

Means-End Chain Approach to Study Muslim Consumers' Values and Preference towards Genetically Modified (GM) Food in Malaysia

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ABSTRACT

The purpose of the paper is to identify and describe differences in cognitive structures among the Muslim consumer segments in Malaysia with differing levels of acceptance of genetically modified (GM) food. Among a sample of 25 respondents two segments were distinguished with respect to purchase intentions for GM yoghurt: aware about food with GM properties and not aware or understand about food with GM properties. The methodology called Means-End Chain (MEC) together with the soft laddering technique was used to ascertain Muslim consumers' values towards GM yoghurt. The approach determines how GM yoghurt drink attributes are linked to self-relevant consequences and life values in the mind of the Muslim consumers in Malaysia.

Keywords: Food biotechnology, Product attributes, Muslim consumers, Means-End Chain, Soft laddering and Malaysia

INTRODUCTION

GM food is an emerging market segment and is currently one of the most intensive areas of food product development. The role of biotechnology in the future of agriculture and food is becoming increasingly significant as billions of dollars are being spent to develop the technology. Although there is controversy in accepting the food, many Asian countries, including Malaysia, China, India, Indonesia, the Philippines, Thailand and Vietnam, have taken various steps to manage these shortages by investing in research and development, such as using biotechnology to develop better food products, and improve the productivity and livelihood of the people (Hautea & Escaler, 2004). In Malaysia, the government is aiming to be an active player in the biotechnology industry by 2020 in order to support the biotechnology industry in solving the global food crisis. The Malaysia biotechnology sector accounted for 2.2% of the country's Gross Domestic Product (GDP) in 2010 while projecting the sector to contribute approximately 5% to the local economy by 2020 (Mida e-News, 2011).

Malaysia, as a developing country, is experiencing a flood of GM imports due to the United States-Malaysia Free Trade Agreement (FTA). The US corporations seem to have urged the Malaysian government to dispense with the consideration for mandatory labelling for all GM products. Malaysia is not the only country facing this forced obligation, as countries like Thailand, China, India and Korea are in a similar situation. Consequently, with FTAs and US diplomacy and political pressure, Malaysia is obliged to lower

its food standards and amend the rules on GM approval and labelling in order to facilitate the flood of GM products on the market from the US (Christine & Grain, 2008).

Consequently, the lack of GM labelling on food packaging has led to low consumer awareness about GM food as well as the perceived benefits and risks of GM food in Malaysia. According to Noorazlin et al (2011), Malaysian consumers lack exposure and experience to foods produced by GM organisms, plants or bacteria resulting in low awareness about GM food among the consumers. Latifah et al (2010), stated that if the public acceptance issue on GM food is not adequately addressed in Malaysia, the future for modern biotechnology, especially in developing GM crops for the benefit of society, will not be a success. The consumers, especially Muslims, are very particular concerning food consumption. Thus, it is very important to respect the consumer's right to information and to choose their consumption, especially in respect of GM food (Latifah et al., 2011).

THE PURPOSE OF THIS STUDY

Despite the wealth of information, few studies have thus far attempted to provide a detailed view on the values that are employed in the assessment of GM foods and to what extent these values differ between consumers in a developing country like Malaysia. Most studies on GM have taken place in developed western countries that have similar views and cultural values. Consumers in Asia, especially Muslim consumers in Malaysia, hold different values compared to western and European countries. However, there is a lack of research on the consumer values of Muslims in many developing countries in respect of GM food. The role of religion and the respective value systems in influencing the consumption of food with GMO properties is little understood and is neglected in developing countries even though food with GMO properties are on the supermarket shelves. Equally important, how these values can be expected to influence subsequent preferences towards food products, particularly GM food products in a Muslim market, has been inadequately addressed. The purpose of this study is to investigate the values and preferences of Malaysian Muslims towards genetically modified (GM) food, in general, and, particularly, in consuming yoghurt.

The Means-End Chain (MEC) is proposed to provide a better understanding of potential food consumption motives. The use of the MEC approach will enable the discovery of how GM food product attributes are linked to self-relevant consequences and life values in the minds of Muslim consumers.

LITERATURE REVIEW

The consumer choice of a particular product may be influenced by the values they endorse. Human values are deeply held attitudes and beliefs, which are resistant to change; however, change is possible over a period of time. Values provide motivational input to the cognitive approach. Values are concepts or beliefs about desirable end states or behaviours that transcend specific situations, guide the selection or evaluation of behaviour and events, and are ordered by relative importance (Schwartz, 1994). Values differ between generations, regions and cultures.

