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# A Study on Impact of Environment Friendly Product Attributes on Consumer Purchase Decisions

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**Abstract:** *The study aims to find out the influence of environment friendly attributes on the willingness of consumers to purchase the product. It also aims to determine the type of emotions elicited by these kinds of consumer products. It was hypothesized that buying eco products can elicit different kinds of emotions in consumers. These emotions are usually positive that cause attraction to consumers and eventually the actual purchase of the product. An exploratory pre-purchase affect survey was conducted through field and online survey to determine what shoppers feel while looking for eco products to buy. Results revealed that participants significantly experience more positive feelings/emotions than negative feelings/ emotions when buying eco-products while participants are indifferent in experiencing positive and negative feelings/emotions when buying non-eco products. This study provided information on the importance of incorporating ecological attributes to the design of consumer products. As of now, not all companies offer eco-friendly products because it is not known if consumers are willing to pay more for the “environment friendly” attribute. This study hopes to shift the paradigm of companies as it will try to establish the emotional attachment of consumers to product attributes related to the environment.*

## I. LITERATURE REVIEW

Environment friendly products are increasingly attractive in today's marketplace (Juwaheer, Pudaruth, & Noyaux, 2012). The industry was estimated at over \$200 billion in 2006 (Gupta & Ogden, 2009). There is an improvement in the environmental awareness of consumers, which results in the increased demand for green products—an observation that a number of companies have taken advantage of by offering green products and services (Chan, 1999; Ottman, 1992; Peattie & Ratnayaka, 1992; Salzman, 1991; Vandermerwe & Oliff, 1990). A drastic change in consumer preferences towards green products can be seen in the last decade with the emergence of green consumers provoking market method for environmentally friendly organizations and new product innovations (Ottman, 1993). Ecologically friendly products intend to decrease the negative impacts on the environment and provide considerable enhancements during the life cycle of the product (Hindle, White, & Minion, 1993; Pujari & Wright, 1996; Shrivastava, 1995).

Consumers have an impression that buying eco products help them save the environment. Such an impression elicits feelings of altruism and concern that prompts them to make a purchase. Manufacturers, therefore, make an effort to put information related to environment friendliness in their labels for consumers to notice. Many consumers are willing to make an effort to reduce the negative environmental impact of their consumption. Acting in an altruistic way is linked with a feeling of well-being (Ritov & Kahnemann, 1997). Consumers experience personal satisfaction by contributing to the betterment of the environment. This is especially true for people who have experienced losses due to disasters brought about by environmental degradation. Memories brought about by these events trigger strong emotions that prompt consumers to consider the purchase of environment-friendly products even though the price is higher than the alternatives.

The importance of emotion in the purchase process was highlighted by Schiffman et al. (2001). They enumerated four models that guide people in making decisions, namely: (1) economic man model, (2) passive man model, (3) cognitive man model, and (4) emotional man model. In the emotional man model of consumer decision-making, the basis is emotion. Decision is based on strong experiences of joy, fear, love, hope, and so forth. Products are bought because consumers felt positive emotions that led them to be attached to the product. Emotions can be brought about by the environment (Bitner, 1992; Milliman, 1982), the salesperson (Bell, 1999), advertising (Batra & Stayman, 1990), and the product itself (Richins, 1997).

Studies have been done to identify emotional responses in the purchase context. One of the earlier studies on emotion identification and modelling was conducted by Russell (1980).

He proposed that affective measurements are not independent but are related in a systematic style. He based his theory on the previous work of Schlosberg (1952) who hypothesized that emotions were arranged in a circular manner. The circumplex model of affect proposed by Russell (1980), however, may not be relevant in all emotion studies especially in the context of evaluating an eco-product during the prepurchase stage. While a consumer examines an eco product, the feelings of sleepiness or distress may not be applicable. People will not be attracted to the product if it will distress or make them sleepy.

