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Promoting sustainable consumption: the case of refrigerators

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Abstract

An increasingly important factor which influences purchasing decisions is that of environmental protection, particularly associated with climate change. This is particularly important as far as the purchase of consumer durables is concerned because of the energy which they consume; energy efficiency is one route towards minimising environmental impact. Minimising such impact is one factor towards achieving sustainability and therefore making possible sustainable development. The central argument of this paper is that the desire to make sustainable purchasing decisions necessitates better information to make decisions according to this criterion. This in turn requires manufacturers to provide better information through their labelling. This research extends our knowledge of the components of sustainability and requirements for sustainable development, particularly as far as consumer purchasing decisions are concerned. It also has potentially important implications for manufacturers and shows for them too an important route towards achieving sustainable development for themselves and for the global economy.

Keywords: consumers; sustainable development; purchasing decisions; energy efficiency; information requirements

Introduction

In the current environment of economic crisis coupled with a concern for the environment brought about by the general acceptance that climate change is taking place there is a greater concern for sustainability and for sustainable consumption. Such consumption is based upon making decisions on criteria which are different to price, or at least to purchase price. This is particularly true of consumer durables which comprise significant items of household expenditure. Running costs become more important – not just to survive in the recession but also as a proxy for energy consumption which is concerned with effects upon climate change. Basically the lower the energy consumption the more sustainable and the greater the effect upon the climate. In general therefore there is a twin motive for the purchasing of energy efficient consumer durables. In this paper we take the case of refrigerators as an exemplar to argue that the most effective purchasing decision requires adequate information and the amount available to consumers varies in different parts of the world.

The structure of this paper therefore is as follows. In the next section we consider the purchasing decision and motivations for purchasing. In the following section we explore the relationship between energy consumption and sustainability. Then we look at standards of information availability in different countries – both regulatory standards and practice – and the effect upon the purchasing decision before arriving at some conclusions.

The purchasing decision

There are many factors involved in a purchasing decision. Consumers make purchasing decisions for a variety of reasons associated with needs, desires and fashion. It is often associated with identity and sense of self. Thus according to Aaker (1996: 113) "Consumers look for products and brands whose cultural meaning correspond to the person they are or want to become-in other words, that they use these brand meanings to construct and sustain their social self."

One of the first definitions given about this subject was by Veblen (1899), who defines symbolic or conspicuous consumption as a social display, based upon a high surplus income, enabling people to indulge in patterns of consumption which are designed to impress others in some way. The daily life of people who live in the great cities is affected by the need to cultivate a blasé attitude towards others; the only outlet is to cultivate sham individualism through the pursuit of signs of status, fashion, or marks of individual eccentricity (Simmel, 1903; Harvey, 1990 p.26).

Consumer goods have an importance that goes beyond their utility and commercial value. This importance rests largely in their ability to carry and communicate cultural meaning (Douglas & Isherwood, 1978). Similarly Sahlins (1976) argues that people often buy products not for what these products do, but for what they mean. Likewise, Aaker (1996: 103) says, "brands that people like, admire, discuss, buy and use also provide a vehicle for self-expression. The main presence of a brand or the attitudes consumers held toward it, can help a person to define him (her) self with respect to others, and when social aspects and identity are involved, what is expressed can be very important for the individual." He also states that the possibility for an individual to belong to a user group or obtaining the approval and acceptance of a particular group may provide an added emotional tie for the consumer.

Grossman and Shapiro (1988) state that luxury goods or status goods are defined as goods for which the mere use or display of a particular branded product brings prestige on the owner, apart from any functional utility. In addition, Bushman (1993) shows that publicly self-conscious individuals are very concerned about the impression they make to others. They are especially worried about physical appearance and fashions; they are able to use any strategy in order to gain the approval from others; are more compliant with norms and standards in society; and are very sensitive to other people's rejection. To add, Dubois and Duquesne (1993) propose that a lot of consumers purchase luxury goods basically to satisfy a desire for symbolic meaning. The status label or image associated with a specific product is frequently more valued than the product itself.

