

PREDICTING ENVIRONMENTALLY PURCHASE BEHAVIOR: A TEST OF THE VALUE-ATTITUDE-BEHAVIOR HIERARCHY

Sabrina Oktoria Sihombing

Dosen Universitas Pelita Harapan Karawaci

ABSTRAKSI

Ada bertambahnya minat terhadap berita yang berhubungan dengan lingkungan bisnis. Ada sebuah dorongan yang berasal dari kesadaran diantara para konsumen untuk melindungi lingkungan. Beberapa perusahaan telah mengambil langkah untuk bertanggung jawab terhadap lingkungan, misalnya perusahaan mobil Jepang seperti Honda dan Toyota telah membuat mobil hibrida untuk menarik konsumen yang pemerhati lingkungan. Tujuan penelitian ini adalah meneliti hubungan antara nilai konsumen, efek ekologi, perhatian pembeli dan pembelian sebenarnya dari Green product (produk ramah lingkungan). Pada penelitian ini ada 132 responden yang dipakai untuk menganalisis hubungan antara nilai konsumen, efek ekologi, perhatian pembeli dan pembelian sebenarnya dari Green product (produk ramah lingkungan). Data dianalisis dengan menggunakan "Struktural Equation Modeling" dan hasil penelitian ini sesuai dengan hipotesis yang diujikan. Artikel ini memuat seluruh analisa data, diskusi, hasil penelitian dan implikasi untuk penelitian lebih lanjut.

Kata kunci : Lingkungan, nilai konsumen, dampak lingkungan keinginan, perilaku.

1. INTRODUCTION

There is a growing interest on ecology-related issues in today's business environment. Since 1990s, many consumers have become more concerned about environmental issues such as air and water pollution and forest degradation. In the specific, many consumes have realized that their purchase behavior have impacts, directly or indirectly, to the environmental not only in their community but also the entire world (Laroche, Bergeron and Barbaro-Forleo, 2001; Straughan and Roberts, 1999; Assael, 1998)

Marketers have respendent to the environmental concerns by producing products that have less harmful to the environment with an approach called green marketing (Hawkins, Best, and Coney, 1995). Green marketing usually

involves on several strategies as follows (Arnould, Price, and Zinkhan, 2004; Hawkins, Best, and Coney, 1995). First, marketers produce products whose production, use, or disposition less harmful to the environment. Specifically, the concept of design for environment (DFE) expresses the marketers' concern on environment, that is, products should be easier to recover, reuse, or recycle. For example, Xerox has developed products that can be recycled. Second, marketers develop products that have a positive impact to the environment. For example, Volvo, Ford, and Mazda develop clean technologies, that is, the development of clean vehicle technologies including fuel cell and hydrogen engines. Third, marketers try to purchase materials from environmental-friendly organization.

Green marketing is becoming as a central component of marketing strategy (Thomson, 2006; Manrai, Manrai, Lascu, and Ryans, 1997). Many studies have conducted to explain green purchase behavior by using demographic variables (e.g., age, gender, and income) and psychological variables (e.g., motivation and attitude). However, the impacts of demographic variables produced inconsistent results (Roberts, 1996 cited by Laroche *et al.*, 2001). Furthermore, though psychological factors can be used to explain green purchase behavior, but few researches have conducted to explain the link among psychological factors. The hierarchical value-attitude-behavior is one psychological link that can explain consumer behavior. Thus, the purpose of present research is to examine the relationship between value-attitude-behavior toward green products. In the specific, this research focuses on the link between consumer value, ecological affect, purchase intention and actual purchase of green products.

This paper is structured as follows. The next section provides justifications to the research. Subsequent sections present the literature review of green purchase behavior. Then, the research method, results and conclusions are presented.

1.1 Justifications to the research

This research can be justified on these two grounds as follows: (1) the importance to understand the influences of environmental issues on consumer behavior, and (2) the need to validate the instrument.

The importance to understand the influences of environmental issues on consumer behavior. Consumer behavior relates with process of acquiring, using, and disposing products or services (Arnould *et al.*, 2004). In that process, consumers gather information, evaluate it, and decide which products or services to buy. Since 1990s, many consumers relate their purchase behaviors with environmental issues. In the specific, some consumers believe that the causes of environmental problems are related directly or indirectly to

production process by industries and consumption behavior of the consumers (Said, Ahmadun, Pain, and Masud, 2003, cited by D'Souza, 2005).