Individual personal values vary from consumer to consumer. Some consumer personal values are shown to be the underlying determinants of consumer attitudes and consumption behaviour (Homer & Kahle, 1988; Scott & Lamont, 1977). Milton Rokeach (1973, p. 5) stated that individual value is "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence". Furthermore, Schwartz & Bilsky (1990, p. 879) defined values as "the second facet [which is based on the idea that values are goals] is the designation of

whose interests the attainment of each value serves. Values may serve individualistic interests (e.g., pleasure, independence), collective interests (e.g., equality, responsible), or both types of interests (e.g., wisdom)”.

Rokeach (1973) introduced two sets of values: instrumental values and terminal values. Consumers may apply either or both sets to achieve their goals. Instrumental values reflect a chosen way of reaching the “end values”, for example, a certain behavioural characteristic that is seen as socially desirable. Some examples of instrumental values are ambitious, honest, responsible, obedient and courageous. Terminal values reflect “end states”, for example, the ultimate modes of living that have been idealized. Some examples of terminal values are inner harmony, happiness, family security, a comfortable life and wisdom. In relation to functional food consumption, consumers may use terminal values to obtain the desired ultimate modes of life, such as inner harmony or happiness.

The basic of Muslims values are influenced by Islamic values or the Islamic way of life (Hassan, 2011a, 2011b). The values embodied in the Quran and the practices of the Messenger Muhammad (S.A.W) constitute the Islamic values. These Islamic values directly and indirectly influence the Muslim (Hassan, 2011, p. 206). This religiosity values is expected to govern an individual’s behaviour, including behaviour to choose as Halal food consumption. Religiosity is one of the important factors to determine individual cognition and behaviour.

The Means-End Chain (MEC) is chosen because it provides a better understanding of potential food consumption motives. In addition, the method is extensively used in food-related research (Devlin et al., 2003; Fotopoulos et al., 2003; Jaeger & Macfie, 2001; Krystallis et al., 2008; Lind, 2007; Radder & Grunert, 2009; Rosa, 2006). MEC depicts how concrete product attributes are linked to self-relevant consequences of consumption and life values (Grunert, 1995; Gutman, 1982; Olson, 1989) in hierarchical models of consumers cognitive structures (Costa, 2003). In essence, MEC is thought to be able to identify the choice criteria used by consumers to evaluate and select among alternative products and explain the higher-order reasons leading to the salience of these particular criteria (Olson & Reynolds, 2001). The MEC links consumer values with their behaviour and will thereby reveal how product consumption reflects personal values. The aim is to generate hierarchy value maps (HVM) from the consumer’s cognitive structure (Grunert et al., 1995).

To achieve the MEC objective, in-depth interviews were conducted using the laddering technique. The laddering technique allows the researcher to probe product attributes, the consequence of using the product and the link to consumers’ personal values. “Laddering is a qualitative interview method which consists of two steps: generating salient attributes of products, and inferring how these attributes are linked to self-relevant consequences and life values in the mind of the consumer” (Gutman, 1982). To maximize internal validity, the soft laddering technique was utilized (Grunert & Grunert, 1995), meaning that the interviews were conducted in a manner such as to encourage natural speech from the participants and to increase the degrees of freedom for the interviewer (Grunert, et al., 1995).

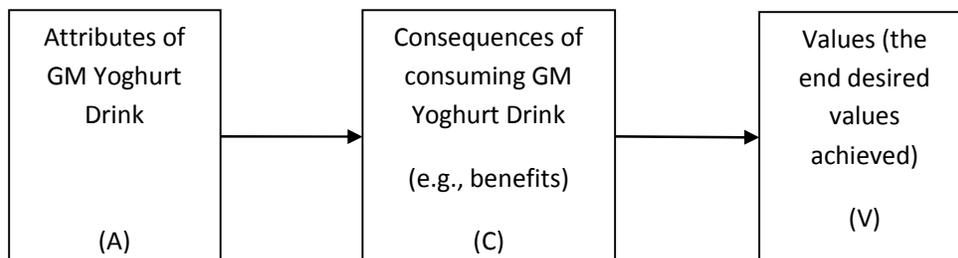
METHODOLOGY

MEC methodology is used to investigate which attributes of yoghurt drink are important to Muslim consumers and will motivate them to purchase (GM) yoghurt drink. A mock advertisement on yoghurt drink labelled with inactive GM ingredients was created by a professional agent with a Halal sign in assisting the

respondents in answering the researcher's questions. The reason it was decided to use a mock advertisement on yoghurt drink is because there is no food product with a GM label yet in Malaysia and there are rumours that the Malaysian government is planning to implement GM labels very soon. The Halal sign is included in the mock advertisement because the Malaysian Biotechnology Information Centre and International Halal Integrity Alliance concluded that genetic modification and GM products are Halal as long as the sources from which they originate are Halal. Thus, the Halal sign can be used as a benchmark.

