

## FACTORS AFFECTING DESIRE TO BUY ENVIRONMENTAL FRIENDLY PRODUCTS

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### *Abstract*

This research examines factors which are mentioned in various literatures to have influence on desire to buy environmental friendly products. The factors are perceived attributes, personal characteristics and external factors. In this study the factors are put into a model which follows through awareness, interest and desire to buy and was also further analyze. Analysis was carried out using Structural Equation Modelling. This research found that external factor have influenced the desire to buy environmental friendly product. This factor is much more important than that of personal characteristic and perceived attributes.

Keywords: environmental friendly products, green marketing

### *Abstrak*

Penelitian ini menguji faktor-faktor yang berdasarkan literatur memengaruhi minat membeli produk ramah lingkungan, Faktor-faktor tersebut adalah persepsi atribut, karakteristik personal dan faktor eksternal. Dalam penelitian ini dikembangkan suatu model keterkaitan antar faktor-faktor tersebut melewati *awareness*, *interest* dan *desire* untuk membeli dan kemudian dianalisis lebih jauh. Analisis tersebut menggunakan *Structural Equation Modelling*, dan ditemukan bahwa faktor eksternal memengaruhi *desire* untuk membeli produk ramah lingkungan. Pengaruh ini lebih besar dibanding faktor-faktor lainnya dari karakteristik personal dan persepsi atribut.

Kata kunci: environmental friendly products, green marketing

JEL Classification: M0, M31, M37

### 1. Introduction

Green marketplaces are developing in many parts of the world, and green producers and retailers have emerged. But, how then, should companies handle the dilemmas associated with green marketing with consumers are unlikely to compromise on traditional product attributes, such as convenience, availability, price, quality and performance (Ginsberg and Bloom, 2004).

As a developing country Indonesia has grown its economy with a growing demand for energy and up to now households still enjoy subsidized electricity tariff. For the last five years there has been strong pressure for the implementation of demand side management through the use of energy efficient equipment, as the government is considering to slowly revoking the subsidy in the wake of strong international oil prices. Utilization of energy efficient equipment in millions of household in Indonesia will reduce not only the rate of growth for electricity subsidy,



but also will reduce the growing demand for electricity generated from coal fired power plant from most of the island power generation which consequently reducing their CO<sub>2</sub> emission rate. Many NGO's, researchers and public officials have called people to engage in pro environmental behaviors.

One significant way of meeting such calls will involve behavior as consumers, where Indonesia consumers now have the option of switching from conventional products to energy-efficient or Environmental Friendly Products (EFP). Many researchers believe the green market in the world and in Indonesia will grow and mature, evolving the rules of engagement even further. Obviously there will be significant opportunities to grow sales and revenue and increase market share among the fast-growing numbers of green consumers. It will also stimulate innovation, and the ability to enhance corporate reputation (Ottman, 2011). While green options are becoming more widely available, there are still many barriers to make it a popular choice.

A successful utilization of energy efficient products as one of EFP, will need a suitable program and marketing strategy which influence the desire to buy. To support EFP success in Indonesian market, it is then required to know factors that should be taken more attention, and how their relationship can be put in a model.

Environmental friendly products which include energy efficient products can be categorized as product innovation. It needs careful attention to many factors which influence and support its acceptances in marketplace i.e. the product attributes, personal characteristics of consumer, promotional effort, availability of environmental policy and many others. Government and private companies will need some guidance to promote the utilization of energy efficient household electronics and electrical appliances which in the case of Indonesia will produce less carbon for their need of energy. Therefore research objectives are as follows:

- a) To analyze factors influence the desire to buy environmental friendly products.
- b) To examine the hierarchy of effect model i.e. AIDA model in relation to promote the desire to buy environmental friendly products.
- c) To analyze main factors for marketing strategy and program for environmental friendly products to Indonesian consumers.

## 2. Literature Review

Green consumer is defined as individual that wants and knows how to satisfy his or her needs in the everyday life causing as little as possible impact on the environment (Peattie, 1995). The development from the early research from the 70's to the 90's focused predominantly on profiling the green consumer, conceptualization of environmental consciousness, environmentally related behaviors such as recycling, and attitudes towards environmental problems such as pollution. After that there were a period in which energy conservation, legislation, and public policy issues more dominant. The research focus was expanded again to include environmental values and institutions, including issues of sustainable marketing and its relationship to the dominant social paradigm (Kilbourne and Beckman, 1998). Finding the right green marketing strategy and programmes have gained increasing popularity in many economies, because there are increasing commitments on tackling problems associated with the impact of economic activity on the environment (Meriläinen, et al., 2000).