Environmental issues influence consumers' product choices. In other words, consumers' product choices are influenced not only by the attributes of the products, but also whether the products are environmentally friendly and do not deplete the world's resources. Furthermore, many consumers like and dislike towards some products which relates to the environmental issue. For instance, a research showed that 80 per cent of the respondents said that they will refuse to buy products from companies accused of being polluters (Laroche *et al.*, 2001). Another research in the UK showed that 88 per cent of UK adults said that they have positive attitude towards marketers who's their operations is being environmentally responsible (Marketing Week, 2005).

In short, environmental issues are important factor which influences consumer behavior. The understanding of the antecedents of green purchase behavior will support marketing practitioners by providing them insight proenvironmental behavior

The need to validate the instruments cross-national. Consumers concern on the environment is one important topic in consumer research. For instance, researchers try to understand consumer green behavior through several aspects such as motivation (Makatouni, 2002), attitudes (Laroche *et al.*, 2002; Chan, 2001), environmental knowledge (Laroche *et al.*, 2002; Chan, 2001; Laroche *et al.* 2001), values (Chan, 2001; Laroche *et al.*, 2001), and demographic variables (Laroche *et al.*, 2001; Straughan and Roberts, 1999).

This research adopts constructs and instruments of antecedents' variables to green purchase decision from Chan and Yau (2000). The constructs and instruments have been tested in China. External validation of the Chan and Yau's model can be achieved through replication of the study for different populations and different countries (Cheron and Propeck, 1997). The principle of replicability plays a fundamental role in the research process (Hunter, 2001; Kerlinger and Lee, 2000; Hubbard, Vetter, and Little, 1998; Wells, 1993). Furthermore, the principle of replicability is hailed as the hallmark of science (Blaug, 1992 cited by Hubbard *et al.*, 1998).

The need to validate the instrument is also because of a scale that has been developed in one culture will not always have a similar effect in other culture (de Mooij, 2004). In the specific, cross-national research can be conducted by borrowing constructs and scales (Douglas and Nijssen, 2002). Therefore, validation of the same instruments in other countries is needed.

II. LITERATURE REVIEW

2.1 Green purchase behavior

Several terminologies have been used by researchers to explain consumers whose concern on environmental issues. Those terminologies are green consumers (D'Souza, 2005; Arnould *et al.*, 2004), ecologically conscious consumer (Straughan and Roberts, 1999), and environmentally concerned consumer (Brown and Wahlers, 1998). In the specific, those terminologies relates to the same meaning, that is, consumers are those take disposition issues into account either in their purchase behavior (e.g., buying recycling goods) or in their disposition behavior (e.g., concern toward waste reduction). The terminology of green consumer will be used in this research.

Research had been conducted to explain green consumers. Some research focus on demographic profiles of green consumers (e.g., Laroche *et al.*, 2001). For instance, the profile of green consumer described by Laroche *et al.* (2001) is likely to be females, married and with at least one child living at home.

The findings about the impact of consumers' demographic characteristics on green purchase behavior are contradictory (Roberts, 1996 cited by Laroche *et al.*, 2001). Moreover, those demographic characteristics are only of limited values in explaining environmental concern (Balderjahn, 1988 and Shrum, Lowrey, and McCarthy, 1994 cited by Chan, 2001). On the other hand, several researchers show that attitude, knowledge, value, and purchase intention are significant predictors of green purchase behavior (Chan, 2001, Laroche *et al.*, 2001; Chan and Yau, 2000).

2.2 The Value-Attitude-Behavior Hierarchy

A value is defined as a type of belief about how one ought or ought not to behave (Rokeach, 1968). Values are the underlying beliefs that shape people to act, think, and feel (Rokeach, 1968; Wells and Prensky, 1996). The concept of value is one important variable to understand consumer behavior. As pointed out by Hofstede (1994) that values are among the first children learn. Since the age of 10, most children have their basic value systems. Moreover, values are stable through generation. In relating with environmental concern, values are considered to be the fundamental source of an individual's environmental concern.

Environmental concerns can be described with three types of relationship between man and nature. This relationship influences individual's values. The first type is "mastery-over-nature", that is, man is to conquer nature. The second type is "harmony-with-nature" which express that man is to live in harmony with nature. The third type is that "subjugation-to-nature", that is, man is dominated by nature. Westerners tend to view themselves as separate from nature. On the other hand, Asian people view themselves that they live in

harmony with nature (de Mooij, 2004). The research of Triandis (1993, cited by Laroche *et al.*, 2001) also showed that collectivist people compared with individualism people were friendlier to the environment.