In-depth interviews were conducted with 25 Muslim professional individuals living in Malaysia between the ages of 20 and 56 years. Snowball sampling was used since most Muslim consumers in Malaysia are not aware of GM products and are difficult to reach. The interviews took place either at home or the office of the respondent to make sure they felt comfortable and at ease to participate in the interview. The discussions were conducted in English or Malay depending on the respondent's spoken language. The ladders were recorded by the interviewer during the interview. The laddering technique was applied to the most important attributes overall and to the most important one from each attribute category. The consequences and values were derived by getting the respondent to reach more abstract levels of explanation through a series of "why is that important to you" questions. The soft laddering was applied to allow the respondents to talk freely. Figure 1 shows the MEC model for GM food developed for this study.

Figure 1: The MEC Model



Source: Adapted and modified from Reynolds & Gutman, (1988) for this research

FINDINGS AND DISCUSSION

The sample consists of 25 Muslim Malay consumers. The age distribution of the respondent set is mostly in the adulthood cohort, with more than half of the respondents being between 35 to 45 years old with only about 24% of the respondents being above 46 years old. Respondents are almost evenly distributed between married (48%) and single (40%) with a few widowed or divorced (12%). In terms of educational background, almost all the respondents have a university degree or higher. The religion of the respondents is Islam –Malays by the government's definition are Muslims (Colonial Office, 1957).

Data Analysis and Identification of Key Values

The data were coded and grouped based on three main themes that reflect the product attributes – consequences of consuming the product; the values that the product reflects by consuming it and other relevant themes that are related. Theme identification is one of the most fundamental tasks in qualitative research (Gerry & Bernard, 2003). Themes are abstract, often fuzzy constructs that are normally identified before, during and after data collection. They come from reviewing prior literature and the characteristics of the phenomena being studied. According to Grunert & Grunert (1995), there are various problems when it comes to coding laddering interviews. One of the problems is the distinction between attributes, consequences and values because sometimes it is hard to interpret the participant's answer. Thus, the content

analysis must be done from the transcribed interview scripts to identify the key words. These key words are labelled and coded.

Next, the categories are developed based on the coded key words. For the purpose of MEC analysis three main categories were identified – product attributes, consequence of consuming functional foods and values reflected by consuming the food. Organizing the categories is a complicated process in this analysis. It is difficult to find the right level of abstraction, which means some concepts may be interpreted as an attribute as well as a consequence or a value. This problem can be solved with more contexts available for coding and interpretation purposes (Grunert & Grunert, 1995). Therefore, the process of grouping and regrouping the categories is used according to the context available.

The process of grouping and regrouping categories is repeated several times to discover the indigenous categories. These categories are identified using inductive analysis strategies. From the GM food attributes and consequent categories, values are identified based on the Rokeach Value System. Table 1 and Table 2 summarize the identification of the three main categories.

Table 1: 1st Group: Aware of GM Food: Main Categories Identified for GM Yoghurt Drink Consumption

Product attributes	Consequences	Values
Affordable	Convenient	Obedient
Good taste	Edible	Responsible
High in nutrients	Guaranteed consumption	Quality Time with Family
Halal label	Healthy	Family security
Not attractive	Safe time	Enjoy life
Natural	Spend quality time – family / friends	Helpful
Not harmful	Good for digestive system	Faith
Low fat	Good for children’s immune system	Self-Respect
Zero cholesterol	Do not trust	Salvation
Live cultures	Unknown long term risk	Social Recognition
Inactive GM	Confident with Halal sign	Health
	Energy drink	
	Losing weight	
	Fitness	

Table 2: 2nd Group: Not Aware of GM Food: Main Categories Identified for GM Yoghurt Drink Consumption

Product attributes	Consequences	Values
Nutrition values	Increase in health	Obedient
Halal label	Edible	Responsible
Instant Food	Confident with Halal sign	Family security
Harmful	Guaranteed Consumption	Enjoy life
Low fat	Convenience / easy to consumer	Helpful
Zero cholesterol	Energetic	Faith
Inactive GMO	Lose weight	Self-Respect
Live cultures	Shaping up figure	Health
	Social acceptance	Social Recognition
	Wellbeing	Salvation
	Long Lasting	
	Save Time	

	Spend quality time – family / friends Dangerous Unknown long-term risk	
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Two segments were identified from the data analysis. The first segment is a group that is aware and understands the nature of GM food (HVM in Figure 2). The second segment is a group that is not aware and does not understand about the nature of GM (HVM in Figure 3). Although the two segments are different, there are similarities and differences between the respondents in these two groups.

