ANALYSIS OF ENVIRONMENTAL ATTITUDES AND BEHAVIORS: AN EXPLORATORY STUDY WITH A SAMPLE OF BRAZILIAN UNIVERSITY STUDENTS[1]

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Introduction

A review of the literature on environmental attitudes (for further details on the topic, see GIFFORD & SUSSMAN, 2012) suggests that most studies have addressed environmental concern from either a one-dimensional approach – the Environmental Concern Scale (WEIGEL & WEIGEL, 1978) or the New Ecological Paradigm (NEP) (DUNLAP, VAN LIERE, MERTIG, & JONES, 2000) – or from a two-fold perspective with opposing dimensions – like, for instance, Ecocentrism and Anthropocentrism (THOMPSON & BARTON, 1994) or Preservation and Utilization (MILFONT & DUCKITT, 2004) –that have monopolized environmental discourse since its beginnings.

Cross-cultural studies and the environmental crisis' evolution are, however, bringing new approaches to light. These suggest that environmental issues are represented in contemporary society through multiple realities that go beyond a dual or conflicting conceptualization (AMÉRIGO, ARAGONÉS, DE FRUTOS, SEVILLANO & CORTÉS, 2007; CÔRTES & MORETTI, 2013; CÔRTES, DIAS, FERNANDES, & PAMPLONA, 2016). Côrtes and Moretti (2013), in a comparative study among young people from Argentina, Brazil, Chile, Spain, Mexico and Portugal, refuted the dualist view (Preservasionist vs. Developmentalist), especially among Latin American groups. They have shown that in Latin American countries there is a tendency to reconcile economic development with environmental protection and preservation aspects,a situation confirmed by the study of Côrtes, et al. (2016).

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As Dunlap (2008) pointed out, the emergence of sustainable development has, for instance, led to a different approach which casts doubt on society's acceptance of that two-fold view on the relationships between people and the natural environment, allowing both perspectives to be integrated. The same idea is materialized in the origin of the New Human Interdependence Paradigm (CORRAL-VERDUGO, CARRUS, BONNES, MOSER, & SINHA, 2008; GÄRLING, BIEL, & GUSTAFSSON, 2002; HERNÁNDEZ, SUAREZ, CORRAL-VERDUGO,& HESS, 2012).

A questioning of that two-fold approach to the study of environmental attitudes has also arisen in cross-cultural studies. For example, several studies have found differences between the conceptions Western and Latin American cultures have of the relationships between people and the natural environment. In general terms, the former tend to view these relationships in a two-fold conflicting manner, while there seems to be a more holistic view of such relationships in a Latin American context. The studies conducted by Bechtel, Corral-Verdugo, and Pinheiro (1999);Corral-Verdugo and Armendariz (2000); and Hernández, Corral-Verdugo, Hess, and Suarez (2001) are a reference on this regard. In these studies, negative correlations between ecocentric (NEP) and anthropocentric (HEP, Human Exemptionalism Paradigm) views in countries like Canada, Spain and the USA have been found, while positive correlations have been detected in countries like Brazil and Mexico, thereby suggesting that both dimensions, far from being opposed, may indeed be reconciled. For their part, Bechtel, Corral-Verdugo, Asai, and González--Riesle (2006) added an Asian culture to their study and looked into the structure of environmental beliefs in the USA, Mexico, Peru and Japan. They found that a dichotomic NEP-HEP structure was only corroborated among USA students.

Dunlap (2008) recognized a lack of consistency when the NEP Scale was applied to less developed Eastern European and Latin American countries. The results of the aforementioned studies indicate the presence of a more holistic view on environmental issues in collectivist cultures when they are compared to individualistic cultures. This suggests the need for delving further into the analysis of environmental concern and attitudes in light of cultural parameters. Some studies in the literature analyze differentl environmental behavior patterns on the basis of these cultural variables. For instance, in their analysis of three theories on ecological behavior which compared Chilean and USA students, Cordano, Welcomer, Scherer, Pradenas, and Parada (2011) found no significant differences between the two samples in the explained variance of the several variables involved in ecological behavior. They did, however, uncover some differences in the magnitude of said variables. When compared to students from the USA, Chilean students obtained lower scores for variables whose content is based on individualistic aspects, such as attitudes and beliefs, and higher scores for variables grounded on collectivist aspects, like social norms.

