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Pro-Environmental Assessment and Sustainable Consumption of Household Public Services in Barranquilla Colombia

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Abstract

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The main purpose of this research paper is to analyze the relationship between the pro-environmental attitudes and sustainable consumption of public services of water and electrical energy in 418 households of middle class in Barranquilla, Colombia. This sample has been calculated with 95% confidence and a 4.78% of sampling error. For this purpose a Likert Scale was designed to evaluate the components of practices, beliefs and feelings that people have against environmental conservation and sustainable use of water utilities and electrical energy. The results allow to identify that there are significant differences within the practices, beliefs and feelings related to pro-environmental behavior and consumption of public services of water and electrical energy, as well as direct and inverse statistically significant relationships were observed between the three levels attitudinal evaluation. These results are the basis for formulating policies to promote pro-environmental behavior oriented with the responsible and sustainable public services of water and electrical energy use. The responsible consumption of non-renewable resources must begin to intervene from the vital space, on the basis of the dynamics in the home with the assessment and development of pro-environmental practices of sustainable consumption of the household public services of water and electrical energy.

Keywords: Pro-environmental behavior; sustainable consumption; public services; water; electrical energy.

1. Introduction

The globalized world presents a profound divergence between the continuous development and scientific and technological innovation, in contrast to the widespread indifference to the phenomenon of global warming, energy crisis with an indirect impact on food crisis, in complement with the growing gaps in sustainable development and life expectancy rates among the people, increasing the perception and critical incidence of political, social and economic conflicts (Cortés, 2011).

Currently, sectors such as agriculture, transport and metalworking industry, using production models greenhouse gas emissions as a result of the use of fossil fuels and the development of innovative technology strategies to support daily activities without an analysis of the collateral in the management of waste impacts the production of large-scale food based on the use of chemical fertilizers, changes in natural cycles, ecosystems and their relationship with each other living things (Brewer, 2005; Barr, 2007; Herrera, 2011).

Prospectively, 2025 is estimated to increase significantly the level of scarcity of water sources, affecting approximately 230 million people. In addition, it is predicted that China, with 22% of the world population but only 7% of total freshwater flow, will have access to about 1.700 cubic meters of water per capita in the next 20 years. Currently water supply is sufficient for only half of its population (Hoeinghaus, Agostinho, Gomes, Pelicice, Okada, Latini & Winemiller, 2009; UNEP, 2012).

Fernandez Rodriguez & Carrasquer (2006), assessed environmental attitudes and their relationship with pro-environmental behavior, analyzing the method of structural equations, showing the differential effect of the formation of the intent and indirectly on pro-environmental behavior. This study recommends “the need to advance environmental awareness campaigns, participation in events and conferences, gathering and dissemination of good practices and volunteer programs for sustainable actions, among others” (Fernandez, Rodriguez & Carrasquer, 2006, p.7).

Foxall, Oliveira-Castro, James, Yani-de-Soriano & Sirgudsson (2006), proposed that consumer behavior produces both utilitarian consequences as informational, which may be either present in situations of reinforcement and punishment. Utilitarian consequences are functional results of purchase or use products and services, as in the case when a deodorant stick will avoid people to breathe the gas.

The informational consequences are symbolic and socially derived, therefore, depend on the actions of others and can be produced by the feedback that other individuals assigned to the consumption of goods or services. Therefore, the Behavioral Perspective Model can be applied to the analysis of the behavior of environmental conservation and functionally contextual against the type of behavior involved and the benefits associated with maintenance (Cortés, 2008).

Different studies on sustainable consumption, as befits the present case, should aim to develop awareness initiatives and establish contingencies to minimize the environmental costs generated as a

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result of economic growth, however, sustainable development is a little lasting process because ecologically it is not sustainable and our economy is mainly characterized by high consumption of products regardless of the environmental risks that may be generated as a result (Herrera, 2011).

