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The Benefits and Values of Green Lifestyle Consumers

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Abstract

Governments have been educating and encouraging their citizens to take part in green lifestyles, which essentially involve becoming "green citizens" through purchasing green products. This study aims to explore the "green lifestyle" that has been promoted for many years now in order to identify the values and benefits that consumers stand to gain when buying green products in their effort to adopt green lifestyles. For the purpose of this study, the Means-End Chains (MECs) method has been chosen as the theoretical basis to examine the attributes of green products and various consequences and individual values they derive from the consumers' perspective. From the study, we found that consumers emphasize green product attributes including ***Reusable***, ***Energy Saving Design***, ***Eco-Friendly Material***, ***Natural and Biodegradable***. From these attributes, consumers arrive at the consequences of ***Reduce Expenses, Promote Eco-Friendly Awareness, Promote Physical and Mental Health, Reduce Energy Consumption, Protect the Earth, Time Saving and Convenient, Reduce Environmental Protection*** and ***Effective Use of Resources*** in pursuit of terminal values including ***Fun and Enjoyment of Life, Sense of Security***, ***Sense of Accomplishment, Self-Realization*** and ***Sense of Belonging***.

Keywords: green lifestyle, green product, means-end chains, values

1. Introduction

Presently, the planet has suffered irreparable damage caused by drastic climate changes around the world (Gore, 2006). Environmental issues such as global warming and depletion of the ozone layer have become serious threats to the sustained survival of humanity (Tanner & Kast, 2003). In order to slow down the pace of global warming, the United Nations signed various international treaties since 1992, such as the United Nations Framework Convention on Climate Change, the Kyoto Protocol (1997) and the Copenhagen Accord (2009). These treaties involve different measures to reduce the emission of greenhouse gases to lower the burdens of environmental pollution on the planet. In addition, the UNEP (2009) also urges nations around the world to adopt and implement the Global Green New Deal as soon as possible in order to accelerate the pace of development towards improved well-being for humanity and social justice while creating a society of green economy that would reduce various environmental risks and ecological destructions at the same time (Barbier, 2010; UNEP, 2010).

Numerous scholars have conducted studies and research on an assortment of green products, green marketing and practices of green consumption that feature concepts of environmental protection (do Paço, Raposo, & Filho, 2009; Gam, 2011; Derek, Roy, Eric, & Lynn, 2009; Paromita, 2008). Relevant studies also pointed out that corporations committed to environmental protection and prevention of pollution would benefit from improved organizational operation efficiency and better profit (Naffziger & Montagno, 2003). They would be able to lower relevant costs for environmental management and improve their image as protectors of the environment to secure higher market share (Mohamed, 2001). However, focusing narrowly on issues of relevant policies of environmental protection/green product design/fulfillment of corporate social responsibilities or marketing ethics that businesses have implemented alone would not be able to account for the actual needs and customer values of green consumers. For a product to be successful in a highly competitive market, it would require more than leading technology; the product must truly satisfy consumers' needs and preferences (Baxter, 1995) while

reflecting the reconstruction and innovation of values (Kim & Mauborgne, 2005). Rylander and Allen (2001) also support the view that in order to truly understand green consumers, one must first understand their individual attitude and inclinations of consumption behavior in order to fully comprehend consumers' green consumption behavior. Product differentiation strategies not only should focus on the perspective of supply but also take the perspective of demand into consideration. Businesses must achieve adequate understanding of product contents that would not only satisfy customer needs but also offer significant values in order to be able to effectively develop products of innovative values.

The study adopts the MECs approach as its theoretical basis to analyze the perceptual relationship between consumers and green products from consumers' perspective. The study will also construct the model of "Attribute-Consequence-Value" chain for consumers who use green products. In addition, the research also offers suggestions of customer-oriented development of green products that will hopefully facilitate the process of product design and innovative development for developers while helping them to formulate effective marketing strategies for different consumer demographics.

2. Theoretical Framework

2.1 Green Product

Also known as "Environment conscious products", green products are characterized as merchandize that does not cause environmental pollution/natural resource depletion and can be recycled or preserved (Shamdasani, Chon-Lin, & Richmond, 1993). Purchasing green products bring positive effects to the environment, economy and society (Tanner & Kast, 2003). More and more evidence shows that consumers opt for products with eco-friendly features (Laroche, Bergeron, & Barbaro-Forleo, 2001). Nevertheless, the fact remains that any change in consumers' purchasing decisions would impact product supply/demand and market ecology (Fraj & Martinez, 2006). These green consumers, guided by their belief in environmental consumerism, would gradually shape new trends of consumption with their habit of buying green-related products (Ottman, 1999).

Knowledge that relates to consumers' behavior commands significant impact and influence over consumers' purchasing behavior for green products (Tanner & Kast, 2003). Consumers under the influence of their environmental-protection awareness would demonstrate key behaviors of green consumption such as the consumption of organic food and usage of environmental friendly products (Redersen, 2000). Consumers who are passionate about protecting the environment are more likely to buy products that contribute to the cause of environmental protection in some way (Kim & Choi, 2005). They are also more inclined to engage more actively in acts of green consumption as they acknowledge the fact that green consumption helps to improve the quality of environment (Fraj & Martinez, 2006; Tsay, 2010). Stern and Ander (2008) pointed out that 59% of respondents in his study admitted to considering buying green products and 12% of them said they would actively seek for green products. Consumers with "green awareness" would be willing to pay a little more for green products (Kim & Damhorst, 1998; Laroche et al., 2001), but they would also have higher expectations from the products (D'Souza, Taghian, Lamb, & Peretiatkos, 2006). The percentage of consumers who would actively go for environmental friendly products is still very small compared to the overall consumer population (Kotler & Keller, 2008). Most consumers still take factors such as price point and quality as the key criteria in their buying decisions, leading to purchases of products that are not eco-friendly (Ginsberg & Bloom, 2004). Advertising policies for many eco-friendly products have been erratic at best (Kärnä, Juslin, Ahoven, & Hansen, 2001) and this has bred suspicion and doubt in the minds of consumers (Mathur & Mathur, 2000). Consumers who harbor doubts towards commercials for green products are not likely to pay for green products (Laroche et al., 2001; Crane, 2000). Green consumption has not only driven a change in mainstream models of consumption but also prompted businesses to ponder upon how to develop green products that are not just environmentally friendly but also accommodating to customers' needs in their efforts to strike a balance between protecting the environment and ensuring operational performance (Luchs, Naylor, Irwin, & Raghunathan, 2010; Muldoon, 2006). McDonough and Braungart (2002) also emphasized that environmental protection should not be limited to simply about energy conservation and recycling of resources; it should also involve prudent deliberation over the product innovation to improve the quality of environment, which would be the essence of a green economy.