Côrtes and Moretti (2013) consider that the most holistic view, in which environmental vision and economic growth are reconciled, is prevalent in Latin America. According to them, as in Latin America there is a greater heterogeneity in the distribution of income and a lack of quality social services, young people consider economic growth as a way to improve living standards and social conditions. This does not mean, however,

that environmental concerns are disregarded,it's quite the opposite. There is a strong tendency to reconcile economic growth with environmental preservation, revealing a holistic perspective. In Portugal and Spain, as there is a better distribution of income and better quality of social services, there is a favorable view to a reduction of economic growth in favor of environmental preservation.

In addition to socioeconomic aspects, there are cultural aspects that can influence the environmental behavior. Aoyagi-Usui, Vinken, and Kuribayashi (2003) likewise found different environmental value patterns between East Asian and Western countries for high-income populations. According to the results obtained by these authors, environmental values in the Netherlands and the USA are related to altruistic values, as opposed to traditional values such as honoring parents and family security. In East Asian countries, on the other hand, environmental values are associated to both traditional and altruistic values. The findings of some of the research set out above also seem to point out the extent to which cultural variables are relevant when establishing differences among environmental issues, perhaps even more so than variables dependent on economic development. A study conducted by Vikan, Camino, Biaggio, and Nordvik (2007) affirmed this fact by verifying that two samples of Brazilian students from regions having different levels of technological development (high and low) scored higher for the NEP scale when they were compared to a sample of Norwegian students. An individualized analysis of the items included in the scale backed the interpretation that Brazilians had a more interdependent outlook on nature than Norwegians.

The differences observed when analyzing environmental concern in different cultures under this two-fold approach (HEP-NEP or Antropocentrism-Ecocentrism) or the difficulty of verifying similar structures when analyzing the dimensionality of certain measures may have led the most recent work in this field to focusing on measuring environmental attitudes through different dimensions rather than by means of overall measures. Dunlap (2008) recognizes the possibility of using the NEP Scale either as an overall measure or as a multidimensional measure based on the belief-systems perspective in Political Science. According to Dunlap et al. (2000), NEP scale is formed of 5 facets: the reality of limits to growth, antianthropocentrism; the fragility of nature's balance; rejection of human exemptionalism and beliefs regarding the possibility of an ecocrisis. As stated previously, given the lack of internal consistency found in transcultural research, Amburgey and Thoman (2012) recommend using NEP scale as 5 correlated subscales instead of as one-dimensional measure. Milfont and Duckitt (2010) presented the "Environmental Attitudes Inventory" made up of 12 scales reflecting the main facets of environmental attitudes. For their part, Amérigo, Aragonés and García (2012) attempted to adapt Schultz's (2002) Inclusion of Nature in Self Gradient (INSG) concept to a multidimensional approach to general environmental attitudes or environmental concern.

The proposal put forward by Amérigo et al. (2012) considers environmental concern as continuum defined by the degree to which people include nature in the idea they have of themselves. This continuum, called the INSG, is delimited by two poles; a pole representing the independence of the self from nature and another pole where both elements are fully subsumed into a "meta-personal self" (ARNOCKY, STROINK,

& DECICCO, 2007) to reflect a deep-seated interconnection with all forms of life. This INSG constitutes a dimension of a higher order and four dimensions are located along its length. These refer to different attitudes people have regarding environmental issues: 1) environmental apathy, considered as an attitude that reveals indifference to or a lack of interest in environmental issues; 2) anthropocentrism, which reflects the value of the natural environment's utility for human beings, thereby justifying environmental conservation as a resource to enhance the quality of human life; 3) connectedness, which carries the meaning the literature often gives to "ecocentrism" and places emphasis on the value of the natural environment's equality and interdependence with human beings, considering that the latter are connected to nature so that both elements form an integral part of a single system; and 4) emotional affinity, in which human beings and the natural environment make up a transactional whole (ALTMAN & ROGOFF, 1987) and where the limits separating both are blurred.

This conceptual model was tested on Spanish undergraduate students (AMÉRIGO et al., 2012). It was later contrasted with samples from the general Spanish population (AMÉRIGO & GARCÍA, 2014; BETHELMY, 2012), and Chilean university students (AMÉRIGO, PALAVECINOS, GARCÍA, ROMÁN,& TRIZANO-HERMOSILLA, 2017). Its consistency when it is applied to a sample of Brazilian university students is, therefore,explored in this paper. The main aim of this study therefore consists of assessing the model's explanatory power with regard to the attitudinal dimensions taken into consideration, as well as in relation to the different categories of ecological behaviors.

