

How Consumers Differently Perceive about Green Market Environments: Across Different Consumer Groups in Green Attitude-behaviour Dimension

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Abstract

Consumers differ with respect to the level of green attitudes and green purchase behaviours and different consumer would have different perceptions on green market environment. This study attempted to explain how consumers perceive green market environment differently across different consumer groups in attitude-behaviour dimension in green consumption. After identifying the four consumer groups based on their attitude toward green purchase and green purchase behaviours, a multinomial logistic analysis and a stepwise discriminant analysis were conducted. This study found that reliability in green market was the most critical factor that contributes to enlarge positive green consumers. Also, the role of reference persons and adequate price of green products were also found to be important to stimulate green buying. By understanding the different role of those factors in each group of consumers, this study provided group-specific implications to expand green consumers.

Keywords

Attitude-behaviour gap in green consumption, market reliability, green consumerism of reference groups, price adequacy, discriminant analysis, multinomial logistic analysis

Introduction

Attitudes have been used to predict a wide range of behaviours based on various attitude-behaviour models (Sheeran, 2002). However, numerous studies have found attitudes alone are a poor predictor of behaviours especially for normative or ethical behaviours and the assumption that attitudes determine behaviour are not taken for granted any more. (Boulstridge & Carrigan, 2000; Carrigan & Attalla, 2001). Likewise, the attitude-behaviour gap has been pointed out as a challenge for marketers and policymakers in the field of green consumption literature (Robert, 1996). Consumers who express concern for environment were expected to take action toward solving environmental problems; however, the relationship between attitudes and behaviour in green consumption was much weaker than expected (Berger & Corbin, 1992; Ellen *et al.*, 1991; Moisaner, 2007; Mostafa, 2007; Thøgersen, 2004). A clear evidence of the inconsistency between consumers' attitude and behaviour is the study by UN, which reported that only 10% of consumers who showed favorable attitudes toward

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green products actually purchased green products (United Nations Environment Program, 2005). The attitude-behaviour gap has been a challenge for those involved in green policy, green education and also for green marketing because the inconsistency between attitudes and behaviour results in doubts about the effectiveness of the education programs or campaigns that are intended to elevate consumers' awareness about environmental issues.

With regard to green attitude and green purchase behaviours, consumers can be categorized as consumers who are very conscious about green consumption and actually purchase green products (the positive green consumers), consumers who are conscious about green consumption and environmental problems but not act (hesitated green consumers), consumers who are not worry about environmental problems much and are not conscious about the necessity of green consumption but purchase green products (action-based green consumers), and consumers who are neither conscious about green consumption nor purchase green products (honestly disengaged). And the four different types of consumers have different implications in green market. For example, the green purchase behaviours of the action-based green consumers are more fragile compared to the positive green consumers' green purchase behaviors which are rooted in their green attitudes. The hesitated green consumers have a high potential to move into positive green consumers if successfully removing barriers that interrupt the translation of attitude into green purchase. Accordingly, different strategies to move each group of consumers into positive green consumers are effective for different consumer groups. Thus, this study attempts to explain how consumers perceive green market environment differently across consumer groups with different level of green attitudes and green purchase behaviours. By understanding the factors that distinguish the different consumers groups and different role of those factors in each group of consumers, this study is expected to provide group-specific implications to expand green consumers.

Factors associated with green attitudes

There have been a great deal of studies exploring determinants of environmental concern or proenvironmental attitude in the late 20s century. The earlier studies mostly focused on identifying demographic variables that correlated with proenvironmental

attitudes. According to extensive review of the effects of demographic variables on environmental attitudes by Van Liere and Dunlap (1980) and Straughan and Roberts (1999), findings on the effects of those variables have been mostly mixed. Among demographic variables, the variables basically included in the previous studies were age, gender, income, education. As for age, the general belief is that younger individuals are likely to be more sensitive to environmental issues. However, some of the researchers found that age to have a significant negative relationship (Van Liere & Dunlap, 1980); while others have found the relationship to be significantly positive (Roberts, 1996). The effect of gender has been more controversial. Although the earlier studies found males are more concerned about environment (Van Liere & Dunlap, 1980), more recent studies that found women to be more concerned about environmental issues than men (Blocker & Eckberg 1997; Davidson & Freudenberg, 1996; Stern, 1992; Stern *et al.*, 1993; Mostafa, 2007). Income is generally thought to be positively related to proenvironmental attitude. The common justification for this belief is that individuals can afford more proenvironmental products which are usually expensive, as they are at higher income levels (Straughan & Roberts, 1999). However, the effect of income on green attitudes has not been found consistent. Some found positive relationship between income and environmental attitudes (Zimmer *et al.*, 1994), while others did not find a significant effect of income (Mostafa, 2007). Level of education is another demographic variable of which impact on environmental attitudes has been tested. According to the Staughan and Roberts (1999), the vast majority of these studies have found the predicted positive relationship; however, Samdahl and Robertson (1989) found the that education was negatively correlated with environmental attitudes.

Factors associated with green purchase behaviours

During last decades substantial efforts have been devoted to identify the determinants of green purchases which have often been referred as proenvironmental purchases or socially-conscious purchases. Studies basically tested the effects of value, environmental concern, environmental attitudes, perceived consumer effectiveness (PCE), environmental knowledge, and demographics on proenvironmental consumption behaviours.

Environmental knowledge: Environmental knowledge is defined as general knowledge of facts, concepts and relationships concerning the natural environment and its major ecosystems (Fryxell & Lo, 2003). Hines *et al.* (1986/87) argued that abstract knowledge concerning environmental issues was the most significant type when predicting environmental action. They have noted an average correlation of 0.30 between ecological knowledge and behaviour. Grunert (1993) supported the positive association between knowledge and green products. Lee (2011) also found that concrete environmental knowledge among Hong Kong adolescents was a significant predictor of behaviour associated with 'green purchasing'. Kang *et al.* (2013) examined an extended model of planned behaviour using structural equation modeling approach and they found that consumers' product knowledge, PCE and perceived personal relevance significantly affect young consumers' attitudes, subjective norms and perceived behavioural control, thereby affecting purchase intentions for environmentally sustainable textiles and apparel. Meinhold and Malkus (2005) tested the moderating role of knowledge in the relationship between proenvironmental attitudes and behaviours such that as consumers demonstrated more proenvironmental attitudes and knowledge, their participation in proenvironmental behaviours increased.

