

## **Meanings and Dimensionality of Consumers' Environmental Consciousness Concept: A Literature Review and an Integrative Model**

Souad H'mida, University of Moncton, Canada, Email: salem.lakhal@umanitoba.ca  
Salem Y. Lakhal, University of Moncton, Canada, Email: Souas.hmida@umanitoba.ca

### **Abstract**

The role of consumers in the supply chain is crucial for any product or service. If the market stops buying products because of a perceived weak environmental performance (PEP), the rest of the supply chain is left with one option: address the problem and increase the PEP of their products and services. Great deal of studies in many fields (psychology, sociology, environmental studies, marketing, etc.) and for many decades had been dedicated to the importance of environmental consciousness (EC) in the consumers' green purchasing decision. However, empirical studies show a lack of consensus on the role of EC on consumer's behaviors. In this study we suggest that these inconsistencies are caused by the absence of agreement on the definition, dimensionality, and measurement of the EC concept. In fact, studies use different terms to for EC as: *environmental concern*, *environmental awareness* and *green consciousness*. Moreover, EC is presented as a concept with one, two or three dimensions and different scales of measurement are therefore suggested.

The lack of agreement on the essence and measurement of the EC concept pose a great challenge to the study of its role in the consumers' green purchasing decision. This study attempts to address this challenge by trying to find a definition and a scale of measurement based a review of literature of the last 10 years ranging from 1999 to 2009. Relevant studies were selected from two databases: PSYCInfo and ProQuest ABI/INFORM. We selected peer reviewed articles based on the presence of: 1) a clear definition of the terms: *environmental consciousness*, *environmental concern*, *environmental awareness* and *green consciousness* and/or 2) a scale of measurement of one of these concepts. In all, a total of 40 papers were selected and a content analysis was performed.

**Key words:** Supply chain, green supply chain, perceived weak environmental performance.

### **Introduction**

This study attempts to conceptualize environmental consciousness by conducting a review of literature focusing on conceptual definitions and measurement methods. Studies were reviewed from the past 10 years, ranging from 1999 to 2009. Relevant studies were selected from two databases: PSYCInfo and ProQuest ABI/INFORM. We selected the articles based on two criteria: 1) a clear definition and/or a 2) recommended measurement method must have been mentioned. Sixteen peer-reviewed articles resulted in PSYCInfo with the use of the term *environmental consciousness*. However, only 3 were considered due to the selection criteria. The same procedure was used for the ProQuest ABI/INFORM database. However, we specified an advanced search which was limited to results in scholarly journals including peer-reviewed. Out the 34 results, 10 were selected for this study. We pursued our search with the term *environmental concern*, *environmental awareness* and *green consciousness*. With the term *environmental concern*, 165 articles resulted in PSYCInfo but only 14 were relevant to our research objective; none of the results with the use of the term *environmental awareness* and *green consciousness* due to pertinence. However, ProQuest ABI/INFORM results were the following: 390 results with *environmental concern*, 85 with *environmental awareness* and two with *green consciousness*. Following a review of these results, 11 were applicable for *environmental concern*, one for *environmental awareness* and one for *green consciousness*. In all, a total of 39 articles attempted to conceptualize the above terms related to environmental consciousness.