Research about the identity and nature of the green consumer has been the central character in the development of green marketing, as businesses attempt to understand and respond to external pressures to improve their environmental performance. Marketing practitioners and academics are attempting to identify and understand green consumers and their needs, and to develop market offerings that meet these needs. It is not very easy to understand green consumption and to prepare green marketing, because it is not as simply a variation on conventional marketing (Peattie, K., 2001). Many studies have tried to explore demographic, socio-demographic and psychographic to define green market-segments (Straughan and Roberts,



1999; Laroche et al., 2001). However, there are some doubts about these predictors, and are still controversial (Kilbourne et al., 1998). Results indicated that socio-demographics are associated with environmental consciousness, attitude and behaviour, but their explanatory power is weak. Thus, there is limited utility in the use of socio-demographic characteristics for profiling environmentally conscious consumers (Dimantopoulus, et al., 2003). Besides these studies on green market segmentation, another significant number of research papers seek to apply cognitive models in order to predict green consumer behavior. But it has also produced weak relationships (Mainieri et al., 1997). Study by Mintel (2006) also found that despite pro-environmental attitudes, intention to recycle, concern about car pollution and willingness to pay more for environmentally-friendly products, few consumers translated these attitudes into regular green buying behavior. These inconclusive results therefore put the challenge for researchers and green marketers who try to correctly identify the green consumer segment.

Meanwhile there is a widely-used model in marketing that attempts to explain consumer decision making process and it is called the *hierarchy of effects model*. Literature reviews reveal there are many hierarchies of effects' models. There are different researchers that developed different models, but many of them formed the same basic idea: there is a sequence of psychological stages before purchasing a product by the people. Also many of these were developed by researchers on personal selling and also adopted by advertising researchers and practitioners. One quite popular model is commonly known with the acronym AIDA, standing for awareness-interest-desire-action. This model was developed in early 20th century, and its popularity still remain until now. It is one of the many models of marketing communications based on a hierarchy of effects because, simplistically, it is assumed that learning about a product will lead to feelings about the product that result in the purchase of the product. It is a learn feel buy model of consumer reactions to communications. AIDA model has also widely been accepted as an adoption decision model (Engel et al., 1995).

### 3. Research Method

#### 3.1. Sample

Samples were taken from Jakarta province household using multistage random sampling. Jakarta was chosen because of specific reason i.e. the availability of information on EFP. Stages in random sampling were taken start from Jakarta region (Central, South, West, North, and East) and exclude the Thousand Island regency. From each region according to the population a number of Kecamatan's were taken randomly, and from each Kecamatan, a Kelurahan (district) and then a Rukun Warga (RW) and Rukun Tetangga (RT) were taken randomly as well. From each Rukun Tetangga 15 households were taken randomly. There were 403 households sample agreed to participate in the study. Some brief explanation was given to the respondent about purpose of the research before interview using a prepared questioner.

#### 3.2. Data Collection

Data were collected from a survey Interview in June 2011. A set of questionnaire was prepared, which consists of two sections. The first part records the respondents' demographic data and the second part contains 3 sections. Section 1, consist of 7 questions on awareness, 10 questions on interest and 9 questions on respondent desire to buy and utilize environmental friendly TV. Section 2 consist questions related to personal characteristics of respondent. Section 3 consist of questions regarding the external factors that might affect their decision to buy and utilize EFP. Section 4 consists of questions related to perceived attributes (Rogers, 2003). There are 4 questions related to relative advantage, 3 questions on product complexity, 2 questions each for product compatibility, trialability and observeability. All items in those section 1 to 4 were measured using five point Likert scale items with anchor points 1 = strongly disagree and 5 = strongly agree.



### 3.3. Analysis

Structural Equation Modelling (SEM) was selected because some of the factors influencing the desire to buy EFP cannot be directly observed, but can be considered latent variables. Also SEM would allow analyzing simultaneously the relationship between dependent and independent variables in the model (Hair et al., 1998). The software used was LISREL 8.5.1. SEM was employed for *Confirmatory Factor Analysis* (CFA) and testing models overall vs Individual coefficients. SEM can reduce measurement error.