Environmental concern: Most environmental researchers referred to the attitude towards the natural environment as environmental concern, and the New Environmental Paradigm (NEP) scale (Dunlap *et al.*, 2000) has been used extensively to measure environmental attitudes or concerns (Tan & Lau, 2011). However, previous investigations reported mixed results with regard to the effect of the NEP on green behaviours. In a number of studies, environmental concern has been found to be a significant determinant of green purchase (Grunert, 1993; Meinhold & Malkus, 2005; Milfont *et al.*, 2006; Mostafa, 2007; Tan & Lau, 2011); however, previous studies generally agreed on the conclusion that the relation between environmental concern and green consumption behaviours is weak to little (Hines *et al.*, 1986/87; Ellen *et al.*, 1991; Mobley *et al.*, 2010). Taken together, the general attitude environmental concern seems to explain not more than 10% variance of specific environmental behaviours (Bamberg, 2003).

Green attitude: Ajzen and Fishbein's theory of reasoned action

(TRA) or theory of planned behaviour (TPB) explained this weak relationship between general attitudes. According to them, low relationship between environmental concern and behaviours is attributed to the inconsistency between attitude and behaviours. Thus, researchers started to use different measure for green attitude and environmental concern. However, the relationship between attitude and behaviour in green consumption is still known to be low. For example, in a meta-analysis of environmental attitudes and environmental behaviour studies, the mean correlation between environmental attitudes and behaviours was .35 (Hines *et al.*, 1986/87).

Perceived consumer effectiveness: In addition to environmental concern, those people who strongly believe that their environmentally sensitive behaviours may result in positive consequences or outcomes are more likely to engage in environmental sensitive behaviours than others (Kim & Choi, 2005). Since Balderjahn (1988) demonstrated the influential role of PCE on sustainable behaviours, previous studies have extensively explored the effects of PCE and EC and have shown fairly conclusive result that PCE is a better predictor than EC in explaining sustainable behaviours (Bodur & Sarigollu, 2005; Finisterra do Paco & Raposo, 2010; Mainieri *et al.*, 1997; Mostafa, 2007; Roberts, 1996; Tan & Lau, 2011).

Factors intervening attitude-behaviour gap in green consumption

The attitude-behaviour gap in green consumption has been attributed to: low correlations among environmental behaviours, different levels of specificity in the attitude-behaviour measures, and effects of other personal and situational factors confounding with the relationship between environmental attitudes and behaviour (Mainieri *et al.*, 1997). Thus, with the purpose to address these issues with attitude and behaviour measures, researchers measured attitude and behaviour at the same level of specificity, i.e., in order to predict certain green behaviour, attitude toward that particular behaviour was measured (Fishbein & Ajzen, 1974; Mainieri *et al.*, 1997). However, inconsistencies between attitude and behaviour were reported even after using specific attitude measures (Ellen *et al.*, 1991; Berger & Corbin, 1992; Thøgersen, 2004; Moisander, 2007; Mostafa, 2007).

Next, literature on green consumption focused on exploring the moderating role of internal factors such as values, knowledge, motivation, involvement, and perceived behavioural control. And those studies have found the significant intervening effect of internal factors; yet those internal factors alone did not fully explain the discrepancy between attitude and behaviour (Berger & Corbin, 1992; Ellen *et al.*, 1991; Kang *et al.*, 2013; Papaoikonomou *et al.*, 2011; Robert, 1996; Tan & Lau, 2011) and scholars broadly suggested that attitudes do not translate literally into purchase behaviours (Young *et al.*, 1998). Hence, recently focuses have shifted to the effect of external factors which intervene in the consumers' green consumption process (Carrington *et al.*, 2010).

Throughout decision making process of green purchase, consumers interact with a physical and social environment and the interaction effect with external factors influences consumers' decision making. Studies seek to identify and understand the consumer situations where attitudes were not transformed into behaviour instead of predicting future behaviour on the basis of attitudes like previous research; and those studies provided comprehensive lists of situational factor that impede green consumption based on in-depth interviews with consumers (Blake, 1999; Peattie, 2001; Connell, 2010; Bray *et al.*, 2011; Papaoikonomou *et al.*, 2011). Situational factors identified include the lack of time (Blake, 1999); lack of information (Blake, 1999; Connell, 2010; Bray *et al.*, 2011; Papaoikonomou *et al.*, 2011); limited offer on ethical products (Carrigan & Attalla, 2001; Papaoikonomou *et al.*, 2011; Uusitalo & Oksanen, 2004); poor functionality and quality (Bray *et al.*, 2011; Connell, 2010; Papaoikonomou *et al.*, 2011; Uusitalo & Oksanen, 2004); price sensitivity (Blake, 1999; Bray *et al.*, 2011; Connell, 2010; Papaoikonomou *et al.*, 2011; Uusitalo & Oksanen, 2004); consumer cynicism (Nicholls & Lee, 2006; Bray *et al.*, 2011). Peattie (2001) also that unmet traditional purchasing criteria such as such as price, quality, or availability, can be barriers in ethical purchase such that consumers do not accept green choices as a substitute for traditional purchasing criteria. And social context such as social obligations and pester powers were also indicated as intervening factors in attitudes-behaviour relationship (Carrington *et al.*, 2010; Papaoikonomou *et al.*, 2011). Therefore, there is want of research on the situational factors that may explain the discrepancy between

attitudes and behaviours. First, limited research specifically focused upon inhibitors to green purchase exists. Second, many of the situational factors had been derived from consumer interviews and they need further statistical examination.

Price: Findings on the moderating effects of high price of green products are mixed. Some studies found that the high prices of the ethical alternatives in the market is a substantial barrier of green purchase (De Pelsmacker *et al.*, 2005; Papaoikonomou *et al.*, 2011; Uusitalo & Oksanen, 2004). On the other hand, other research found that consumers are willing to pay a price premium for green products (Creyer & Ross, 1997; Mohr & Webb, 2005), indicating that the influence of price in green consumption decisions is yet inconclusive.

