decision-making, public acceptance of proposed decisions and understanding of projects, integration of various interests and opinions, and promotion and development of social learning (Luyet, Schlaepfer, Parlange, & Buttler, 2012).

Regarding coastal tourist destinations, the planning of the activity should be further detailed due to its ecological relevance, since they are environmentally sensitive areas characterized by differentiated ecosystems and biodiversity, constituting one of the areas most impacted by anthropic action. For this, it is understood as necessary that the residents themselves adopt an environmental behavior, which means, behavior driven by good practices of preservation and conservation of natural resources.

According to Corral-Verdugo and Pinheiro (1999), the first investigations on environmental behavior were guided by two fields: the behaviourist, indicating that the pro-environmental behavior is affected by factors such as punishment, reinforcement (positive and negative), antecedents or consequences of environmental conduct, considered factors external to it; and the cognitivist, inferring that this behavior is influenced by internal variables of individuals, such as attitudes, knowledge and personality.

The use of such factors can be observed in several studies. Deboni, Mombach, Lopes and Simioni (2015) evaluated the environmental perception of residents of Lages, SC, Brazil, regarding the environmental aspects experienced at the site. The authors used as a variable the destination of solid waste (use of plastic bags, electronic and unusable lamps discards and burning of household waste), as well as the allocation of cooking oil, energy consumption and the use and destination of water and effluents. It is possible to verify the relation of gender and level of schooling with environmental concern and awareness, since older people and women showed a more conscious perception regarding environmental issues.

To represent the ecological / environmental behavior of residents of São Paulo, SP, Brazil, Lamano-Ferreira, Ribeiro, Kniess and Ramos (2015) used, through environmental attitudes, the economy of natural resources, urban cleaning, recycling and activism-consumption as evaluation variables. The interviews showed that attitudes related to urban waste and recycling were the most highlighted. In addition, trends in the use of environmentally friendly products and reusable packaging, as well as the use of bicycle as mean of transport, were observed in the activism-consumption dimension.

There are also studies that used the aspect of afforestation as mean of research. Araújo, Araújo and Araújo (2010) verified the environmental perception of residents of the Presidente Médici neighborhood, in Campina Grande, Brazil, in relation to local afforestation, using the following variables: number of inhabitants per residence, level of education, level of street afforestation, importance of

afforestation, positive and negative factors of afforestation, collaboration with afforestation and knowledge of species for planting. The authors assessed that, irrespective of the level of education, the interviewees were aware of the benefits generated by the process in question and its importance for quality of life in cities. The negative aspects identified turned to the choice and management of the species that would be planted, problems that, according to the authors, could be repelled by educational actions.

Environmental behavior studies can encompass numerous dimensions and variables, as well as the results can be distinguished according to sampling and context. Thus, their investigation allows the use of different means and processes. Because it concerns the human conduct, it is assumed that environmental behavior can be inferred from the buying behavior, which can be studied by the theory of planned behavior (TPB), one of the most used to analyze the intention-behavior relationship (Davies, Foxall, & Pollister, 2002).

Established by Ajzen in 1985, TPB originated from rational choice theory (RCT) in order to predict behaviors in different contexts from a small number of explainable variables (Ajzen, 1991; Huang, 2011). TPB proposes that behavioral intention, the main predictor of behavior, is influenced by attitude (favorable or unfavorable evaluation of behavior), subjective norms (perception resulting from social pressure exerted on this behavior) and perceived behavioral control (perception of control over behavior action) (Santos, Veiga, & Moura, 2010). Although it is a supported theory, there are studies that add new constructs to the original model, such as past behavior (Moura, Veiga, Cunha, & Moura, 2012; Sharifirad, Yarmohammadi, Azadbakht, Morowatisharifabad, & Hassanzadeh, 2013) e security (Santos et al., 2010), intending to test its effectiveness in different context, such as professional environment (Van Hooft & De Jong, 2009, Wanberg, Glomb, Song, & Sorenson, 2005), career choices (Caska, 1998; Tang, Fouad, & Smith, 1999), food consumption (Dunn, Mohr, Wilson, & Wittert, 2011) and internet shopping (Straub & Watson, 2001).

The behavioral variables proposed by TPB are eminently cognitive. For the purposes of environmental behavior, it is assumed the need to investigate affective variables as drivers of behavior, as proposed in the studies of Bonaiuto, Carrus, Martorella and Bonnes (2002), Walker and Ryan (2008) and Buijs (2009). In terms of affective character, one of the main variables studied is "*place attachment*", identified with an affective and emotional bond between the individual and his community (Lee, 2013), emerging as a central concept in several geographic and environmental studies (Walker & Ryan, 2008).

"Place Attachment" encompasses feelings and emotions between people and places, but this place must guarantee **the satisfaction of needs, the symbolic value of the place for the people, the permanence of this relation, or even mobility, when it is necessary, among others**. Thus, several factors can interfere in this type of affection, such as urban violence, pollution (sound, visual, water etc.), unemployment, housing conditions among others (Lima & Bomfim, 2009). This feeling occurs in individuals whose place identity involves positively valued cognitions of one or some combination of these contexts, which by far outweigh the negatively valued numbers of cognitions (Proshansky, Fabian, & Kaminoff, 1983, quoted by Felippe & Kuhnen, 2012).

