

Exploring the Relationships between Environmental Concern and Ecologically Conscious Consumer Behavior: An Empirical Study

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Abstract: *The increasing economic development and rapidly growing population are putting a strain on the environment, infrastructure, and India's natural resources. Quality of life of the present and of future generation depends on the protection and preservation of ecosystems. An increasing number of people know about environmental degradation and believe that action is needed. With the gradual rise of environmental consciousness and ecological protection, people have been participating in the establishment of environmental organizations and environmental laws in an attempt to prevent the continuous ecological destruction, through international trade sanctions. Nowadays green products and green consumption have become measures proposed for ensuring sustainable development. The objective of this research is to investigate the influence of environmental concern on attitude of Indian consumers' purchase behavior. The study found that although many consumers in India view themselves as environmentalists, they do not translate their attitudes into general green purchasing decision.*

Keywords: Conscious Consumer, Ecological Marketing, Environment, Environmental Marketing, Green Marketing

1. Introduction

By 2050 the global population will reach 9 billion, barring substantial changes in demographic trends, with 2.5 billion more people in today's developing countries. Larger populations put pressure on ecosystems and natural resources, intensify the competition for land and water, and increase the demand for energy. Unsustainable development, consumerism and wastage are causing irreparable damage to the environment, unnatural extinction of species and ultimately inhibit sustainable development. The environmental degradation has caused, among other things, global warming, depletion of stratospheric ozone layer, pollution of sea and rivers, noise and light pollution, acid rain and desertification [8]. As globalization continues and the earth's natural processes transform local problems into international issues, few societies are being left untouched by major environmental problems.

Widening gaps in the patterns of consumption and production between rich and poor countries and between communities within countries, social inequities and imbalances in the access to social and economic opportunities at the national, regional and global levels are closely associated with environmental degradation and the unsustainable use of natural resources and perpetuate the cycle of poverty. The environment is the planetary support system on which all other human enterprises depend. If political, social, cultural, religious, and most importantly economic systems are to remain secure and viable, the environment must also remain secure and viable. This makes global environmental conditions a legitimate national security concern for all countries.

India is facing tremendous challenge in ensuring sustainable development. The national statistics showed that the state of Indian environment is rather stressful. By 2025, India's current population of 935 million is estimated to grow to approximately 1.4 billion; the combined population of India

and China contains 37% of the world's population. India is a country that is undergoing extensive economic growth, rapid urban growth, and a growing middle class. Yet almost one third of the population is impoverished, forest degradation is a continuing problem, and air and water pollution are severe in many parts of the country. Accordingly, various policies and strategies are currently developed and implemented by the government in order to ensure sustainable development of the nation. To overcome and reduce the negative environmental consequences and increased pollution levels associated with industrialization and urbanization, a number of proactive steps have been proposed in the Budget 2010-11. The major steps include setting up of National Clean Energy Fund (NCEF), Affluent Treatment Plan, Tirupur and National Ganga River Basin Authority. The government has proposed reduction in custom duty on parts used in electric cars that offer an eco-friendly alternative to petrol and diesel cars. Also, the battery and other parts of the eco-friendly solar powered rickshaw developed by the CSIR have also been exempted from customs duty. Increased environmental changes cannot be managed without individual people recognizing their responsibility for the environment. The problem is that people may believe their individual actions to be insignificant. The present study investigates consumers' environmentally responsible behavior and the effect of socio demographic characteristics on their environmentally responsible behavior.

2. Conceptual Framework

Environmentally-Responsible Behavior is described as being a multifaceted concept, which includes preservation of the environment, minimization of pollution, responsible use of non-renewable resources, and animal welfare and species preservation. Environmentally responsible behavior arises from environmental sensitivity, which is the skill to observe and sense the surrounding environment and the changes in it.

Studies have found that the most significant factor affecting environmental related issue is not the official government policy but public awareness [13], [2] and the readiness to bear the cost of minimizing the adverse impacts of their activities [9]. Studies by various scholars have demonstrated that the quality of the environment depends critically on the level of knowledge, attitude, values and practices of the people. It is recognized that environmental education help create awareness, concern, recognition of the consequences of their actions and thus adopting an environmentally responsible behavior.

Studies found that individuals who are more apprehensive about the environment are also more likely to exhibit environmentally friendly behavior and environmentally conscious consumer behavior [10], [5]. Over the years, a majority of consumers have realized that their purchasing behavior had a direct impact on many ecological problems. Evidence suggests that consumers are choosing products or avoiding others based on their impact on the natural environment. Public opinion polls in Canada, the United States, Germany, the Netherlands, the United Kingdom, Japan, Thailand, and Denmark among others, indicate that consumers are purchasing environmentally friendly products to protect the environment and improve the quality of life for current and future generations.