According to Ross (1971: 38), people buy products and brands only "if these things are consistent with, enhance, or in some way fit well with the conception they have of themselves". This statement is supported by de Chernatony and McDonald, (1997) who state that the perception consumers have of themselves help to influence in brand decisions, in that ownership or usage of a specific brand with a particular image appears to be consistent with their own self-image, and according to Ross (1971), consumers' personalities can be inferred from the brand they choose and use, their attitudes to different brands and the meaning brands have for them.

The design of products and environment inherently involves aesthetics. Aesthetic aspects of an environment are a potential source of pleasure (Holbrook and Zirlin 1985). Pleasure results from an appreciation of formal, expressive, or symbolic qualities of aesthetic atmospherics (Fiore and Kimle 1997). The atmosphere of a particular set of surroundings is describable in sensory terms. The main sensory channels for atmosphere are sight, sound, scent, touch and taste. The specific design of groups of stimuli for a buying environment creates a sensory atmosphere that can affect the consumers' attention, message perception and shopping behaviour. The common theme is that sensory information from atmospheric cues influences cognitive and /or affective states that can alter consumer's shopping behaviour (Grossbart et al. 1990).

People tend to make emotional judgements by forming sweeping global impressions rather than to engage in analytic reasoning (Schwarz 1990). In large parts, the holistic nature of emotion-driven choice may be a result of our inability to verbalise the reasons for our feelings (Zajonc, 1980).

The design of atmospherics affects the beliefs of consumers about the quality of the shop and the assortment. According to Bloch (1995) it is reasonable to assume that these beliefs derive from holistic multi-sensual perceptions of the aesthetic atmospherics and a linear processing of design elements which takes place as a consequence. Complex designs tend to elicit the most elaborate cognitive processing. An environment which provides physical, emotional and cognitive stimuli at the same time creates a climate of perception which leads to a selective (either positive or negative) emphasis of specific attributes of the presented products. It further stimulates specific associations between an impression derived from the store environment and the products available in the assortment of the store (Kroeber-Riel 1992). Hence aesthetic atmospherics allow the creation of a positive climate of perception and support the guidance of product perceptions towards specific attributes.

Environmental stimuli can be coded in the form of inner mental pictures. These mental pictures might be generated by different sensual stimuli or a combination of them (Kroeber-Riel 1992). In the imagery literature these pictures are termed as "quasi pictorial" or "sensory-like" (Hilgard 1981; Kosslyn 1980). The preferences for specific products, services or stores depends to a strong degree on the vividness of the mental picture of consumers. Vividness means the accuracy and expressiveness the mental picture develops in the inner eyes of the observer. The more vivid an inner picture which is perceived the stronger its impact on the behaviour will be (Kroeber-Riel 1992; Ruge 1988). Shopping environments which support the vividness in inner pictures generate several associations, express a specific continuous gestalt and are unique. The shopping environment can be varied and modified over time but the core symbolism of the atmospherics remains the same. Too significant changes in the meanings of the environment would enhance the development of several inner pictures. The existence of overlapping or conflicting inner pictures at the same time would diffuse the clear perception of the meaning in the environment and decrease its impact on consumer behaviour (Kroeber-Riel 1986a, 1986b, 1992).

Behavioural responses towards aesthetic atmospherics can be considered along an approach-avoidance continuum. When a particular store environment elicits positive psychological responses, the consumer tend to engage in increased interactive activities, such as extended viewing, listening, smelling, touching, testing and purchasing (Bloch 1995). Approach responses are typical for aesthetic experiences in shopping environments. They demonstrate a desire for deeper exposure to the atmospherics' pleasing design in terms of formal, expressive and symbolic qualities (Fiore and Kimle 1997, Csikszentmihalyi and Robinson 1990, Luomala 1998). A deeper exposure to the atmospherics increases the probability of trial and experimental shopping behaviour.

The relationship between energy consumption and sustainability

The question of sustainability has risen to prominence in recent months – not just in the business world or in the academic world but in popular consciousness. It seems that everyone is concerned with sustainability and that this has been brought about by a general acceptance of the existence of climate change and by a general recognition of the problems stemming from resources depletion. Indeed many people can talk knowledgeably about their

carbon footprint (Wiedman & Minx 2007) and about Hubbert's Peak, and many businesses are making statements about their aim for carbon neutrality (Weidema et al 2008).