The affective and emotional bond with the place is verified as an influential factor capable of effecting diverse activities in a more equitable way, mainly in the support of the residents to tourism development (Lee, 2013). Hence, it is observed that an individual who has a strong attachment to the place, besides cherishing more equitable social and economic issues, is more likely to adhere to an ecologically responsible attitude. According to Hwang, Lee and Chen (2005), place attachment has been considered as an antecedent for satisfaction, according to Walker and Ryan (2008) or loyalty, according to Yuksel, Yuksel and Bilim (2010).

The study was proposed based on the presented concepts, whose methodological characteristics are presented below:

METHODOLOGY

The present study used the hypothetical-deductive method, since it appropriated some theoretical models to reach the construction of hypotheses and, thus, list the possible factors that could affect the environmental behavior of residents in coastal tourist destinations. Regarding the approach, it is characterized as quantitative, since the research problem was investigated through quantifiable methods, both in the modalities of data collection and in the treatment of these by means of statistical techniques. Regarding the objectives, it is descriptive.

The study was carried out in the municipality of Baía Formosa (geographic coordinates 06°22'08" S and 35°00'28" W), a coastal tourist destination in consolidation, located on the southern coast of the state of Rio Grande do Norte, Brazil. 98.9 km from Natal, capital of the state. The local covers an area of 245,661 km^2, in which a great diversity of natural attractions, like dunes, cliffs, mangrove and lagoons can be found. The population of the municipality is estimated at 9,247 inhabitants (Instituto Brasileira de Geografia e Estatística [IBGE], 2017). 288 residents were interviewed. The type of sampling used was non-probabilistic, since the probability of non-inclusion of interviewees in the research was not measured.

The research instrument used was the questionnaire, consisting of variables based on TPB, a theory that exposes that human behavior is preceded by behavioral intention. This theory was conceived in this study as an environmental intention, influenced by the following constructs: pro-environmental attitude (degree of favorability and unfavorability of the subjects in relation to the environment), subjective norms (social pressure on the environmental behavior of people) and perceived behavioral control (strength of factors beyond the volitional control of the investigated ones) (Ajzen, 1991).

In addition, the "place attachment" construct (affection of those investigated by their place of residence) was added to the model, since this construct has an influence on environmental behavior (Bonaiuto et al., 2002; Buijs, 2009; Lee, 2013). The component variables of these dimensions were evaluated using an 11-point metric scale (based on the Likert structure), which ranged from 0 (strongly disagree) to 10 (fully agree), according to a proposed sentence that represented the variable (Chart 1).

Chart 1 – Variables and dimensions used in the study

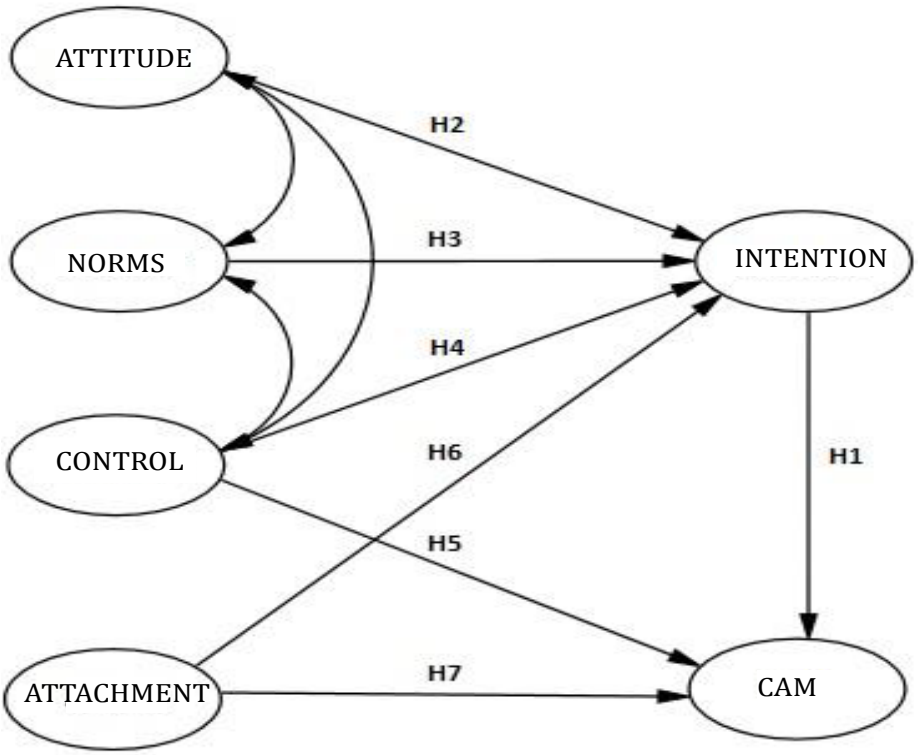
Dimension	Variable	Variable description
Pro-environmental attitude	AT1	I think it is very important to conduct actions to protect the environment.
	AT2	Protecting the environment creates a sense of well-being in the person.
	AT3	I think it is a good idea to conduct actions to protect the environment.
Subjective norms	NSUB1	People who are important to me think that protecting the environment would be important to me.
	NSUB2	People who influence my decisions think that protecting the environment would be important to me.
	NSUB3	In my circle of friends, people think that protecting the environment would be important to me.
Perceived control	CONT1	I have knowledge to help protecting the environment.
	CONT2	Conducting actions to protect the environment depends only on me.
	CONT3	I do not need any action from the municipal administration to have environmental behavior.
Pro-enviromental intention	INT1	I feel like helping to protect the environment.
	INT2	I intend to increase my actions to protect the environment.
	INT3	If possible, I will improve my actions to protect the environment.
Place attachment	APEG1	I have a great attachment to Baía Formosa.
	APEG2	I feel Baía Formosa as a part of me.
	APEG3	I strongly identify with Baía Formosa.
	APEG4	I am very pleased to live in Baía Formosa.
Pro-environmental behavior	CAM1	I believe that I conduct actions to protect the environment.
	CAM2	Whenever there are conditions, I try to help protect the environment.
	CAM3	I try to save water in my house.