Similarly, Richins (1997) developed the Consumption Emotion Set (CES) which was gathered from the analysis of three consumption situations including automobile, recreational, and sentimental products. There were 17 emotions generated such as anger, discontent, worry, sadness, fear, shame, envy, loneliness, romantic love, love, peacefulness, contentment, optimism, joy, excitement, and surprise. However, the study focused on consumption experience and not on the pre-purchase context which is the concern of this study. Moreover, the study did not consider eco-products. Emotion measurement is relevant in designing eco-products as it will determine how product attributes are relevant in generating emotion and purchasing decisions.

#### *A. Emotions and Their Measurement*

Some researchers have tried to measure emotions and classified a set of basic emotions. Plutchik (1980) came up with eight “primary” emotions: fear, anger, joy, sadness, acceptance, disgust, expectancy, and surprise. These eight emotions have been adopted in the struggle for survival in the animal kingdom. Plutchik and Kellerman (1974) developed the Emotions Profile Index that consists of 62 forced choice emotion descriptor pairs and the responses were then translated into the eight emotion scales. Similarly, Holbrook and Westwood (1989) modified Plutchik’s emotions and their scale contains three adjectives for each emotion and responses to determine its intensity for each of the adjectives.

The reliability of facial expression to gauge emotion has been proven by the study of Tomkins and Carter (1964). Their study revealed that observers are in agreement on the interpretation of emotion through facial expressions.

Furthermore, Ekman and Friesen (1978) were able to come up with a way of classifying facial expression from the movement of facial muscles. The assessment of facial muscles is quite difficult to understand and only a few people are knowledgeable in it.

Both Plutchik (1980) and Izard (1977) insisted that more complex emotions are the result of the mixtures of their basic emotions. However, Ortony and Turner (1990) challenged the basic emotions proposed by these authors and believed that the notion of basic emotion cannot be explained theoretically or empirically. Therefore, there is a question on the reliability and validity of measures of basic emotions proposed by these authors.

Mehrabian and Russell (1974) developed the PAD or the pleasure arousal dominance scale, which has been used by marketing researchers to assess emotional responses to some types of marketing stimuli. The PAD scale was developed to measure emotional responses to environmental stimuli such as architectural spaces. However, it does not intentionally measure emotion but instead assessed the behavioral responses of pleasure, arousal, and dominance produced by a set of environmental stimuli. Therefore, it is used when a scholar is interested in measuring the dimensions causing the emotion states and does not need to know the specific emotions being experienced by study respondents.

#### *B. Environment- Friendly Labels*

An eco-friendly label is a declaration by a company that it has engaged in ecologically sensitive production or distribution process. These claims often appear on the labels fixed to products. The label is intended to provide information to customers about the procedure the company has taken to protect the environment. If customers value these claims then they are willing to pay a premium price for these products and thus create a market for environmental protection (Bruce & Laroia, 2007). Environmental labels act as an influence for customers to choose products that are environmentally friendly. It is used by companies to distinguish their products and communicate the environmentally friendly message (D’Souza, 2000). There are a number of ways by which marketing people communicate these environmental benefits of product through general or specific product claims on labels like “eco-friendly”, “environmentally safe”, “recyclable”, “biodegradable” and “ozone friendly” (Morris, Hastak, & Mazis, 1995). According to the study of D’Souza, Taghian, and Lamb (2006), ecological label is an important way of attaining and communicating environmental validations of products to the customers since a relatively large number of consumers always read labels and considers the information provided to be accurate. The label only shows that the respective product is ecologically preferable compared to alternative product in the same product group. There are several international, national, and regional eco-label schemes such as the European Flower, the Nordic Swan, or the German Blue Angel (Klaschka, Liebig, & Knacker, 2007).