In 1983 the United Nations established the World Commission on Environment and Development (WCED) under the chairmanship of Gro Harlem Brundtland. It subsequently became known as the Brundtland Commission and its report, *Our Common Future*, is normally known as the Brundtland Report. The commission was created to address a growing concern "about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development." In establishing the commission, the UN General Assembly recognised that environmental problems were global in nature and determined that it was in the common interest of all nations to establish policies for sustainable development.

The Report of the Brundtland Commission was published by Oxford University Press in 1987. The report deals primarily with sustainable development and the change of politics needed for achieving that. The definition of this term in the report is very well known and often cited:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Report highlighted the urgency of making progress toward economic development that could be sustained without depleting natural resources or harming the environment and thereby raised the profile of a concern for sustainability which had previously only been expressed by some NGOs. It was primarily concerned with securing global equity, and with redistributing resources towards poorer nations whilst encouraging their economic growth. The report suggested that equity, growth and environmental maintenance are simultaneously possible and that each country is capable of achieving its full economic potential whilst at the same time enhancing its resource base. The report also recognised that achieving this equity and sustainable growth would require technological and social change. In addition, a key contribution of *Our Common Future* to the concept of sustainable development included the recognition that the many crises facing the planet are inter-related and can be considered as part of a single crisis of the whole world and of the vital need for the active participation of all sectors of society in consultation and decisions relating to sustainable development.

Thus there has been a general recognition of the idea of sustainability and that this is an issue which needs to be addressed – at a societal level, at a local level, at a personal level and at a business level (Hart 1997). Of particular concern is the extinguishing of supplies of oil, because much economic activity is only possible because of energy created by the use of oil. Indeed many would argue that the wars in the Middle East¹, particularly the problems in Iraq, are caused by oil shortages, actual or impending, and the problems thereby caused, rather than by any concern for political issues. Most people have now heard of Hubbert's Peak² and engaged with the debate as to whether or not it has been reached (Deffeyes 2004). Certainly it has been reached in parts of the world such as the USA and the North

¹ And most probably any other parts of the world also – it would be instructive to correlate the presence of oil with conflicts.

² In 1956 M King Hubbert developed a model of oil production which showed that when the mid point of oil reserves was reached then future production would slow down and less would be available. Although originally developed for US oil production it has been shown to be equally valid globally. This mid point is known as Hubbert's Peak and as arrived or soon will arrive, at that point oil supplies start to get less with obvious implications in an environmental in which demand continues to increase.

Sea³ but it is less certain if it has been reached for the world as a whole⁴. Nevertheless the whole crux of sustainability – and sustainable development – is based upon the need for energy and there are insufficient alternative sources of energy to compensate for the elimination of oil as a source of fuel. Consequently resource depletion, real or imagined, and particularly energy resources, is one of the most significant causes of the current interest in sustainability.

Over the last decade the price of crude oil has risen from \$16 per barrel to \$150, with further price rises being expected. In an environment in which the shortage of oil has an effect upon energy then consumption is an important issue for economic reasons as well as for environmental reasons. Both reasons have an effect upon purchasing decisions as far as consumer durables are concerned. This has been reflected in the standards applied for energy consumption of such durables, which show an ever greater efficiency in using less energy

Standards of information availability

As far as the labelling of appliances is concerned then probably the European Union leads the way. The Energy Labelling Directive 92/75/EEC is one of a series of measures introduced by the European Commission under their programme of consumer and environmental protection. The overall programme goes under the title 'Specific Actions for Vigorous Energy Efficiency (SAVE)'. The original framework for this programme is set out under Council Directive 91/565/EEC. Other measures include the Hot Water Boiler Efficiency Directive (92/42/EEC), Directive 93/76/EEC which requires member states to introduce other measures intended to limit carbon dioxide emissions, and Directive 96/57/EC on energy efficiency requirements for household electric refrigerators, freezers and combinations.

The Energy Labelling Directive requires that appliances be labelled to show their power consumption in such a manner that it is possible to compare the efficiency with that of other makes and models. The intention is that consumers will prefer more energy efficient appliances over those with a higher consumption, resulting in less efficient products eventually being withdrawn or decommissioned. The Directive is not actually one of the 'CE marking' directives⁵. However, the appliances covered by the subsidiary directives are also covered under other CE marking directives (e.g. the Low Voltage and EMC directives) and must therefore be marked with the CE logo. Since CE marking a product is not permitted unless it complies with all the directives which apply to it, it follows that CE marked appliances must also comply with the Energy Labelling Directive.