Past studies showed that green products that are presented to be eco-friendly would boost the results of advertisement effectiveness and delivery (Chan, Leung, & Wong, 2006). Brands that associate themselves with green ideas would also enhance their positive image in consumers' minds (Gam, 2011). In the strategies of green brand definition and green advertisement, businesses should attempt to take the emotional angle for the presentation (Hartmann, Ibanez, & Sainz, 2005). Brands that have been associated with green images would benefit from enhanced emotional bonding with their target consumers and in turn fortify their loyalty towards the

brand (Ginsberg & Bloom, 2004). When it comes to green issues, businesses should incorporate sustainable concepts of balanced development between environments, society and finance (Savitz & Weber, 2006). Bridges and Wilhelm (2008) even went one step further to propose that subjects of sustainable marketing be incorporated into school curriculums.

2.2 Means-End Chains Theory

The Means-End Chains (MECs) theory was developed by Gutman (1982) as a compilation of relevant past research. In this theory, Means-End analysis offers a method for explaining how and why program outcomes occur, and thus have the potential to provide practitioners with information for more effective program design and delivery (Frauman, Norman, & Klenosky, 1998). "Means" is defined as the opinion formed by users on their preferred product (or event, activity, sentiment, service etc.) and the opinion may be on tangible and intangible product attribute. "End" refers to goals (i.e., product consequences and values) of higher individual levels that users seek to achieve through specific product attributes (Olson & Reynolds, 2001). Means-End analysis was used to identify linkages among program attributes, consequences, and values (Gutman, 1982, 1997). (As shown in Figure 1)

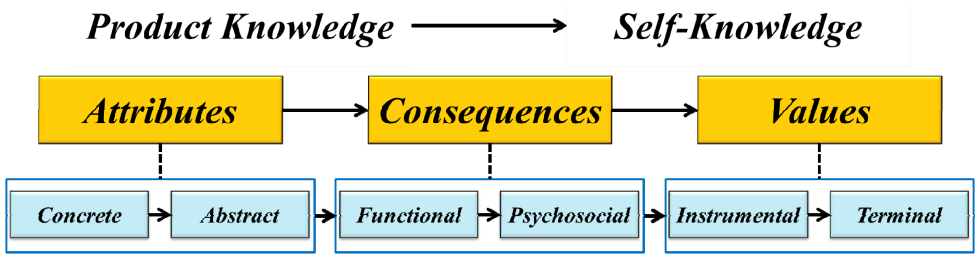

Figure 1. Means-End Chains model

Source: Mulvey, Olson, Celsi, & Walker, 1994; Olson & Reynolds, 1983; Walker & Olson, 1991

Attributes are characteristics of preferred product or services perceived by users (Reynolds, Dethloff, & Westberg, 2001) and they may be "Concrete Attributes" that are tangible or "Abstract Attributes" that are intangible (Pitts, Wong, & Whalen, 1991; Peter & Olson, 2010). A key importance of the Means-End chains is that consumers view products as bundles of benefits (consequences), rather than bundles of attributes. Peter and Olson (2010) explained that consumers identify both "Functional Consequences" and "Psychosocial Consequences" related to a product. In Means-End theory, values are defined as the participants' desired end-state. In other words, values are the participants'end destination as they travel up the Means-End ladder ofabstraction from more concrete attributes to highly abstract value-states (Klenosky, Gengler, & Mulvet, 1993). Rokeach (1973) pointed out that two levels of values into the Means-End chains model: instrumental and terminal values.

3. Methodology

3.1 Analysis Steps

Firstly, laddering is the most commonly adopted technique for the construction of MECs (Gutman & Miaoulis, 2003; Reynolds & Gutman, 1988). Laddering involves one-on-one, in-depth interviews with the respondents. Through guided questions, the interviewer would be able to effectively understand the respondents' attribute-consequence-value cognitive structure for a given product (Gutman & Miaoulis, 2003; Peter & Olson, 2010). For the purpose of the study, respondents were given approximately 40-60 minutes for their interview session.

Secondly, with data gathered from the laddering interviews, the next step involved the application of content analysis for data processing (Reynolds & Gutman, 1988). Content Analysis makes it possible to extract important contents from massive amounts of interview data for systematic and objective coding, categorization and quantification (Kassarjian, 1977) by constructing the contents of "Attribute-Consequence-Value" chains that respondent's desire. The coded data were then categorized into their corresponding tiers of abstraction to form the individual structure of "Attribute-Consequence-Value" laddering. In this study, a total of 9 attributes, 10 consequences and 8 values have been identified (as shown in Table 1).

Thirdly, Content analysis and coding of the data was performed according with the relevant literature (Kassarjian, 1977; Reynolds & Gutman, 1988). The data collected from the interview were coded and categorized independently by five researchers. The score of inter-rater agreement was 0.737, with a reliability score at 0.933, exceeding the recommended guideline (inter-rater reliability = 0.70) (Perrault & Leigh, 1989) (as shown in Table 2).

