

THE SIGNIFICANCE OF PURCHASING BEHAVIOURAL CHARACTERISTICS ON SUSTAINABLE DESIGN EDUCATION OF STUDENTS

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ABSTRACT

More and more businesses appear to be adopting the societal (or sustainable) marketing concept as their business philosophy. This is an attempt to increase their competitiveness and promote their attitude of considering consumers' wants at the same time as meeting society's long term interests. Organisations are engaging with the sustainable agenda and many communicate this to publicly demonstrate their commitment to saving the world's finite resources. Directives such as WEEE (Waste Electrical and Electronic Equipment Directive) have also forced organisations to consider the recovery of their products at the end of service life. In line with the industry environment, and in providing creative solutions to design problems, product design students are encouraged to take account of the market, technical, functional, visual, and humanistic aspects of design as well as exploring the possibility of making their designs sustainable. Consideration of factors including waste reduction, how the product could be manufactured more efficiently and hence more cheaply by using fewer parts, less material, reducing assembly time and non-conformance are very important and can give the edge, in terms of competitive advantage. This paper assesses the product related purchase behavioural characteristics, and associated decision making process, by which purchases are made. It endeavours to identify the difference between the considerations that students take as designers and the choices they make as consumers. Following critical analysis of the primary research undertaken the outcomes are discussed.

Keywords: Sustainability, ecological design, environmental design, marketing, design process, design education, sustainable consumption, learning strategies, design projects

1 INTRODUCTION

Of the four most salient marketing schools of thought, the "Managerial Marketing Model" lies at the foundation of the commercial awareness lectures delivered to product design students at Bournemouth University. Core to their learning and product development, are concepts such as market segmentation and the marketing mix. Students are also encouraged to reflect upon Theodore Levitt's Marketing Myopia, with the desire that its absence is preferential in any organisation. Almost fifty years ago, Levitt provoked company executives by suggesting that they ask themselves the question of "What business are you [they] really in?". In the Harvard Business Review, Levitt [4] pointed out that there was no such thing as a growth industry, but that companies ran their business to capitalise on growth opportunities. As an example, he suggested that the American railway industry got into difficulty because the railways were in the railway business and not the transportation business. That is, they defined their business too narrowly because they were product orientated and not customer orientated. The focus of product design education at Bournemouth University is, where possible, upon balancing commercial viability, with the need to satisfy customer requirements and ecological issues concerning products.

2 STUDENT EXPERIENCE

Students are introduced to five different business philosophies. The Product Concept, the first of the five, is where organisational focus is on continuous product development and improvement. This business philosophy is normally of great interest to students as they see this as key to product design. Fundamentally,

the philosophy is about consideration being given to a products' features, quality and performance. Whilst these are clearly very important, it is hoped, however, that students will recognise that this concept can lead to Levitt's Marketing Myopia, i.e. building a better mousetrap and, therefore, in market terms may not be sustainable.

Introducing the Production Concept, as the second business philosophy, where most effort is centred on efficient production and distribution is also of great interest to students. Making their designs affordable and widely available is clearly attractive. Taking a cost driven approach with mass production techniques and the economies of scale may possibly lead to the commercial success of their designs. Students recognise that with greater production volumes the costs of each item reduces. Stokes [6] points out, however, that this philosophy presumes that markets require products in large quantities and at the lowest price. The danger here is that products are standardised to an extent that they are not what the consumer actually wants.

Adopting the Selling Concept as the third business philosophy, where there is a lot of sales effort put into existing products, with no real understanding of customers' needs, or indeed why the product may not be selling, is not an attractive business ideology to students. Essentially this philosophy assumes that existing products already meet customer needs and, therefore, is not truly appropriate for new product development.

In most instances, students recognise that satisfying customers' more efficiently and effectively than their competitors is the route to gaining competitive advantage and product design success. Students are, therefore, introduced to the Marketing Concept as the fourth philosophy. There are numerous variations in the definitions of the Marketing Concept that have been put forward; Prothero [5] argues that they are essentially the same but with varying complexity. For the purpose of this paper organisations' that adopt the Marketing Concept as their business philosophy focus on their consumer/customer and address their needs, desires and wants. From supervising projects, it is apparent that the majority of students feel comfortable in adopting the Marketing Concept as an appropriate business philosophy for successful product design. They are happy to defend their product solutions in terms of meeting customer needs. Unfortunately, however, this philosophy does not truly consider the future needs of society as a whole.

Incorporating the long terms interests of society as an additional consideration into the Marketing Concept, introduces the fifth business philosophy commonly known as the Societal Marketing Concept. The ideology of the Societal Marketing Concept has been around for many years. Kotler and Levy [3] described it as "sensitively serving and satisfying human needs". One organisation which has adopted the concept successfully, that most of us are likely to be familiar with, is the Body Shop. Stokes [6] argues that the body care market has been heavily influenced by the company's founder, Anita Roddick. It was her determination back in the late 1970s that ensured that the company addressed the cosmetic needs of customers whilst meeting society's environmental concerns of not testing its products on animals. The Body Shop, is seen by many as the groundbreaker of the ethical brand. There is a lot of evidence that consumers now seek products with good environmental credentials and the spectrum of the product range is wide. The introduction of Toyota's hybrid electric car, the Prius, with just 104g/km CO₂ has, according to Davis and Moy [2], "achieved remarkable success" by doubling its sales in both the US and UK during 2004 to 2005. As well as Toyota, Davis and Moy also cite Café Direct as bucking the declining trend in the UK coffee sector, with their freeze-dried coffee, which they source at "better than Fairtrade standards". Neglecting sustainable design or "green" issues is no longer an option for product designers. For these reasons, the commercialisation and business development lectures, to product design students at Bournemouth University, focus on the Societal Marketing Concept. Students are encouraged to think about meeting consumer needs which are relatively constant, by providing product solutions that will be influenced by environmental and ethical concerns.