## **Results**

The majority of these studies have conceptualized environmental consciousness as knowledge, attitudes and behaviour. However, *attitudes* can be a vague term and can include many dimensions in itself. Hence, we find it important to clearly define attitudes in order to conceptualize environmental consciousness. A precise definition of attitudes is debated throughout the literature and the attitude concept appears to differ amongst authors. One point of view is that attitudes consist of three components: affect, cognition and behaviour (Harding, Kutner, Proshansky, & Chein, 1954; Insko & Schopler, 1967; Katz & Stotland, 1959; Rosenberg & Hovland, 1960; Kothandapani, 1971; Oskamp, 1977; Rajecki, 1982; Triandis, 1971; Zimbardo, Ebbesen & Maslach, 1977; Breckler, 1984). The affect component is described as positive or negative feelings that a person holds towards an attitude object. Cognitions refer to beliefs and finally, behaviours as actions and responses towards an attitude object based on the two prior components (Zanna & Rempel, 1988; Thomas & Alaphilippe, 1983). Others view attitudes in a similar way but, replacing the cognitive component by beliefs. As a result, attitudes are seen as a composite of beliefs about an attitude object, affective responses towards the object and behavioural tendencies (Breckler, 1984). However, the tripartite theory of attitudes (affect, cognition and/or beliefs and behaviour) is debated and others claim that the components are distinguishable from each other. Albarracin, Johnson & Zanna (2005) define attitudes primarily as affect and cognition without including behaviour, focussing on an approach that avoids the inclusion of the behaviour component and viewing attitudes as the evaluative predisposition leading to the behaviour itself. Therefore, the evaluation of an object is primarily associated with emotional responses and affective states. Zanna and Rempel (1988) also suggest that there are individual differences in attitudes and that certain people prefer to rely on affective or cognitive components to guide their attitudes. They propose that certain individuals are primarily affect-based (rely on their feelings), whereas other are cognition-based (rely on their beliefs). Hence, these two components can be mutually related and utilized to an equal degree by the individual (Huskinson & Haddock, 2003). Another perspective is that attitudes originate from beliefs which are based on cognitions about an attitude object (Ajzen & Fishbein, 1980; Fishbein, 1967). Ajzen and Fishbein (1975 & 1980) speculate that attitude consists of beliefs about the consequences of performing behaviour and the evaluation response of these consequences.

Taken together, the structure of attitudes remains a topic of discussion throughout the literature. However, our findings suggest that attitudes consist of three main components: affect, cognition and behaviour. We have excluded the *behaviour* and *beliefs* component and included it in the attitude concept, *beliefs* being included in the cognition component. Therefore, only three dimensions are left to conceptualize environmental consciousness: knowledge, attitudes and values. Out of the 39 articles that defined and/or measured environmental consciousness, 25 of them have defined it as being solely attitudes (i.e. attitudes, behaviour and/or beliefs; see Table 1); one as being knowledge (Christopher, 1999); 5 as a combination of knowledge and attitudes (see Table 1); one as a combination of knowledge, attitudes and values (Jain & Kaur, 2006); and 7 as attitudes and values (see Table 1). Our findings indicate that the majority of studies have used a univariate conceptualization of environmental consciousness that is, of attitudes.

Table 1

## Literature of results of environmental consciousness, environmental concern, environmental awareness and green consciousness

Authors	Research method	Year	Location	Database		Environmental measures <i>key word: environmental consciousness</i>					Research objective	Measurement instruments	
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour	Values	Beliefs		
*Elisabeth Ryland	Review of Literature	2000	California	√		N/A		√				explore the gap between concern and action using a Jungian perspective	N/A
Michael Christopher	interview	1999	Hawaii	√		40	√					study the spread of EC, the framework for interpreting and acting on this concern	customized questions
*Richard P. Vlosky Lucie K. Ozanne Renee J. Fontenot	survey	1999	Santa Barbara	√		67			√			relationship between intrinsic environmental motivations and purchase behaviour	customized scale
*Mohan J. Dutta-Bergman	survey	2004	USA		√	3 613		√	√			study the relation between EC and volunteerism	customized scale
Volker Stocké Christian Hunkler	survey	2007	Germany		√	294		√	√			study social desirability about certain topics (i.e. EC)	-the one-point measure (OPM) (Edwards, 1957)
G.M. Zarakovskii V.I. Medvedev N.A. Polesterova	survey	2000	Russia		√	197	√	√	√			empirical verification of EC consisting of the cognitive-evaluation & activity-related components	-Rokich's test for value orientation -Osgood's Individual Differential
*Sami Alsmadi	self-administered survey	2007	Soudi Arabia	√		303		√	√			study attitudes regarding EC and purchase behaviour	customized scale
*Suvi Salmela	interview	2005	Finland	√		10	√	√	√			study consumer behaviour	questions based on Kiljunen

Table 1 (*continued*)