Availability: Lack of availability of green stores and limited range of green product assortment have been pointed out one of major impeding factor of green purchases (De Pelsmacker *et al.*, 2005; Vermeir & Verbeke, 2006; Connell, 2010; Chen & Tung, 2010). Papaoikonomou *et al.* (2011) reported that most participants complained about the very limited range of ethical alternatives and although the motivation to consume ethical products is high, it may be impossible to do so because of limited assortment of ethical products. With regard to the matter of availability, some consumers stated that green stores are scarce and not in neighborhoods and green products are not really visible in the shop (De Pelsmacker *et al.*, 2005). In additional, lack of information and the difficulty of obtaining information about green products were also pointed out another important obstacles in purchasing green products (Papaoikonomou *et al.*, 2011). Due to the lack of reliable information, the benefits of green products are often poorly communicated to consumers, so that few consumers have a high comprehension of the real quality or efficacy of green products (Vermeir & Verbeke, 2006); accordingly, their positive attitude toward green products cannot be fully translated into actions.

Market reliability: Consumers confidence, skepticism, or cynicism has been found to be a crucial factor that influences consumers' decision to purchase green products (Albyrak *et al.*, 2011; Bray *et al.*, 2011; Papaoikonomou *et al.*, 2011; Vermeir & Verbeke, 2006). Studies reviewed that the majority of the consumers in various cultural contexts are skeptical about companies' environmental claims, and generally those who are

skeptical about green claims reduce action solving environmental problems (Albyrak *et al.*, 2011; Mostafa, 2007). For example, consumers expressed cynicism about retailers’ green claims to justify their reluctance to purchase green products and some of them even claimed that skepticism about green claims was a key factor in their decision to disregard green products (Bray *et al.*, 2011). Consumers were also cynic about the quality and reliability of existing information about green product and/or practices (Papaoikonomou *et al.*, 2011). They also blamed on an overload of information as one reason of making them unsure of what is really true (Papaoikonomou *et al.*, 2011).

Reference persons: Since reference groups play a role as an important source of product information and in the formation of values and attitudes for many people, it is expected that reference group green purchase will also influence consumers’ green purchase. Welsch and Kuhling (2009) demonstrated that the consumption patterns of their reference groups affected an individual’s green consumption behaviour, and other studies based on dissonance theory suggested that reference person behaviour also affects green consumption behaviour (Szmington *et al.*, 2009).

Subjects and Methods

Data and Sample

An online survey was conducted by Embrain in October 2011. Embrain is a featured online research company which has a 1.8 million Asian respondent panel across South Korea, China, Japan

and Taiwan, with nearly one million in South Korea alone. A quota sampling method using region, age and gender was employed to select 1,260 residents in South Korea.

Based on the polar extreme approach which has been employed together with discriminant analysis in various studies, this study identified different consumer groups. This study identified four consumer groups based on the magnitudes of green attitude and green purchase. First, using the polar extremes approach, consumers who were in the highest 30 percentile on green attitude distribution were assigned to the high attitude group, and those who were in the lowest 30 percentiles of green attitude distribution were labeled as the low attitude group. All other respondents in the 30 to 70 percentiles of green attitude distribution were eliminated from the dataset. Next, the high and low green purchase groups were identified in the same way. Although there are studies that employed cluster analysis to categorize different consumer groups for discriminant analysis (Chan, 1999), the polar extreme approach is more appropriate way of classifying different groups for discriminant analysis than cluster analysis. The polar extreme groups provide greater insight into which variables account for the differences between groups whereas cluster analysis provides clusters with ambiguous areas (Landrum *et al.*, 2009).

The final size of the sample was 510 respondents. and the three groups were manipulated as follows. Group 1 consists of consumers with low attitude and low behaviour (low-low group, n=178, 34.9%); Group 2 are those who showed high attitude and low behaviour (high-low group, n=67, 13.1%); Group 3 are

Table 1. Characteristics of the Sample

Variables	M (S.D.), n (%)	Variables	M (S.D.), n (%)
Green purchase behavior	3.65 (.69)	Green attitude	3.74 (.73)
Price adequacy	2.23 (.76)	Market reliability	3.60 (.60)
Information availability	2.55 (.66)	Product availability	2.43 (.63)
Accessibility	2.68 (.80)	Green consumerism of reference groups	3.11 (.79)
Age	38.52 (10.62)	Monthly income (₩10,000)	414.42 (529.23)
Gender		Marital status	
Female	247 (48.4%)	Married	341 (66.9%)
Male	263 (51.6%)	Not married	169 (33.1%)
Education level		Experience with environmental education	
≤high school	128 (25.1%)	Yes	134 (26.3%)
college/university	334 (65.5%)	No	376 (73.7%)
>college/university	48 (9.4%)		

Table 2. Characteristics of Consumers in Different Consumer Groups

	Low-low group n=178		High-low group n=67		Low-high group n=43		High-high group n=222	
	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Green purchase ^{***}	3.00	0.26	3.04	0.24	4.12	0.31	4.27	0.34
Green attitude ^{***}	2.96	0.33	4.18	0.25	3.10	0.22	4.37	0.32
Price adequacy ^{***}	2.46	0.66	1.96	0.73	2.33	0.74	2.12	0.80
Market reliability ^{***}	3.15	0.42	3.45	0.52	3.68	0.53	3.99	0.47
Information availability ^{**}	2.68	0.55	2.51	0.62	2.65	0.74	2.44	0.72
Product availability	2.70	0.55	2.40	0.55	2.34	0.56	2.26	0.66
Accessibility	2.73	0.64	2.63	0.70	2.90	0.83	3.62	0.93
Green consumerism of reference groups ^{***}	2.71	0.58	2.68	0.72	3.20	0.78	3.54	0.73
Age ^{***}	36.10	10.98	36.78	8.92	40.12	11.26	40.68	10.22
Monthly income	407.75	705.89	375.52	593.63	407.91	358.63	432.77	339.82
Gender								
Female	76	42.7%	41	61.2%	21	48.8%	109	49.1%
Male	102	57.3%	26	38.8%	22	51.2%	113	50.9%
Marital status ^{**}								
Married	102	57.3%	43	64.2%	29	67.4%	167	75.2%
Non-married	76	42.7%	24	35.8%	14	32.6%	55	24.8%
Education								
≤high school	52	29.2%	22	32.8%	8	18.6%	46	20.7%
college/university	113	63.5%	40	59.7%	30	69.8%	151	68.0%
>college/university	13	7.3%	5	7.5%	5	11.6%	25	11.3%
Experience with environmental education*								
Yes	35	19.7%	14	20.9%	14	32.6%	71	32.0%
No	143	80.3%	53	79.1%	29	67.4%	151	68.0%

*p<.05, **p<.01, ***p<.001

note: *, **, *** indicates significance level from ANOVAs and Chi-squared tests.

those who reported low attitude and high behaviour (low-high group, n=43, 8.4%); Group 4 are consumers with high attitude and high behaviour (high-high group, n=222, 43.5%). Table 1 gives the characteristics of the study sample and Table 2 presents the characteristics of the samples in each consumer groups.