Source – Research data, 2017

After the questionnaire was elaborated, a pre-test was conducted with the residents to evaluate the general quality of the instrument, regarding clarity of content, organization and average response time, as well as identify possible obstacles that could interfere with the progress of the research. The final application of the questionnaire occurred between March and April of 2017.

The model of analysis is presented in Figure 1, being constituted by the following dimensions: pro-environmental attitude, subjective norms, perceived control, pro-environmental intention, place attachment and pro-environmental behavior.

Figure 1 – Structural model to investigate the environmental behavior of residents



Source – Research data, 2017

The hypotheses tested from this model are:
H1: There is a significant correlation between "environmental intention" and "environmental behavior"
H2: There is a significant correlation between "pro-environmental attitude" and "environmental intention"
H3: There is a significant correlation between "subjective norms" and "environmental intention"
H4: There is a significant correlation between "perceived behavioral control" and "environmental intention".
H5: There is a significant correlation between "perceived behavioral control" and "environmental behavior"
H6: There is a significant correlation between "place attachment" and "pro-environmental intention"
H7: There is a significant correlation between "place attachment" and "environmental behavior".

The collected data were analyzed by the structural equation modeling method, provided by the Statistical Package for the Social Sciences (SPSS), version 22 for Windows, with Analysis of Moment Structures (AMOS) package. To perform this procedure, the composition of the dimensions was initially necessary, using the factorial analysis method. The modeling of structural equations refers to a generalized modeling technique, used to test the validity of theoretical models that define hypothetical random relationships between variables. These relations are represented by parameters that indicate the magnitude of the effect that

variables, called independent, have on other variables, called dependent, on a set of hypotheses concerning patterns of association between the variables in the model (Marôco, 2010, p. 3).

RESULTS

Adequacy of a measurement model

The measurement model (also known as measurement submodel) defines how the constructs or hypothetical dimensions are operationalized by observed or manifested variables (Marôco, 2010, p. 17). To compose a suitable measurement model to investigate the interrelationships between the variables proposed in this study, the exploratory factorial analysis (EFA) was initially used. This statistical technique allows, from a set of observable variables (questions of the research instrument), to compose dimensions of common variabilities, in a set of phenomena (Corrar, Paulo, & Dias, 2009). To compose this dimensions, the following indicators were used: communality and factorial analysis of the variables of the respective dimension, the Kaiser-Meyer-Olkin (KMO) test and the total variance explained for each construct, as well as Cronbach's alpha, referring to a reliability analysis of the questionnaire, for each proposed dimension.

Communality represents the total amount of variance an original variable shares with all others included in the analysis. It is assumed that the reference values of this communality must be equal to or greater than 0.6, so that each variable contributes to the constitution of the dimension (Hair Junior, Anderson, Tatham, & Black, 1999). Factor loading are values that measure the degree of correlation between the original variables and the factors (Corrar et al., 2009). The factor loading should exceed 0.70 so that the factor can explain 50% of the variance and has practical significance (Hair Junior et al. 1999). The KMO test measures the degree of partial correlation between variables. Values close to 1.0 for KMO are considered adequate for studies of this nature (Corrar et al., 2009).

In the case of the total variance explained, the behavior of the factors and their effective combination is established as an indicator of the observed variance, which means, that the percentage of the variation of the dependent variable (factor) is explained by the variance of the independent variables (observables). Cronbach' alpha measures the correlation between the responses in a questionnaire by analyzing the profile of the responses given by the respondents. Since all items in a questionnaire use the same measurement scale, the coefficient α is calculated from the variance of the individual items and the variance of the sum of the items of each evaluator. It ranges from 0 to 1, with values from 0.6 to 0.7 considered the minimum acceptability value. However, the value 0.6 is accepted for exploratory research (Hair Junior et al. 1999). Table 1 presents the EFA indicators for the variables used in the study:

Table 1 – Exploratory factorial analysis indicators

Dimension	Variable	Factor loading	Communality	KMO	Total variance explained	Cronbach's Alpha
Pro-environmental attitude	AT1	0.901	0.811	0.739	82.779	0.896
	AT2	0.899	0.808			
	AT3	0.930	0.864			
Subjective norms	NSUB1	0.931	0.866	0.765	87.941	0.921
	NSUB2	0.945	0.892			
	NSUB3	0.938	0.880			
Perceived control	CONT1	0.743	0.552	0.661	67.299	0.752
	CONT2	0.860	0.740			
	CONT3	0.852	0.726			
Pro-enviromental intention	INT1	0.795	0.632	0.689	70.874	0.792
	INT2	0.873	0.763			
	INT3	0.855	0.732			
Place attachment	APEG1	0.910	0.828	0.843	82.899	0.931
	APEG2	0.925	0.855			
	APEG3	0.913	0.833			
	APEG4	0.895	0.801			
Pro-environmental behavior	CAM1	0.829	0.688	0.638	68.465	0.764
	CAM2	0.892	0.796			
	CAM3	0.755	0.570			

Source – Research data, 2017

As can be observed in Table 1, the set of selected variables can be considered adequate to compose each respective dimension, since, in all dimensions, the factor analysis indicators presented values within the acceptable, based on the limiting parameters considered. It is observed that in the "perceived control" dimension, the factor analysis indicators presented values very close to the limit, influenced by the factor loading of the variable CONT1 (I have knowledge to help protecting the environment.). It contributes to obtain a smaller combination of explanatory variables of the observed variance (67.299). However, the Cronbach alpha indicator of this dimension (0.752) indicates a acceptable correlation between the responses of the questionnaire, allowing the use of variable CONT1 as a component of the "perceived control" dimension. This also occurs with the variable CAM3 (I try to save water in my house) of "Pro-environmental behavior", but still within the limits considered acceptable for the composition of the dimension.

Validation of model constructs

The purpose of this procedure was to present the validation of the model constructs. The validation method used the reliability indicators composed of the construct and variance extracted (AVE). The composite reliability signals the internal consistency of the indicators that compose the construct (Hair Junior et al., 1999). The AVE is a measure that, based

on the reliability of the constructs, signals the reliability of the model (Hair Junior et al., 2009). The minimum acceptable value for composite reliability is 0.70 and the basic value for the variance extracted is 0.50 (Hair Junior et al., 1999). The calculation of these indicators has the following formulation:

$$\text{Construct Reliability} = \frac{\left(\sum \text{Standardized Loadings}\right)^2}{\left(\sum \text{Standardized Loadings}\right)^2 + \sum \text{Indicator Measurement Error}} \quad [1]$$

$$\text{Variance Extracted} = \frac{\left(\sum \text{Standardized Loadings}\right)^2}{\left(\sum \text{Standardized Loadings}\right)^2 + \sum \text{Indicator Measurement Error}} \quad [2]$$

The measurement error of the indicators is calculated from the following mathematical relation:

$$\text{Error} = 1 - (\text{Standardized Loading})^2 \quad [3]$$

The results of the composite reliability of the construct and the AVE of the model are presented in Table 2.

Table 2 – Estimation of the values of composite reliability and variance extracted from the constructs

Construct	Variables (linear relationship)	Non-standardized loading	Error standard	C. R.	Standardized loading	p	Reliability composite variance extracted
Attitude	AT1<---ATTITUDE	1.000	-	-	0.840	***	Reliability: 0.897 AVE: 0.745
	AT2<---ATTITUDE	0.992	0.060	16.558	0.832	***	
	AT3<---ATTITUDE	1.164	0.063	18.847	0.915	***	
Norms	NSUB1<---NORMS	1.000	-	-	0.883	***	Reliability: 0.931 AVE: 0.819
	NSUB2<---NORMS	1.054	0.046	22.913	0.919	***	
	NSUB4<---NORMS	1.063	0.048	22.314	0.913	***	
Control	CONT2<--- CONTROL	1.000	-	-	0.613	***	Reliability: 0.764 AVE: 0.522
	CONT5<--- CONTROL	1.841	0.205	8.958	0.800	***	
	CONT6<--- CONTROL	1.779	0.201	8.873	0.743	***	

(continues...)

Table 2 – Continuation

Construct	Variables (linear relationship)	Non-standardized loading	Error standard	C. R.	Standardized loading	p	Reliability composite variance extracted
Attachment	APEG3<--- ATTACHMENT	1.000	-	-	0.843	***	Reliability: 0.926 AVE: 0.758
	APEG4<--- ATTACHMENT	1.078	0.048	22.697	0.870	***	
	APEG5<--- ATTACHMENT	1.190	0.203	5.854	0.900	***	
	APEG6<--- ATTACHMENT	1.071	0.184	5.813	0.868	***	
Intention	INT1<INTENTION	1.000	-	-	0.782	***	Reliability: 0.832 AVE: 0.625
	INT2<INTENTION	1.491	0.124	12.013	0.889	***	
	INT3<INTENTION	1.095	0.100	10.416	0.688	***	
CAM	CAM1<---CAM	1.000	-	-	0.796	***	Reliability: 0.749 AVE: 0.510
	CAM2<---CAM	0.881	0.066	13.268	0.814	***	
	CAM3<---CAM	0.490	0.066	7.427	0.483	***	

Source – Field Research (2017)

Notes: CAM - Pro-environmental behavior *** Highly significant relationship

From the data presented in Table 2 is observed that all the constructs used in the measurement model have acceptable internal consistency, since the composite reliability value was higher than the reference value (0.70). Similar analysis can be carried out to evaluate the variance extracted of the measurement model, whose indicators in all the constructs were higher than the adopted criterion (0.5), demonstrating the reliability of the proposed model.

