Materialism, Altruism, Environmental Values, Learning Strategies and Sustainable Claim on Purchase Intention of Energy Efficient Vehicle (EEV) – A Literature Review

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Abstract. One of the toughest challenges in social marketing is behaviour intervention. Previous research have developed various models and theories to simultaneously examine behaviour changes and their effects. Due to resources scarcity and global warming, automakers have come out with an innovative idea of Energy Efficient Vehicle (EEV) which has been a great improvement in the automotive industry. This invention targets for behavioral change or behavioral adoption for consumers to adjust their preferences from conventional vehicle to EEV. High market growth in automotive industry have encouraged social marketers, policymakers, governments and academics to propose suitable intervention approach in motivating preferences toward EEV. This study will explore the causal model of Environmental Responsible Behaviour (ERB) in measuring the purchase intention of EEV in Malaysia. In specific, this study focuses on two types of EEV – hybrid car and fuel efficient car. This study will hopefully add onto the body of knowledge for value orientation that influences green behaviour. From the practical perspective, this study may provide insights in assisting the stakeholders and automotive industry players on promoting the pro-behaviour toward EEV.

1. INTRODUCTION

Malaysia has been declared as having one of the highest carbon emissions per capita in the world, with 12.3 tons per capita compared to world average of 7.9 tons for per capita in 2011 (Malaysia’s CO2 Emission Data, 2016). This scenario is seen globally as petroleum consumption has become third main source of global carbon emission (Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014). As an innovative resolution, automaker came out with the idea of an EEV range in which the engine technology used is moving toward alternative energy that simultaneously consume less petroleum fuel and produce less carbon emission. EEV includes fuel-efficient internal combustion engine (ICE) vehicles, hybrid, electric vehicles (EV) and alternative fuelled vehicles powered by Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG), Biodiesel, Ethanol, Hydrogen and Fuel Cell.

However, the issue of EEV market penetration will depend heavily on customer perception. Consumers often tend to be sceptical when new technologies been introduced such as EEV. In addition, this technology could also be seen as novel as the mass-markets consumers had little exposure [5]. With all the environmental issue that have been highlighted, it has often been perceived as premium and luxury buying [6] [7] [8] [9].

Building upon Value Belief Norm (VBN) model [21] [22] and New Environmental Paradigm (NEP) Model [21], this research will look into the extended ERB model by redefining the gap between value (materialism and altruism) with environmental belief. In defining materialism value effect on environmental belief there is still a gap in explaining the reason how two different lifestyles can be related to one another. De Groot and Steg [42] discussed the role of altruism values in supporting environmental belief. In addition, this research will look into a gap in defining learning strategies that occur due to increasing environmental concern. Suki [6] discussed the ability...
of sustainable claims in enhancing the role of learning. It had been supported by Ajzen [11] in that stated claim would strengthen learning strategies in term of comparing options available

2. Literature Review

2.1. Materialism
Materialism had been reviewed and developed over a few decades. Earliest notion about materialism is by Lange [46] in Richins & Dawson [47] that defined it as the philosophical notion that nothing exists except matter and its movements. Belk [48] defined materialism as the importance a consumer attaches to worldly possessions. Some researchers defined it as a cultural system in which material interests are not made subservient to other social goals [49] [50] [51].

Materialism that occur in market societies lead to environmental decline [54]. In western industrial societies, materialism been viewed as one-dimensional model and its achievement is a primary societal objective [55]. However, Jones [56] argues that, because materialism is deeply embedded in the institutional structures of industrial societies, the institutions themselves must be examined. As a result, admonishing consumers to consume less for personal, social, or environmental reasons is likely to be ineffective in changing behaviour. Culturally embedded institutions continuously reinforce and reward materialism as a mode of consumption. Consequently, one who is materialistic would find little reason for altering consumption behaviours in order to be more accommodating to the environment.