According to study conducted by the Swedish Environmental Protection Agency (2005), 97% of the Swedish population thought in 2005 that environmental issues will, or already have had an influence on Sweden. A study done by CNN in 2002, involving 25000 consumers in 175 countries, showed that 71% of the respondents were dissatisfied with the state of the environment and 67% said that it is getting worse. A growing amount of evidence suggests that US and Western Europe are becoming more environmentally responsible in terms of their personal habits and lifestyles [11].

In UK, 10% are recognized as being hardcore green consumers [4]. 50% of Americans claim to look for environmental labels and to switch brands based on environment-friendliness [6]. Other studies suggest that green consumers are willing to pay more for ecologically friendly products [1], [3].

Study conducted by [12] found that 61.5% of the Australians would pay more for environmentally safe products while 22.2% were unsure if they would pay more for green products. Mintel survey concluded that 27% of British adults were prepared to pay up to 25% more for green products [7].

The increase in the environmental consciousness has had an intense impact on consumer behavior. The extent to which green marketing efforts can gainfully be taken to the market and given a required scale depends upon environmental consciousness of the consumers. Green consumer segments can be targeted to induce pro-environmental purchase behavior. In response, companies are paying more attention towards making their products more sustainable. The Indian business with corporate giants like Tata, Reliance, PwC, HSBC, Moser Baer, Shell, Birla, ICICI Bank and many more is becoming more environment-minded, pushing them

to shift towards eco-friendly technologies and executing sustainable practices.

The inclusion of the environmental concern in marketing activities leads to a new way of understanding the exchange relationships, commonly termed as green marketing, environmental marketing, ecological marketing and sustainable marketing.

Accordingly, the research attempts to study environmentally-responsible behavior among consumers. The objective of this research is to ascertain whether variables specific to environmental consciousness are more suitable for characterizing consumers' green purchasing decisions. Specifically, measures of environmental knowledge, attitudes and behavior are linked to two conceptualizations of the purchasing domain, namely green purchasing decisions in general and the specific purchasing habits of five green product categories.

3. Objectives of the study

- A. Assess the strength of the relationship between environmental consciousness and green purchase decision of consumers.
- B. To study the relationship between environmental consciousness, green purchase decision of consumers and socio demographic variables.

4. Methodology of the Study

The research design was a descriptive type of study utilizing survey method. Judgmental sampling technique was used to select 250 respondents. However, 203 respondents responded to the questionnaire. Analysis of data collected through questionnaires was done through simple tabulation. Correlation, Multiple regression analysis, Kruskal-Wallis one-way ANOVA were applied for data analysis.

Table 1 presents the profile of the respondents who had participated in the present research study.

- Around more than half of the participants were females (56.25%).
- Almost 42.4% of the respondents were Post-Graduate.
- 32.0% were pursuing graduation.
- 29.15% of the respondents lie in the age group of less than 21 years.
- 33.9 % are 35 years & above.

Table 1: Distribution of Respondents

	N (203)	P
Age (years)		
<21 years	59	29.1
21 -34 yrs	77	37.9
35 yrs & above	67	33.0
Total	203	100.0
Gender		
Male	89	43.8
Female	114	56.2
Total	203	100.0
Education		
High School	52	25.6
College Graduate Level	65	32.0

Post –Graduate	86	42.4
Total	203	100.0
Income (monthly)		
Less than Rs.25,000	67	33.0
Rs.25,001-50,000	68	33.5
More than Rs.50,001	68	33.5
Total	203	100.0

Measures

Dependent Variables

The dependent variables employed in the analysis all relate to individuals' purchasing habits of environmentally-friendly products.

General Green purchasing decision was captured with the general purchasing behavior scale, a summated measure of responses to three purchasing statements. Each item was measured on a 5-point frequency of purchase scale (1 = "Never", 5 = "Always").

In contrast, specific pro-environmental purchasing behavior was captured with five variables, all single-item measures recording purchase frequencies of a number of green product categories, measured on 5-point scales (1 = "Would never buy", 5 = "Would always buy").