Measures

Green purchase: Consumers' green purchase was measured using a composite measure of green consumption developed by Kim *et al.* (2012). This composite measure of green consumption is based on the magnitudes of ten different green purchase behaviours. These can be organized into three dimensions: health-conscious green purchase; resource-conscious green purchase; and socially-conscious green purchase. Specifically, three

items measure health-conscious green purchase (Cronbach's alpha=0.77); three items measure resource-conscious green purchase (Cronbach's alpha=0.74), and four items measure socially-conscious green purchase (Cronbach's alpha=0.92). A five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree was used to record responses and the Cronbach's alpha for composite measure was 0.88. All the instruments used in this study are presented in Table 3.

Green attitudes: This study employed measures of specific attitudes toward green purchase instead of attitudes toward general environmental concerns. Green attitudes were defined as the respondents' attitudes about specific green purchase behaviours which were stated at the same level of specificity used in the green purchase measure. These items were measured on five-point

Table 3. Instruments and Items

Variables	Items
Green Purchase	
Health-conscious green purchase	I purchase organic foods.
	I purchase products with green labels.
	I purchase foods with no artificial ingredients.
Resource-conscious green purchase	I purchase necessary products only.
	I purchase proper amount of foods.
	I purchase energy efficient products.
Socially-conscious green purchase	I don't purchase products involved with unfair trade ¹ .
	I don't purchase products at stores involved with unfair trade ¹ .
	I don't purchase products involved with environmental pollution ¹ .
	I purchase products produced and distributed fairly.
Green Attitude	
	It is necessary to purchase organic foods.
	It is necessary to purchase products with green labels.
	It is necessary to purchase products with less toxic materials.
	It is necessary to purchase necessary products only.
	It is necessary to purchase products with less packaging.
	It is necessary to purchase energy efficient products.
	It is necessary not to purchase products involved with unfair trade ¹ .
	It is necessary not to purchase products at stores involved with unfair trade ¹ .
	It is necessary not to purchase products involved with environmental pollution ¹ .
	It is necessary to purchase products produced and distributed fairly.
Situational Factors	
Price adequacy	Green products are expensive.
Market reliability	Eco labels are reliable.
	Green products really contribute to improving health.
	Stores that deal with green product are reliable.
	Green products are of good quality.
	Green products really contribute to reducing CO ₂ .
	Information regarding green products is accurate.
Information availability	It is difficult to understand green labels ¹ .
	It is difficult to search information regarding green products ¹ .
	It is difficult to compare information on green labels ¹ .
	Information regarding green products is not readily available in general ¹ .
Product availability	Green products have a limited range of sales items ¹ .
	Green products have a limited range of design, style and/or color ¹ .
Accessibility	The retail outlets of green products are located far away from where I live ¹ .
	It is difficult to find green products in the store ¹ .
Green consumerism of reference groups	My family members purchase green products.
	My close friends and colleagues purchase green products.
	My family members or close friends and colleagues have conversations regarding environmental pollution

1. Reversely coded.

Likert scales (1=strongly disagree to 5=strongly agree) and the Cronbach's alpha score was 0.87.

Situational factors: Situational factors referred to consumers' perceived physical and/or social environment of green market. Based on the previous studies, this study constructed five subcategories of physical green market environment such as price adequacy, information availability, product availability, accessibility, and market reliability. Price adequacy measures consumers' perceived burden of high price of green products. Information availability represents the difficulty in searching and understanding green information and product availability stands for limited range of green products. Accessibility measures accessibility of green stores and green products. Finally, reliability measures consumers' confidence in quality of green products, green functionality of green products and reliability of green information. Fifteen items measured five physical environment in green market on 5-point Likert scales (1=strongly disagree to 5=strongly agree) and the Cronbach's alpha scores were as follows: market reliability (Cronbach's alpha=0.80); information availability (Cronbach's alpha=0.72); product availability (Cronbach's alpha=0.66); and accessibility (Cronbach's alpha=0.69). As for social environment, this study employed green consumerism of reference groups. Green consumerism of reference groups was defined as the extent of reference persons' everyday behaviours toward green consumerism. Three items were measured on five-point Likert scales (1=strongly disagree to 5=strongly agree) and the Cronbach's alpha score was 0.72.

Analysis

First, this study conducted a multinomial logistic analysis in order to finding out effects of different determinants on likelihood of being different consumer groups. In the multinomial logistic analysis, several situational factors and demographic characteristics of consumers including previous experience with environmental education were included as predictors. The independent variables included in the multivariate model are price adequacy, market reliability, availability of information, availability of green products, accessibility in green market, green consumerism of reference groups, age, monthly income, gender, marital status, education level, and previous experience with environmental

education. The multivariate logistic analysis showed several different factors that influence on the membership of different consumer group compared to that of low-low group. However, the findings from multinomial logistic analysis basically based on pairwise comparison, i.e. the findings showed the effects of determinants that increase or decrease the likelihoods of being in one group compared to reference group. Therefore, multinomial logistic analysis does not identify factors that significantly separate different consumer groups, considering all groups at once. Hence, next this study employed discriminant analysis in order to identify significant contributors that separate among different consumer groups.

Discriminant analysis is a multivariate technique that is used to explore the differences between groups with respect to multiple independent variables. It is used to investigate differences between groups on the basis of the attributes of the cases, indicating which attributes contribute most to group separation. Hence, it provides the power of independent variables to discriminate between groups and predict the membership of groups. What discriminant analysis does is the same as multiple linear regression does, predicting an outcome and explain the effect of independent variables in predicting an outcome. Whereas multiple linear regression is limited to cases where the dependent variable is quantitative and logistic regression is limited to dichotomous dependent variables, discriminant analysis is used when the dependent is categorical with more than two categories (Huberty & Olejnik, 2006). Discriminant analysis involves the determination of the linear combination of attributes known as canonical discriminant functions which contribute maximally to group separation. The form of the equation or function is

$$D = \sum_{i=1}^I v_i X_i + a,$$

where D=discriminate function

v=the discriminant coefficient or weight for that variable

X=respondent's score for that variable

a=a constant

i=the number of predictor variables

Discriminant analysis comes up with an equation that maximize the distance between the categories, i.e. equation with strong discriminatory power between groups, and good predictors tend to have large weights. The v's are analogous to the b's in the

regression equation, maximizing distance between the means of the dependent variable (Huberty & Olejnik, 2006).