Fourthly, systematic Structural Implication Matrix (SIM) enables various value ladders created by the respondents to be recorded numerically as the chains between elements through quantification. After quantified calculation on the frequency of chains among the variables, the results became the basis for the Hierarchical Value Map (HVM) illustration (Reynolds & Gutman, 1988). After processed by means of Content Analysis, the interview data were converted into stratified chain relationships based on the variable classification table.

Finally, HVM was illustrated based on the figures corresponding to items in the SIM and HVM is a summary of the network of chain correlations created from respondents' input on digital educational game. It offers a comprehensive explanation of learners' "Attributes-Consequences-Values" structure (Reynolds & Gutman, 1988). The purpose of setting a cut-off value was to prevent the HVM from becoming overly sophisticated and to ensure that it could present important chains of the highest stability. The eradication of chains below the cutoff value would also ease the process of HVM interpretation (Gengler & Reynolds, 1995). Based on the sample size, the cutoff value for the HVM has been set at 5.

Table 1. Item codes of green products data

Elements	Item		Frequency	%
Attributes	A1	Reusable	68	43.31
	A2	Energy Saving Design	34	21.66
	A3	Eco-Friendly Material	15	9.55
	A4	Natural and Biodegradable	13	8.28
	A5	Alternative Energy	11	7.01
	A6	Exterior Design	8	5.10
	A7	Accreditation Label	4	2.55
	A8	High Efficiency	2	1.27
	A9	Policy Subsidy	2	1.27
Consequences	C1	Reduce Expenses	44	28.03
	C2	Promote Eco-Friendly Awareness	38	24.20
	C3	Promote Physical and Mental Health	29	18.47
	C4	Reduce Energy Consumption	27	17.20
	C5	Protect the Earth	27	17.20
	C6	Time Saving and Convenient	25	15.92
	C7	Reduce Environmental Pollution	24	15.29
	C8	Effective Use of Resources	13	8.28
	C9	Improved Quality of Life	7	4.46
	C10	Improved Aesthetics	6	3.82
Values	V1	Fun and Enjoyment of Life	52	33.12
	V2	Security	28	17.83
	V3	Sense of Accomplishment	26	16.56
	V4	Self-fulfillment	21	13.38
	V5	Sense of Belonging	20	12.74
	V6	Warm Relationships with Others	4	2.55
	V7	Well-respected	3	1.91
	V8	Self-respect	2	1.27

Table 2. Inter-coder reliability

Researcher	A	B	C	E
B	0.704			
C	0.889	0.778		
D	0.815	0.704	0.852	
E	0.667	0.593	0.704	0.667

Average of agreement = (0.704+0.889+0.815+0.667+0.778+0.704+0.593+0.852+0.704+0.667)÷10=0.737

Reliability = (5×0.737)÷(1+(5-1)×0.737)=0.933

3.2 Sample

Purposive Sampling was chosen for the purpose of this study. A total of sixty participants from Taiwan with previous experience in using green products took part in in-depth interviews that were conducted toward the end of 2012. Among the participants, the ratio of male and female participants is 50-50; 86.67% of participants fell in the 20-24 year-old group, 10% over the age of 25 and 3.33% less than the age of 20. 18.33% of participants have undergraduate degree while 81.67% have masters' degrees. 56.67% of participants have over 3 years of experience with green products and 43.33% less than3 years of experience. 63.33% would spend less than US$ 33 per purchase and 36.67% more than US$ 33 per purchase.

4. Results

4.1 Major Route of Green Products

The three major paths reveal the connection of different green product attributes to the terminal values of ***Fun and Enjoyment of Life***, ***Sense of Security, Sense of Accomplishment*** or ***Sense of Belonging*** as illustrated as below.

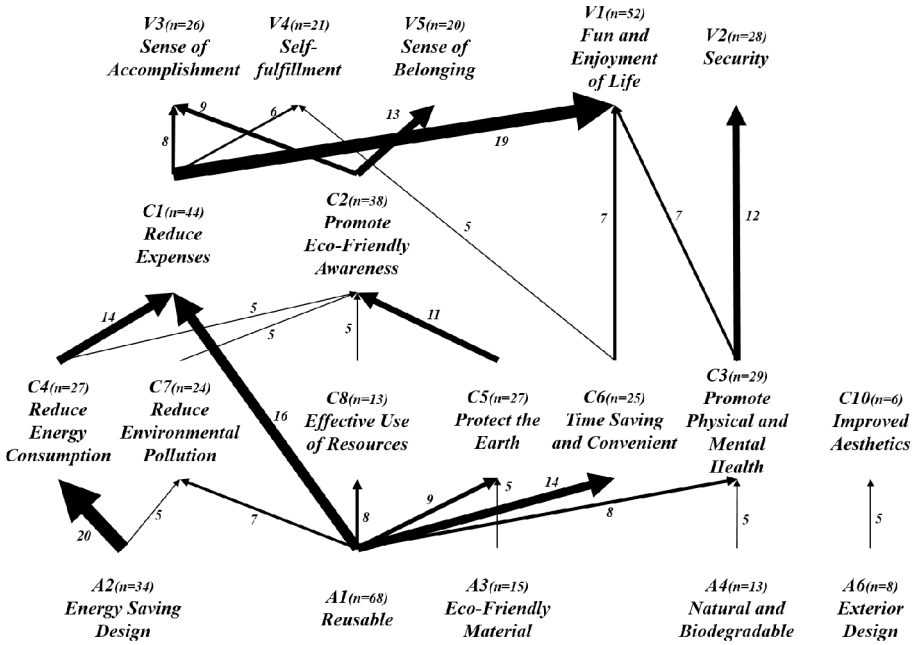

Figure 2. HVM for all green products participants (cut-off level = 5)