Authors	Research method	Year	Location	Database		Environmental measures <i>key word: environmental consciousness</i>				Research objective	Measurement instruments		
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour	Values	Beliefs		
*Ricky Y.K. Chan	survey	2000	China	√		549		√	√			explore attitudes, green consumption behaviours & demographic backgrounds	-Environmental Attitude Scale (Berberoglu and Tosunoglu's, 1995)
*Sanjay K. Jain Gurmeet Kaur	survey	2006	India	√		206	√	√	√			explore socio-demographic groups differences in their EC	-Environmental Knowledge Scale by Zimmer et al. (1994) -Perceived Consumer Effectiveness (PCE) Scale (Roberts, 1996) -Environmental Concern Scale (Straughan and Roberts, 1999) -Environmental Conscious Behaviour Scale (Roberts, 1996) -Total Environmentally Friendly Behaviour Scale (Allen & Ferrand, 1999)
*Tan Soo Jiuan Jochen Wirtz Kwon Jung Kau Ah Keng	survey	2001	Singnapre	√		1 535		√	√	√		study attitudes & traits of Singaporean's in issues commonly featured in lifestyle research (i.e. CE)	-customized scale adapted from a study by the Roper Organization Inc (1990)
*Duygu Firat	survey	2009	Turkey	√		254			√			study the factors that affect environmentally conscious consumer behavior	-Environmental Concern Scale (Roberts, 1996)
*Elena Fraj Eva Martinez	survey	2006	Spain	√		573	√	√	√	√		√ identify values & lifestyles that best explain environmentally friendly behaviours	-Values & Lifestyle Scale (Mitchell, 1983) - Environmental Attitude and Knowledge Scale (Maloney & al., 1975)

Table 1 (*continued*)

Authors	Research method	Year	Location	Database		Environmental measures <i>key word: environmental concern</i>			Research objective	Measurement instruments	
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour		
Alhassan G. Abdul-Muhmin	-survey -focus group	2006	Saudi Arabia	√		232	√	√		explain willingness to perform environmentally friendly behaviour	-12 items taken from Bohlen et al. (1993) -knowledge and perceived seriousness items drawn from Bloom (1995)
*William Kilbourne Gregory Pickett	-survey	2007	USA		√	337		√	√	study relationships between materialism, environmental beliefs, environmental concern & behaviors	-3 items for individual concern and 3 for social concern
Silvia Wurzinger Maria Johansson	-survey	2006	Sweden		√	245		√	√	√ explore whether ecotourists are more ecologically oriented than nature tourists and city tourists	-New Environmental Paradigm Scale (NEPS Revised) by Dunlap & al., 2000 -General Ecological Behavior Scale (Kaiser, 1998; Kaiser and Biel, 2000)
Lori M. Hunter	-data from the 1993 General Social Survey	2000	USA		√	1 606		√	√	examine attitudes, concern & behaviours within the context producing contemporary American environmental awareness	-General Social Survey (1993)
P. Wesley Schultz Lynnette Zelezny Nancy J. Dalrymple	-survey	2000	non specified	√		2 160		√	√	examine the relation between religious beliefs & EC	-New Environmental Paradigm Scale (Dunlap & al., 1978, 1992) -Ecocentrism and Anthropocentrism Scales (Thompson & Barton, 1994)
*Hilde IVerne Torbjorn Rundmo	-survey	2002	Norway		√	1 450		√		explore the relations between health attitudes, risk perception and environmental behaviour	-Environmental Concern Scale (Weigel & Weigel, 1978)
Brijesh Thapa	-survey	2001	USA		√	540		√		√ explore the structure of the NEP , analyze environmental attitudes, analyze the importance & awareness towards environmental issues	-New Environmental Paradigm Scale (NEPS Revised) by Dunlap, and 2000
Jill Greenwald	-survey	2003	USA		√	28			√ study the relations between	-Environmental Concern Scale	

Table 1 (*continued*)