## 4. Result and Discussion

### 4.1. Demographic Profile

Sixty two percent of the respondents were female, and the average age of the respondents was 37 years. About seventy two percent of respondent has their family monthly expenditure about Rp3,500,000 per month, and only 5% has their monthly expenditure over Rp5,000,000. Only twenty one point four % of the respondent has college degree or better, and sixty point seven percents has been graduated from high school only. 40% of respondent has their occupation as housewives, which is quite common in Indonesia if the survey is carried out to household. While the remaining respondent work as clerk or running informal business.

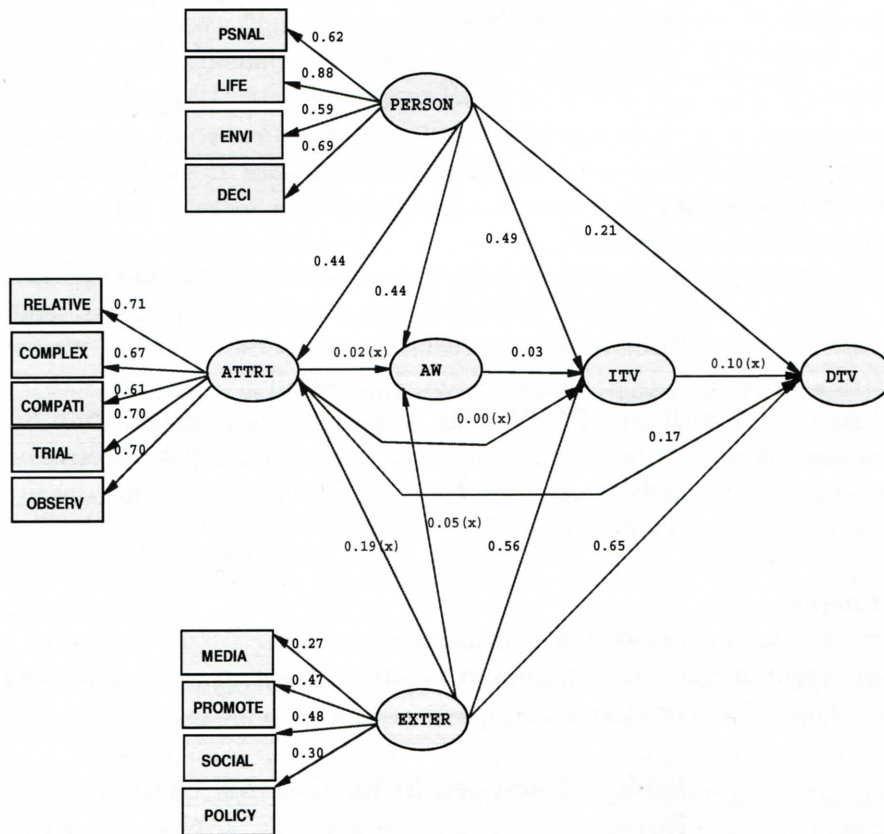
### 4.2. Estimated Model

To get a better understanding about the influence and association of many factors to desire to buy EFP, the model developed refer to Rogers (2003), AIDA model, and literatures namely Laroche et al. (2001) and Schlegelmich et al. (1996). Those variables analyzed were Perceived Attributes (ATTRI), External factors (EXTER), Personal Characteristics (PERSON), Awareness (AW), Interest (ITV) and Desire (DTV). Figure 1 shows the relationship among variables.

Perceived attributes variables measure the relative advantage (RELATIVE), Complexity (COMPLEX), Compatibility (COMPATI), Trialability (TRIAL) and Observeability (OBSERV). External factors variables measure the Media utilization (MEDIA), Change agent promotion (PROMOTE), Social Interaction (SOCIAL), and Environmental policy (POLICY). Personal Characteristics variables measure Personality (PSNL), Life Style (LIFE), Environmental Knowledge (ENVI) and Decision making pattern (DECI). The structural coefficients in the model have been estimated using procedure with the computer software. Figure 1 presents the standardized parameter estimates for the structural model, and the T test result. Standardized structural coefficients estimates are used to compare the relative importance of the independent variables. The results indicate that not all the t-values for the standardized coefficients are above the 1.96 threshold. Those with (x) after the coefficients with t-values are not meeting these criteria.