4.1.1 Reusable → Reduce Expenses or Time Saving and Convenient → Fun and Enjoyment of Life

Energy Saving Design → Reduce Energy Consumption → Reduce Expenses → Fun and Enjoyment of Life

Reusable is the attribute that consumers are most concerned with because it brings multiple consequences. Due to the attribute of ***Reusable***, green products allow consumers to make fewer purchases and help to ***Reduce Expenses*** and benefit from the result of ***Time Saving and Convenient***. From these consequences, consumers arrive at the terminal value of ***Fun and Enjoyment of Life***. In addition, ***Energy Saving Design*** is another important attribute that consumers value in green products. Since most consumers recognize the fact that one ought to cut down the waste of resources, they believe that ***Energy Saving Design*** helps to ***Reduce Energy Consumption*** (i.e., introducing DC inverter design for air conditioning systems to reduce power consumption; toilets with dual flush mechanisms to conserve water and so forth). Through the process of ***Reducing Energy Consumption***, consumers could ***Reduce Expenses*** by conserving power and water to ultimately benefit from the terminal value of ***Fun and Enjoyment of Life***.

The research found that products that help to reduce expenses or on low-price promotion would stimulate consumers to make purchases (Puri, 1996; Kukar-Kinney & Walters, 2003). However, when green products of inferior quality are sold at higher prices, they would damage the positive feeling that consumers' have for green products (D'Souza et al., 2006). The study suggests manufacturers to focus on pricing and quality to highlight

the reasons that set their products apart from the rest so that consumers would attaining ***Fun and Enjoyment of Life*** from the consequence of ***Reduce Expenses***.

4.1.2 Reusable or Natural and Biodegradable → Promote Physical and Mental Health → Sense of Security

Green products that are ***Reusable*** help consumers cut down on their use of disposable consumables. The majority of consumers believe that, due to manufacturers' wish to reduce costs, disposable consumables are made with inferior raw materials and processes, and they have reservations with such products. On the other hand, consumers also emphasize that green products made with ***Natural and Biodegradable*** materials can be broken down naturally by the natural environment and leave behind less (if any) hazardous substances during the process. Consumers believe that buying green products with these two eco-friendly attributes could protect themselves from the harms of chemical substances, thereby helping to ***Promote Physical and Mental Health*** and offering the value of ***Sense of Security.***

When buying green products, apart from the attribute of ***Reusability,*** consumers also consider ***Natural and Biodegradable*** to be an important factor to consider. The study suggests manufacturers to opt for organic materials that are friendlier towards the environment in the design of green products and reduce the use of hazardous substances such as plastic and heavy metals as much as possible. Laroche et al. (2001) pointed out that green consumers take the maintenance of their relationship with others and ***Sense of Security*** very seriously. By adopting ***Natural and Biodegradable*** materials, manufacturers not only help to mitigate the likelihood of harming consumers' health but also deliver a ***Sense of Security*** at the same time.

4.1.3 Reusable → Protect the Earth or Reduce Environmental Protection or Effective Use of Resources → Promote Eco-Friendly Awareness → Sense of Accomplishment or Sense of Belonging

As previously established, ***Reusable*** green products help to reduce over production of disposable consumables. Consumers believe that over-production is the leading cause that has been rapidly depleting the Earth's resources and gradually disrupting the balance of the natural environment. Furthermore, the carbon molecules (produced from the incomplete combustion of petrochemical fuels) and other pollutants of air (i.e., sulfur compounds, nitrides, photochemical smog, heavy metals and so forth) released into the atmosphere during the manufacturing of non-green products could pose lethal hazards to man (UNEP & WMO, 2011). ***Reusable*** green products not only help to ***Protect the Earth*** and ***Reduce Environmental Protection*** but could also encourage consumers to make ***Effective Use of Resources***. More and more consumers would ***Promote Eco-Friendly Awareness*** to their friends and families whilst being involved in actions to protect the environment. When consumers manage to successfully promote eco-friendly awareness to others, they would get a ***Sense of Accomplishment***. When they ***Promote Eco-Friendly Awareness*** together with their friends and acquaintances, they would get the terminal value of ***Sense of Belonging.***

Past research indicates that cause-related marketing elicits positive response from consumers because it would not only improve consumers' attitude towards the brand but also enhance their positive perception of the brand (Dean, 2003; Grau & Folse, 2007; Lafferty & Goldsmith, 2005; Nan & Heo, 2007). In order to effectively stimulate consumers to pay more attention to green products, the study suggests manufacturers to implement cause-related marketing for the promotion of eco-friendly awareness (i.e., informing consumers that part of the money they spend on the product would be contributed towards the cause of environmental protection or be donated to charitable organizations). Such practice would boost consumers' confidence in corporations (Brønn & Vrioni, 2001) and also increase consumers' inclination to purchase their products (Pracejus & Olsen, 2004).

4.2 Gender Specific HVMs

The study found that although both male and female participants emphasized ***Reusable*** and ***Energy Saving Design***, the two groups desired different consequences – male participants were more concerned about personal gains while female participants demonstrated a higher awareness of environmental protection.

Male participants focus on whether green products are ***Reusable*** because they feel that with ***Reusable*** products, they would not have to make frequent purchases and could therefore ***Reduce Expenses***, which offer a feeling of joy and thereby leading to the terminal value of ***Fun and Enjoyment of Life***. By cutting down expenses, male participants save the money and arrive at multiple values of ***Sense of Accomplishment*** and ***Self-Realization***. The ***Reusable*** attribute could also lead to reduced purchasing opportunities, thereby allowing participants to arrive at the consequence of ***Time Saving and Convenient*** and the terminal value of ***Fun and Enjoyment of Life***. For the male participants, with regards to the attribute of ***Energy Saving Design***, with the costs generated by energy consumption steadily increasing, male participants have become more inclined towards ***Reduced Energy Consumption*** that would lead to ***Reduce Expenses***, thereby benefitting from multiple values.