Authors	Research method	Year	Location	Database		Environmental measures <i>key word: environmental concern</i>			Research objective	Measurement instruments	
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour		
Niklas Fransson Tommy Garling	-Literature review	1999	Sweden	√		NA		√	√	review & analyse previous research to determine the role of EC on behaviour changes	N/A
Aie-Rie Lee James A. Norris	-survey	2000	Europe	√		results of the World Value Survey 1990-1993		√		explore if EC is consistent cross-nationally in East Europe & how political behaviour is correlated to EC	-Environmental Protection Index of the World Value Survey (1990-1993)
Christie P. Karpiaak Galen L. Baril	-survey	2008	USA		√	64		√		study the relationship between Kohlbergian moral reasoning & environmental opinions	-Ecocentric and anthropocentric attitudes toward the environment (Thompson & Barton, 1994) -Defining Issues Test (DIT; Rest's, 1993)
*Jaime Berenguer José A. Corraliza Rocio Martin	-survey	2005	Spain		√	185		√	√	explore the links between certain social structures & EC, attitudes and actions	-New Environmental Paradigm Scale (Dunlap & al., 2000)
Junyi Shen Tatsuyoshi Saito	-survey	2008	China		√	1 200		√		explore the influence of socio-demographic characteristics on individual EC	-customized questions
Anna Olofsson Susanna Ohman	-survey	2006	Sweden		√	12 383		√	√	test whether grouping people according to their general beliefs can explain EC	-International Social Survey Program (ISSP, 2000)
Veronica Sevillano Juan I. Aragónés P.Wesley Schultz	-survey	2007	Spain		√	193		√	√	examine the impact of visual images & perspective taking on concern for environmental problems	-Environmental Motives Scale (Schultz, 2000) -open-ended customized questions about environmental concern -Interpersonal Reactivity Index (Davis, 1983)
*Wouter Poortinga	-survey	2002	Deutch population		√	455		√	√	explore the link between EC,	-New Environmental Paradigm Scale

Table 1 (*continued*)

Authors	Research method	Year	Location	Database		<i>Environmental measures key word: environmental concern</i>				Research objective	Measurement instruments
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour	Values	
*Satoshi Fujii	-survey	2006	Japan	√		341		√	√		study relations between EC, attitudes, perceived ease of behaviour, and intentions of engaging in pro-environmental behaviour
Judith De Groot Linda Steg	-survey	2007	Groningen	√		218		√			test the theory of planned behaviour on intention to use a park-and-ride facility (transferium)
André Hansla Amelie Gamble Asgeir Juliusson Tommy Garling	-survey	2007	Sweden	√		494		√	√		test whether Schultz's three EC attitudes are causally related to AC beliefs & value types assuming that the AC beliefs Mediate the effects of value types EC attitudes
Daniel D. Dutcher James F. Finley A.E. Luloff Janet Buttolph Johnson	-survey	2007	Pennsylvania	√		741			√	✓	explore the statistical association between connectivity, EC, & environmental behavior
Rosemary S. Snelgar	-survey	2006	London	√		103		√		✓	-establish which scale (AC beliefs or EC scale) is most suitable in terms of dimensionality & reliability of its sub-scales -investigate the structural relationships of the EC scale items
Riley E. Dunlap Richard York	-survey	2008	USA	√		NA			√		determine the degree to which existing data support the fact that poor nations are less concerned about environmental problems & supportive of environmental protection than are their counterparts in the rich nations, as predicted by the postmaterialist

myths of nature & preferences  
for energy-saving measures  
(Dunlap & al., 2000)

Table 1 (continued)

explanation of EC

Authors	Research method	Year	Location	Database		Environmental measures <i>key word: environmental concern</i>				Research objective	Measurement instruments	
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour	Values	Beliefs	
*José A. Corraliza Jaime Berenguer	-survey	2000	Spain	√		125	√	√	√	√	investigate the influence of the interaction between personal and situational variables in environmental behaviour and the predictive power of values and beliefs	-16 belief items from Berenguer (1998) -18 value items from Stern & al. (1995) -16 customized action items
P. Wesley Schultz	-telephone survey -survey	2001	USA	√		3 759	√				test the proposed three-factor model for EC by assessing the importance of valued objects organized around self, other people, and all living things	-12 items from the original New Environmental Paradigm Scale (Dunlap et al., 1992) -15 items from the revised version of the Environmental Paradigm Scale (Dunlap et al., 2000) -12 behaviour items selected from Schultz & Zelezny (1998)
<i>Key word: environmental awareness</i>												
John Fien Irene Teh- Cheong Poh Ai David Yenchen Helen Sykes	-survey	2002	Australia	√		non specified	√	√	√	√	explore similarities and differences in the knowledge, beliefs and actions that comprise the environmental attitudes	-data from an international study in Asia and the Pacific (Yenchken et al., 2000)
<i>Key word: green consciousness</i>												
Passent Tantawi Khaled Gad Nicholas O'Shaughnessy Mohamed Abded Salem Ragheb	-survey	2009	Egypt	√		122	√				empirically investigate the attitudes of Egyptian consumers towards the environment in general	-Attitude Scale (Bohlen et al., 1993) -New Environmental Paradigm Scale (Dunlap & al., 2000) -questions inspired by the results of Tantawi & al. (2006)