In order to find significant contributors to separate different consumer groups with regard to green attitude and green purchase behaviours, this study conducted a stepwise discriminant analysis using four different consumer groups. The green consumerism of reference groups, price adequacy, market reliability, information availability, product availability, accessibility, age and income were entered in the initial model as the independent variables. SPSS 18 version was used to conduct the statistical analyses.

RESULTS

First, in order to investigate the different effects of the predicting variables on the probability of membership of each consumer groups, multinomial logistic analysis was conducted, using low-low group as the reference category. The multinomial logistic analysis showed the effects of predicting variables on the odds of being in different consumer groups compared to the odds of membership in low--low group (Table 4). The model was significant (-2LogLikelihood=863.05, $p < 0.001$; Nagelkerke

$R^2=0.562$, McFadden $R^2=0.298$) and showed different effects of the situational factors on the probability of being in different consumer groups

First, price adequacy and market reliability had significant influences on the likelihood of being in high-low group compared to low-low group. It seems that price adequacy significantly decreased the likelihood of being in high-low group by 58% and market reliability significantly increased the likelihood as much as 3.6 times compared to the likelihood of membership in low-low group. That is, consumers who believe that green market is reliable and who perceive that green products are expensive were more likely to be in high-low group than low-low group.

Second, market reliability, consumerism of reference groups, accessibility had strong positive effects on the likelihood of being in low-high group compared to that of being in low-low group. One unit change in market reliability, green consumerism of reference group, and accessibility increased the odds of being in low-high group by 7.98 times, by 2.26 times, and by 1.98 times respectively compared to the odds of being in low-low group. Thus, it seems that consumers who believe green market is reliable and green products and stores are accessible and consumers who

Table 4. Determinants on Probability of Membership in Different Consumer Groups (Reference=low-low group)

	High-low group			Low-high group			High-high group		
	b	Standard Error	Exp (b)	b	Standard Error	Exp (b)	b	Standard Error	Exp (b)
Constant	-2.71	1.90		-11.30	2.28		-14.80	1.92	
Price adequacy	-0.87	0.27	0.42**	-0.25	0.28	0.78	-0.64	0.23	0.53**
Market reliability	1.28	0.37	3.61**	2.08	0.46	7.98***	3.32	0.38	27.60***
Reference groups	0.04	0.25	1.04	0.81	0.31	2.26***	1.35	0.24	3.84***
Information availability	-0.11	0.29	0.90	0.00	0.35	1.00	-0.23	0.28	0.79
Product availability	-0.45	0.30	0.64	-0.89	0.36	0.41*	-0.60	0.29	0.55*
Accessibility	0.14	0.24	1.15	0.68	0.28	1.98*	0.53	0.23	1.70*
Female	0.53	0.32	1.70	0.20	0.39	1.22	0.07	0.31	1.07
Married	0.37	0.43	1.44	0.09	0.53	1.09	0.59	0.41	1.81
Age	-0.01	0.02	0.99	0.03	0.02	1.03	0.01	0.02	1.01
Monthly income	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
High school degree	0.30	0.67	1.35	-0.27	0.76	0.76	0.14	0.59	1.15
University degree	0.16	0.62	1.17	0.34	0.65	1.40	0.49	0.52	1.63
Having environmental education	0.34	0.40	1.41	0.51	0.44	1.67	0.39	0.35	1.47
-2LogLikelihood	863.05***								
Nagelkerke R^2 , McFadden R^2	0.562, 0.298								

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

have green reference groups are more likely to be in low-high group compared to low-low group. On the other hand, product availability had a negative impact on the likelihood of being in low-high group compared to low-low group.

Third, market reliability, consumerism of reference groups, accessibility substantially increase the likelihood of being in high-high group compared to that of being in low-low group. One unit change in market reliability, green consumerism of reference group, and accessibility increased the odds of being in high-high group by 27.6 times, by 3.8 times, and by 1.7 times respectively compared to the odds of low-low group. Consumers who believe green market is reliable and green products and stores are accessible and who think their reference groups are green are substantially more likely to be in high-high group compared to low-low group. On the other hand, price adequacy and product availability had negative impacts on the likelihood of being in high-high group compared to low-low group.

The multinomial logistic analysis showed the differences in the determinants that significantly increase or decrease the likelihood of being in one group compared to the low-low group based on pairwise comparison. However, the findings did not show what are the predictors that significantly distinguish different consumer groups, considering four groups at once, a stepwise discriminant analysis was conducted. Before investigating the discriminating ability of independent variables, the accuracy of discriminant functions in classifying the cases was assessed. Since the group sizes were unequal, a proportional chance criterion was used to calculate the chance classification and the analysis showed that 68.8 percent of the cases in the dataset were correctly classified. When the predictive accuracy of a discriminant function is at least 25 percent greater than the chance of this occurring without

the discriminant model, the discriminant function is accepted as useful. And Noble and Schewe (2003) proposed the comparison of the accurate classification probability to proportional chance criterion or maximum chance criterion, whichever is the higher. The maximum chance criterion is the percent of respondents that would be correctly classified if all observations were assigned to the segment with the greatest probability of occurrence. Because the largest green consumers group (high-high) occurred 43.5 percent of the time (222/510), the maximum chance criterion would be 43.5 percent; whereas the proportional chance criterion is 33.5 percent ($[(178/510)^2 + (67/510)^2 + (43/510)^2 + (222/510)^2] = 0.335$). Thus, the classification accuracy of the model was compared to the maximum chance criterion and the former (68.6%) is approximately 57.7% greater than the latter (43.5%). Consequently, it can safely be assumed that the model used in this study was accurate enough for the purposes of our analysis.