In the same way that a multidimensional approach is proposed for environmental concern, recent research also supports a multidimensional approach to pro-environmental behavior rather than considering it as a one-dimensional variable (KARLIN, DAVIS, SANGUINETTI, GAMBLE, KIRKBY & STOKOLS, 2014).Therefore, a relationship among attitudinal dimensions and categories of pro-environmental behavior such as energy efficiency, waste management and green consumption, will also be analyzed in this paper.

Method

Participants

A convenience sample was used, following the habitual practice employed in exploratory studies in the sphere of social and behavioral sciences. By mean of a social desirability measure (SAIZ, ALVARADO, DE LA BARRA, GEMPP,& PEZZO, 1993), 31 individuals who obtained high scores for this variable were excluded from the sample. The final sample was made up of 250 Brazilian university students from Sao Paulo city,all of whom were attending a private university and were studying Business Administration. The university caters to students of more popular and low wage levels. They are therefore more susceptible to financial problems and more easily affected by adverse economic situations. Environmental issues are rarely addressed in the undergraduate degree in Business Administration at that university. Its focus is to present more practical issues for immediate professional use at the operational level or at most at the tactical level. Larger

strategies are not addressed in the undergraduate course of Business Administration of this university which excludes more comprehensive and integrated views or multidisciplinary approaches. The participants' average age was 23.96 years (SD = 5.75); 58% were female and24.8% of those surveyed indicated that that they had spent the majority of their lives in a city inhabited by more than one million people.Almost all of these students work, at least part-time, and pay for their own studies.

Instruments

Participants answered a self-administered questionnaire on environmental attitudes and behaviors in a classroom. The four attitudinal dimensions of environmental concern were measured by twenty items proposed by Amérigo et al. (2012).An instrument put forward by the Spanish Center for Sociological Research (CIS, 2005) containing 14 questions on a variety of pro-environmental behaviors having three response options each (never, sometimes and usually), was used to measure the frequency of different pro--environmental behaviors. This instrument was adapted to the Brazilian context, resulting in a measure of 9 items . These items were grouped into three different pro-environmental behaviors: 1) energy efficiency and resource management; 2) waste management; and 3) green consumption. Three pro-environmental behavior indexes were then calculated for each individual. The difference between the number of items for which they responded "usually" and "never" was calculated and the result was expressed in percentage terms. Each of these indexes ranged from 100 (if the individual had responded "usually" to all the items) and -100 (if the individual had responded "never" to all of them). As can be seen in Table 1, significant positive correlations were found among the three kinds of behavior. The ordinal alpha values recorded (GADERMANN, GUHN, & ZUMBO, 2012) ranged between .62 and .79 (Table 1).

Table 1. Ordinal reliability coefficients, descriptive statistics and non-parametric correlations among three indexes of pro-environmental behavior.

Index	Item	Ordinal α	*M* (*SD*)	Spearman's rho (r_s)	
				ENE	WAS
Energy efficiency and resource management (ENE)	BEH1-3	.63	41.73 (42.20)		
Waste management (WAS)	BEH4-6	.62	19.87 (43.40)	.15**	
Green consumption (GRE)	BEH7-9	.79	3.60 (42.57)	.31***	.40***

Notes: M: Mean; *SD*: Standard deviation; **$p<.05$; ***$p<.01$ (two-tailed). Source: Authors (2017).