Model was tested for its goodness of fit using two statistical tests which are Chi-square ( $\chi^2$ ) and Root Mean Square Error of Approximation (RMSEA). Model is acceptable if P-Value (from  $\chi^2$  test) at least over 0.05 or RSMEA value is less than 0.08. Statistical analysis resulted P-Value = 0.000 and RMSEA = 0.016. So, overall the empirical model was accepted as meeting the criteria required (Hair et al., 1998).





Chi-Square=579.43, df=90, P-value=0.00000, RMSEA=0.016

**Figure 1. Estimated Model Desire for Environmental Friendly Products**

#### 4.3. Perceived Attributes

An innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption. How the adopter perceived characteristics of the innovation has impacts on the process of adoption Rogers (2003). The elements of the theory related to how an innovation is perceived based on its relative advantage, compatibility, complexity, trialability, and observability. Rogers (2003) theory of perceived attributes takes into account the notion of relative advantage, which is defined as —the degree to which an innovation is perceived as being better than the idea that it supersedes. Furthermore, the advantages are not those dictated by the producers, but those as perceived by the individual. Relative advantage can be measured in economic terms, social prestige, convenience, satisfaction. Rogers defines compatibility as the degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters. Any innovation quickly gains a reputation as to its ease or difficulty of use, being classified on the complexity-simplicity continuum. An important characteristic of an innovation is the ability of end users to experiment with it, or use it on a trial basis (Rogers, 2003). A trial period for an innovation helps potential adopters answer their own questions about how an innovation might work in their particular situation. New ideas that can be tested for a limited time are generally adopted more rapidly than innovations that are not divisible. The fifth aspect of Rogers' theory of perceived attributes is related to the degree to



which the results of an innovation are visible to others. In this study the model tested by using TV as the electronic consumer goods for response on EFP available in Indonesian market.

**Table 1. T-test result for Perceived Attributes**

No	Factors	Coeff	t value	Result *
1	Relative Advantage (RELATIVE)	0.71	10.00	Significant
2	Complexity (COMPLEX)	0.67	11.69	Significant
3	Compatibility (COMPATI)	0.61	9.65	Significant
4	Triability (TRIAL)	0.70	10.50	Significant
5	Observeability (OBSERVE)	0.70	10.92	Significant

\* = t test of significance result at  $\alpha = 0.05$  where t value above 1.96 is considered statistically significant.

In figure 1 above, it can be seen that relative advantage (RELATIVE) has a coefficient of 0.71, highest among other factor. Meanwhile trialability (TRIAL) and observeability (OBSERVE) each has a coefficient almost reaching the same value as relative advantage, at 0.70. Results from t-test of significance in Table 1 show all five factors statistically significant for influencing perceived attribute of EFP. This result follows generalization by Rogers (2003). One of the strongest indicators for relative advantage is efficiency in electricity cost which can be achieved immediately in daily operation. This is called as economic benefit (Rogers, 2003), with a direct impact after it is installed.

#### 4.4. External Factors

There are external factors that will influence consumer desire to buy or adopt EFP. One factor in change agent success is the amount of effort spent in communication activities with clients (Rogers, 2003), this will increase adoption of EFP.

**Table 2. T-test results for External Factors**

No	Factors	Coeff	t value	Result *
1	Media Selection (MEDIA)	0.27	8.85	Significant
2	Change Agent Promotion (PROMOTE)	0.47	12.91	Significant
3	Social Interaction (SOCIAL)	0.48	9.01	Significant
4	Decision Making (POLICY)	0.30	5.54	Significant

\* = t test of significance result at  $\alpha = 0.05$  where t value above 1.96 is considered statistically significant.

Media selection for conveying message on green products utilization will influence the rate of adoption (Rogers, 2003). Social Interaction is reciprocal relationship which can influence each other between consumers; information will also flow through this method. Environmental policy from the authorities will affect the consumers, through its program which affect the daily life.

Result from the estimated model in Figure 1 above has shown that the most dominant factors affecting the external factor variables were social interaction (SOCIAL) and promotion of change agent (PROMO) with each carrying a coefficient of 0.30 and 0.27. Results from t-test of significance in Table 2 shows all four factors statistically significant for influencing perceived attribute of EFP. The results show that effort from change agent with good communication using advertising media will bring success to increase desire to buy EFP (DTV). Change agent promotion will be needed mainly during the early stage of knowledge stage (Rogers, 2003). Environmental policy (POLICY) has its influence on external factors affecting mainly on interest and desire, although this is lower compare to other factors.



