CONCEPTUALIZING CONSERVATION BEHAVIOR AND IMPLICATIONS ON SUSTAINABLE PURCHASE BEHAVIOR OF ENERGY AND WATER: THE CASE OF EGYPT

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INTRODUCTION

This research addresses two of Egypt's prominent challenges during the current phase of hardship, namely, energy and water scarcity. According to the International Energy Agency (2015) report, Egypt has been suffering from a decline in energy production due to shortages in natural gas supply and oil production being unable to keep up with the energy demand, where the Egyptian Electric Holding Company's (2015) annual report of 2014/2015 showed the main consumer of electricity in Egypt is the residential sector which accounts for 44.2% of the total consumption. Further, EcoMENA (2016) stated that Egypt faces an annual deficit of water of around 7 billion cubic meters, they also mentioned that the United Nations is warning that the country could run out of the water by 2025.

To that end, the need for research into the underlying factors behind the energy and water consumption patterns is increasing, yet, studies conducted in the Egyptian context with regards to sustainable consumption are basically focused on sustainable purchases with no regard for conservation behavior, and had minimal to no focus on energy and water (El-Nazer, 2015; Mostafa, 2007).

This paper is part of a multifaceted project, whereas the first phase focuses on reporting the results of an exploratory study conducted to identify the factors affecting the Egyptian consumers' sustainable consumption with regards to electricity and water conservation and purchase behaviors. The later phases will empirically examine the factors identified by the exploratory study.

The organization of this paper goes as follows; first, the researchers will portray the theoretical background on which they stand, second, the methodology of this research is to be described. Then, the results and discussion of the results are presented, and finally, the conclusion and implications for theory and practice are developed.

BACKGROUND

Categorizations of Sustainable Consumption Behavior

Different studies have used the words ‘green consumption behavior’, ‘green consumer behavior’, ‘sustainable consumption’, ‘environmentally-concerned consumption’, and ‘pro-environmental behavior’ to indicate different meanings. Sustainable consumption was defined by Biswas & Roy (2015) as “the pattern of reduced consumption of natural resources, changing lifestyle and consumption of environment-friendly products to meet the present needs and aspirations of the future generations”. We use the words “sustainable”, “green”, and “environmentally-friendly” to describe sustainable consumption, such Consumption was categorized by several researchers in the field of behavioral research on energy and water consumption to include both habitual, and purchase-related behaviors. The first indicates actions intended to conserve energy which are choices that humans make without thinking that save energy by reducing their consumption levels while requiring no or minimal structural adjustments, while the latter indicates behaviors that involve long-term changes, technical and financial investments to be made, also requires more effort to be conducted, a sustainable purchase behavior usually acts as a proxy for conservation. (Barr, Gilg, & Ford, 2005; United States Energy Information Administration, 2015; Yang et al., 2016).

Literature Review and Hypotheses

The researchers categorized several theories used by previous researchers to explain both behaviors into the following: The social cognitive theory, value models, and intention models. The Social Cognitive Theory (Bandura, 1986) was used by Lin & Hsu (2015) to successfully predict both habitual and purchase-related behaviors. Value models were to include the Theory of Consumption Values (Sheth, Newman, & Gross, 1991) used by Biswas & Roy (2015) to predict purchase-related behavior, the Theory of Perceived Value (Zeithaml, 1988) used by Butler et al. (2016) to explain habitual conservation behaviors, and the Value-Belief-Norm theory (Stern et al., 1999) used by Fornara et al. (2016) to explain purchase-related behaviors. Intention models were to include both the theory of reasoned action (Ajzen et al., 1980) used by Seligman et al. (1990) to explain habitual behaviors, and the theory of planned behavior (Ajzen, 1991) used by Dixon et al. (2015) and by Lowe et al. (2015) to investigate habitual conservation behaviors, also used by Follows & Jobber (2000), Lao (2014), and Mostafa (2007) to investigate purchase behaviors. That being so, the theory of planned behavior was found to be the most widely used theory to explain both behaviors. A study conducted by Kaiser, Hübner, & Bogner (2005) primarily aiming to contrast the Value-Belief-Norm (VBN) theory with the Theory of Planned Behavior (TPB) pertaining to their ability in explaining conservation behavior, the TPB’s explanatory power accounted for 95% of individuals’ conservation behavior and the VBN’s personal norms accounted for 64% of individuals’ such behavior, this shows the remarkable predictability of the TPB in predicting conservation behavior. Hence, we can conclude that the Theory of Planned behavior has a very high predictive ability for both sustainable consumption behaviors. From this we can hypothesize the following:

H1a: There is a positive relationship between attitudes toward energy conservation and energy conservation behaviors.

H1b: There is a positive relationship between attitudes toward water conservation and water conservation behaviors.

H1c: There is a positive relationship between subjective norms and energy conservation behaviors.
H1d: There is a positive relationship between subjective norms and water conservation behaviors.
H1e: There is a positive relationship between perceived behavioral control over energy conservation and energy conservation behaviors.
H1f: There is a positive relationship between perceived behavioral control over water conservation and water conservation behaviors.

Other variables tested by previous researchers were found to be of relevance pertaining to the Egyptian consumer; such as the following: self-preference, conceptualized by Lin & Hsu (2015) as "the preference of one's self to others", public media influence , perceived functional value, conceptualized by Sheth et al. (1991) in the theory of consumption values to include perceived quality and price, and perceived moral obligation, conceptualized by Lowe et al. (2015) as the degree of moral responsibility that an individual feels towards performing a particular behavior, consequently, the following hypotheses were hypothesized:
H2a: There is a negative relationship between self-preference and energy conservation behaviors.
H2b: There is a negative relationship between self-preference and water conservation behaviors.
H3a: There is a positive relationship between public media influence and energy conservation behaviors.
H3b: There's a positive relationship between public media influence and water conservation behaviors.
H4a: There is a positive relationship between the perceived functional value and energy conservation behaviors.
H4b: There is a positive relationship between the perceived functional value and water conservation behaviors.
H5a: There is a positive relationship between the perceived moral obligation and energy conservation behaviors.
H5b: There is a positive relationship between the perceived moral obligation and water conservation behaviors.

The two pillars of sustainable consumption namely; conservation and sustainable purchase behaviors have commonly been studied separately, where most researches focused on the latter behavior. In this study, based on exploratory findings and Gilg, Barr, & Ford's (2005) implicit statement that a relationship between conservation behaviors and sustainable purchase behaviors exists, a relationship is proposed to exist between conservation behaviors and sustainable purchase behaviors, thus, the following hypothesis was hypothesized:
H6a: There is a relationship between energy conservation behaviors and energy-efficient purchase behaviors.
H6b: There is a relationship between water conservation behaviors and water-efficient purchase behaviors.

When it came to socio-demographic variables identified by previous researchers as predictors of both sustainable consumption behaviors, the following were found to be of very much relevance pertinent to the Egyptian consumer: income level, household size, and home-ownership. Income level was found to be a predictor where habitual conservation behaviors were found to be most likely taken up by individuals with lower income levels, yet purchasing activities are more likely to be taken up by individuals with higher income levels (Barr et al., 2005). Household size was found to be relevant when explaining sustainable consumption behaviors where Frederiks, Stenner, & Hobman (2015) stated that larger families were found to typically consume more energy compared to smaller families due to the fact that they possess and/or use more energy-intensive appliances, have more disposable income to spend on energy, have greater energy demands and requirements. Home-ownership, i.e., owner-occupied vs. rented was found to be relevant when explaining sustainable consumption behaviors where it affects the purchase-related conservation behaviors of individuals positively, yet affects the habitual conservation behaviors negatively (Barr et al., 2005). To that end, the role of socio-demographic variables could not be overlooked as a moderator of the relationship between conservation and purchase behaviors. Hence, the following hypotheses were hypothesized:

H7a: The socio-demographic variables (income level, household size, and home-ownership) moderate the relationship between energy conservation behaviors and energy-efficient purchase behaviors.