2. Problem Statement

The importance of the present study is related to the role of the pro-ecological valuation of responsible consumption and sustainable household public services meeting the challenges of sustainable development. The theoretical and empirical referents proposed by different authors present empty theoretical, conceptual, methodological and contextual arouse interest in further considering and resolving problems before an international situation which should start interpose from the living space, according to this proposal, based of household dynamics, it is providing evidence of the relevance of the present study aimed at the pro-environmental assessment of sustainable consumption of public services of water and energy (Wagner, 1997; Lehman & Geller, 2004; Moreno, Corraliza & Ruiz, 2005).

3. Research Question

The research question that we will analyze in this paper is: What significant relationships exist between the pro-environmental attitudes and sustainable consumption of the household public services for water and electrical energy in 418 households of Barranquilla, Colombia?

This is precisely the main problem is framed as a constant challenge to increase the effectiveness of environmental conservation programs and modification of cultural practices based on the promotion of sustainable consumption of natural resources and public services (Cortés & Botero, 2014).

4. Purpose of the Study

Analyze the relationship between the pro-environmental attitudes and sustainable consumption of the household public services for water and electrical energy in 418 households of Barranquilla, Colombia.

5. Research Methods

The methodological paradigm was of type empirical and analytical, with a transversal design non-experimental integrating analysis levels comparative and correlational.

5.1. Sample

The sample was of type multistage random and was composed of 418 households of middle class in Barranquilla, Colombia. This sample has been calculated with 95% confidence and a 4.78% of sampling error.

5.2. Instrument

For the development of this study it was designed the "Attitudinal Rating Scale pro-environmental Conduct and Sustainable Consumption of Water and Electrical Energy". The pro-environmental attitudes were measured from three subscales, each subscale has 10 items comprising positive and negative assessments against the practices, beliefs and feelings about the pro-environmental assessment. The general level of reliability Cronbach's alpha obtained for the Scale was (α: .897).

The Principal Component Analysis, corresponding to the factorial statistical configuration under Test Bartlett Sphericity was statistically significant (*KMO*: .871, *p*: .000). The factorial configuration of the three main components was consistent with a level of explained variance estimate (*E.V.*: 77.5%).

5.3. Procedure

In the first instance the revision of the stratification of the areas randomly selected neighborhoods in middle class defined as primary sampling unit stepped forward. They were then randomly selected apples defined as secondary sampling units finally households as an end unit and thus were selected in each household, the application of the instrument came forward following the ethical considerations of informed consent by the participants that criteria inclusion corresponded to householders.

6. Findings

The results allow to identify significant differences within the practices, beliefs and feelings related to pro-environmental behavior and consumption of public services of water and electrical energy. Additionally, there are statistically significant relationships between the three levels attitudinal assessment. The contrasts in scores helped identify the subscale of pro-environmental practices, is significantly lower compared to other subscales is illustrated below in figure 1. This aspect is evidence of the need to promote the development of pro-environmental practices that are consistent with pro-environmental beliefs and feelings as well as awareness of the importance of supporting facts concern for the environment.

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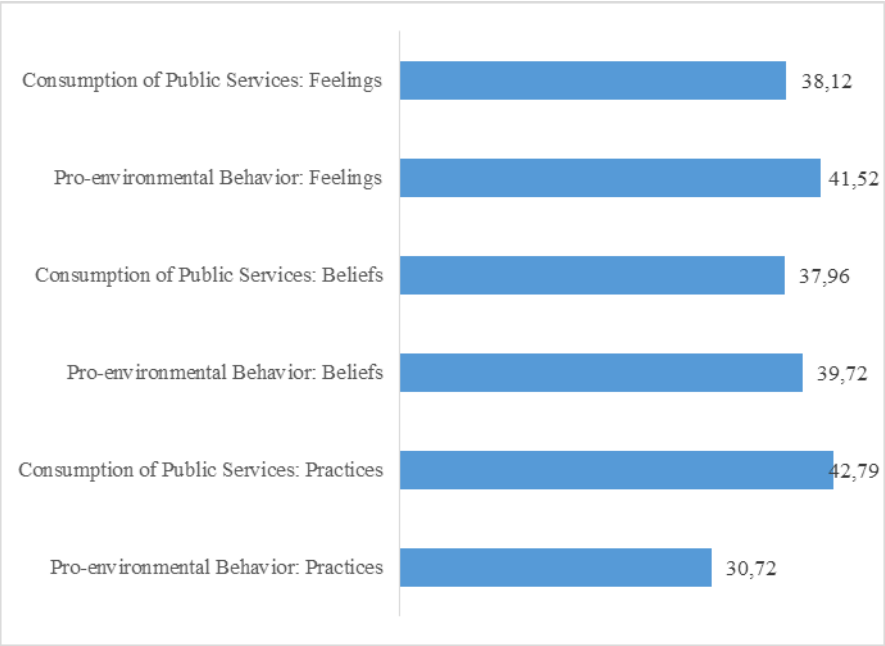