4.5. Personal Characteristics

Purchase decisions vary between individuals because of unique characteristics possessed by each individual. In this research personal characteristic factors were analyzed, which include Lifestyle (LIFE), Personality (PSNAL), Decision making process (DECI), and environmental knowledge (ENVI). Lifestyle is a popular concept for understanding consumer behavior, perhaps because it is more contemporary than personality and more comprehensive than values (Engel et al., 1995). Life style and personality construct have been quite popular in many consumer researches (Laroche et al., 2001; Straughan and Roberts, 1999) have tried to explain this factor. Also many researches on personal characteristics affect intention and behaviors to buy green products were conducted such as from Schlegelmich et al. (2001) and Kim (2002). Also researchers have tried to identify psychographic correlates of green attitudes and behaviors. Though these studies have not investigated psychographic variables in as exhaustive a manner as the research into demographics, they do provide some interesting insights into the nature of the green consumer (Straughan and Roberts, 1999).

Table 3. T-test results for Personal Characteristics

No	Factors	Coeff	t value	Result *
1	Personality (PSNL)	0.62	13.07	Significant
2	Lifestyle (LIFE)	0.88	21.66	Significant
3	Environmental Knowledge (ENVI)	0.69	12.39	Significant
4	Decision Making (DECI)	0.59	15.49	Significant

\* = t test of significance result at  $\alpha = 0,05$  where t value above 1,96 is considered statistically significant.

Result has shown personal characteristic (PERSON) affected by lifestyle (LIFE) with coefficient at 0.88. While decision making (DECI) coefficient is 0.69; personality (PSNAL) 0.62 and environmental knowledge (ENVI) 0.59. All t-test of significance in Table 3 resulted all factors were significant well over 1.96 for  $\alpha = 0.05$ . This is consistent with many studies in which lifestyles were found to be excellent predictors. It means that consumers who try to follow green lifestyle tend to have more desire to buy EFP.

4.6. Awareness, Interest and Desire Model

Result in figure 1 show that personal characteristics (PERSON) to Awareness (AW) have the highest coefficient (0.44). Result from t-test presented in Table 4 shows personal characteristics was the only factor variable significant to awareness (AW). Interest (ITV) was more affected by external factors (0.65) although personal characteristics (PERSON) and perceived attributes (ATTRI) were also significant. Desire (DTV) was also affected more by external factors (EXTER) with coefficient 0.65, while interest (ITV) was not statistically significant in affecting Desire (DTV).

There is a direct influence from perceived attributes to desire, not through stages from awareness and Interest. This result gives an interesting position of EFP with its attributes which can immediately gain desire and later intention to buy from the consumers if it is attributes combination can satisfy their need. External factors have a direct influence affecting interest and desire. Meanwhile personal characteristics variables are all significant but its indirect influence can only through perceived attributes.

In AIDA concept decision making to buy a product is a process following a hierarchy. This start with the awareness of consumer that the product is exists. A combination of some of the factors will make consumer go to the next stage (Interest). In this stage consumer will investigate and try to gain more knowledge about the products (EFP) and what so special about it. A strong interest will lead to Desire and consequently behavior (action) to buy EFP according to their needs.



This stages in Awareness Interest and Desire in estimated model can show there is significantly affected by some of the factors. Where it shows also which dominant factors affect each stages.

**Table 4. T-test results for Estimated Model**

No	Path	Coeff	t value	Result *
1	PERSON → ATTRI	0,44	5,99	Significant
2	PERSON → AW	0,44	5,67	Significant
3	PERSON → ITV	0,49	6,37	Significant
4	PERSON → DTV	0,21	6,26	Significant
5	ATTRI → AW	0,02 (x)	0,20	Not sig.
6	ATTRI → ITV	0,00 (x)	1,66	Not sig.
7	ATTRI → DTV	0,17	1,99	Significant
9	EXTER → ATTRI	0,19 (x)	0,20	Not sig.
10	EXTER → AW	0,05 (x)	0,56	Not sig.
11	EXTER → ITV	0,56	5,97	Significant
12	EXTER → DTV	0,65	3,37	Significant
13	AW → ITV	0,03	2,85	Significant
14	ITV → DTV	0,10 (x)	1,13	Not sig.

\* = t test of significance result at  $\alpha = 0,05$  where t value above 1,96 is considered statistically significant. (x) = also shown in Fig. 1. for not statistically significant result.