Independent Variables

The domain of "environmental consciousness" is defined as a multi-dimensional construct, consisting of cognitive, attitudinal and behavioral components. Therefore, measures encapsulating all three dimensions are included as independent variables, using four composite scales these include:

- A environmental knowledge scale measuring the respondent's self-perception of knowledge was measured on 5-items (1 = "Strongly disagree", 5 = "Strongly agree").
- An environmental concern consisting of 9 five-point Likert statements aimed at capturing the respondent's concern about environmental quality (1 = "Strongly disagree", 5 = "Strongly agree").
- An environment attitude scale consisting of 7 five-point Likert statements aimed at capturing the respondent's concern about green products. (1 = "Strongly disagree", 5 = "Strongly agree").
- A political action scale consisting of four politically-motivated activities in order to combat environmental degradation (e.g. writing to newspapers or supporting pressure groups), scored on a five-point itemized category format (1 = "Strongly disagree", 5 = "Strongly agree").

5. Findings of the Study

A. Assess the strength of the relationships between the measures of environmental consciousness and environmental purchasing behavior.

To gain a better understanding of the basic profile of the sample surveyed and obtain a description of the distribution of responses, frequencies, measures of central tendencies were calculated.

As shown in Table 2, the means for both dependent and independent were observed to be centered on median and demonstrated no significant skewness.

Table 2: Summary Statistics for environmental consciousness and purchase measures

	Environmental knowledge*	Environmental concern*	Environmental Attitude *	Political Action *	General green purchasing decision**	Specific green purchasing decision**
Mean	17.0342	42.695	31	9.03	17.5221	13.69
Std. Deviation	2.92	6.89	1.93	3.03	2.98238	3.07

Note: * independent variables; ** dependent variable

Table 3: Measures of Correlation and Association

	General Green	Specific Green
Environmental Knowledge*	0.181	0.153
Environmental Concern*	0.184	0.462
Environmental Attitude*	0.636	0.618
Political Action*	0.431	0.211

Note: * independent variables; ** dependent variable

The shaded areas indicate values that are statistically significant.

The preliminary correlation analysis results in Table 3 indicated:

- The existence of a positive correlation between green purchasing behavior and environmental consciousness.
- Additionally, the analysis indicated that the environmental attitude shared relatively stronger association with the general green purchasing decision as compared to environmental knowledge, environmental concern and political action.
- Also, environmental concern and environmental attitude shared relatively stronger association with the specific green purchasing decision as compared to environmental knowledge and political action.
- The strength of association between general green purchasing decision, specific green purchasing behavior and the explanatory variables was measured by using a linear regression.
- A stepwise regression was, therefore, employed to remove a previously entered variable that became redundant.
- Thus, the following regression models were used to assess the effects of each of the explanatory variables on the level of general green purchasing decision and specific green purchasing decision.

$$\text{General green purchasing decision} = \alpha_0 + \beta_1 \text{ environmental knowledge} + \beta_2 \text{ environmental concern} + \beta_3 \text{ environmental attitude} + \beta_4 \text{ political action} + \text{Error Term}$$

$$\text{Specific green purchasing decision} = \alpha_0 + \beta_1 \text{ environmental knowledge} + \beta_2 \text{ environmental concern} + \beta_3 \text{ environmental attitude} + \beta_4 \text{ political action} + \text{Error Term}$$

Where,

$\beta_1, \beta_2, \beta_3$ are the coefficients of environmental knowledge, environmental concern and environmental attitude.

Table 4: Overall multiple regression results

	General green purchasing decision*				Specific green purchasing decision**			
	Regression Statistics	Coefficients	T Statistics	P value	Regression Statistics	Coefficients	T Statistics	P value
Intercept		6.297	4.014	0		-2.618	-3.655	0
Environmental Knowledge		0.101	1.79	0.075		0.101	1.79	0.075
Environmental Concern		0.003	0.047	0.962		0.158	5.455	0
Environmental Attitude		0.553	9.387	0		0.85	29.304	0
Political Action		0.193	3.286	0.001		0.056	2.309	0.022
Multiple R	0.66				0.929			
R Square	0.435				0.863			
Adjusted R Square	0.429				0.862			
F=76.977, P=.000* F=629.508, P=.000**								

The shaded areas indicate values that are statistically significant.

The results of Multivariate Analysis:

1) General green purchasing model demonstrates :

- A moderate predictive power R Square = 0.435.
- A closer scrutiny of the results in Table 4 show that the explanatory variables, namely, environmental attitude (p=.000), political action (p=.001) are significant predictors of general green purchasing decision.
- However, environmental knowledge and environmental concern were not found to be significant in the model.
- All of the coefficients were in the expected direction.