Table 1 (*continued*)

Authors	Research method	Year	Location	Database		Environmental measures <i>key word: green consciousness</i>				Research objective	Measurement instruments		
				Proquest	PsycINFO	Sample size	Knowledge	Attitudes	Behaviour	Values	Beliefs		
* Mohamed M. Mostafa	-survey	2007	Egypt	√		1 093	√	√	√			explore the influence of various cultural values and psychological factors on the green purchase behaviour of Egyptian consumers	-Perceived Knowledge of Environmental Issues Scale (Ellen, Eroglu, & Webb, 1997) -New Environmental Paradigm Scale (Dunlap & al., 2000) -Green Purchase Attitudes items by Taylor & Todd (1995) -Green Purchase Intention items scale adapted from Li (1997) and utilized by Chan (2001) -Green Purchase Acceptance operationalized by Chan & Lau's (2000) -Natural Environmental Orientation measured by referring to Churchill's (1979) guidelines

Key: NA – not applicable; \* authors found relationships between environmental consciousness and behaviour

## **Discussion**

Despite the growing research undertaken towards the environment, it remains difficult to clearly conceptualize environmental consciousness. The objective of the present study was to conduct a literature review focussing on the past ten years. In this light, we wanted to suggest a comprehensive description, a conceptualization of environmental consciousness and propose a measurement instrument. According to our research findings, environmental consciousness was mainly conceptualized as attitudes that is, a composite of affect, cognition and behaviour. These findings also suggest that environmental consciousness can best be described and measured by attitudes. All results in this study have included at least one of the three attitude concepts in their definition of environmental consciousness, except for one (Christopher, 1999). Hence, they also measured environmental consciousness with scales that operationalized attitudinal items. The current findings also show that the most frequently used measurement instrument are those based on Dunlap & Van Liere (1978; 2000), Roberts (1996; 1999), Weigel & Weigel (1978) and Schultz (2000; 2001; 2002). Taken together, *The New Environmental Paradigm Scale* (Dunlap & Van Liere, 1978; 2000), *The Environmental Concern Scale* (Weigel & Weigel, 1978) and items taken from Schultz (2000; 2001; 2002) seem to be the most utilized throughout our research findings. However, further investigation is needed to assess the validity of these instruments and to determine which one is the most promising instrument to assess environmental consciousness. Also, the development of a new measurement instrument which precisely measures affect, cognition and behavioural components of environmental consciousness is needed.

Certain results suggest that environmental consciousness (attitudes) is related to green purchase behaviours and other pro-environmental behaviours. However, only 18 of the articles have clearly demonstrated these relations (see \* in Table 1). The lack of consistence between environmental consciousness and behaviour could strongly support our conclusion that environmental consciousness is consisted of attitudes. Because behaviour is an attitudinal composite of environment consciousness, it is logical that this relationship isn't clear because behaviour is a component of attitudes in itself (Harding, Kutner, Proshansky, & Chein, 1954; Insko & Schopler, 1967; Katz & Stotland, 1959; Rosenberg & Hovland, 1960; Kothandapani, 1971; Oskamp, 1977; Rajecki, 1982; Triandis; 1971; Zimbardo, Ebbesen & Maslach, 1977; Breckler, 1984). Future studies should be geared towards confirming the attitudinal conceptualization of environmental consciousness (affect, cognition and behaviour) as well as the motives on implicit and explicit pro-environmental attitudes.

## **Conclusion**

In 2003, an interdisciplinary literature review was done by Diamantopoulos *et al.* (2003) in order to investigate the relationships between socio-demographic characteristics and environmental measures of environmental consciousness. In this light, the present study attempted to proceed in a similar matter. Hence, a review of literature was conducted focusing on conceptual definitions and measurement methods in the hope of conceptualizing environmental consciousness. Studies were reviewed from the past 10 years, ranging from 1999 to 2009. Relevant studies were selected from two primary databases: PSYCInfo and ProQuest ABI/INFORM. Articles were selected based on two criteria: 1) a clear definition and/or a 2) recommended measurement method must have been mentioned. Two findings are of particular importance. First, our review suggests that environmental consciousness is best conceptionalized by attitudes, in other words affect, cognition and behaviour. Second, literature has shown that the most commonly used measurement instruments used to assess environmental consciousness are those of Dunlap & Van Liere (1978; 2000), Weigel & Weigel (1978) and Schultz (2000; 2001; 2002). In order to determine generalize the results of this study, future research should strongly consider confirming the attitudinal conceptualization of environmental consciousness (affect, cognition and behaviour) as well as the validation of the proposed measurement instruments on the three main dimensions of attitudes.