The research also found that the consequences of ***Reduce Expenses*** and ***Time Saving and Convenient*** shared a relationship of bi-directional influence. Based on this, we may deduce that, male consumers believe reducing costs/expenses lead to more effective/productivity from the use of money, or that the convenience of ***Reusability*** could help them to achieve the goal of cutting down costs. As such, the study suggests service providers to offer services that are cost-saving, rapid and convenient (i.e., expedited delivery service) so that male consumers would be able to acquire their desired products without having to leave their homes and do actual shopping. Alternatively, service providers could also offer discounts for male consumers to pick up the products they have bought themselves. This solution reduces carbon emission created from the process of product delivery and helps male consumers save costs.

In contrast, female consumers place heavier emphasis on the attribute of ***Energy Saving Design***, which would interact with the attribute of ***Reusable*** to achieve specific consequences. For female consumers, they expect to achieve the consequence of ***Reduce Expenses*** through the attributes of ***Reusable*** and ***Energy Saving Design***. After achieving ***Reduce Expenses***, they would benefit from the value of ***Fun and Enjoyment of Life***. In addition, female consumers try to ***Promote Eco-Friendly Awareness*** through two different means – choosing green products with ***Energy Saving Design*** to achieve the consequence of ***Reduced Energy Consumption*** and when female consumers benefit from the consequence, they attempt to ***Promote Eco-Friendly Awareness*** to their friends. On top of that, since the attribute of ***Reusable*** helps to reduce unnecessary manufacturing, female consumers believe that the attribute would indirectly ***Protect the Earth***. As they involve themselves in ***Protecting the Earth***, they would try to ***Promote Eco-Friendly Awareness*** among their friends. The consequence of ***Promote Eco-Friendly Awareness*** would bring the terminal values of ***Sense of Accomplishment*** and ***Sense of Belonging*** to female consumers.

Compared to men, women are typically more skilled in communication and more willing to exchange information on their personal preferences and hobbies. Female consumers are more likely to take the initiative to share or impart their personal shopping experiences and thoughts on various product usage (Barletta, 2007). Therefore, the study suggests that businesses wishing to target specific female consumer demographics adopt buzz marketing for the promotion of green products and emphasize on the theme of ***Protect the Earth*** so that female consumers could take part in spreading the buzz to achieve the consequence of ***Promote Eco-Friendly Awareness***. Through the strength of word-of-the-mouth marketing, businesses may stimulate the sales and distribution of green products to create a win-win situation with female consumers.

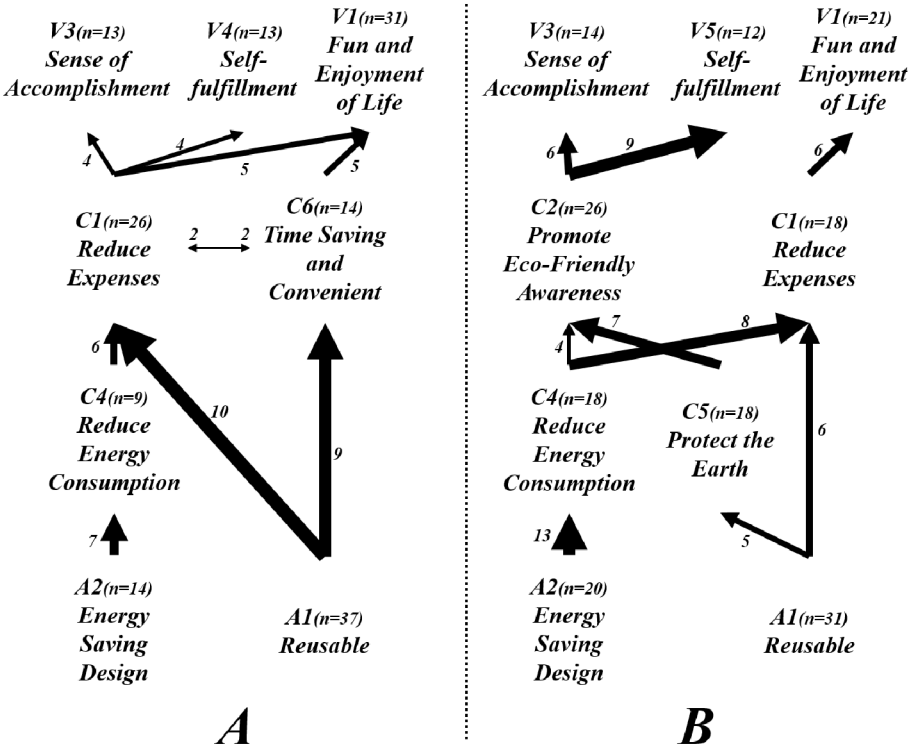

Figure 3. A: HVM for male participants; B: HVM for female participants (cut-off level = top-3)

4.3 Buying Experience Specific HVMs

In this research, participants were divided into two different groups based on their duration of experience with green products (with 3 years as the dividing point). Results of the study revealed that participants in both groups showed understanding and perception of ***Protect the Earth*** and ***Promote Eco-Friendly Awareness***. However, participants with over 3 years of experience demonstrated more understanding of environment and health concepts. Participants in this group also demonstrated more noticeable objective-orientation in their selection of green products.