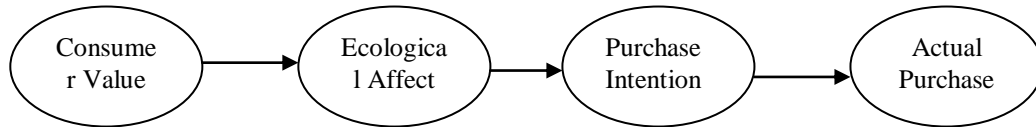
As stated before, values the underlying beliefs that shape people to act, think, and feel. Therefore, values influence internal factors inside consumers such as perception and attitude. Consumer attitudes then influence consumer behavior. This hierarchy is referred to the value-attitude- behavior hierarchy (Arnould *et al.*, 2004; Homer and Kahle, 1988).

Attitude is defined as a consumer's overall, enduring evaluation of a learned a concept or object (Arnould *et al.*, 2004). An attitude can also be defined as predisposition to act in a consistent way toward an object (Wells and Prensky, 1996). Attitude is also as one significant predictor of behavior (Ajzen and Fishbein, 1980). In relating with consumer behavior, when people have a favorable attitude toward a product or a brand, he or she will be more likely to buy that product or brand.

Attitudes have three components (Wells and Prensky, 1996). Those components are cognition, affect, and conation. Cognition refers to the beliefs that consumer hold toward attitude objects. Affect shows consumer feels about attitude objects. Conation refers to consumer intention to act in some way regarding attitude objects.

In relating with attitude, this research followed the sequence of attitude → intention → behavior. In other words, attitude leads to intention with respect to an object. Then, intention is related to specific behavior (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). Intention indicates the amount of effort a person is willing to perform a behavior (Ajzen, 1988). It captures the motivational factors that produce behaviors. It can be stated that the stronger the intention to perform a behavior, the greater the likelihood that individual will engage in the behavior. Based on the explanation above, the following model is developed and research hypotheses are stated as follows:

Figure-1
Research Model



- a. *H1*. Consumer value will positively influence consumer ecological affect toward environment.
- b. *H2*. Consumer ecological affect will positively influence consumer purchase intention toward buying green products.
- c. *H3*. Consumer purchase intention will positively influence actual purchase of green products.

III. RESEARCH METHOD

3.1 Data collection

A self-administered questionnaire was designed to examine the green purchase behavior. This study gathered data through a drop off and pick-up method in April 2006 with the help of research assistants.

A purposive sampling approach was used to collect data. Though the findings about the impact of consumers' demographic characteristics on green purchase behavior are contradictory (Roberts, 1996 cited by Laroche *et al.*, 2001), the respondents of this research were selected on several characteristics. Based on the literature review that green consumers profile is likely to be adult, have jobs, married and at least have one child. Therefore, two major criteria guided the selection of the. First, the age of respondent is between 20 to 50 years old. Second, respondents for this research include one of characteristics as follows: (1) single and has job, (2) married and has job, or (3) married but no job.

3.2 Sample size

This research applied structural equation modeling for analyzing data, the sample size then was considered mainly in regard to the method used in analyzing data. Following Hair *et al.* (1995), the sample size between 100 and 200 was set.

3.3 Research instrument

The research instrument was adapted from Chan and Yau (2000). The questionnaire was originally written in English. Following Craig and Douglas (1999), this research applied double-back translation in order to establish translation equivalence. In the specific, the English questionnaire was translated into Indonesian language by the researcher, and then back-translated from Indonesia language to English by another person.

This questionnaire involves five sections. The first section of the questionnaire measures the respondents' perceptions of values toward the environment. The respondents' ecological affection was asked in the second section of the questionnaire. Then, respondents' intention to buy green products and respondents' actual behavior were asked in the third section and the fourth section respectively. All variables were measured with 5-point Likert scale. The last section of the questionnaire involved the respondents' demographic information: age, gender, education and type of respondent's job.

3.4 Pilot study

The questionnaire was refined through pilot study. The pilot study focused on instrument clarity, question wording, and validity. During the pilot study, 22 respondents were taken as subjects and invited to comment on the questions and wordings. The number of respondents in the pilot study was meeting the guideline from Kinnear and Taylor (1996).