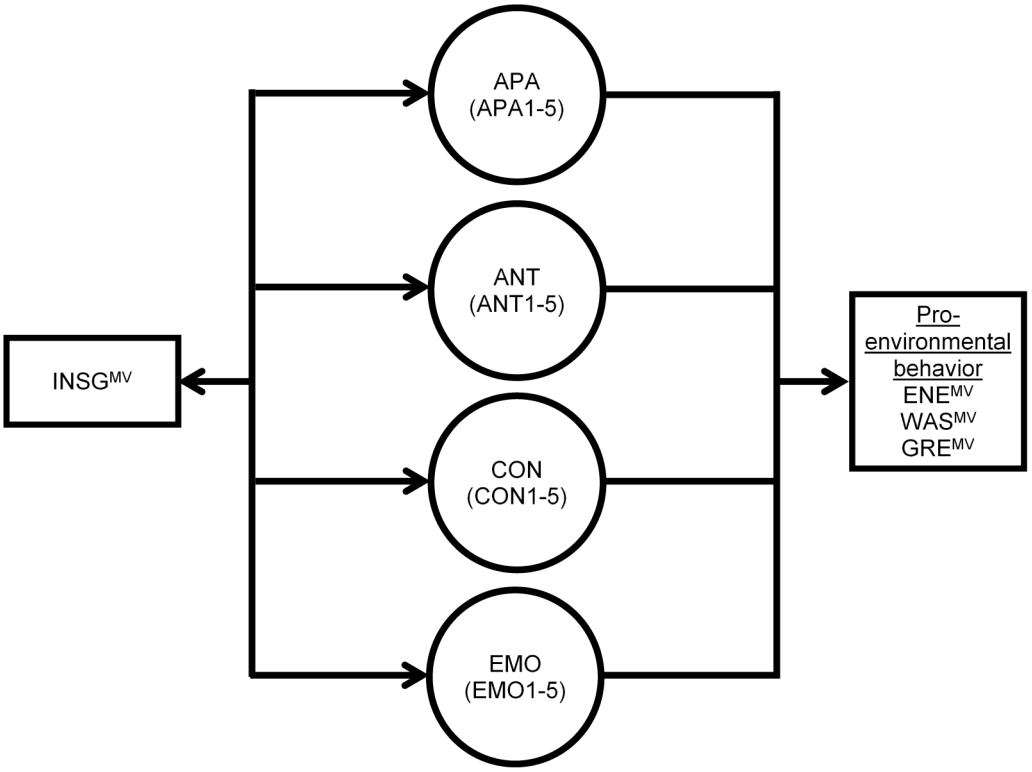
Both the measures regarding environmental concern (20 items) and pro-environmental behavior (9 items) are set out in the Appendix. The questionnaire also included an item containing a chart showing five sets oftwo overlapping circles to assess the INSG, which was adapted from Schultz (2001). Information about religious/transcendental beliefs

(measured on a five-point scale) and political ideology (measured on a ten-point scale from extreme right wing to extreme left wing) was likewise gathered. In addition, it was deemed appropriate to include several sociodemographic variables as control variables in order to provide the model with greater empirical robustness, though this does not form part of the study's aims.

Results

As can be seen in Figure 1, the proposed model included relationships among the Inclusion of Nature in Self Gradient (INSG), attitudinal dimensions and the various pro-environmental behavior categories.

Figure 1. An empirical model of environmental attitudes.



Notes: INSG: Inclusion of Nature in the Self Gradient; APA: Apathy; ANT: Anthropocentrism; CON: Connectedness; EMO: Emotional affinity; ENE: Energy efficiency and resource management; WAS: Waste management; GRE: Green consumption; ^{MV} Manifest variable. Source: Authors (2017).

The model parameters were estimated by using partial least squares structural equation modeling (PLS-SEM). This approach was deemed more appropriate than the traditional covariance-based approach due to the sample's size and the characteristics of

the variables involved in this study (REINARTZ, HAENLEIN, & HENSELER, 2009)[i]. SmartPLS 2.0 software was used.

The results allowed the instruments' reliability and validity. The ordinal alpha ranged from .62 for anthropocentrism and .86 for emotional affinity. Composite reliability (CR), considered by Henseler, Ringle, and Sinkovics (2009) as the best way to assess reliability, greatly exceeded the threshold of .7 for the four attitudinal dimensions. All loadings differed significantly from zero ($p < .05$) and were greater than .4. Discriminant validity was verified because each item's loading was greater than all of its cross-loadings (GÖTZ, LIEHR-GOBBERS, & KRAFFT, 2010).

Once the attitudinal dimension measurement instrument's quality was ensured, the scores obtained by each individual were saved to analyze the relationships of these four dimensions among each other and with the INSG (Table 2). The INSG maintained positive correlations significantly different from zero for anthropocentrism, connectedness and emotional affinity, and negative correlations for environmental apathy.As for the correlations of the four attitudinal dimensions among each other, a negative though not statistically significant correlation between apathy and anthropocentrism was detected. Connectedness and emotional affinity maintained a direct association. Apathy correlated negatively with connectedness and emotional affinity. Anthropocentrism was found to have a positive correlation with both connectedness and emotional affinity.

Table 2. Non-parametric correlations among the four dimensions of environmental attitudes and the INSG.