## **References**

- Abdul-Muhmin, A. (2007). Explaining consumers' willingness to be environmentally friendly. *International Journal of Consumer Studies*, 31(3), 237-247.
- Alsmadi, S. (2008). Green Marketing and the Concern over the Environment: Measuring Environmental Consciousness of Jordanian Consumers. *Journal of Promotion Management*, 13(3/4), 339.
- Berenguer, J., Corraliza, J., & Martín, R. (2005). Rural-Urban Differences in Environmental Concern, Attitudes, and Actions. *European Journal of Psychological Assessment*, 21(2), 128-138.
- Chan, R. (2000). An emerging green market in China: Myth or reality? *Business Horizons*, 43(2), 55-60.
- Christopher, M. (1999). An exploration of the "reflex" in reflexive modernity. *Organization & Environment*, 12(4), 357-400.
- Corraliza, J., & Berenguer, J. (2000). Environmental values, beliefs, and actions: A situational approach. *Environment and Behavior*, 32(6), 832-848.
- De Groot, J., & Steg, L. (2007). General beliefs and the theory of planned behavior: The role of environmental concerns in the TPB. *Journal of Applied Social Psychology*, 37(8), 1817-1836.
- Diamantopoulos, A., Schlegelmilch, B., Sinkovics, R., & Bohlen, G. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of Business Research*, 56, 465-480.
- Dunlap, R., & York, R. (2008). The globalization of environmental concern and the limits of the postmaterialist values explanation: Evidence from four multinational surveys. *Sociological Quarterly*, 49(3), 529-563.
- Dutcher, D., Finley, J., Luloff, A., & Johnson, J. (2007). Connectivity with nature as a measure of environmental values. *Environment and Behavior*, 39(4), 474-493.
- Dutta-Bergman, M. (2004). Describing Volunteerism: The Theory of Unified Responsibility. *Journal of Public Relations Research*, 16(4), 353-369.
- Fien, J., The-Cheong Poh Ai, I., Yencken, D., Sykes, H., & Treagust, D. (2002). Youth environmental attitudes in Australia and Brunei: implications for education. *The Environmentalist*, 22(3), 205-216.
- Firat, D. (2009). Demographic and Psychographic Factors that Affect Environmentally Conscious Consumer Behavior: A Study at Kocaeli University in Turkey. *Journal of American Academy of Business, Cambridge*, 14(2), 323-329.
- Fraj, E., & Martinez, E. (2006). Environmental values and lifestyles as determining factors of ecological consumer behaviour: an empirical analysis. *The Journal of Consumer Marketing*, 23(3), 133-144.
- Fransson, N., & Gärling, T. (1999). Environmental concern : conceptual definitions, measurement methods, and research findings. *Journal of Environmental Psychology*, 19, 369-382.
- Fujii, S. (2006). Environmental concern, attitude toward frugality, and ease of behavior as determinants of pro-environmental behavior intentions. *Journal of Environmental Psychology*, 26(4), 262-268.
- Hansla, A., Gamble, A., Juliusson, A., & Gärling, T. (2008). The relationships between awareness of consequences, environmental concern, and value orientations. *Journal of Environmental Psychology*, 28(1), 1-9.