There are numerous studies showing that many customers are willing to pay a premium for eco-labeled products (Gumpfer, 2000; Imkamp, 2000; Loureiro, McCluskey, & Mittelhammer, 2002; Makatouni, 2002; Moon, Florkowski, Bruckner, & Schonhof, 2002). Consumers, however, may perceive that green products are more expensive compared to traditional products. The result of the study of D'Souza et al. (2006) revealed that majority of respondents (69.7%) indicated that they would purchase environmentally safe products even if they cost more than the alternative products.

Knowing a label is a precondition in decision making and understanding it is a prerequisite for using it correctly. Understanding a label suggests that the person knows it exists, what it looks like, and what it means. Recognizing a label is not the same as understanding its exact meaning. Morris et al. (1995) found that only 5% of a representative sample of US consumers exhibited a full understanding of the terms "recycled" and "recyclable". Thøgersen (2000) proposed a model for consumer attention towards eco-label and the motivation-attention part of the model was tested by means of data from different

Similarly, the study of Delmas, Naim-Birch, and Balzarova (2013) proposed a framework that evaluates eco-labels along three aspects: consumer understanding and awareness, consumer confidence, and willingness to pay. In consumer awareness and understanding, the following guidelines should be followed: choose eco-labels with simple and clear messages to customers, choose labels that assign resources to communication of their label, favor multiproduct labels, and favor labels with approvals from the government and large retailers. For consumer confidence, the following criteria are: prefer eco-label organizations with multiple partners, check the integrity of the partners, avoid conflicts of interest, choose transparent eco label organizations, conduct your own product environmental evaluation, and ensure supplychain availability. Lastly for willingness to pay aspect, the following conditions are: emphasize increased quality, emphasize health benefits, and leverage peer pressure. By using these frameworks, managers can avoid gambling on the wrong label.

The studies presented indicate that more investigation need to be done to maximize the existing and growing consumers' education with respect to communicating important environmental safety messages of green product features to consumers. In order to achieve successful communication of product features, adequate and useful information needs to be provided on product labels. Companies should not overlook the significance of eco-labelling since it acts as a powerful means of achieving and maintaining green product standing and creating an effective competitive advantage. Green product labels can be used for positioning the product's influence and as product differentiator.

## II. RESEARCH METHOD

To test the hypothesis that there is a distinct set of emotion generated by consumer for eco products in the pre-purchase stage, an exploratory survey of pre-purchase affect was constructed.

### A. Questionnaire Development

In order to ensure the understandability of the questionnaire, it was pre-tested among potential respondents.

### B. Field Survey

Using the questionnaire developed, a survey was conducted in a store that offers eco-friendly products. The popular store that offers these kinds of product is the ECHOstore Sustainable Lifestyle. It is the first concept store in the Philippines. ECHO stands for Environment & Community Hope Organization. They offer Filipino products that represent the ideals of health, fair trade, and care for the environment. It is assumed that customers specifically go to this store to buy eco-friendly products. Purposive sampling was used to identify subjects for the field survey. This kind of sampling is used if there is a particular set of criteria required for participants to qualify in the survey. In this study, these participants were customers of a store that sells environment-friendly products. People who enter the store are assumed to be environmentally conscious. These customers were surveyed to determine their reasons for purchasing eco products and identify the emotions these products elicit. Participants in the field survey are those that enter the eco store to either look or buy eco products.

### C. Online Survey

The same questionnaire was also used to gather more data from an online survey from people who do not patronize eco products. Since the field survey had targeted those who intentionally buy eco products, the online survey ensured that the view of a different kind of market segment is represented. Participants in the online survey may have diverse characteristics. Since the objective of the survey is to determine the reasons for buying or not buying an eco-product, anyone with the capability to buy is qualified to join.

#### D. Measures

The results of the survey included a list of emotions experienced when buying eco and non eco products. It is expected that the number of emotions generated will be more than 20 so only frequently cited emotions were further analyzed. Pareto analysis was used to identify the critical emotions in the list.

### III. RESULTS

A total of 96 participants were gathered to answer the exploratory survey of pre-purchase affect. Specifically, 85% (n = 82) of the total participants answered the online survey and the remaining 14% (n = 14) answered the hard copy survey in a selected eco store.