This research applied several techniques, namely Cronbach alpha, item-to-total correlation, and exploratory factor analysis (EFA) to establish reliability and validity of the measures. The cut-off point 0.7 (Hair, Anderson, Tatham, and Black, 1995; Bagozzi, Davis and Warshaw, 1992) was applied as the cut-off point for coefficient alpha. Furthermore, the cut-off point 0.3 (Azwar, 1995) was applied as the cut-off point for item-to-total-correlation. Initial pilot study results revealed several items have lower than 0.3 item-to-total correlations.

Most instruments require at least one pretest and revision before they are used for actual study (Reynolds, Diamantopoulos, and Schlegelmich, 1993 cited by Kinnear and Taylor, 1996). However, because the pilot study showed some problems in the instrument, the researcher conducted another pilot study. This second pilot study involved 20 respondents. The results from the second pilot study showed that two items of consumer values construct were not reliable. Furthermore, only one out of five items to measure consumer ecological affect were not reliable. However, other items to measure intention and actual behavior were reliable.

3.5 Analysis data

Structural equation modeling was used to estimate the relationship between consumer value, affection, purchase intention and actual behavior. Following Anderson and Gerbing (1988), the structural equation analysis was conducted in two main steps: the estimation of the measuring model and the estimation of the structural model. The measurement model focuses on the link between factors and their measured variables. Furthermore, the relationship between the constructs was assessed in the structural model.

IV. RESULTS

4.1 Response rate and sample characteristics

A total of 147 questionnaires were returned out of 200 distributed. Fifteen questionnaires were eliminated due to incomplete questionnaire. Hence, 132 usable questionnaires were obtained, yielding a response rate of 37%.

As shown in Table 1, the profile of the sample reveals that male constituted about 53 per cent of the sample. Those between 20-25 years old represent 55.3% of the sample, and the oldest (more than 46 years old) represent 7.6% of the sample. The majority of the respondents have completed their undergraduate degree. More than one-third of the respondents work in the private companies.

Table-1
Sample profile

<i>Demographic Characteristics</i>	<i>Frequency (Percentage)</i>
Gender:	
Male	70 (53%)
Female	62 (47%)
Age:	
20 - 25 years old	73 (55.3%)
26 - 30	23 (17.4%)
31 - 35	12 (9.1%)
36 - 40	7 (5.3%)
41- 45	7 (5.3%)
≥ 46	10 (7.6%)
Education completed:	
Senior High School	37 (28%)
Diploma1-Diploma3	21 (15.9%)
Undergraduate	66 (50%)
Postgraduate	8 (6.1%)
Job	
Government employees	4 (3%)
Private employees	50 (37.9%)
Entrepreneur	32 (24.2%)
Others	46 (34.8%)

Table 2 shows a correlation analysis that consumer value, affection, and purchase intention was significantly correlated with actual behavior. The highest correlation between the independent variables was 0.5 between consumer value and ecological affect. Hence, no severe multicollineriaty problem appears to be present. Table 2 also shows the reliability of the measures. The reliability (i.e., Cronbach Alpha) of the scales of all variables ranged from 0.757 to 0.831, proving high reliability of the measures.

Table-2.
Correlation matrix and summary statistics

Variable	1	2	3	4
1. Value	1			
2. Affection	0.537**	1		
3. Purchase intention	0.469**	0.534**	1	
4. Actual behavior	0.261**	0.247**	0.382**	1
Mean	3.90	2.83	2.89	2.24
Standard deviation	0.70	0.52	0.62	0.66
Cronbach's alpha	0.831	0.757	0.797	0.759

** Correlation is significant at 0.01 levels

According to Bagozzi, Yi and Phillips (1991), discriminant validity was achieved when the factor correlations were significantly different from one. Table 2 above shows a coefficient correlations among constructs are different from one indicated discriminant validity was achieved. Furthermore, according to Fredricks and Dossett (1983), all items as shown in Table 3 were loading on their corresponding construct indicating construct validity were achieved.

Table-3
Factor Analysis

	1	2	3	4
Value1	0.794			
Value2	0.865			
Value3	0.815			
Value4	0.708			
Affect1				0.656
Affect2				0.647
Affect3				0.678
Affect4				0.823
Intention1		0.884		
Intention2		0.611		
Intention3		0.785		
Actual1				
Actual2	0.852			
	0.884			

4.2 Measurement model

Confirmatory factor analysis (CFA) using maximum likelihood method was performed to assess the measurement model. The results show a chi-square value of 125.626 with 59 degrees of freedom (DF) at the $p = 0.00$ level for a 2.129 chi-square/DF (the adjusted chi-square). There is no clear guideline about what value of the adjusted chi-square is minimally acceptable. Two suggestion is that the ratio is as low as 1.0 (Hair *et al.*, 1995) and as high as 5.0 (Kelloway, 1993). Thus, a ratio 2.129 is within the range of acceptable model fit. Other fit indices show a marginal-fit model (GFI = 0.871, AGFI = 0.802, RMR = 0.064).