We then conducted stepwise multiple discriminant analyses to find linear combinations of independent variables that best separate the groups of respondents. Initially, green consumerism of reference groups, price adequacy, market reliability, information availability, product availability, accessibility, age and monthly income were entered in the model and discriminant analysis identified two significant functions with three variables, market reliability, green consumerism of reference groups, and price adequacy, in separating the consumer groups. Table 5 shows the proportions of variances that were explained by each of the independent variables. Increased eta² showed that reliability in green market alone explains 40.1% of the variances and that reference groups and price adequacy explains an additional 5.7% and 2.7% of the variances. That is, market reliability was the most substantial variable in separating different consumer groups. Table

Table 5. Significance of the Predicting Variables and Discriminant Functions

Variables	Wilks' λ	Eta ²	Δ Eta ²	F
Market reliability	.599	1-.599=.401	.401	113.030*
Reference groups	.542	1-.542=.458	.057	60.337*
Price adequacy	.515	1-.515=.485	.027	42.711*
Function	Eigenvalue	% of variance	Canonical correlation	χ ²
1	.852	94.7	.678	335.339*
2	.047	5.2	.212	23.744*
3	.001	.1	.031	0.471

*p<.001

Table 6. Structure Matrix and Group Centroids

Variables	Function			Group centroid	Function		
	1	2	3		1	2	3
Market reliability	.886 ^a	-.119	.448	Low-low group	-1.079	.131	-.011
Price adequacy	-.181	.846 ^a	.502	High-low group	-.452	-.545	.005
Reference groups	.619	.637 ^a	-.459	Low-high group	.157	.123	.099
				High-high group	.971	.036	-.012

Note. Variables that were not used in the analysis are not presented in the table.

^aThe largest absolute correlation between each variable and any discriminant function.

6 also presents the two significant functions with market reliability, green consumerism of reference groups, and price adequacy. The third function turned out not to be significant. The first function that separated high-high group from the rest three groups explained 0.678² or 46.0% of the classification and the second function which separated high-low group from the rest two groups (low-low and low-high) explained an additional 0.212² or 4.5% of the classification. It appeared that the first function explained most of the differences between the groups, even though two functions were significant. This finding can be interpreted that the high-high groups is most different of all consumer groups in terms of their perceptions on market reliability, price adequacy, and green consumerism of reference persons.

In view of the statistical significance observed between the groups, it is useful to examine the individual contribution of the variables to the discriminant functions. The relative contribution of each of the variables can be analyzed through the structure matrix. Table 6 gives the structure matrix and group centroid. Coefficients in the structure matrix show the correlation of each discriminating variable and the predicted discriminant score. Coefficients with large absolute values correspond to variables with greater discriminating power. In the first function, market reliability best separated consumer groups among all other predicting variables and in the second function, green consumerism of reference groups and price adequacy showed strong discriminating power in separating consumer groups. By interpreting the structure matrix together with group centroids, the characteristics of each group can be identified. The first function discriminated the high-high group from other groups showing that market reliability are positively related to membership of the high-high group. The second function discriminated the high-low group from the low-high group

and low-low group such that green consumerism of reference groups and price adequacy are shown to be negatively related to membership of the high-low group compared to the rest two groups. And no variables significantly distinguished the low-high group from the low-low group, indicating there is no significant difference between these two groups.

Discussion

Multinomial logistic analysis presented very strong influence of market reliability in the odds of being in each of consumer groups compared to low-low group-the odds increased by 3.61 times, 7.98 times and 27.60 times respectively. Hence, market reliability seemed to be associated with being in both high-attitude group and high-purchase group. Given that the consumers in low-low group are those who are honestly disengaged in green consumption, the role of market reliability that move these disengaged consumers either toward green consciousness or toward green buyers seem to be very substantial.

Price adequacy significantly lowered the likelihood of being in high-low group and high-high group. That is, it seems that consumers in high-low group and in high-high group are more likely to perceive that green products are expensive compared to those in low-low group. In order to be definite about the effect of price on green attitude and green purchase, further examination is required; however, the most plausible explanation the negative effect of price adequacy can as follows. First, consumers in high-low groups may not translate their positive attitudes into actual purchase due to high price of green products and it is possible that the cost-burden of green buying is greater among the high-high group.

Also, the multinomial logistic analysis showed that market reliability, green consumerism of reference groups, product availability and accessibility had significant influences on the likelihood of being in high-purchase groups (low-high and high-high) whereas those did not have significant influence on the likelihoods of being in high-low group compared to low-low group. The findings indicate that green consumerism of reference groups, product availability, accessibility were factors that are associated with green purchase behaviors rather than green attitudes. In specific, green consumerism of reference groups and accessibility in green market significantly increased the odds of being in high-purchase group, suggesting that improving accessibility in green market can contribute to expanding green consumption. On the contrary, product availability was negatively related to the odds of being in high-purchase group. This study could not fully explain the negative effect of product availability; however, it is possible to explain the result such that those consumers who have more experienced with green purchase perceived the product availability in green market is poor.

From discriminant analysis it was found that market reliability was the most substantial variable in separating different consumer groups and the first function which separated the high-high group from the rest three groups explained most of the differences between the groups even though two functions were significant. This finding can be interpreted that the high-high groups is most different of all consumer groups mostly in terms of market reliability. Together with the very strong explanation power of market reliability, this finding suggests that having trust toward green market and green product is the distinctive characteristics of the ideal green consumers who successfully translate their positive attitudes into green purchase behaviours. The results from the multinomial logistic analysis were consistent such that the positive impact of market reliability was highest in the high-high group. Since “green” is a credence attribute which consumers cannot evaluate individually, consumers’ confidence about the quality of green product, reliability of information, and authenticity of green stores seem to be even more important. Thus, it can be concluded that establishing reliability in green market is important prerequisite for expanding positive green consumers. The straightforward strategy to encourage green consumption can be demonstrating and

communicating authenticity of companies’ green claims, reliability of labels, and quality of green products to consumers.

Secondly, discriminant analysis showed that the second function significantly separated high-low group from those who have low green attitudes, i.e. low-high group and low-low group, in a way that price adequacy and green consumerism of reference groups were negatively associated with being in high-low group compared to the other two groups. And no variables significantly distinguish low-high group from low-low group. That is, consumers who perceive that green products are expensive and who do not have green reference groups are more likely to be in the high-low group compared to the two other groups with low attitudes. It seemed that consumers who do not have green reference groups and those who think green products are expensive do not purchase green purchase in spite of their positive attitudes toward green consumption. These findings were in line with the results from multinomial logistic analysis suggesting the importance of adequate price of green products and the influence of reference persons in stimulating green buying. The importance of the influence of reference groups such as friends and families calls for the demand for consumer education program. As green consumption gets global attention in 21th century, many education programs on green consumption were developed and included in the formal education curriculum for younger generations. Accordingly, the younger generations have been exposed to numerous green campaigns and green educations as they grow. Also, older generations who experienced the Korean War had lived with a habit of saving. Hence, we argue that population between 20s and 50s are especially in need of such education programs because they are those who have the most consumption power, who have the most influential role in family members’ decision making and, at the same time, who are least exposed to green consumerism. Also, viral marketing strategy could be effective in stimulating green consumption behaviour since in today’s environment reference person is not limited to families and friends but could include anyone communicating online.