#### 4.7. Managerial Implications

As the markets go global, all those source of advantage e.g. low cost of raw materials, access to capital, low labor cost will soon disappear. The new market landscape requires a refined business strategy. Companies must use their effort to innovate in solving problems to humanity. This can be a source of success. The environment can provide to the community a chance to examine about a company activity and their respond to the call in environmental action. Company must incorporate the environment in their core strategy, and must work with dynamic and holistic vision.

Companies should work with full range of stake holders and to make a regular talk with them to find the best way in handling their needs of a product most suitable to the environment. Utilization of social networks e.g. Facebook and Twitter can enhance message from opinion leaders and improving awareness. Companies must connect with those the supporters of green lifestyles, e.g. the academics, NGO, and media. This can lead to innovation as they are well informed about new knowledge, ideas, and can reshape political dialogue with environmental background in it.

More companies now in Indonesia are going green and producing EFP, and this will require a suitable marketing strategy and programs. As we in Indonesia is also facing the growing segment with a green view, from this study there are some actions need to be taken for company strategy and programs. Companies can strengthen the brand value by adding its attribute with relative advantage in energy efficiency, utilization of materials that safe to environment, and recyclable. In Indonesia there are media coverage that can be useful to make information flowing about the company new products which more energy efficient, which can get more attention from the public if the benefit also reduce the national budget subsidy expenditure. Company can also make announcement to stop using non recyclable materials and this will gain support and increase the brand value.

Companies can improve the trust to them and strengthen the bond to their and future customer by throwing a consistent join action to hold the constant deterioration of environment and improve the situation in daily life. Companies must engage opinion leaders which have high acceptability as a green supporter. He or she can come from different background and can be a celebrity. Those opinion leaders should be accepted as a role model in green behavior.



Awareness is mostly influenced by the lifestyle, so with this model it shows that a company will need marketing communication which will make consumer more realize about innovation in EFP. Also this innovation is fit with the consumer expected lifestyle. Government can also support the green lifestyle to middleclass which is now growing in Indonesia. This segment can be targeted, which they can be the early majority and late majority.

Higher energy prices with fewer subsidies will make an impact to Indonesia economy. Millions of efficient electronic and electrical appliances will improve the utilization of energy efficient equipment. The idea of reducing energy use will make government budget not to suffer again from heavy subsidy. Government can raise support because the rising energy prices is inevitable, so it is a must to act together and increasing desire to buy EFP. Government need to target those households that the most dominant in creating electricity demand, which is now still subsidized. Above the line programs using advertisement should be placed in many media to inform them about the benefit of being energy efficient, not only for themselves, but also to the country and to the world. Change agent for below the line program is also needed to develop interest and then desire. There could be some laggard who would like to stay with comfort zone, which should be persuaded by the people around.

Smart consumers are those who can benefit from the green lifestyle. As nowadays some best brands already provide a good product line which is green and energy efficient. It is on the consumer mind to decide and choose what is available in the market and make the best to change their world to more environmental friendly. Choosing the real EFP is now becoming easier although some claims might be false. So it is imperative for the consumer to read the label and seek more information regarding the impact of the products they use to buy. To make easier it for consumer it is recommended to implement a labeling scheme that is accepted nationwide. Labeling (for green and energy efficient) can be introduced and promoted into Indonesian market. Although some effort has already been done on this, but it is must be continuously done and promoted using the help from change agent who resides all over the country.

We can know some aspects from this study that can be used to support the green marketing effort in Indonesia. Results show evidence on those factors that determine the desire to buy EFP, and give useful information to companies and government offices to promote the development of EFP markets in Indonesia.

This study has given insight for marketers to benefit from the market opportunity because of the growing middle class segment in Indonesia. This segment has been aware on the existence of EFP and realized the benefit of using it. But, marketers or policy makers need to understand the personal characteristic of each segment especially their lifestyle. Marketers also must estimate the environmental knowledge, personality and their decision making process. This understanding will help the how to and also the most suitable marketing communication content.

The hierarchy of effects from awareness interest and desire model has shown the influence from factors other than the product. These factors can influence directly to the readiness of consumer toward the next stage (from awareness, interest to desire stage). So it is advisable to properly use this model to implement marketing communication strategy. Change agents promotion effort will affect the desire to buy, but this may not be direct and linear. The payoff may occur at certain stages, especially when opinion leaders adopt. Marketers and policy makers must identify which promotion effort is more acceptable by the opinion leaders.

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