#### A. Understanding and Awareness of Eco Product

The results of the survey revealed that a total of 87.80% of the respondents buy eco product while 12.20% have not bought any eco-product in the past because it is more expensive than alternative products. Majority of respondents (92%) go to the store because it is the only store that sells eco-product. When asked about their understanding of eco products, respondents believed in the following attributes: they are not harmful to the environment (17.91%), they are made from recycled material and organic ingredients without toxic pesticides and herbicides (17.66%), it is healthy for people, animal, and the environment (16.92%), address recycling, sustainable production, and reduction of energy consumption and transport (16.67%), and it reduces the impact to the environment (16.42%).

#### B. Products Bought from an Eco Store

Participants were asked about product/s they bought from eco stores and the results revealed that there were six eco products that are frequently being bought such as: (a) Shampoo, (b) Soap, (c) Facial wash, (d) Body lotion, (e) Conditioner, and (f) Deodorant. Pareto analysis was conducted and these six products comprise 80% of the responses as shown in Figure 1. The x-axis represents the products bought and the y-axis indicates the frequency.

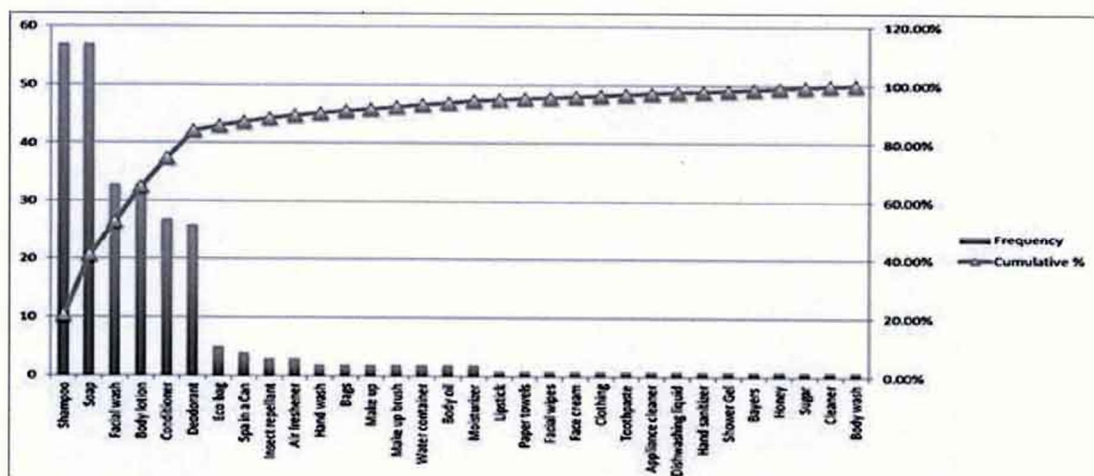


Figure 1. Pareto analysis of products bought from eco store

#### C. Emotions/Feelings Experienced in Buying an Eco Product and Non-Eco Product

A total of 62 feeling/emotion statements were presented to the participants, which they used to indicate feelings or emotions experienced when buying an eco-product and non-eco product. Out of the 62 feeling/emotion statements, 30 denote positive feelings/emotions while 29 denote negative feelings/emotions. Three emotions can be considered unbalanced because they are neither negative nor positive such as jealous. Descriptive statistics are shown in Table 1.

Table 1. Descriptive Statistics

	Eco Product		Non-Eco Product	
	Ave	Std. Dev	Ave	Std. Dev
Positive Feelings/Emotions	21.44	14.10	5.38	6.10
Negative Feelings/Emotions	1.30	1.51	5.30	4.43

The results suggest that majority of the participants experience more positive feelings/ emotions in buying eco products. The mean number of respondents that experienced positive emotion is 21.44 as compared to non-eco products with a mean frequency of 5.38. In contrary, participants experience more negative feelings/emotions when buying non-eco product with a mean frequency of 5.30 negative emotions than eco product with a mean of 1.30 based on the average responses.