The similarities between the first group (aware of GM) and the second group (not aware of GM) concerns Halal labelling. The Halal labelling is dominant for all the respondents who directly emphasized the value of being obedient, faith, enjoy life, self-respect and salvation when considering buying GM yoghurt drink. Health concerns are linked with GM yoghurt drink and associated with the values of social recognition, quality time with family and family security. Unknown risks in the long-term are perceived by both groups for inactive GMO products and are associated with the value of being responsible.

The differences between the first group (aware of GM) and second group (not aware of GM) is that the first group (aware of GM) is more concerned about the nutrient value and linked it with fitness and the value of social recognition, quality time with family and family security. The second group (not aware of GM) perceived GM food as instant food and linked it with the unknown risk in the long-term. It is associated with the value of being responsible since they perceived GM food as dangerous and having unnecessary/no benefits. The first group (aware of GM) perceived GM food as natural and not harmful but the second group (not aware of GM) associated GM food with instant food and linked its consumption with various benefits such as convenience, long lasting and saves time.

Figure 2: Hierarchical Value Map (HVM) for 1st Group: Aware of GM food

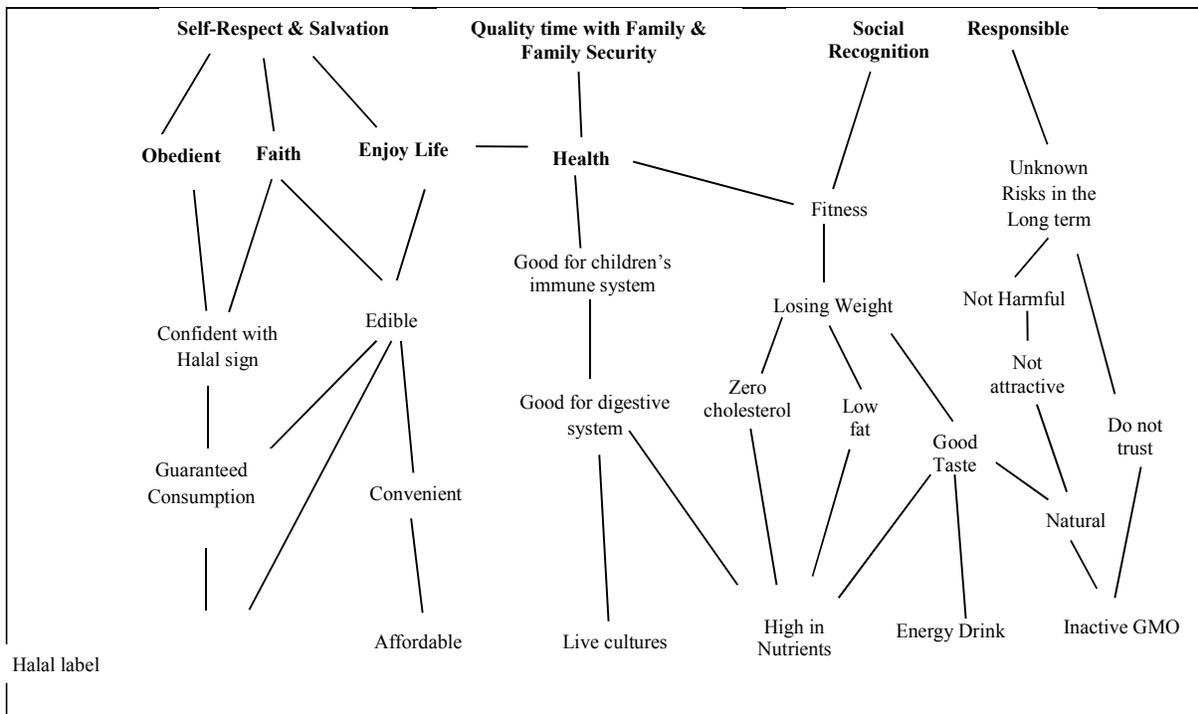
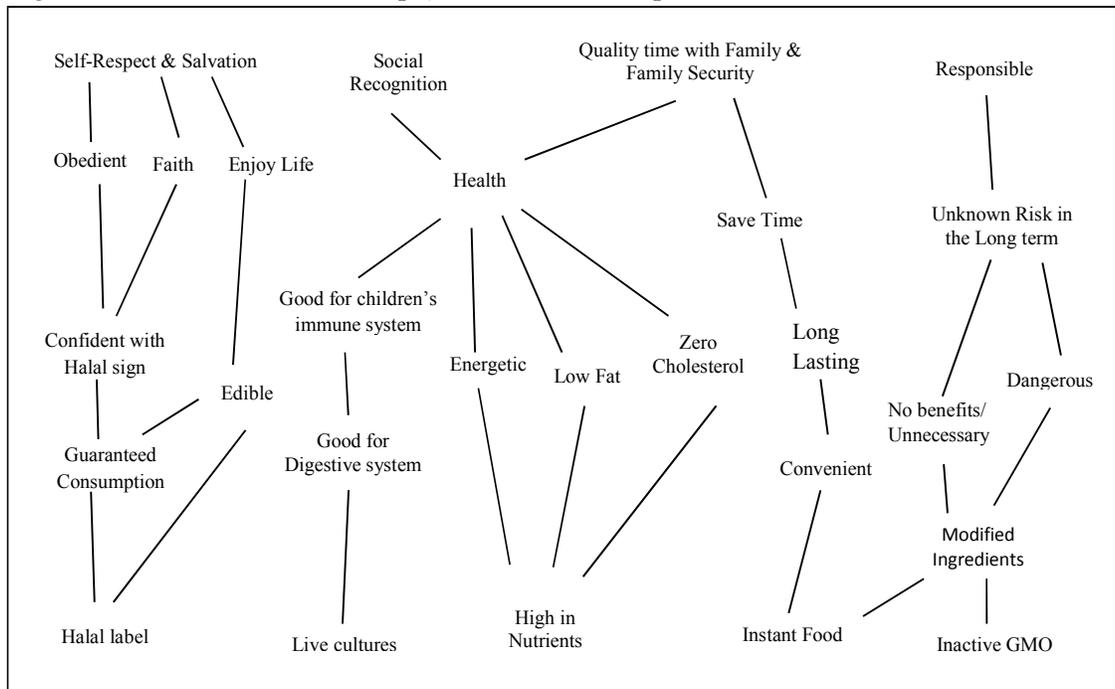