Specifically, multinomial logistic analysis showed that the positive green consumers in high-high group think green products are expensive and green products are in limited ranges of brands, style, design, color, etc. The results may imply that consumers

realize the expensive price and limited range of green products as they know green market better. The findings provide important calls for the green market to deal with in order to expand green consumption. Several studies found that many of the consumers are willing to pay more for green products however the amount they are willing to pay is not very high. For example, Roynes *et al.* (2011) found that 91.2% of respondents indicated that they were willing to pay more money for products that are eco-friendly, although about 49% of them were willing to pay 10% more or less. This study also provides consistent findings that expensive price of green products is a barrier in green market. The price of green products dropped as green market became competitive; however, it seems that consumers still perceive green products are expensive. Therefore more drives to encourage competition in green market is recommended to stabilize price of green products. Also, as green consumption becomes more common, the matter of limited availability of green products in terms of brands, design, colors, etc. will be greater concern for consumers.

Although discriminant analysis found negligible explanatory power of information availability, product availability, and accessibility in separating different consumer groups, generally low scores on physical green market environments regardless of consumer groups suggest that green market in South Korea is still in an early phase of development. It can be inferred that the limited green purchase in South Korea may be attributed to under-developed green market environment rather than lack of consumer demand. Therefore, continuous efforts are required to broaden the offer of green alternatives, to expand green retail channels, and to increase readiness in green information in green market.

Conclusion

Observing the attitude-behaviour gap in ethical consumption, researchers perceived the limitation of predicting future behaviours on the basis of attitudes. This study explained the differences between different attitude-behavior consumer groups in terms of their perception on green market environment. Using multinomial logistic analysis and stepwise discriminant analysis, this study found reliability in green market was the most critical factor that make consumers to be positive green consumers who have are

highly conscious about green consumption and actually perform green buying. And the role of reference persons and adequate price of green products which reveals were also found to be important to stimulate green buying. However, as an exploratory study, this study did not provide conclusive evidences to model attitude-behaviour gap in green consumption examining the effects of all relevant determinants that have been identified to date. Also, in order to fully understand the gap between attitude and behavior, moderating roles of such variables ought to be explored in the future study. The findings of this study implied that to restore reliability in green market is a matter of top priority. Yet, the current study is limited such that reliability in product, in information, and in companies were not distinguished each other so that it is impossible to furnish more specific managerial implications. Hence, future studies can provide more specific managerial strategies by employing multidimensional measure of reliability in green market. In addition, this study focused on explain how consumers' perceived evaluation on situational factors differ across different consumer groups in terms of green attitudes and green purchase behaviours and did not examine the roles of various personal variables such as environmental concern, environmental knowledge, social desirability, values, and habits which were consistently found to have significant effects on either green attitudes or green purchase behaviours. Future studies can extend this study by explaining the differences between different green consumers using comprehensive sets of factors.

References

- Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behaviour and Human Decision Processes*, 50, 179-211.
- Albyrak, T., Caber, M., Moutinho, L & Herstein, R. (2011). The influence of skepticism on green purchase behavior. *International Journal of Business and Social Science*, 2(13), 189-197.
- Balderjahn, I. (1988) Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns. *Journal of Business Research*, 17, 51-56.
- Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviors? a new answer to an old question. *Journal of Environmental Psychology*, 23, 21-32.

- Berger, I. E., & Corbin, R. M. (1992). Perceived consumer effectiveness and faith in others as moderators of environmentally responsible behaviors. *Journal of Public Policy & Marketing, 11*(2), 79-100.
- Blake, J. (1999). Overcoming the 'value-action gap' in environmental policy: tensions between national policy and local experience. *Local Environment, 4*(3), 257-278.
- Blocker, T. & Eckberg, D. (1997). Gender and environmentalism: results from the 1993 general social survey. *Social Science Quarterly, 78*, 841-858.
- Bodur, M. & Sarigollu, E. (2005) Environmental sensitivity in a developing county: consumer classification and implications. *Environment and Behavior, 37*(4), 487-510.
- Boulstridge, E., & Carrigan, M. (2000). Do consumers really care about corporate responsibility? Highlighting the attitude-behaviour gap. *Journal of Communication Management, 4*(4), 355-368.
- Bray, J., Johns, N., & Kilburn, D. (2011). An exploratory study into the factors impeding ethical consumption. *Journal of Business Ethics, 98*(4), 597-608.
- Carrigan, M. & Attalla, A. (2001) The myth of the ethical consumer-do ethics matter in purchase behaviour? *Journal of Consumer Marketing, 18*(7), 560-577.
- Carrington, J. J., Neville, B. A., & Whitwell, G. J. (2010). Why ethical consumers don't walk their talk: Towards a framework for understanding the gap between the ethical purchase intentions and actual buying behaviour of ethically minded consumers. *Journal of Business Ethics, 97*, 139-158.
- Chen, M., & Tung, P. (2010). The moderating effect of perceived lack of facilities on consumers' recycling intentions. *Environment and Behavior, 42*(6), 824-844.
- Connell, K. Y. H. (2010). Internal and external barriers to eco-conscious apparel acquisition. *International Journal of Consumer Studies, 34*(3), 279-286.
- Creyer, E., & Ross, W. (1997). The influence of firm behaviour on purchase intention: do consumers really care about business ethics? *Journal of Consumer Marketing, 14*(6), 421-432.
- Davidson, D. & Freudenberg, W. (1996) Gender and environmental risk concerns: a review and analysis of available research. *Environment and Behavior, 28*, 302-339.
- De Pelsmacker, P., Janssens, W., Sterckx, E., & Mielants, C. (2005). Consumer preferences for the marketing of ethically labeled coffee. *International Marketing Review, 22*(5), 512-530.
- Dunlap, R.E., Van Liere, K.D., Mertig, A.G., & Jones, R.E. (2000) Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues, 56*, 425-442.
- Ellen, P. S., Wiener, J. L., & Cobb-Walgren, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy & Marketing, 10*(2), 102-117.
- Finisterra do Paco, A.M. & Raposo, M.L.B. (2010) Green consumer market segmentation: empirical findings from Portugal. *International Journal of Consumer Studies, 34*, 429-436.
- Fishbein, M., & Ajzen, I. (1974). Attitudes toward objects as predictors of single and multiple behavioral criteria. *Psychological Review, 81*(1), 59-74.
- Fraley, C., & Raftery, A. E. (2002). Model-based clustering, discriminant analysis, and density estimation. *Journal of the American Statistical Association, 97*(458), 611-631.
- Fryxell, G. & Lo, C. (2003) The influence of environmental knowledge and values on managerial behaviors on behalf of the environment: an empirical examination of managers in China. *Journal of Business Ethics, 46*, 45-59.
- Grunert, S. (1993) Everybody seems concerned about the environment but is this concern reflected in (Danish) consumers' food choice? *European Advances in Consumer Research, 1*, 428-433.
- Huberty, C. J. & Olejnik S. (2006). Applied MANOVA and discriminant analysis, 2nd Eds. Wiley: NJ.
- Kang, J., Liu, C. & Kim S. (2013). Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness, and perceived personal relevance. *International Journal of Consumer Studies, 37*(4), 442-452.
- Kim, Y. & Choi, S.M.. (2005). Antecedents of green purchase behavior: an examination of collectivism, environmental concern, and perceived consumer effectiveness. *Advances in Consumer Research, 32*, 592-599.
- Kim, S., Yeo, J., Sohn, S.H., Rha, J., Choi, S., Choi, A., & Shin, S. (2012). Toward a composite measure of green consumption: an exploratory study using a Korean sample. *Journal of Family Economic Issues, 33*(2), 199-214.
- Landrum, H., Prybutok, V., Zhang, X., & Peak D. (2009). Measuring IS system service quality with SERVQUAL: Users' perceptions of relative importance of the five SERVPERF dimensions. *Informing*