The Energy Labelling Directive is what is known as a 'framework directive' in that it does not of itself specify any limits or performance levels. It provides a legislative framework within which other directives can be introduced to require marking and performance levels for particular types of domestic appliance. Under the subsidiary directives, appliances must be marked to show their maximum energy consumption. Consumption figures are based on a series of equations given in the appropriate directive.

³ Arguably this is a more direct cause of imperialist aggression than any ideological grounds which are claimed by the belligerents.

⁴ Currently there seems to be an expectation of significant oil reserves in the Polar region which will become accessible as the northern ice cap melts – arguably an unexpected benefit from global warming!

⁵ It is not certain that the CE marking has any particular meaning other than being a distinctive logo; certainly no-one appears certain of its meaning.

The details which appear on the energy labels which are used are separated into at least four categories⁶:

- The appliance's details: according to each appliance, specific details, of the model and its materials
- Energy class: a colour code associated to a letter (from A to G – see Figure 1 below) that gives an idea of the appliance's electrical consumption
- Consumption, efficiency, capacity, etc.: this section gives information according to appliance type
- Noise: the noise emitted by the appliance is described in decibels (dB(a))⁷

For refrigerators the table that indicates the energy efficiency is expressed as an index which is calculated for each appliance according to its consumption and its compartments' volume taking into account the appliance type. The index is thus not calculated in terms of kilowatt hours but rather as a measure of energy efficiency.

A++	A+	A	B	C	D	E	F	G
<30	<42	<55	<75	<90	<100	<110	<125	>125

Figures 1 – Colour Codes for Energy Consumption

Additionally the label for a refrigerator requires:

- the annual energy consumption in kilowatt hours per year
- the capacity of fresh foods in litres for refrigerators and combined appliances
- the capacity of frozen foods in litres for freezers and combined appliances

For cold appliances such as refrigerators (and these products alone), for models that are more economical than those of category A, categories A+ and A++ have been assigned. This is due to the increasing energy efficiency that has been built into the products by manufacturers.

In the EU these labels are generally understood and they are very visible for all products- they are displayed on each product in the shop and there are also posters giving explanations in the shops and elsewhere. As a consequence consumers can take this information into account when making their purchase decisions and the evidence all suggests that consumers are energy conscious in making their purchasing decisions. It is not however clear whether this is for environmental or economic reasons. Nevertheless the evidence does show that effective labelling affects the purchase decision.

This evidence is supported by experience elsewhere in the world. For example Japan has good labelling providing this kind of information for consumers and therefore energy efficient products are chosen. In other countries – for example Malaysia – this information is not so readily available because labelling standards do not exist and consequently energy consumption plays a much smaller part in the purchase decision. So the evidence shows that

⁶ The precise details naturally vary from one kind of consumer durable to another – obviously the details on a washing machine, an air conditioning unit and a refrigerator, for example, are similar but with different emphases.

⁷ A-weighting is the most commonly used of a family of curves defined in the International standard IEC 61672:2003 and various national standards relating to the measurement of sound pressure level, as opposed to actual sound pressure.

there is a direct correlation between effective labelling and the purchase decision and therefore a correlation between labelling and sustainability.

Conclusions

Good labelling only seems to exist where the appropriate regulations exist, such as in the EU. This therefore highlights the importance of regulation in the process and the necessity of the regulatory process to the creation of conditions suitable for sustainable development. There is some debate about the need for standards and regulations (see for example Aras & Crowther 2008); basically the tenor of the debate about corporate social responsibility and its reporting can be considered to be an argument between two competing positions: the free market economic model and the concomitant greater corporate autonomy versus greater societal intervention and government control of corporate action. The latter would imply the regulation of reporting through the governmental adoption of standards while the former would imply the continuance of the current voluntary approach. This paper clearly argues for the latter as an approach to developing sustainability. Clearly manufacturers can produce every more efficient products as a contribution towards sustainable development and the onus is upon consumers making the right selection for the same ends. It is at this interface that the importance of labelling becomes apparent.

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