2) Specific green purchasing model demonstrates:

- A strong predictive power R Square = 0.863
- A closer scrutiny of the results in Table 4 show that the explanatory variables, namely, environmental concern (p=.000) and environmental attitude (p=.000), political action (p=.022) are significant predictors of specific green purchasing decision.
- However, environmental knowledge was not found to be significant in the model.
- All of the coefficients were in the expected direction.

This means that although many consumers in India view themselves as environmentalists, but they do not translate their attitudes into general green purchasing decision. It appeared that adoption of a type of practice or behavior would depend on whether there is direct financial benefit, convenience or habit. Strong self regulation is needed on the part of customers than the imposition of control by the government. The purchase behavior of the green products market would not be substantially altered unless a dramatic

shift of perception occurs. It has become more difficult since consumers have already established brand loyalty towards mainstream products.

There may be difference in perception of environmental consciousness and general green purchasing decision across products /green products depending upon age, gender, education level. In order to see whether the average perceptions (of the issues or variables under investigation) were identical for all groups involved in this survey, the Kruskal-Wallis one-way ANOVA test was performed. The test was used to measure any significant differences in responses, since there were different groups involved in the survey. The results are shown in Table 5.

Table 5: Kruskal-Wallis one-way ANOVA

S. No	Statements	Age		Gender		Education	
		X ²	Sig.	X ²	Sig.	X ²	Sig.
1	General Green Purchasing Decision	30.076	.000*	3.877	.049*	23.013	.000
2	Specific Green Purchasing Decision	16.572	.000*	5.952	.015*	19.738	.000
3	Environmental Knowledge	4.420	.110	1.229	.268	5.986	.050*
4	Environmental Concern	.252	.881	.251	.617	5.019	.081
5	Environmental Attitude	9.917	.007*	3.470	.050*	4.420	.110
6	Political Action	1.715	.190	2.264	.322	4.974	.083

The shaded areas indicate values that are statistically significant.

Table 5 suggests that:

- The general green purchasing behavior significantly differ across age ($H(2)=30.076$, $p=.000$), and education ($H(2)=23.013$, $p=.000$).
- Also, specific green purchasing behavior significantly differ across age ($H(2)=19.738$, $p=.000$), and education ($H(2)=10.122$, $p=.006$).
- Women seems to perceive that environmentally friendly product attributes are more important and perform more environmentally friendly than men .
- The study found that general green purchasing behavior ($H(1)=3.877$, $p=.049$) and specific green purchasing behavior ($H(1)=5.952$, $p=.015$) significantly differ across gender.
- Results also pointed out the environmental knowledge significantly differs across education level of the respondents ($H(2)=5.986$, $p=.050$).
- No significant differences were found between environmental concern and age ($H(2)=.252$, $p=.881$), environmental concern and gender ($H(1)=.251$, $p=.617$), environmental concern and education ($H(2)=5.019$, $p=.081$).
- At the same time the findings show that significant differences existed between age ($H(2)= 9.917$, $p=.007$), gender ($H(1)=3.470$, $p=.050$) and environmental attitude.
- No significant differences were found between political action and age ($H(2)= 2.264$, $p=.322$), political action and gender ($H(1)= 1.715$, $p=.190$), political action and education ($H(2)= 4.420$, $p=.083$).

6. Conclusion

A larger sample of the general public would seem prudent in order to assess the stability of the current results. In spite of the above caveat, this study has illustrated that consumers' environmental consciousness may impact on their purchasing decisions, although the latter are also likely to be influenced by other moderating factors. The results confirm the existence of a value attitude-behavior hierarchy in the green purchase context. The attitudinal component of the environmental domain was observed to be the most important predictor of green purchasing decisions. However, in order to increase consumers' attitudes towards environmental quality, investigations are necessary to ascertain how environmental attitudes are formed. In this context, a comparison of personal sources (e.g. family and friends) and impersonal sources (e.g. media channels) of information could form the basis of preliminary investigations.

7. Direction for Future Research

Although the study expands the knowledge of relationship between environmental concern and ecologically conscious consumer behavior, viable prospects for future research remains. Future research efforts could concentrate in building a broader conceptual model of factors that influence ecologically conscious consumer behavior. Understanding green consumer behavior is an increasingly important research topic, especially for the developing countries like India, where the population, urbanization and industrial development have recently emerged important for

the economic growth of the country. Data from longitudinal studies would be particularly useful for capturing the process of dynamics of the relationship. It may be worthwhile to study ecologically conscious consumer behavior over the time, in order to take into account the dynamics in consumer patronage behavior and aspect of sustainability. Also, the variables which may negatively influence green purchasing behavior should also be investigated.

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