- Hunter, L. (2000). A comparison of the environmental attitudes, concern, and behaviors of native-born and foreign-born U.S. residents. *Population and Environment: A Journal of Interdisciplinary Studies*, 21(6), 565-580.
- Iversen, H., & Rundmo, T. (2002). Environmental concern and environmental behaviour among the Norwegian public. *Journal of Risk Research*, 5(3), 265-279.
- Jain, S., & Kaur, G. (2006). Role of socio-demographics in segmenting and profiling green consumers: An exploratory study of consumers in India. *Journal of International Consumer Marketing*, 18(3), 107-146.
- Tan, S., Wirtz, J., Jung, K., & Keng, K. (2001). Singaporeans' attitudes towards, work, pecuniary adherence, materialism, feminism, environmental consciousness, and media credibility. *Singapore Management Review*, 23(1), 59-86.
- Karpiak, C., & Baril, G. (2008). Moral reasoning and concern for the environment. *Journal of Environmental Psychology*, 28(3), 203-208.
- Kilbourne, W., & Pickett, G. (2008). How materialism affects environmental beliefs, concern, and environmentally responsible behavior. *Journal of Business Research*, 61(9), 885-893.
- Lee, A., & Norris, J. (2000). Attitudes toward environmental issues in east Europe. *International Journal of Public Opinion Research*, 12(4), 372-397.
- Mostafa, M. (2007). A hierarchical analysis of the green consciousness of the Egyptian consumer. *Psychology & Marketing*, 24(5), 445-473.
- Olofsson, A., & Öhman, S. (2006). General Beliefs and Environmental Concern: Transatlantic Comparisons. *Environment and Behavior*, 38(6), 768-790.
- Poortinga, W., Steg, L., & Vlek, C. (2002). Environmental risk concern and preferences for energy-saving measures. *Environment and Behavior*, 34(4), 455-478.
- Robbins, J., & Wiechelt, S. (2003). Environmental Concern and Personal Health Behaviors in Women. *Journal of Human Behavior in the Social Environment*, 7(3), 141-158.
- Ryland, E. (2000). Gaia rising: A Jungian look at environmental consciousness and sustainable organizations. *Organization & Environment*, 13(4), 381-402.
- Salmela, S., & Varho, V. (2006). Consumers in the green electricity market in Finland. *Energy Policy*, 34(18), 3669.
- Schultz, P. (2001). The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of Environmental Psychology*, 21(4), 327-339.
- Schultz, P., Zelezny, L., & Dalrymple, N. (2000). A multinational perspective on the relation between Judeo-Christian religious beliefs and attitudes of environmental concern. *Environment and Behavior*, 32(4), 576-591.
- Sevillano, V., Aragonés, J., & Schultz, P. (2007). Perspective taking, environmental concern, and the moderating role of dispositional empathy. *Environment and Behavior*, 39(5), 685-705.
- Shen, J., & Saijo, T. (2008). Reexamining the relations between socio-demographic characteristics and individual environmental concern: Evidence from Shanghai data. *Journal of Environmental Psychology*, 28(1), 42-50.
- Snelgar, R. (2006). Egoistic, altruistic, and biospheric environmental concerns: Measurement and structure. *Journal of Environmental Psychology*, 26(2), 87-99.
- Stocké, V., & Hunkler, C. (2007). Measures of desirability beliefs and their validity as indicators for socially desirable responding. *Field Methods*, 19(3), 313-336.
- Tantawi, P., O'Shaughnessy, N., Gad, K., & Abdel Salam Ragheb, M. (2009). Green consciousness in a developing country: A study of Egyptian consumers. *Contemporary Management Research*, 5(1), 29-50.

- Thapa, B. (2001). Environmental concern: A comparative analysis between students in recreation and park management and other departments. *Environmental Education Research*, 7(1), 39-53.
- Thomas, R., & Alaphilippe, D. (1983). Les Attitudes. Paris, France: Presses Universitaires de France.
- Vlosky, R., Ozanne, L., & Fontenot, R. (1999). A conceptual model of US consumer willingness-to-pay for environmentally certified wood products. *Journal of Consumer Marketing*, 16(2), 122-140.
- Wurzinger, S., & Johansson, M. (2006). Environmental Concern and Knowledge of Ecotourism among Three Groups of Swedish Tourists. *Journal of Travel Research*, 45(2), 217.
- Zarakovskii, G., Medvedev, V., & Polesterova, N. (2000). Comprehensive study of environmental consciousness of high school students. *Human Physiology*, 26(5), 612-620.
- Bodo B. Schlegelmilch, Greg M. Bohlen, Adamantios Diamantopoulos, (1996) "The link between green purchasing decisions and measures of environmental consciousness", *European Journal of Marketing*, Vol. 30 Iss: 5, pp.35 - 55