Construction of the structural model

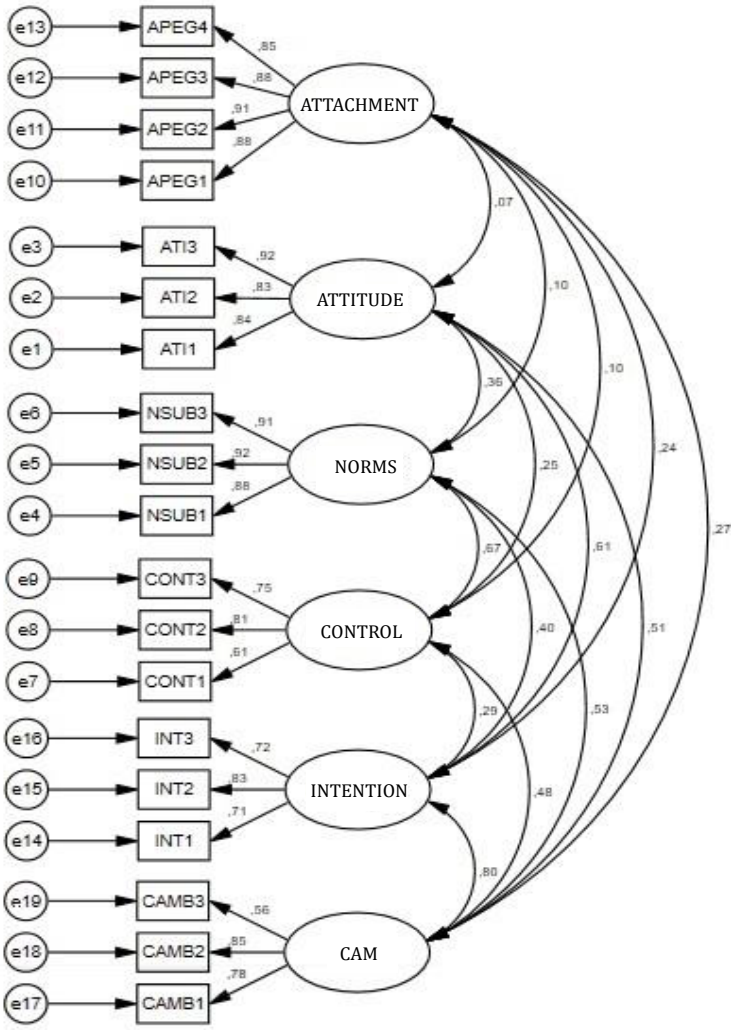
The structural model defines the causal or relationships association between the proposed dimensions (Marôco, 2010, p. 19), the main object of this study. To proposed relationships be plausible, it is necessary to meet some assumptions of the statistical technique. One of the assumptions is the need for the absence of multicollinearity, which means, in the structural part of the model, exogenous or independent variables can not be strongly associated (Marôco, 2010, p. 62).

To verify this assumption, the bivariate correlation (rc) analysis was performed between the dimensions obtained from the definition of the study measurement model. Results are presented below:

Analysis of bivariate correlations (r_c)

Figure 2 shows the bivariate correlation analysis between the exogenous (independent) and endogenous (dependent) variables of the proposed model:

Figure 2 – Bivariate Correlation Analysis



Source – Field Data (2017)

Through the bivariate correlation coefficients presented in Figure 2 can be observed that strong bivariate correlations between the exogenous variables of the model are not identified. There are moderate correlations between the "attitude and norms" (r_c of 0.36) and "norms and perceived control" (r_c of 0.67) dimensions, in this case, tending to a strong bivariate correlation. Both correlations have already been identified by Ajzen (1991) and are part of the basic structural model of the factors that aim to explain the behavior. Regarding the exogenous variable "attachment", there are weak bivariate correlations with the other exogenous variables, which indicates a low association between the dimensions and the existence of a low level of multicollinearity.