It was also observed that though majority of the participants professed more positive feelings/ emotions when buying an eco-product, there are still some participants who felt otherwise (i.e., negative feelings/emotions). The negative feelings/emotions felt by some participants may be due to the apprehension on the truthfulness of the product labels. Some participants also thought eco-products give them a sense of less quality than non-eco product. However, the primary reason is that eco-products are more expensive than their counterpart. As such, it is worthwhile to investigate how these two sets of feelings/emotions differ. Kruskal-Wallis was conducted to determine the significance of the difference between the mean frequencies of emotion experienced. A non-parametric test was deemed appropriate since the data violated the assumption of equal variances thus preventing the use of t-test or ANOVA. Levene's test for equality of variances was found to be violated at  $F(1, 59) = 46.997, p = 0.00$ .

This indicates that there is enough statistical evidence to conclude that the participants experienced more positive feelings/emotions than negative feelings/emotions when buying an eco- product.

Table 3. Kruskal Wallis Test Between Positive and Negative Feelings/Emotions for Eco Product

	Feelings/Emotions
Chi-Square	38.709
Df	1
Asymp. Sig.	0.000

Same analysis was conducted about buying a non-eco product and Pareto analysis (see Figure 3) showed that there were 26 feeling/ emotion statements that comprise the 80% of the responses. Fifty-four percent of the 26 feeling/ emotion statements represent negative feelings/ emotions while 12 (46%) statements denote positive feelings/emotions. The list of the 26 feeling/emotion statements that were included in the top 80% is shown in Table 4.