Stiglitz [57] and Kilbourne [58] argue that the globalization process is accelerating the spread of free market liberalism that enhances materialism as the solution to the environmental problem, and, as a result, environmental degradation is continuously accelerating through the consequent increase in trade related economic growth [57]. Thus, a more thorough examination of materialism and its role in environmental decline is necessary. Kilbourne et al. [59] add a necessary dimension to the values problem, however. In a multi-national study of university students, they demonstrate that general values orientations are related to materialism. Specifically, they demonstrate an inverse relationship between transcendent values and materialism and a direct relationship between enhancement values and materialism using Richins and Dawson's [47] conceptualization of materialism. Kilbourne et al. [59] did not examine the relationship between materialism and environmental beliefs. Thus, while Fisk [60] and Porritt [61] both suggest that consumption is an important factor in environmental degradation, little empirical evidence relating the various types of consumption to environmental behaviours exists. Based on the above arguments, the hypothesis below is advanced:

H1: There is a negative relationship between materialism and environmental belief

2.2. Altruism
Most of altruism studies were based on Schwartz’s [32] [33] universal value system or on social value orientations as proposed in the social dilemma literature [34] [35]. Schwartz’s [32] [33] universal value system proposed ten motivational values related to human being that can been divided into two dimensions. First dimension is openness to change versus conservatism, distinguishes values that stress independence, such as self-direction and stimulation, from values that emphasize tradition and conformity. The second dimension distinguishes social or self-transcendent values, such as universalism and benevolence, from those that pursue personal interests or self-enhancement, such as power and achievement.

Other scholars have proposed a similar distinction into three value orientations [26] [41]. For example, Stern [21] [22] [23] [26] argued that three different value orientations may affect beliefs: an egoistic, a social-altruistic, and a biospheric value orientation. Intensive study had been done by Stern and et al [21] [22] [25] [42] [43] regarding the distinction between these three values. However empirically and theoretically this not been proven yet. According to De Groot and Steg[42], there is still further validation needed in revealing whether a biospheric value orientation
is emerging independently from an altruistic value orientation and whether the three value orientations provide a distinct basis for environmental beliefs, intentions, and behaviour.

As individual with a social-altruistic value orientation can be defined as individual that orients their decision to behave pro-environmentally or opposite due to perceived costs and benefits for other people [21] [22] [62]. Schwartz [32] defines altruism as feelings and behaviour that show a desire to help other people and lack of selfishness. Schwatz’s value theory [63] describes the dimension of altruism in four dimension. The first is equality which mean equal opportunity for all. Second, world at peace without war and conflict. Third, social justice which means correcting injustice and caring for the weak. Lastly, being helpful by working for the welfare of others.

Previous study had test altruism with two other value orientation which are biospheric and egoistic. However, it been proven that altruism and environmental belief are correlated and seem to be clearly differently related to environmental belief when three values were tested together, in which value transcended into belief. [21][42][30][31].

De Groot and Steg [42] explain the value tested as altruism has been slightly underrepresented in that the altruism value is based on benevolence motivational type and universalism motivational type. This will limit the understanding of its relationship toward environmental belief. However universalism values have been proven to have relationship toward environmental and social behaviour than benevolence values. Therefore, altruism has a unique relationship toward environmental belief, hence the hypothesis below is advanced:

**H2:** Altruism moderates the relationship between materialism and environmental belief

2.3. *Environmental Belief*

Previous study had shown that environmental beliefs are subsequent to values [26][43]. General beliefs are about the human–environmental relationship and refer to folk wisdom about the environment [21]. Most research uses Dunlap and Van Liere’s [64] new environmental paradigm (NEP) to measure general beliefs. Specific beliefs are beliefs about the existence of environmental problems such as water shortages, ozone depletion, and global warming.

The focus in this study is on specific beliefs. Logically, concern would not arise unless preceded by the belief that environmental problems exist. However, an individual may believe in a human–environmental relationship characterized by ecological folk wisdom without ever being concerned that problems actually do exist. In both Stern et al. [26] and Dietz et al [43] models, specific beliefs and attitudes precede intentions and behaviours. Stern [21] further argues that the link from values to environmentalism mediates beliefs because of perceived consequences to whatever the individual values activate norms. Thus, measures of beliefs in this study refer to specific adverse consequences for valued environmental objects. This suggests that individuals might be in a state of cognitive dissonance [65] if their desired consumption behaviour is perceived to cause negative environmental consequences. As evidence of negative environmental consequences emanating from increasing consumption accumulates, cognitive dissonance should increase in materialistic individuals. How this dissonance is resolved depends upon the circumstances relating to the relative attractiveness of the alternatives [66]. If the individual perceives that the environment as a valued object is threatened, environmental concern will increase. This will then increase the likelihood of more environmentally friendly consumption behaviour. According to the explanations above, this hypothesis is proposed:

**H3:** There is positive relationship between environmental belief and environmental concern

2.4. *Environmental Concern*

Alwitt and Pitts [67] state that a gap between environmental attitudes and behaviours exists within the US, and that this is relevant for policy makers and marketers alike. This is because social marketers and public policy makers seek to reduce environmentally negative behaviour, and if their
intentions are not successful, then more market regulation may be necessary. Thus, a more thorough understanding of the relationship between concern and behaviour is necessary. Studies of environmental concern in marketing began in the early 1970s with a series of studies relating to various dimensions of the problem. Anderson and Cunningham [68]; Kinnear et al. [69], and many others sought to characterize environmentally concerned consumers. Since that time, environmental concern has never declined as an environmentally related construct within the marketing literature. Fujii [70] describes that environmental concern can be associated with the awareness of the consequences of a given behavior, such as knowing the consequence of producing carbon dioxide emission. Mostafa [71] describes that environmental concern appeared in late 1960 and early 1970 in west communities. Some of it is associated with society, industry and modern technology, partly as an impact of the first world’s oil crisis [72]. Based on these arguments, this hypothesis is developed:

H4: There is positive relationship between environmental concern and purchase intention of EEV

2.5. Learning Strategies
In purchase intention process, customers will always be provided with sufficient information to evaluate their alternative solution toward their need. Previous research has concluded this can be started by consumer research in which two learning strategies can occur, intentional and incidental learning strategies [83][84][85]. Petty and Cacioppo, [86] elaborate intentional learning as active and deliberate acquisition of knowledge and this form of learning facilitates the central route of information processing Petty and Cacioppo [86], while incidental learning occurs when knowledge acquisition occurs as an unintended consequence of engaging in another task. These learning strategies happen in first stage of purchase intention process which is seeking for information.

2.5.1 Intentional Learning
Green-house warming has a tremendously effect on goods selection in the market. Thus, consumer’s environmental concern had increased in which goods and services consumption becomes more towards environmentally sensitive goods and services, and consumers change their purchasing preferences toward greener options [44]. As a result, customers are looking to make well-informed decisions about their purchasing choices that proclaim environmental attributes. The choices of goods may refer to review of credible, independent third parties [88][89] or comparing their available choices by their eco labelling schemes [90]. In the market, the product may be same within the same category. However, consumers with high environmental concern will differentiate them by their environmental impact [87]. These activities or processes are assumed to be an intentional learning strategies in which consumers are actively involved in an attempt to identify sufficient or additional information about environmental attributes of the available purchase choices. Thus, the hypothesis below is advanced:

H4: Intentional learning mediates the relationship between environmental concern and environmental purchase intentions.

2.5.2. Incidental Learning
Previous study had shown that Malaysians had started to acknowledge the environmental problem. Hence, product consumption had become environmental concern oriented. On a daily basis, consumers are exposed to various promotions by governments and automakers on environment related issues. In such instance, consumers will been attracted to the information to which they have been exposed, such as environmental visuals used by firms as their promotional tool [91][97]. This reflects that consumers obtain their information passively as a sequence from another task that can be defined as incidental learning. Moreover, any information that is exposed to consumers via incidental learning is important in subsequent environmental related purchase decisions [94][96].
Many firms make statements regarding their product or environmental policies in order to cultivate their image as an environmental company. In addition, a company’s environmental reputation does effect consumer incidental learning. Consumers will assess the product or service provided depending on environmental reputation that are related to consumption consequences toward the [92][95]In particular, consumers with high environmental concern will be highly alert to a firm’s reputation and environmental statement [96]. Based on the justifications above, the following hypothesis is proposed:

**H5**: Incidental learning mediates the relationship between environmental concern and environmental purchase intentions.