H7b: The socio-demographic variables (income level, household size, and home-ownership) moderate the relationship between water conservation behaviors and water-efficient purchase behaviors.

METHODOLOGY

In light of the reasons mentioned in the introduction and the level of importance that such scarce resources occupy in Egypt, the research setting was chosen to be Egypt. The Egyptian context includes is roughly estimated by dividing the total number of Egyptian citizens (91,781,970) by the average household size (4.3 members) giving an estimation of 21.3 million Egyptian households, 4.6% of which have no water connections in their dwellings giving a rough estimation of the research population size to be 20.3 million Egyptian households (Central agency for public mobilization and statistics (CAPMAS), 2014).

This research used a qualitative research methodology; in-depth interviews followed by focus groups because it is the recommended methodology for such type of research approach (exploratory). The reasons behind choosing the interview methodology were its ability to capture a large volume of information and allow for further clarification via probing respondents (Malhotra, 2010). These interviews were followed by one focus group, which permits the interaction and group dynamics and discussions for further elaboration and explanations to make sure the research has not omitted important items, the information collected was reviewed, organized and analyzed in order to gain insights and develop the conceptual framework (Vogt et al., 2014).

Eighteen in-depth interviews and one focus group (eight participants) were conducted with Egyptian households residing in Egypt with access to electricity and water, and who

happen to make decisions with regards to the energy-efficient purchases and energy and water conservation, while two in-depth interviews were conducted with two industry experts, one in the field of energy-efficient appliances, and the other from the Egyptian electricity holding company in order to develop a better understanding of consumers' behavioral drivers in energy-efficient purchasing and conservation behaviors. The interviews lasted between 20 and 30 minutes, while the focus group took about 60 minutes. The number of conducted interviews and focus groups was based on the theoretical sampling process, which means that the data that had been collected, coded and analyzed guided the further sampling until no new data could be discovered (Vogt et al., 2014).

RESULTS AND DISCUSSION

The exploratory work has resulted in a tentative assumption that supports the above-mentioned hypotheses, where the theory of planned behavior components (attitudes toward conservation, subjective norms, and the perceived behavioral control) seem to be successful predictors of conservation behaviors. It was also shown that individuals with high self-preference do not engage in sustainable consumption behavior as much as individuals with low levels of self-preference. The majority of the interviewed consumers' conservation behaviors were affected by the public media campaigns (in the form of television advertisements, radio advertisements, and billboards), the functional value of sustainable consumption behavior, and consumers' perceived moral obligation.

Such exploratory work has also shown a tentative difference in conservation behaviors and purchase behaviors when it came to the following socio-demographic variables, income level, household size, and home-ownership. The researchers have found that all findings are aligned with the findings of the previous literature, except for the relationship between public media influence on conservation behavior, where there was found to be a positive relationship instead of no relationship like the results of Lin & Hsu (2015).

CONCLUSION AND IMPLICATIONS FOR THEORY AND PRACTICE

The aim of this paper was to develop a conceptual framework to profile the factors affecting conservation behaviors, and their implications on sustainable purchases of energy and water consumers in Egypt. The conceptual framework has served to highlight the most relevant factors in previous research pertaining to the Egyptian consumer, where the researchers used the following variables: Consumers' attitudes toward conservation, subjective norms, perceived behavioral control, self-preference, public media influence, functional value, perceived moral obligation into consideration as antecedents of conservation behaviors, which in return precede sustainable purchase behaviors with the moderating effect of socio-demographic variables (i.e.: income level, household size, and home-ownership).

This article represents the first phase of a multiple-phase project. The objective of the first phase is to conceptualize the factors profiling the Egyptian consumer's sustainable consumption behavior in energy and water, while the next phases will focus on

examining the conceptual framework to investigate whether descriptive research will confirm such assumptions or not.

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