With regards to ***Energy Saving Design***, consumers aim to ***Reduce Expenses*** through the consequence of ***Reduced Energy Consumption*** and arrive at the values of ***Fun and Enjoyment of Life*** and ***Sense of Accomplishment***. From the attribute of ***Reusable***, in addition to getting the consequence of ***Reduce Expenses***, consumers also expect the consequences of ***Reduce Environmental Pollution*** and ***Promote Physical and Mental Health***. They believe that ***Reusable*** green products not only help to ***Reduce Environmental Pollution*** by reducing the generation of waste but also help to create ideal environments that ***Promote Physical and Mental Health***. This allows consumers to benefit from the value of ***Fun and Enjoyment of Life***. In addition, consumers place significant emphasis on the attribute of ***Natural and Biodegradable*** because they believe that natural materials are more easily decomposed and broken down in natural environments, thereby offering the result of ***Protecting the Earth***. On the other hand, they would refer to the characteristics and effects of green products as the basis for buzz dissemination in order to ***Promote Eco-Friendly Awareness*** to the public, and in turn, arrive at the terminal value of ***Sense of Belonging***.

Since participants with over 3 years of experience place special emphasis on the attribute of ***Natural and Biodegradable***, they make it a point to buy green products with this attribute. The study suggests businesses to adopt ***Natural and Biodegradable*** as the principle element of product manufacturing and use it as the strategy for marketing promotion. This can be done in different ways, such as identifying raw materials and ingredients used on the product packaging/label or present the process of the product's natural decomposition in commercials. These serve as effective ways for consumers to receive relevant information on ***Natural and Biodegradable***, which prompt them to start buzz marketing after having used the product in question.

In contrast, participants with less than 3 years of experience focused more on the attribute of ***Reusable***, as most consumers agree with the notion that sustainable development of Earth and natural environment should begin from reducing the generation of waste. The consequence of ***Reduced Energy Consumption*** brought about by the attribute of ***Energy Saving Design*** and the consequence of ***Protect the Earth***, from the attribute of ***Reusable*** would both prompt consumers to further ***Promote Eco-Friendly Awareness*** to their friends and thus allowing them to arrive at the terminal value of ***Sense of Belonging***. In addition, participants in this group also felt that ***Energy Saving Design*** enables energy to be sufficiently and adequately utilized, thereby achieving more significant ***Reduction of Energy Consumption*** compared to non-green products. On the other hand, the attribute of ***Reusable*** raises consumer usage frequency of green products, effectively cutting down on their consumption of non-green products. Therefore, the concept of reducing waste would help consumers to ***Reduce Expenses*** and thus offer the value of ***Fun and Enjoyment of Life***.

Since consumers with less than 3 years of experience emphasize the attribute of ***Reusable*** in their consideration of green product purchasing. The study suggests product manufacturers to design merchandize that allow for multiple purposes or integrate multiple products of different functionalities into one so that consumers would be more inclined to choose and use green products. It would be safe to assume that multi-purpose green products not only enable consumers to benefit from the consequences of ***Reduce Expenses*** and ***Time Saving and Convenient*** but also allow them to achieve the results of ***Protect the Earth*** and ***Promote Eco-Friendly Awareness***.

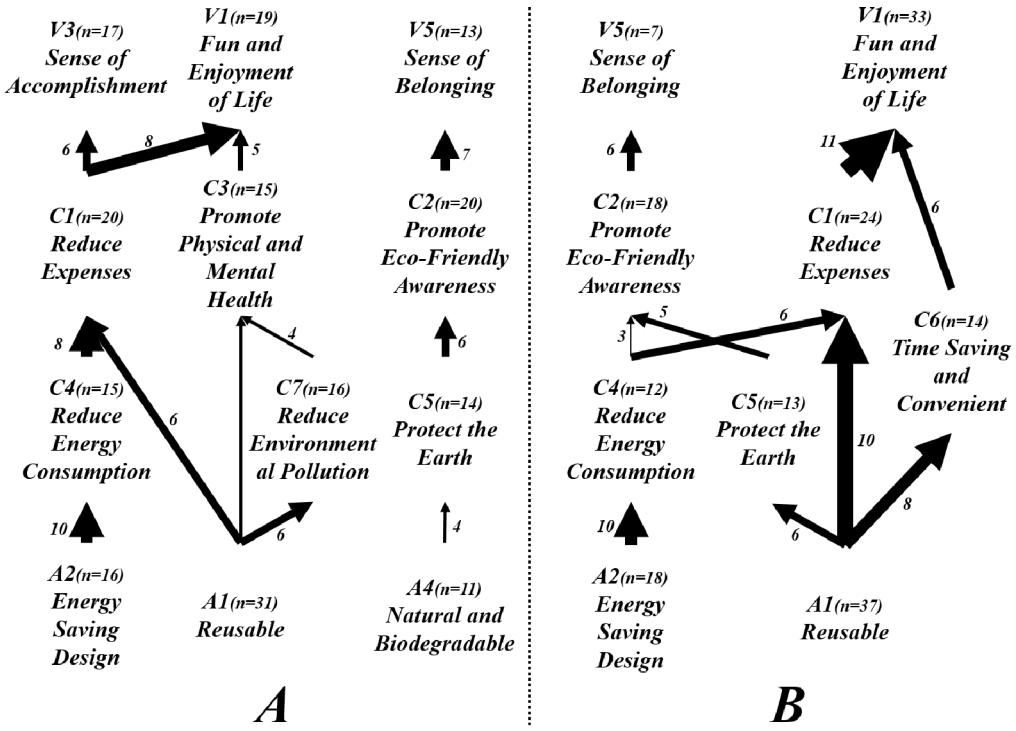

Figure 4. A: over 3 years of experience participants; B: less than 3 years of experience participants (cut-off level = top-3)