Following Bagozzi, Yi and Phillips, (1991) also Anderson and Gerbing (1988), convergent validity was assessed by examining the parameter estimates and their associated t-values. The result showed that most parameter estimates were high with significant t-values (Table 4).

Table-4
Standardized Regression Weight

			<i>Estimate</i>	<i>CR</i>
Value1	<---	Value	.910	
Value2	<---	Value	.821	12.648
Value3	<---	Value	.883	14.095
Value4	<---	Value	.426	5.016
Affect1	<---	Affect	.801	
Affect2	<---	Affect	.874	9.440
Affect3	<---	Affect	.550	6.146
Affect4	<---	Affect	.363	3.948
Intention1	<---	Intention	.793	
Intention2	<---	Intention	.817	8.235
Intention3	<---	Intention	.550	5.872
Actual1	<---	Actual	.812	
Actual2	<---	Actual	.756	4.573

4.3 Model and hypothesis testing

Using structural equation modeling, the relationships hypothesized in this study were analyzed. The results showed a chi-square value of 130.504 with 62 degrees of freedom (DF) at the $p = 0.00$ level for a 2.105 chi-square/DF. A ratio of 2.105 is within the range of acceptable model fit. Other fit indices show a marginal-fit model (GFI = 0.871, AGFI = 0.810, RMR = 0.069).

Hypothesis 1 (that is, consumer value will positively influence consumer ecological affect toward environment) is supported. The standardized coefficient in this hypothesis has a significant value (standardized regression weight = 0.636; CR = 6.667), thus the effect of consumer value on the affection is shown. The influence of ecological affect on purchase intention in hypothesis 2 (standardized regression weight = 0.633; CR = 6.017) and the influence of purchase intention on actual purchase (standardized regression weight = 0.476; CR = 4.260) are also confirmed (Figure 2).

Figure-2
Parameter Estimates for Structural Paths

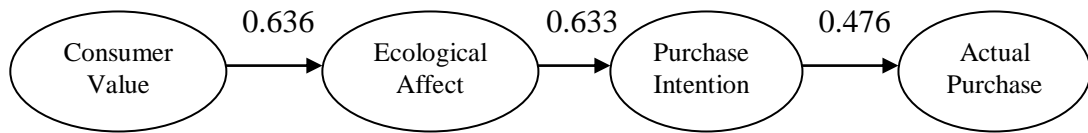


Figure 2 above shows that consumer value has a significant impact on ecological affect. Then, ecological affect has a significant impact on purchase intention. Also, purchase intention has a significant impact on actual behavior. The results supported the nomological validity of the constructs. This is because nomological validity is established when the constructs, as represented by the measures, behave according to the theory (Zaltman, Pinson, and Angelmar, 1973, cited by Lings and Greenley, 2005; Bagozzi and Burnkrant, 1980).

V. THEORETICAL AND MANAGERIAL IMPLICATIONS

This study attempted to examine the model of Chan and Yau (2000) to comprehend green purchase intention. This research has both theoretical and managerial implications. For theory, this research provides an understanding of the relationship among value, affective, purchase intention and actual behavior of green products. In the specific, this research enriches the growing body of green purchase literature. The supported hypotheses of this research confirm the theoretical relationship from value to behavior, that is, a value-attitude-behavior hierarchy.

For practice, learning about consumer is the key to implementing marketing concept (Arnould *et al.*, 2004). Therefore, the more understanding on consumer green purchase, the better companies will be able to design marketing program aimed at increasing proenvironmental behavior.

VI. CONCLUSION, RESEARCH LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This research has several limitations. The first limitation is the use of a convenience sample. Therefore, the generalisability of the findings limited to samples in which the study was conducted. Another limitation is the use of self-report. One main problem in the use of self-report is the respondent

consistency motif. In other words, respondents try to maintain a consistent line in a series of answers (Podsakoff and Organ, 1986).

The research's limitations suggest directions for future research. First, future research needs to replicate the Chan and Yau's (2000) model of antecedents to green purchase decision in order to establish the psychometric properties of the measures. In the specific, the replication of model in different populations and different countries is recommended to enhance external validity of the model. Second, future research should minimize the common method variance when the self-report questionnaire is used.

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