Variable	Spearman's rho (r_s)			
	INSG	APA	ANT	CON
APA	-.32***			
ANT	.12*	-.07		
CON	.37***	-.40***	.25***	
EMO	.46***	-.44***	.23***	.64***

Notes: *p<.10; ***p<.01 (two-tailed).Source: Authors (2017).

Lastly, the model's explanatory power was analyzed with regard to the three pro-environmental behaviors (Table 3), which ranged from 5% of the explained variance for energy efficiency to 15% for waste management. As can be observed, apathy tended to be inversely related to the three kinds of pro-environmental behaviors, though the analysis revealed that it only has a negative and significant impact on energy efficiency and resource management. Concerning anthropocentrism, this dimension's positive impact on waste management stood out. This dimension had a negative impact, but not significantly different from zero, in all other cases. Connectedness had a markedly positive impact on green consumption. Lastly, emotional affinity turned out to be highly relevant

in driving certain behaviors tending toward waste management and green consumption among Brazilian students.

Table 3. Results of the structural model: Path coefficients (β).

Exogenous construct	Endogenous construct		
	ENE	WAS	GRE
APA	-.20***	-.05	-.10
ANT	-.08	.15**	-.05
CON	.02	.13	.20**
EMO	.02	.20**	.16**
R^2	.05	.15	.14
Q^2	.03	.12	.09

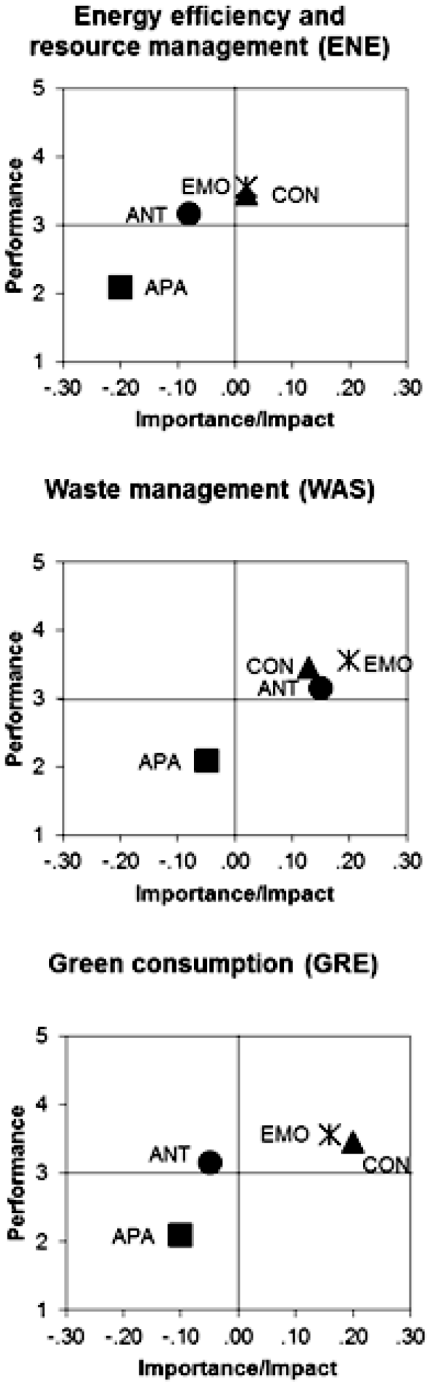
Notes: R^2: Coefficients of determination; Q^2: Stone-Geisser test; **$p<.05$; ***$p<.01$ (two-tailed).Source: Authors (2017).

In order to graphically illustrate the influence the different attitudinal dimensions exerted on ecological behavior, we conducted an importance-performance analysis (ÁBALO, VARELA, & RIAL, 2006). A graph was obtained for each of the endogenous variables (the four pro-environmental behaviors). The graph's horizontal axis represented the exogenous variables› (attitudinal dimensions) importance/impact and its vertical axis showed the average score/assessment the individuals granted to each exogenous variable (Figure 2). The impact matched the path coefficients in Table 3, while the average score was directly obtained from the output provided by the SmartPLS 2.0 program in the «index values for latent variables» section.