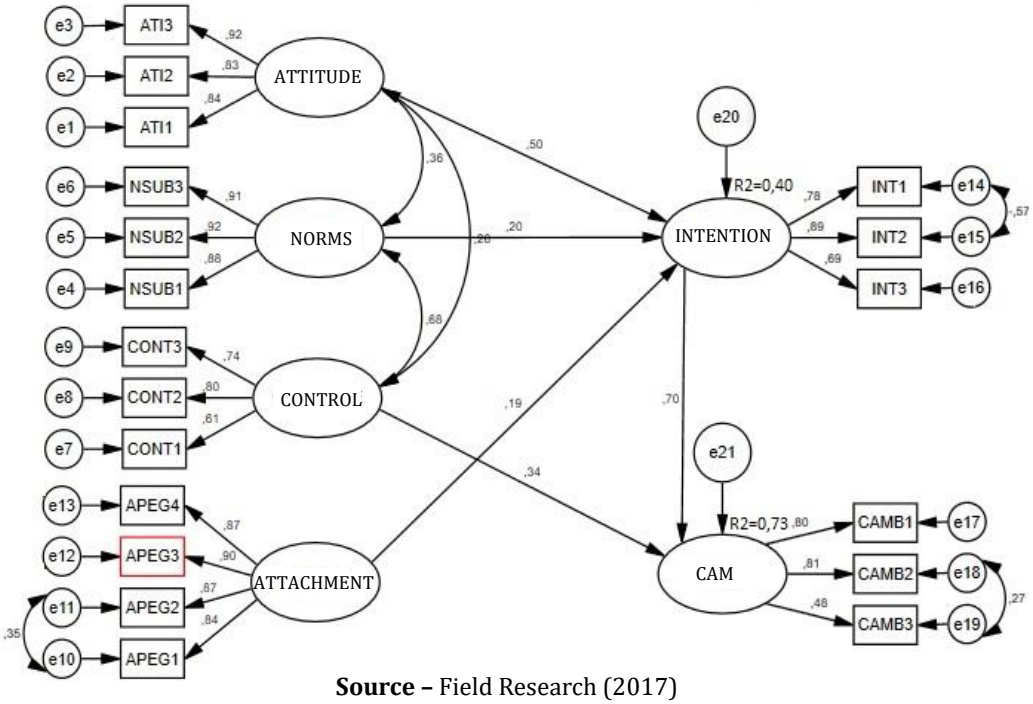
High correlation between exogenous and endogenous variables (which does not indicate multicollinearity) is verified, especially between "pro-environmental intention" and "pro-environmental behavior" (r_c of 0.80) and weak relationship between "attachment" and "Pro-environmental behavior" (r_c of 0.27), in which it can be inferred that the affective component of the model has a weak influence on the pro-environmental behavior.

Assuming the existence of strong multicollinearity between the exogenous variables of the model, it was proposed to analyze the obtained structural model, whose considerations are presented bellow.

Analysis of the structural model

Figure 3 presents the structural model obtained from the proposed hypotheses of relationship:

Figure 3 – Structural model of the study



Source – Field Research (2017)

The causal relationships between "control" and "pro-environmental intent" (p = 0.841) and "attachment" and "pro-environmental behavior" (p = 0.089) were considered as non-significant (p means the probability of error assuming significant causal relationship between variables). Significant causal relationships were assumed when p < 0.05 in this study). Other paths were considered significant.

From the path coefficients presented in Figure 3, a suitable structural relationship is observed, especially when the value of R2 obtained (0.73) is verified with the dependent variable "pro-environmental behavior" (CAM) and R2 obtained (0.40) with the dependent variable "pro-environmental intention" (intention). A causal relationship between the dependent dimensions "intention" and "pro-environmental behavior" is observed. There is a weak relation (path coefficient of 0.19) between the dimension "place attachment" (attachment) and

"intention" and non-significant relationship between "attachment" and the CAM dependent variable.

In general, it is verified that the cognitive component of the model, composed of the variables defined from the TPB, have a greater explanatory power, both of environmental intention and pro-environmental behavior, than the affective component of the model, represented by the independent variable "place attachment".

To verify how well the proposed theoretical model is able to reproduce a correlational structure of the observable variables in the sample under study, it is necessary to evaluate the goodness-of-fit of the model. In this study, this evaluation is based on empirical indices based on the likelihood functions or matrix of the residuals obtained during the fit of the model (Marôco, 2010, p. 40). Table 3 shows the goodness-of-fit:

Table 3 – Goodness-of-fit Index

Indices	Index Group	Results	Reference Values (Marôco, 2010)
TLI CFI NFI	Relative indices	0.958 0.966 0.929	[0.90 - 0.95 [Good fit > 0.95 Very good fit>
PCFI PGFI	Parsimony fit index	0.778 0.672	[0.6 - 0.8 [Acceptable fit
RMSEA	Population discrepancy	0.050	< 0.05 – Good fit
X2 / DF GFI	Absolute fit indices	1.853 0.914	]1 – 2] Good fit [0.90 - 0.95 [Good fit

Source – Field Research (2017)

The proposed theoretical model, estimated from the data collected, presents good to very good goodness-of-fit indices according to the proposed reference values, except for the parsimony index (PCFI and PGFI), which presents acceptable results. The aim of parsimony indices is to compensate the artificial improvement of the model achieved, simply by the inclusion of more free parameters approaching the model under study to a saturated model (Marôco, 2010, p. 46), which may have happened when introducing the "place attachment" dimension to the original model proposed.

Hypothesis Analysis

Based on the results, for the group of interviewees used as object of research, it can be concluded in relation to the hypotheses proposed:

H1: There is a significant correlation between "environmental intention" and "environmental behavior".
H2: There is a significant correlation between "pro-environmental attitude" and "environmental intention".
H3: There is a significant correlation between "subjective norms" and "environmental intention".
H4: There is **no** significant correlation between "perceived behavioral control" and "environmental intention".

H5: There is a significant correlation between "perceived behavioral control" and "environmental behavior".
H6: There is **no** significant correlation between "place attachment" and "environmental behavior".
H7: There is a significant correlation between "place attachment" and "pro-environmental intention".