### 2.6. Sustainable Claim

Ministry of International Trade and Industry (MITI) Malaysia had listed 56 international automakers brands in Malaysia in the final quarter 2015. Thus, consumers have been provided with a huge range of automotive products compared to 35 automotive brands in 2013[2]. Simultaneously, this scenario occurs in high environmental concerned societies. This will encourage consumers to differentiate their choice by their effect toward environment. Some EEV have been classified as premium products, with prices thirty percent higher than conventional vehicle [97] such as hybrid and semi hybrid vehicle. On the other hand, EEV such as FEV have been priced as affordable vehicle [6]. Thus sustainable claim will factored in when purchasing an EEV.

Consumers with intentional learning will be alert to environmental impact caused by their consumption. They were highly involved in information seeking process and in evaluating alternatives processes. This group of consumers will react differently toward any information especially if their attitude toward sustainability can be classified as environmental concern [42][89]. Sustainable claims made by firms will strengthen their belief and help in making purchase choice. This will help them in differentiating the products that are available in their market compared to the products that not have any sustainable claim. Thus:

**H6a**: Sustainable claim moderates the relationship between intentional learning and purchase intention of EEV

Consumers that acquire information via incidental learning are highly concerned about the environment. Environmentally concerned consumers always keep their preferences in accuracy and credibility of a firm’s sustainable claim [92][100][101][102]. With climate change becoming worst day by day, consumers will be highly alert to any claim made in the market. As shown by Stern [21], social cognitive consistency theory explained that the greater extent that a person has high environmental concern, the easier it will be to change their motivation and hence their behaviour. As the concern increases, they will change their preferences. Therefore:

**H6b**: Sustainable claim moderates the relationship between incidental learning and purchase intention of EEV

### 2.7. Purchase Intention

According to Peter and Olsen [73], the key process in consumers’ decision making is the integration process by which knowledge is combined to evaluate two or more alternatives and eventually to select one. Belch and Belch [74] describe purchase intention as a matching of purchase motives with brand or product characteristics under consideration. Purchase intention is not yet an actual purchase. Once a customer has decided to buy something, he or she needs to implement the decision and make the actual purchase. Kotler et al. [75] stated that automotive
products in the industry involve complex buying behaviour, as it involves high involvement of the consumers.

3. Methodology

3.1. Research Design and Procedure

This research will employ a sequential mixed method via the application of interview technique (qualitative) followed by survey experiment (quantitative). This study will use qualitative data first in order to obtain an in-depth understanding on altruism value in the context of Environmental Responsible Behaviour (ERB) of Energy Efficient Vehicle (EEV). An exploratory interview will be conducted to several groups of respondents such as academia and experts (i.e. automaker, environmentalist and advertiser). Next, a survey experiment will be conducted. Malhotra [76] stated that experiment is the process of manipulating one or more independent variables and measuring their effect on one or more dependent variables. This research design was chosen to suit the aims of the research and to get the respondents’ reaction when different advertising is used.

3.2. Population and Sampling Procedure

According to Hair et al [79] and Malhotra (2012), the suitable range for problem solving research is between 280 to 500 respondents. For this research, 300 survey questionnaires will be distributed via a convenience sampling to a target population of respondents aged between 25 to 45 years. As this research is focusing on high involvement product, the target population is suitable because they have higher need for transportation and higher disposable income.

Referring to current study in Malaysia on EEV, this research will choose three states with the highest GDP. High disposable income is one of factor that influencing purchase decision of EEV such as hybrid car[80] [81] [82]. Referring to Malaysia Statistical Department (2014), the three states with the highest GDP by the end of 2014 are Johor (99,887 million), WP Kuala Lumpur (164,663 million) and Selangor (245,080 million).

4. Conclusion

The Malaysia Automotive Association stated that the sales number of passengers car in Malaysia had increased tremendously from 416,692 units in 2005 to 576,657 units in 2013 [1]. This shows that the Malaysian car industry had grown well in the past 8 years, as the involvement of multinational companies had led to competitions among the car manufacturer companies. This research will benefit the marketers in the automotive industry by highlighting to them the importance of social intervention on EEV.

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