- Science: the International Journal of an Emerging Transdiscipline*, 12, 17-35.
- Mainieri, T., Barnett, E. G., Valdero, T. R., Unipan, J. B., & Oskamp, S. (1997). Green buying: The influence of environmental concern on consumer behavior. *The Journal of Social Psychology*, 137(2), 189-204.
- Meinhold, J. L., & Malkus, A. J. (2005). Adolescent environmental behaviors: Can knowledge, attitudes, and self-efficacy make a difference? *Environment and Behavior*, 37(4), 511-532.
- Milfont, T. L., Duckitt, J., & Cameron, L. D. (2006). A cross-cultural study of environmental motive concerns and their implications for proenvironmental behavior. *Environment and Behavior*, 38(6), 745-767.
- Mobley, C., Vagia, W. M., & DeWard, S. L. (2010). Exploring additional determinants of environmentally responsible behavior: The influence of environmental literature and environmental attitudes. *Environment and Behavior*, 42(4), 420-448.
- Moisander, J. (2007). Motivational complexity of green consumerism. *International Journal of Consumer Studies*, 31(4), 404-409.
- Mohr, L. A., & Webb, D. J. (2005). The effects of corporate social responsibility and price on consumer responses. *Journal of Consumer Affairs*, 39(1), 121-147.
- Mostafa, M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31, 220-229.
- Nicholls, A., & Lee, N. (2006). Purchase decision-making in fair trade and the ethical purchase 'gap': Is there a fair trade 'twix'? *Journal of Strategic Marketing*, 14(4), 369-386.
- Noble, S. M., & Schewe, C. D. (2003). Cohort segmentation: an exploration of its validity. *Journal of Business Research*, 56, 978-87.
- Papaoikonomou E., Ryan, G., & Ginies, M. (2011). Towards a holistic approach of the attitude behavior gap in ethical consumer behaviours: Empirical evidence from Spain. *International Advances in Economic Research*, 17(1), 77-88.
- Peattie, K. (2001). Towards sustainability: the third age of green marketing. *The Marketing Review*, 2(2), 129-146.
- Roberts, J. A. (1996). Green consumers in the 1990s: Profile and implications for advertising. *Journal of Business Research*, 36(3), 217-231.
- Sheeran, P. (2002). Intention-behavior relations: a conceptual and empirical review. *European Review of Social Psychology*, 12(1), 1-36.
- Stern, P. C., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment and Behavior*, 25(3), 322-348.
- Straughan, R. D. & Roberts, J. A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the millennium. *Journal of Consumer Marketing*, 16(6), 558-575.
- Szmingin I., Carrigan, M., & McEachern, M. G. (2009). The conscious consumer: Taking a flexible ethical behaviour. *International Journal of Consumer Studies*, 33(2), 224-231.
- Tan, B., & Lau, T. (2011). Green purchase behavior: Examining the influence of green environmental attitude, perceived consumer effectiveness, and specific green purchase attitude. *Australian Journal of basic and Applied Sciences*, 5(8), 559-567.
- Thøgersen, J. (2004). A cognitive dissonance interpretation of consistencies and inconsistencies in environmentally responsible behavior. *Journal of Environmental Psychology*, 24(1), 93-103.
- United Nations Environment Programme. (2005). *Talk the walk: advancing sustainable lifestyles through marketing and communications*. UN Global Compact and Utopies. Retrieved June 17, 2013 from <http://www.unep.fr/shared/publications/pdf/DTIx0763xPA-TalkWalk.pdf>.
- Uusitalo, O., & Oksanen, R. (2004). Ethical consumerism: a view from Finland. *International Journal of Consumer Studies*, 28(3), 214-221.
- Van Liere, K. D., & Dunlap, R. E. (1980). The social bases of environmental concern: A review of hypotheses, explanations and empirical evidence. *Public opinion quarterly*, 44(2), 181-197.
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer "attitude-behavioral intention" gap. *Journal of Agricultural and Environmental Ethics*, 19(2), 169-194.
- Welsch, H., & Kuhling, J. (2009). Determinants of pro-environmental consumption: the role of reference groups and routine behavior. *Ecological Economics*, 69(1), 166-176.
- Young, M. R., DeSarbo, W. S., & Morwitz, V. G. (1998). The stochastic modeling of purchase intentions and behaviour. *Management Science*, 44(2), 188-202.
- Zimmer, M.R., Stafford, T. F., & Stafford, M. R. (1994). Green issues: dimensions of environmental concern. *Journal of Business Research*, 30(1), 63-74.