CONCLUSIONS

The objective of the study was to analyze the interrelationships between factors that can influence the environmental behavior of residents. It was necessary, to achieve the purpose, to initially adapt a measurement model capable of investigating the relationship of variables, which was performed using the EFA. It indicated, by means of the indicators "factor loading", "communality", "percentage of variance explained", KMO and Cronbach's alpha (reliability coefficient), that the presented dimensions could be reflected in the proposed variables. All the constructs explained in the measurement model presented internal consistencies, since they obtained values greater than 0.70 in the criterion of the indicator "composite reliability" and greater than 0.5 for the "variance extracted". Therefore, the reliability of the model is evidenced, which, in the end, encompasses all the latent variables proposed in the study, in its structural composition.

From these variables, it was possible to develop a structural relationship model to investigate the environmental behavior of residents in coastal tourist destinations. Thus, a moderate correlation was observed between the independent dimensions used and the dependent dimension "pro-environmental intention" (R^2: 0.40) and high correlation between the independent dimensions used and the dependent variable "pro-environmental behavior" (R^2: 0.73). There was a weak correlation between the dimension of "place attachment" and "pro-environmental intention", as well as the existence of a non-significant relationship between the dimension of "place attachment" and "pro-environmental behavior".

The results indicate that the cognitive variables have greater explanatory power of intention and environmental behavior of residents in the analyzed destination than variables of affective nature. Due to the use of non-probabilistic sampling, the results are conclusive only for the public used, indicating a trend of relationship of variables to other situations. They can assist in further research into the pro-environmental behavior of local residents in coastal tourist areas.

REFERENCES

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational behavior and human decision processes*, *50*(2), 197-211.

Araújo, J. L. O., Araújo, A. C., & A. C. Araújo (2010). Percepção ambiental dos residentes do Bairro Presidente Médici em Campina Grande-PB, no tocante à arborização local. REVSBAU, *5*(2),67-81.

Bonaiuto, M., Carrus, G., Martorella, H., & Bonnes, M. (2002). Local identity processes and environmental attitudes in land use changes: the case of natural protected areas. *Journal of Economic Psychology*, *23*(5), 631-653.

Bonnes, M., & Bonaiuto, M. (2002). Environmental psychology: From spatial-physical environment to sustainable development. In R. B. Bechtel & A. Churchman (Eds.), *Handbook of environmental psychology* (pp. 28-54). New York, NY: Wiley.

Buijs, A. E. (2009). Public support for river restoration: a mixed-method study into local residents' support for and framing of river management and ecological restoration in the Dutch floodplains. *Journal of Environmental Management*, *90*(8), 2680-2689.

Carvalho, T. L. G. (2016). O turismo no Morro da Babilônia: do reflorestamento ao Ecoturismo. *Revista Brasileira de Ecoturismo*, *9*(1), 11-28.

Caska, B. A. (1998). The search for employment: motivation to engage in coping behavior. *Journal of Applied Social Psychology*, *28*(3), 206-224.

Corral-Verdugo, V., & Pinheiro, J. Q. (1999). Condições para o estudo do comportamento pró-ambiental. *Estudos de Psicologia*, *4*(1), 7-22.

Corrar, L. J., Paulo, E., & Dias, J. M. F. (2009). *Análise multivariada: para os cursos de administração, ciências contábeis e economia*. São Paulo: Atlas.

Davies, J., Foxall, G. R., & Pollister, J. (2002). Beyond the intention-behavior mythology: an integrated model of recycling. *Marketing Theory*, *2*(1), 29-113.

Deboni, T. L., Mombach, G. N. N., Lopes, M. N., & Simioni, F. J. (2015). Percepção e consciência ambiental: um estudo exploratório em Lages-SC. *Geoambiente On-Line*, 24, 97-113.

Duim, R. V. D., & Caldeers, J. (2002). Biodiversity and tourism: impacts and interventions. *Annals of Tourism Research*, *29*(3), 743-761.

Dunn, K. I., Mohr, P., Wilson, C. J., & Wittert. G. A. (2011). Determinants of fast-food consumption: an application of the theory of planned behavior. *Appetite*, *57*(2), 349-357.

Fandé, M. B., & Pereira, V. F. G. V. (2014). Impactos ambientais do turismo: um estudo sobre a percepção de moradores e turistas no Município de Paraty-RJ. *REGET*, *18*(3), 1170-1178.

Felippe, M. L., & Kuhnen, A. (2012). O apego ao lugar no contexto dos estudos pessoas-ambiente: Práticas de pesquisa. *Estudos de Psicologia*, *29*(4), 609-617.

Haden, S. S. P., Oyler, J. D., & Humphreys, J. H. (2009). Historical, practical, and theoretical perspectives on green management: an exploratory analysis. *Management Decision*, *47*(7), 1041-1055.

Hair Junior, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2009). *Análise multivariada de dados* (6a ed.). Porto Alegre: Bookman

Huang, J. T. (2011). Application of planned behavior theory to account for college students' occupational intentions in contingent employment. *Global Visions*, *59*(5), 455-466.

Hwang S. N., Lee C., Chen H.J. (2005). The relationship among tourists' involvement, place attachment and interpretation satisfaction in Taiwan's national parks. *Tourism Management*, *26*(2), 143-156

Instituto Brasileiro de Geografia e Estatística. (2017). Rio de Janeiro, RJ: IBGE. Retrieved from https://bit.ly/2IJkwne

Karp, D. G. (1996). Values and their effect on pro-environmental behavior. *Environment and Behavior*, *28*(1), 111-133.