Discussion

The findings obtained on the validity and reliability of the environmental concern model proposed by Amérigo et al. (2012) for a sample of Brazilian university students ensured the measurement instrument's appropriateness. By comparing the results of this work with those obtained by Amérigo et al. (2012), the multidimensional outlook of environmental concern (in the present study represented by four attitudinal dimensions on human-nature relations) allow these relationships to be compared between different cultures. The multidimensional perspective present a series of nuances that would be difficult to obtain through more traditional (one-dimensional or dichotomous) measures of environmental concern.

Figure 2. Importance x performance analysis for pro-environmental behavior.



Source: Authors (2017).

It is observed a holistic outlook on these relationships for a sample of Brazilian univertity students. For the studied group, environmental conservation to improve human well-being, the perception of a connection with nature and feelings of an emotional affinity with nature all seem linked in the same direction. These results were contrary to those found when studying Spanish univerity students (AMÉRIGO et al., 2012; CÔRTES & MORETTI, 2013; HERNÁNDEZ et al., 2001), and indicate that the use of one-dimensional scales to measure attitudes towards the environment may not be appropriate, since it would depend on the socioeconomic and cultural context where this measure had been designed. There might therefore be items within a one-dimensional measure which may be considered to be either favorable or unfavorable towards the attitude in question, depending on the country/culture to which it is applied.

Relating these four attitudinal dimensions with a measure of the INSG allowed us to corroborate that the notion of including nature in the self does not contradict an anthropocentric view in countries having a mainly collectivist culture like Brazil (TRIANDIS, 1995). In the collective self, and in the concrete case of countries like Brazil, human being and nature seem to go hand in hand through a holistic perspective. This outlook integrates a feeling of both elements' connectedness (ecocentrism) with environmental protection in order to enhance the quality of human life (anthropocentrism). In the individualistic self, however, both seem to aim at different directions.

Regarding ecological behaviors, the results shown in Figure 2were useful to know which specific attitudes should be worked on depending on the kinds of pro-environmental behaviors to promote as part of environmental awareness programs. The first point to consider is that a way to increase energy efficiency would be to reduce apathy. This can be achieved by focusing on personal interests (OHLER & BILLGER, 2014) or giving more feedback to students involved in specific consumer reduction programs (KARP, MCCAULEY & BYRNE, 2016). Ohler and Billger (2014) consider that policies aimed at reducing electricity consumption can be more efficient when they focus more on individual interests - such as prices, discounts, subsidies and taxes - and less on social interests. Karp, Mccauley & Byrne (2016) show that by giving feedback to the students, reducing apathy, it was possible to get a greater involvement in energy reduction programs. As a teaching strategy for the analyzed students, focus on the economic aspects of the energy consumption may be more effective because the financial issues have a greater impact on their personal budget. In addition, focus on individual interests would provide more practical elements to manage in relation to energy consumption.

The second point is related with waste management. Improving this would inevitably involve placing emphasis on anthropocentric attitudes and attitudes related to emotional affinity beyond the need to overcome apathy. Research developed by Gould, Ardoin, *et al.,* (2016) evaluates that many discussions linked to waste management are relatively superficial, concentrating on more immediate issues related to waste disposal or recycling practices. The authors consider that larger issues such as consumption reduction are not usually addressed (GOULD, ARDOIN, et al., 2016). For a group in which financial matters have considerable weight, it is believed that there is a condition to improve the discussion about sustainable consumption practices, not so much from an

ecocentric perspective, but by a more anthropocentric route focused on personal benefits that can be achieved. It is a teaching strategy that can be considered as a way to reduce apathy and involve students.

This perspective of more sustainable consumption meets the third point. Within a teaching strategy, it is possible to explore the personal benefits that can be gained by practicing more sustainable consumption. This can be done especially in relation to reducing consumption and waste generation, a situation most feasible for this group especially considering the financial matters. This could broaden the anthropocentric perspective and reduce the apathy that hinders the further development of more sustainable consumption. Subsequently, the benefits to society can be exploited by showing that it is an attitude that generates not only personal benefits but impacts for all at different levels.It is interesting to note that, unlike the sample of university students in the present study, pro-environmental behavior is negatively associated to anthropocentrism in Spain (AMÉRIGO et al., 2012). Similarly, when broaching initiatives aimed at promoting certain environmental behaviors, it is also necessary to consider each situation's specific conditioning factors in order to design effective action programs.