Fig. 1. Profile of Pro-environmental Behavior and Consumption of Public Services

Table.1, illustrates the *Pearson Correlation* (*r*) between practices, beliefs and feelings related to pro-environmental behavior and consumption of public services of water and electrical energy. In this case, is evident that there are directly proportional correlations between practices and feelings against the pro-environmental behavior and sustainable consumption in all cases, while systematically are inversely proportional correlations between beliefs against pro-environmental behavior and sustainable consumption practices and feelings components. All correlation were statistically significant to 99%.

Table 1. Pearson Correlation between Subscales of Study

		Water & energy consumption: practices	Water & energy consumption: beliefs	Pro-environmental behavior: beliefs	Water & energy consumption: feelings	Pro-environmental behavior: feelings
Pro-environmental behavior: practices	*Pearson (r)*	,474**	-,711**	-,494**	,630**	,692**
	Sig.	,000	,000	,000	,000	,000
	n	418	418	418	418	418
Water & energy consumption: practices	*Pearson (r)*		-,461**	-,228**	,601**	,580**
	Sig.		,000	,000	,000	,000
	n		418	418	418	418
Water & energy consumption: beliefs	*Pearson (r)*			,575**	-,665**	-,641**
	Sig.			,000	,000	,000
	n			418	418	418
Pro-environmental behavior: beliefs	*Pearson (r)*				-,415**	-,404**
	Sig.				,000	,000
	n				418	418
Pro-environmental behavior: feelings	*Pearson (r)*					,715**
	Sig.					,000
	n					418

7. Conclusions

The responsible consumption of non-renewable resources must begin to intervene from the vital space, on the basis of the dynamics in the home with the assessment and development of pro-environmental practices of sustainable consumption of the household public services of water and electrical energy. In the context of the knowledge society, we have the mission to engage deeply with our community and the sustainable development (Vidal, 2008; Herrera & Cortés, 2012; Sanz & Crissien, 2012; Herrera & Bravo, 2014).

Regarding the importance of the multifunctional analysis of pro-environmental practices, Sandoval (2012, p. 192) states that: "In the case of pro-environmental practices, products are added because the environmental outcome is related to the intertwining of behaviors of different members of society, consumers and suppliers".

Cortés, Abello, Denegri, & Pérez-Acosta (2015) in their model of Multidimensional Assessment of Economic Thought (MAET), have highlighted the importance of Behavior Scale Pro-Environmental and Sustainable Economic Development, facing the need to establish a functional link between the concepts of pro-environmental behavior, responsible and intelligent consumption and fair trade, as key factors in the stage of sustainable development.

Consequently, both campaigns, such as environmental conservation programs and sustainable consumption should be broader towards the development of policies that establish recognition systems and control to encourage pro-environmental cultural practices and mitigate the irrational and indiscriminate use of natural resources.

Here and now, as citizens of a globalized world, our mission is to deeply engage with our world and our community, towards building a new culture where our pro-environmental behavior is consistent with responsible consumption of natural resources to improve quality of life and sustainable development.

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