Keene, M., & Pullin, A. S. (2011). Realizing an effectiveness revolution in environmental management. *Journal of Environmental Management*, 92(9), 2130-2135.

Lamano-Ferreira, A.P. N., Morizono, R. C. F. C., Ribeiro, A. P., Kniess, C. T., & Ramos, H. R. (2015). Dimensões do comportamento ecológico identificadas em moradores da cidade de São Paulo/SP. In *XII Congresso de Ecologia do Brasil*. São Lourenço, MG: Universidade Federal de Viçosa.

Le, Y., Hollenhorst, S., Harris, C., McLaughlin, W., & Shook, S. (2006). Environmental management: a study of vietnamese hotels. *Annals of Tourism Research*, *33*(2), 545-567.

Lee, H. T. (2013). Influence analysis of community resident support for sustainable tourism development. *Tourism Management*, *34*, 37-46.

Lima, D. M. A., & Bomfim, Z. A. C. (2009). Vinculação afetiva pessoa-ambiente: diálogos na psicologia comunitária e psicologia ambiental. *Psico*, *40*(4), 491-497.

Luyet V., Schlaepfer R., Parlange, M.C., & Buttler, A. (2012). A framework to implement stakeholder participation in environmental projects. *Journal of Environmental Management*, *111*, 213-219.

Maloney, M. P., & Ward, M. P. (1973). Ecology: let's hear it from the people – an objective scale for measurement of ecological attitudes and knowledge. *American Psychologist*, 28, 583-586.

Marôco, J. (2010). *Análise de equações estruturais: fundamentos teóricos, software e aplicações*. Pero Pinheiro: Report Number.

Moura, L. R. C., Veiga, R. T., Cunha, N. R. S., & Moura, L. E. L. (2012). A teoria do comportamento planejado e sua modificação com a inclusão do comportamento passado: um estudo sobre o comportamento de tentar perder peso. *Perspectiva*, *36*(136), 167-179.

Moura-Fé, M. M., & Pinheiro, M. V. A. (2013). Os parques eólicos na zona costeira do Ceará e os impactos ambientais associados. *Revista GeoNorte*, *9*(1), 22-41.

Ministério do Turismo. (2016). *Turismo de sol e Praia movimenta o verão de 2014*. Brasília, DF: Autor. Retrieved from https://bit.ly/2vjx9gf.

Oliveira, M. R. L., & Nicolodi, J. L. (2012). A gestão costeira no Brasil e os dez anos do projeto Orla.: Uma análise sob a ótica do poder Público. *Revista da Gestão Costeira Integrada*, *12*(1), 89-98.

Pol, E. (2003). A gestão ambiental, novo desafio para a psicologia do desenvolvimento sustentável. *Estudos de Psicologia*, *8*(2), 235-243.

Richmond, L., Middleton, B. R., Gilmer, R., Grossman, Z., Janis, T., Lucero, S., Morgan, T., & Watson, A. (2013). Indigenous studies speaks to environmental management. *Environmental Management*, *52*(5), 1041-1045.

Santos, D. O., Veiga, R. T., & Moura, L. R. C. (2010). Teoria do comportamento planejado decomposto. *Organizações em contexto*, 6(12), 78-106.

Sharifirad, G., Yarmohammadi, P., Azadbakht, L., Morowatisharifabad, M. A., & Hassanzadeh, A. (2013). Determinants of fast food consumption among Iranian high school students based on planned behavior theory. *Journal of Obesity*, *2013*, 1-7.

Smith, R. A. (1992). Beach Resort evolution: Implications for Planning. *Annals of Tourism Research*, *19*(2), 304-322.

Straub, D. W., & Watson, R. T. (2001). Research commentary: transformational issues in research IS and net-enabled organizations. *Information Systems Research*, *12*(4), 337-345.

Tang, M., Fouad, N. A., & Smith, P. L. (1999). Asian Americans' career choices: A path model to examine factors influencing their career choices. *Journal of Vocational Behavior*, *54*(1), 142-157.

The Worldwatch Institute. (2013). O estado do mundo 2013. Salvador, BA. Retrieved from https://bit.ly/2vjx9gf.

Van Hooft, E. A. J., & De Jong, M. (2009). Predicting job seeking for temporary employment using the theory of planned behavior: the moderating role of individualism and collectivism. *Journal of Occupational and Organizational Psychology*, *82*(2), 295-316.

Vasconcelos, F. P., & Coriolano, L. N. (2008). Impactos socioambientais no litoral: um foco no turismo e na Gestão Integrada da Zona Costeira no estado do Ceará/Brasil. *Revista de Gestão Costeira Integrada*, *8*(2), 259-275.

Walker, A. J., & Ryan, R. L. (2008). Place attachment and landscape preservation in rural New England: a Maine case study. *Landscape and Urban Planning*, *86*(2), 141-152.

Wanberg, C. R., Glomb, T. M., Song, Z., & Sorenson, S. (2005). Job-search persistence during unemployment: a 10-wave longitudinal study. *Journal of Applied Psychology*, *90*(3), 411-430.

Yuksel, A., Yuksel, F., & Bilim, Y. (2010). Destination attachment: Effects on customer satisfaction and cognitive, affective and conative loyalty. *Tourism Management*, *31*(2), 274-284.

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