Along the lines of the Human Interdependence Paradigm (CORRAL-VERDUGO ET AL., 2008; GÄRLING ET AL., 2002; HERNÁNDEZ ET AL., 2012), the results of this exploratory study suggest that development and human well-being in Brazil could be compatible with environmental conservation. On the one hand, the economic situation and a natural environment that has suffered less degradation than in Europe, allow for a more holistic outlook on human-nature relationships and nature being considered as a resource that favors the country's development. This perspective is in agreement with the studies of Côrtes & Moretti (2013) and Côrtes, et al. (2016).On the other hand, the opposition detected between anthropocentric and ecocentric paradigms in economically developed areas like the USA and Europe (BECHTEL ET AL., 1999, 2006; CORRAL--VERDUGO & ARMENDARIZ, 2000; HERNÁNDEZ, ET AL., 2001) seems to suggest the impossibility of reconciling development and human well-being with the environmental preservation. It may be possible that the revolution promoted by ecological movements (CASTELLS, 1997), which have taken deeper root in Western culture, is responsible for this radical opposing stances between human development and the conservation of nature, which are not seen in other contexts.

These results could be analyzed from a psychological and cultural perspective. According to Peng and Nissbett (1999), East Asian cultures have a dialectical approach to thinking that is more tolerant of contradictions, as opposed to those that have inherited an Aristotelian logic, such as the Western cultures of Europe and the USA. Western cultures, on the other hand, have more polarized outlooks aimed at avoiding contradictions. From this point of view, a holistic way of thinking characterizes East Asian cultures, as opposed to a more analytic way of thinking common in Western cultures. After comparing two samples from Mexico and the USA, the work done by Lechuga, Maldonado-Santos, Garza-Caballero, and Villarreal (2011) asserts that this holistic way of thinking also applies to Hispanics.

From this standpoint, the apparent contradiction between an instrumental use of nature and the idea of being part of it only verified in Western cultures, but not in Latin America. Future research studies should look into this result by including other samples from Latin America and different social and cultural groups in Latin American countries. It would also be interesting to study these cultural differences in other issues connected with the relationship between human beings and nature, such as, for instance, the way populations in East Asia and Latin America deal with environmental disasters. Socioeconomic aspects should be considered, especially in relation to income distribution, quality of life and available social services. This may influence the environmental view, especially when there is a holistic perspective to reconcile economic development with environmental preservation.

This study reinforces the lines already traced out in recent research on the need to take multidimensional approaches into consideration when analyzing human-nature relationships. The proposal put forward by Amérigo et al. (2012), first drawn up with a sample of Spanish university students, is theoretically and methodologically appropriate when it is applied to a sample of Brazilian university students. It has likewise allowed nuances to be detected when these relationships are analyzed, which could not otherwise be addressed from a one-dimensional perspective, like the traditional measures of environmental attitudes and concern for the environment.It is important to bear in mind that, since it is an exploratory study, it is not possible to generalize the results to the entire set of university students in Brazil or to the country's population in general. Further work using representative samples in this country are, therefore, necessary in order to verify the robustness of the findings obtained in this paper.

Note

i The output of SmartPLS 2.0 provides these scores as "latent variable scores (unstandardized)". As a matter of fact, Hair, Ringle, and Sarstedt (2011) recommend the use of PLS instead of CBSEM where researchers wish to use latent variable scores in subsequent analyses, as was the case in this study.

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ANALYSIS OF ENVIRONMENTAL ATTITUDES AND BEHAVIORS: AN EXPLORATORY STUDY WITH A SAMPLE OF BRAZILIAN UNIVERSITY STUDENTS

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***Abstract*:** Models based on a multidimensional structure of environmental attitudes are more appropriate than one-dimensional or dichotomic approaches when assessing the complex relationships people have with the natural environment. This work explores a model of environmental concern composed of four attitudinal dimensions (apathy, anthropocentrism, connectivity and emotional affinity), analyzing their relationships with pro-environmental behaviors. The sample consisted of 250 students from a university that represents the most popular strata of the population, being people more susceptible to financial problems and more easily affected by adverse economic situations. The results obtained with Partial Least Square (PLS) show the validity and reliability of the proposed model, and reveal that this group believes it is possible to reconcile economic growth with environmental preservation. The results show, in addition, which strategies can be worked to increase environmental awareness related to energy saving, waste management and green consumption.

Key-words: Environmental apathy; anthropocentrism; connectedness; emotional affinity; ecological behavior.