5. Conclusions and Implications

5.1 Conclusions

Results of the study showed that green products can be divided into three categories in terms of consumer behavior. The first category is the awareness of actions for environmental protection: the attributes of ***Reusable*** and ***Eco-Friendly Material*** that green products demonstrate bring desirable consequences, such as ***Protect the Earth***, ***Reduce Environmental Pollution*** and ***Effective Use of Resources***. When consumers achieve the aforementioned consequences, they are able to ***Promote Eco-Friendly Awareness*** and ultimately arrive at the values of ***Sense of Accomplishment*** and ***Sense of Belonging***. The second category is the awareness for the pursuit of interests: consumers believe that green products' attribute of ***Energy Saving Design*** bring ***Reduced Energy Consumption*** and thereby enable them to ***Reduce Expenses***. ***Reusable*** green products not only help to ***Reduce Expenses*** but also bring the consequence of ***Time Saving and Convenient***. From the aforementioned consequences, consumers could pursue the terminal value of ***Fun and Enjoyment of Life***. The third and final category is the awareness for health and safety. Consumers believe that the ***Natural and Biodegradable*** ingredient/material of green products pose no threat to the human body, and associate the attribute to the consequence of ***Promote Physical and Mental Health*** and arrive at the terminal value of ***Sense of Security***.

The research took one further step to discuss the discrepancies between consumers of different genders and different experiences and found that male consumers emphasized more on personal gains while female consumers demonstrated higher awareness for environmental protection. Past research points out that men are typically better informed in terms of technological knowledge and are therefore more objective-oriented (Wirtz & Chew, 2002). In contrast, women tend to abide by social norms (Venkatesh & Morris, 2000) and are better skilled in the expression of their emotions as they are process-oriented (Venkatesh, Morris, & Ackerman, 2000). In this study, we found the path constructed by male participants to be in fact objective-oriented as they pursued consequences of personal interests such as ***Reduced Energy Consumption***, ***Reduce Expenses*** and ***Time Saving and Convenient***. On the other hand, female participants create multiple paths that reflected their awareness for environmental protection through their use of green products. On a related note, the study also discovered that consumption experience would actually affect consumers' decision when purchasing green products. As different lifestyles lead to varying degrees of impact on green consumption, consumers would naturally go for products that pose the least impact on the environment in an effort to minimize damages to the environment (Peattie,

2001). Consumers with over 3 years of experience place special emphasis on the attribute of ***Natural and Biodegradable*** and the consequences of ***Reduce Environmental Pollution*** and ***Promote Physical and Mental Health***. Furthermore, the study also found that in addition to having established the awareness for environmental protection, consumers with over 3 years of experience also demonstrate concepts of ***Reduce Environmental Pollution*** and ***Promote Physical and Mental Health***. In contrast, consumers with less than 3 years of experience would still be in the process of fostering the awareness for environmental protection. As such, they have taken less concrete actions to contribute towards environmental protection.

As for the path of good ***Exterior Design*** leading to ***Improved Aesthetics***, the connection was not significant in its link to the terminal value. It could be possible that since consumers derive different values from ***Improved Aesthetics,*** the connection has not been concentrated in the value path. At the same time, it also revealed the fact that consumers emphasize more on eco-friendly attributes of green products than the ***Exterior Design*** of products. Despite the fact that ***Sources of Alternative Energy*** (such solar power, thermal energy) could possibly replace the traditional petroleum energy, the significantly higher costs of construction for such energies have caused consumers to perceive them as not really feasible. Shen and Saijo (2009) pointed out that the use of eco-friendly labels could facilitate the delivery of information between consumers and product manufacturers. However, although green products with ***Accreditation Label*** offer superior quality and more eco-friendly processes, their relatively higher costs have also turned consumers away. As for the attribute of ***High Efficiency***, although most manufacturers have significantly improved the efficiency of green product component functions, most consumers are still of the opinion that improved efficiency requires significant consumption of energy. On a related note, although the government has offered a ***Policy Subsidy*** for green products, the scope of such subsidies remains limited because only specific industries are qualified for the subsidies. As such, only limited consumers would actually benefit from such subsidies.

5.2 Policy and Pedagogical Implications

Addressing the issue of global warming has become an important part of administration for governments around the world. In addition to the promotion of carbon reduction through various international organizations, governments have also sought to address global warming through policy disseminations and educating the general populace. In this study, we found that green products' attribute of ***Reusable*** could bring multiple consequences including ***Reduce Expenses***, ***Promote Physical and Mental Health***, ***Protect the Earth***, ***Time Saving and Convenient***, ***Reduce Environmental Pollution*** and ***Effective Use of Resources.*** The attribute also indirectly drives consumers to engage in the ***Promotion of Eco-Friendly Awareness***. Hawkins, Best and Coney (2003) maintained that different lifestyles affect the decision-making process of purchasing through consumers' needs and attitudes and as consumers gain experience from their purchasing decisions, and the experience affect their lifestyle. Governments could work on helping the general public to adopt lifestyles that encourage the reuse of resources and reduction of waste. For example, the competent authorities could disseminate suggestions on creativities in our day-to-day lives so that the general public could utilize their creative thoughts to achieve more effective reuse of resources available. Alternatively, governments could also implement long-running dissemination to educate the public regarding the advantages of using green products, thereby helping them to adopt green lifestyles. Educational scenarios are one of the pre-requisites to achieving successful education in environmental protection (May, 2000). Thus, the study suggests that concepts of resource reuse and reduction of waste be included in the natural science syllabus for elementary education. Teachers could also attempt to impart the importance of environmental protection from the perspective of global environments and create opportunities for learners to personally experience the advantages of using green products. Doing so would not only help learners to foster their awareness for environmental protection at an early age but also enable them to develop their sense of civic responsibilities.