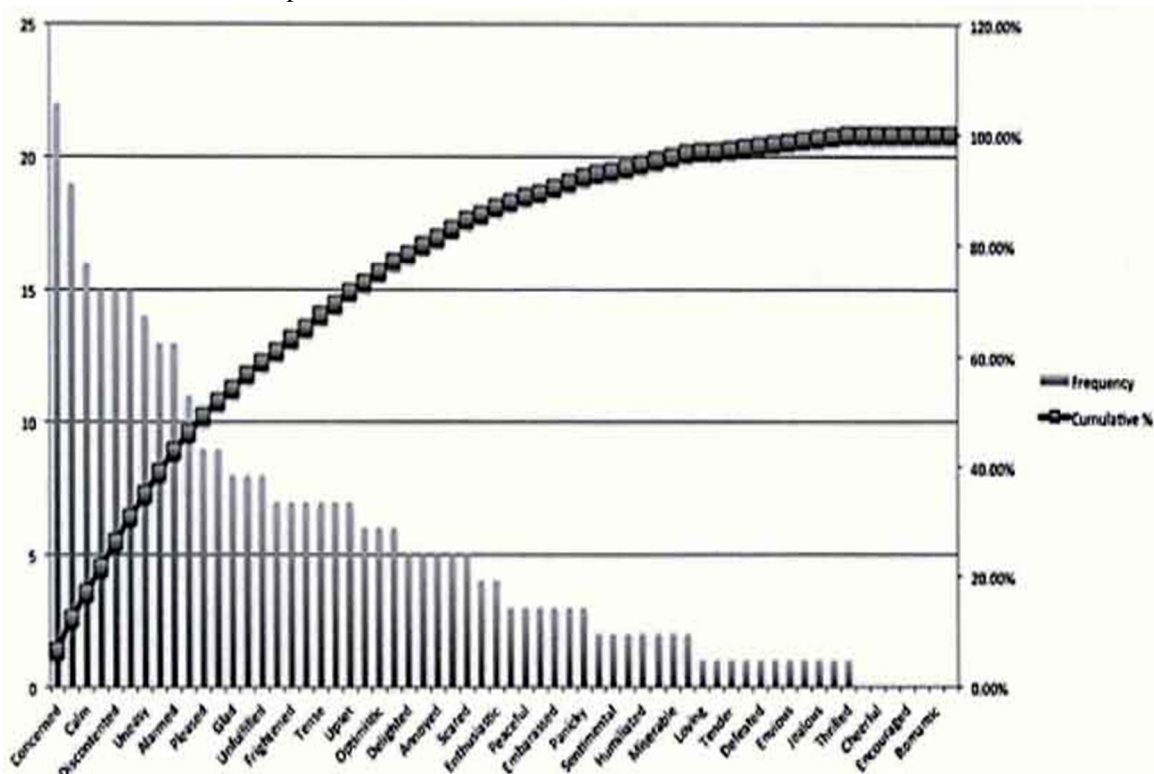


Figure 3. Pareto analysis for non-eco products

Table 4. List of Top 26 Emotions in Buying an Eco Product

Statements	Frequency	Cumulative Frequency	Cumulative %
Concerned	22	22	6.65%
Good	19	41	12.39%
Calm	16	57	17.22%
Contented	15	72	21.75%
Discontented	15	87	26.28%
Worried	15	102	30.82%
Uneasy	14	116	35.05%
Happy	13	129	38.97%
Alarmed	13	142	42.90%
Afraid	11	153	46.22%
Pleased	9	162	48.94%
Ashamed	9	171	51.66%
Glad	8	179	54.08%
Bad	8	187	56.50%
Unfulfilled	8	195	58.91%
Fulfilled	7	202	61.03%
Frightened	7	209	63.14%
Irritated	7	216	65.26%
Tense	7	223	67.37%
Threatened	7	230	69.49%
Upset	7	237	71.60%
Excited	6	243	73.41%
Optimistic	6	249	75.23%
Frustrated	6	255	77.04%
Delighted	5	260	78.55%
Hopeful	5	265	80.06%

Note: Statements in bold letters denotes negative feelings

It can be observed that the responses were divided between the positive and negative feelings/emotions and thus require to be tested whether the difference is significant or not. Independent samples t-test was conducted to determine the significance of the difference between the two set of feelings/emotions. A parametric test was deemed to be appropriate since Levene's test for equality of variances was not violated at  $F(1, 59) = 1.549, p = 0.218$ .

#### IV. DISCUSSION

The results of the survey revealed that 87.80% of the respondents buy eco product while 12.20% have not bought any eco-product in the past because it is more expensive than alternative products. Consumers' decisions are influenced by their attitudes and behavior. Since buying green products may be prohibitive in terms of cost, the eventual decision of a consumer to patronize even expensive products is maybe brought about by a good intention. This is the premise of the Theory of Planned Behavior (TPB) proposed by Ajzen (1988). Based on the theory, a consumer's environmental buying intention and behavior may be influenced by a number of aspects such as an individual's understanding and motivation, the capability to perform the behavior, and the opportunity to behave in an environmentally-friendly way (Olander & Thøgersen, 1995; Pieters, 1989). The motivational factors that influence behavior are its intentions. Some examples of motivational factors in buying green are: concern for the environment, or fear of disaster, or disease.

## V. CONCLUSION

This study focused on identifying the set of emotions engendered from eco-products in the context of pre-purchase stage. From the findings it was revealed that participants significantly experience more positive feelings/emotions than negative feelings/emotions when buying an eco-product while participants are indifferent in experiencing positive and negative feelings/emotions when buying a non-eco product. The study was able to generate 18 positive emotions when buying an eco-product and 26 emotions in buying non-eco product. The outcome of this study may be used by manufacturing companies to enhance the environmental friendliness of their products. By showing them the emotional benefits of eco products, more of them may be seen in the market thereby improving the world environment in general. This study will be applicable for advertisers since the emotional benefit is needed for positioning green product for personal care. This study suggests that for a green product to be successful, the emotional benefits should also be communicated to the consumers to entice them to patronize these products.

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