***Resumen*:** Los modelos basados en una estructura multidimensional de las actitudes ambientales resultan más apropiados que los enfoques unidimensionales o dicotómicos cuando se evalúan las complejas relaciones entre las personas y el entorno natural. Este trabajo explora un modelo de preocupación ambiental compuesto por cuatro dimensiones actitudinales (apatía, antropocentrismo, conectividad y afinidad emocional), analizando sus relaciones con comportamientos pro-ambientales. La muestra consistió en 250 estu-

diantes de una universidad que representa a los estratos más populares de la población, susceptibles de problemas financieros y afectados por situaciones económicas adversas. Los resultados obtenidos con Partial Least Square (PLS) muestran la validez y fiabilidad del modelo propuesto y revelan que este grupo cree que es posible conciliar el crecimiento económico con la preservación del medio ambiente. Los resultados muestran, además, qué estrategias pueden ser trabajadas para aumentar la conciencia ambiental relacionada con el ahorro de energía, la gestión de residuos y el consumo verde.

Palabras clave: Apatía ambiental; antropocentrismo; conectividad; afinidad emocional; conducta ecológica.

***Resumo*:** Na avaliação das complexas atitudes que as pessoas têm em relação ao meio ambiente, considera-se que os modelos baseados em uma estrutura multidimensional podem ser mais apropriados do que abordagens unidimensionais ou dicotômicas. Este trabalho explora um modelo de preocupação ambiental composto por quatro dimensões atitudinais (apatia, antropocentrismo, conectividade e afinidade emocional), analisando as suas relações com os comportamentos pró-ambientais. A amostra foi constituída por 250 estudantes de uma universidade que atende a camadas mais populares da população, sendo pessoas mais susceptíveis a problemas financeiros e afetadas por situações econômicas adversas. Os resultados obtidos com Partial Least Square (PLS) mostram a validade e a fiabilidade do modelo proposto, e revelam que esse grupo acredita ser possível compatibilizar crescimento econômico com preservação ambiental. Os resultados mostram, adicionalmente, quais as estratégias podem ser trabalhadas para ampliar a sensibilização ambiental em relação à economia de energia, gestão de resíduos e consumo verde.

Palavras-chave: apatia ambiental; antropocentrismo; conectividade; afinidade emocional; comportamento ecológico.

Appendix

Measure of environmental concern

1) Environmental apathy (APA)

APA1 –The whole pollution issue has never upset me too much since I feel it's somewhat overrated.
APA2 – I don't care about environmental problems.
APA3 – My personal welfare is independent of the welfare of the natural world.
APA4 – I'm really not willing to go out my way to do much about ecology since that's the government's job.
APA5 –Pollution is not personally affecting my life.

2) Anthropocentrism (ANT)

ANT1 –One of the most important reasons to keep lakes and rivers clean is so that people have a place to enjoy water sports.
ANT2 –The most important reason for conservation is human survival.
ANT3 –The thing that concerns me most about deforestation is that there will not be enough lumber for future generations.
ANT4 –One of the most important reasons to conserve is to ensure a continued high standard of living.
ANT5 –The worst thing about the loss of the rain forest is that it will restrict the development of new medicines.

3) Connectedness (CON)

CON1 –I think of the natural world as a community to which I belong.
CON2 –Like a tree can be part of a forest, I feel embedded within the broader natural world.
CON3 –I often feel part of the web of life.
CON4 –I think of myself as a part of nature, not separate from it.
CON5 –I often feel a kinship with animals and plants.

4) Emotional affinity (EMO)

EMO1 –I need time in nature to be happy.
EMO2 – Sometimes, when I am unhappy, I find comfort in nature.
EMO3 –I would feel that an important part of my life was missing if I was not able to get out and enjoy nature from time to time.
EMO4 –I can enjoy spending time in natural setting just for the sake of being out in nature.
EMO5 – Being out in nature is a great stress reducer for me.

Measure of pro-environmental behavior (BEH)

1) Energy efficiency and resource management (ENE)

BEH1 –I try to save water at home.
BEH2 –I use energy saving systems at home like low energy light bulbs.
BEH3 –I travel on foot or by bike in my town.
2) Waste management (WAS)
BEH4 –I use the public bins to dispose of papers.
BEH5 –I use public containers to deposit certain wastes.
BEH6 –I use different containers in my home, according to the type of waste.
3) Green consumption (GRE)
BEH7 –I buy products labeled as organic, environmentally friendly products.
BEH8 –I search for products with recyclable packaging.
BEH9 –I prefer products with the least amount of packaging.