Figure 3: Hierarchical Value Map (HVM for 2nd Group: Not Aware of GM food)

Overall, respondents were able to clarify that they are aware and not aware of GM food in the marketplace. Thus, allowing this research to segment the sample according to two groups – the first segment is a segment that is aware about the nature of GM food and the second segment is a group that is not aware about the nature of GM food. Low product awareness and knowledge about GM food is fairly general among Muslim consumers; even though the respondents were well educated almost one third of the respondents were not aware and had not heard about GM food. This finding is supported by Noorazlin et al (2011) who found that Malaysian consumers are not well informed about GM foods and the associated benefits and risks. Both groups (aware and not aware of GM food) prefer to buy GM yoghurt drink only when Halal labelling appeared on the packaging as an obligation to their faith and obedience as a Muslim.

The Halal certification mark plays an important role in the decision to consume GM yoghurt drink. The importance of the Halal attribute is reflected in the values of self-respect and ultimate salvation. In Islam, “salvation” is used to describe one’s eventual entrance to heaven and does not refer to the possible entry to hellfire, or the varying levels of hellfire and heaven (Hassan, 2011, p. 115).

CONCLUSION

This research has contributed to the efficient design and implementation of enhanced information policies by identifying different starting points for activating cognitive processes in consumers. These starting points are based on the identification of those dominating values and Means-End Chains that appear in both segments’ cognitive maps for general communication and those values and Means-End Chains that appear in one of the segments only for the targeted, i.e., segment-specific communication.

Consumer acceptance of GM foods is a critical factor that will affect the future of biotechnology products. Foods containing GMO are not highly publicized in Malaysia. There are many issues concerning GMO products associated with the perceived benefits and risks of the product. Although some consumers are aware of GM products they still refuse to accept it, although they are willing to try the product. In order to

enhance the consumers' awareness, understanding and acceptance of GM food in developing countries, such as Malaysia, is important. There is a need to educate consumers in respect of GM food. In addition, there is a need for GM labelling and protecting the rights for informed decision.

The people involved with this technology and manufacturing this type of food need to respect the consumer's rights and provide correct information to help consumers make the right decision. Policy-makers should ensure that GM labels are appropriately marked on the food packaging and food manufacturers should present this new category of foods as an opportunity to 'optimise nutrition'. Furthermore, the health and medical community should be encouraged to disseminate information about the risks associated with GM foods. Although Muslim consumers place high emphasis on Halal labelling for their consumption of food products, '...a credible institutionalized reassurance system should be put in place...' for GM products (Bonne K. & Verbeke W., 2006).

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