Energy Saving Design leads to consequences including ***Reduced Energy Consumption*** and ***Reduce Environmental Pollution***; it also helps consumers to ***Reduce Expenses***. Barker and Erickson (2005) pointed out in his study that the design and application of technology serve pivotal functions in driving the global economy, and Technology Roadmap allows interested parties to better understand the direction of new technological developments for future deployments. The study suggests governments work together with the private sector to jointly develop a Technology Roadmap for green products and adopt the roadmap as guiding principles for relevant visions and developments. In addition, governments could also devote more resources to the promotion of green products that are beneficial to the environment (i.e., funding corporations to develop green products with ***Energy Saving Design*** in order to reduce ineffective energy consumption that would lead to the generation of carbon dioxide). In addition, Koester, Eflin and Vann (2006) proposed that school and campus environments could in fact serve as tools for environmental education. In order to allow learners to fully understand and

appreciate the benefits of using green products, schools could gradually replace their outdated equipment with green products that feature ***Energy Saving Design*** as their primary objective for facility renewal. Doing so would not only allow campuses to take concrete actions towards environmental protection but also help learners to foster new concepts of energy saving lifestyles.

Eco-Friendly Material and ***Natural and Biodegradable*** materials bring the consequences of ***Protect the Earth*** and ***Promote Physical and Mental Health***. As it stands, population growth and consumption are the leading causes of ecological destructions and environmental crises that we face today (Kates, 2000). Since population growth is an inevitable trend, consumers must change their consumption habits in order to mitigate the constant damages and destruction mankind has done to the Earth. The government ought to encourage private businesses to produce green products that are environmentally friendly and encourage the general public to use such products. At the same time, the government should also take coercive actions (i.e., raising the penalties or revoking licenses of operation) on businesses that have been found to have been responsible for harming the environment. In terms of education, the study also suggests schools to include courses that teach learners to recognize ***Eco-Friendly Material*** and ingredients while enhancing learners' awareness for health. This would help learners to benefit from the values of ***Sense of Security*** and ***Fun and Enjoyment of Life***.

In summary, the government could help the general public in the pursuit for low-carbon, green lifestyles and work towards creating sustainable green environments through means of shaping green lifestyles, adopting technology roadmap for green products and taking coercive actions when deemed necessary.

5.3 Managerial Implications

Participants of different genders showed different expectations from green products' attributes of ***Reusable*** and ***Energy Saving Design***. The study found that male participants have created value paths that were formed from objective-oriented connections and this suggests that male participants are more inclined towards rational thinking. In contrast, female participants are process-oriented and have created multiple connections in their value paths, making them more inclined towards emotional thinking. In other words, advertisements that emphasize rational/emotional thinking (Heath, Brandt, & Nairn, 2006) should be effective in stimulating consumers of different genders. The study suggests that for male consumers, advertisements should emphasize results of ***Reduce Expenses*** and ***Time Saving and Convenient*** to appeal to their model of rational thinking. On the other hand, commercials that invoke viewers' sentiments with humanity or shaping image (Well, Moriarty, & Burnett, 2005) should be more effective on female consumers if advertisers include information on ***Reduced Energy Consumption*** and ***Protect the Earth***.

For consumers with over 3 years of experience, their value chains have shown clear and simple paths towards target values. This indicates that consumers in this group have a clear grasp of what they want from products. Therefore, when targeting these consumers, businesses could offer customizable solutions in order to offer products/services created specifically for target consumers. For important customers, businesses could also deliver information on the exceptional value that their customers are getting in their value chain (Goodrich & Aiman-Smith, 2007). As for consumers with less than 3 years of experience, their value paths with multiple connections revealed their lack of familiarity with green products. Therefore, the study suggests businesses to help consumers cultivate specific product knowledge so that consumers could build their self-knowledge.

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Appendix A

Implication matrix of Green Products

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	V1	V2	V3	V4	V5	V6	V7	V8	Total
A1	16:02	3:14	8:03	3:00	9:00	14:04	7:02	8:00	0:03		0:21	0:11	0:12	0:10	0:10	0:02	0:02		68:96
A2	3:12	1:07	0:01	20:01	2:02	1:00	5:01	1:00	0:01	1:00	0:11	0:07	0:05	0:06	0:03		0:01	0:01	34:59
A3	1:00	2:03	3:02		5:00	1:00	1:01	2:01			0:06	0:02	0:03	0:02	0:01	0:01			15:22
A4	0:01	0:01	5:01	1:00	4:00	0:01	3:01		0:02		0:02	0:03		0:02	0:04	0:01		0:01	13:20
A5	3:01	0:04	1:00	1:00	4:00	1:01	1:01				0:04	0:03	0:01	0:01	0:02				11:18
A6			1:04		1:00	1:01				5:00	0:05	0:02	0:01						8:13
A7	2:01	0:02		1:00			1:00				0:01		0:03						4:07
A8	0:01							1:00	1:00		0:02								2:03
A9	1:00	1:00											0:02						2:02
C1		2:00				3:00			1:00		19:02	3:00	8:03	6:00		0:01	1:00	1:00	44:06
C2			1:00	1:00							4:00	3:01	9:00	3:01	13:00	3:00	1:00		38:02
C3		2:00				3:00					7:02	12:00	0:01	4:00		0:02		1:00	29:05
C4	14:00	5:01			1:01		1:00				1:10	2:03	2:03	1:02	0:03				27:23
C5		11:00	2:03				4:00	1:00	2:01		2:05	1:06	1:02	0:01	2:06		1:00		27:24
C6	2:00	1:00	2:00								7:02	4:00	3:01	5:02		1:00			25:05
C7	1:00	5:00	4:00		1:00				3:00		2:05	2:01	1:02	1:02	4:03		0:01		24:14
C8	1:00	5:00	1:00				1:00				3:02	0:01	1:01	0:01	1:03				13:08
C9											4:00	1:00	1:00	1:00					7:00
C10			1:01			1:00					3:02		1:00						6:03
Total	44:18	38:32	29:15	27:01	27:03	25:07	24:06	13:01	7:07	6:00	52:82	28:40	26:39	21:30	20:35	4:07	3:04	2:02	397:330