Whilst the success of sustainable products in the past has to some extent relied upon generating feelings of guilt, Barzilay [1] comments that successful market introduction of sustainable products is also a function of "legislative measures" or the "proactive measures taken by the industry". Whatever the driver for change, it is clear that the sustainability agenda must now be considered in all product designs and it is important, therefore, that universities encourage students to explore issues such as Life Cycle Analysis and Lean Design as well as the more traditional technical, functional and humanistic issues.

Developing products that balance consumer desire against the long term societal interests is a visionary theorization for some students. The idea of balancing consumer desire against society's well being does not necessarily provide what their customer wants. Convincing students that the Societal Marketing Concept is a business philosophy that should be considered is sometimes difficult.

3 PRODUCT-RELATED DECISION-MAKING

The decision-making process of consumers is affected by an array of a combination of complex influences that will also include, amongst other things, their individual emotions and impulses, price sensitivity, social class, culture, personality and lifestyle as well as situational influences that will include the economy and technology. Referring to figure 1, the point at which a purchase is made does not take place until the fourth phase, "Decision to Purchase".

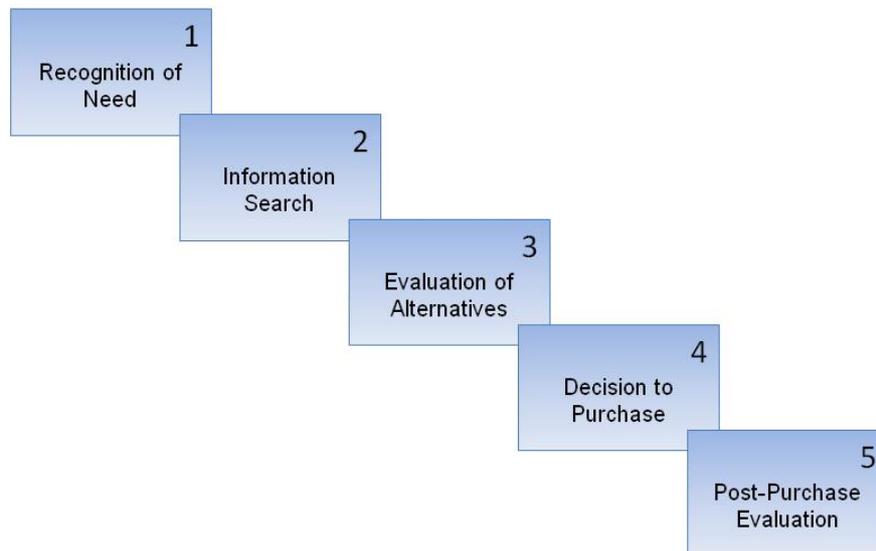


Figure 1 The five phases of the consumers' decision-making process

The first three phases, therefore, take place before a purchase is made, and it is arguable that whilst the product designer should be acutely aware of what all of these phases entail, understanding the complexities that affect the final decision is also crucially important. Purchasing decisions are often based on information presented at the point-of-sale. If, for example, a consumer is told that a product does not harm the environment, or that it benefits a producer in the developing-world, then they are likely to believe this. Consumers are never told that the struggling producer in the developing country uses unsustainable methods for production or that the environmentally friendly product unfairly exploits the local population that produce it. Consumers in modern society tend to be so far removed from producers that, despite the breadth of information available to them (via sources such as the internet), it is almost impossible to buy a product and to know its life-cycle history up to the point of purchase. Even the most cynical, conscientious consumer will struggle to do the background research necessary to determine whether their weekly shopping is as 'sustainable' as it could be. Therefore it is crucial that if consumers are to be better able to make these judgments that they should have access to the necessary information and in a format that is concise, consistent and comparable.

Consumers clearly do base their purchase decisions on environmental and ethical considerations for a wide range of products. For example, household electrical appliances, such as fridges and freezers, are now specified in terms of their energy efficiency. Retail data shows that around 90% of purchase decisions for 'white goods' are based on reduced energy consumption and that the large majority of consumers would consciously choose a car that is less polluting. From an environmental perspective, 'brown goods', i.e., household electrical entertainment appliances which includes CD players, TVs, and camcorders, are not particularly energy efficient and have short life spans. In part, these issues are being dealt with through legislative measures such as the WEEE Directive, which specifies that 'brown goods' should have a longer life span in order to reduce the amount of waste that inevitably ends up in landfill.

But while it is one thing to know the full life-cycle impact of jar of coffee, it's quite another to know whether a complex product, that incorporates materials and components imported from other parts of the world, is sustainable and what ethical stance (if any) was adopted by all those that had a part in its manufacture. It is, therefore, quite unrealistic to expect consumers to make informed decisions based on the information available to them at the time of purchase.

With any consumer product there will be some level of post-purchase evaluation, i.e. the final evaluation phase. It is during this phase that consumers will contemplate whether their purchase has met their expectations. They will gain a better understanding of a number of the products' attributes which will include its quality and service life. Their development of these heuristics will provide them with an efficient way of dealing with future and repeat purchase decisions and will also serve as the foundation for brand loyalty. For the societal issues to be reinforced, sustainability must be recognised during the post purchase evaluation phase and where possible linked to brand identity.

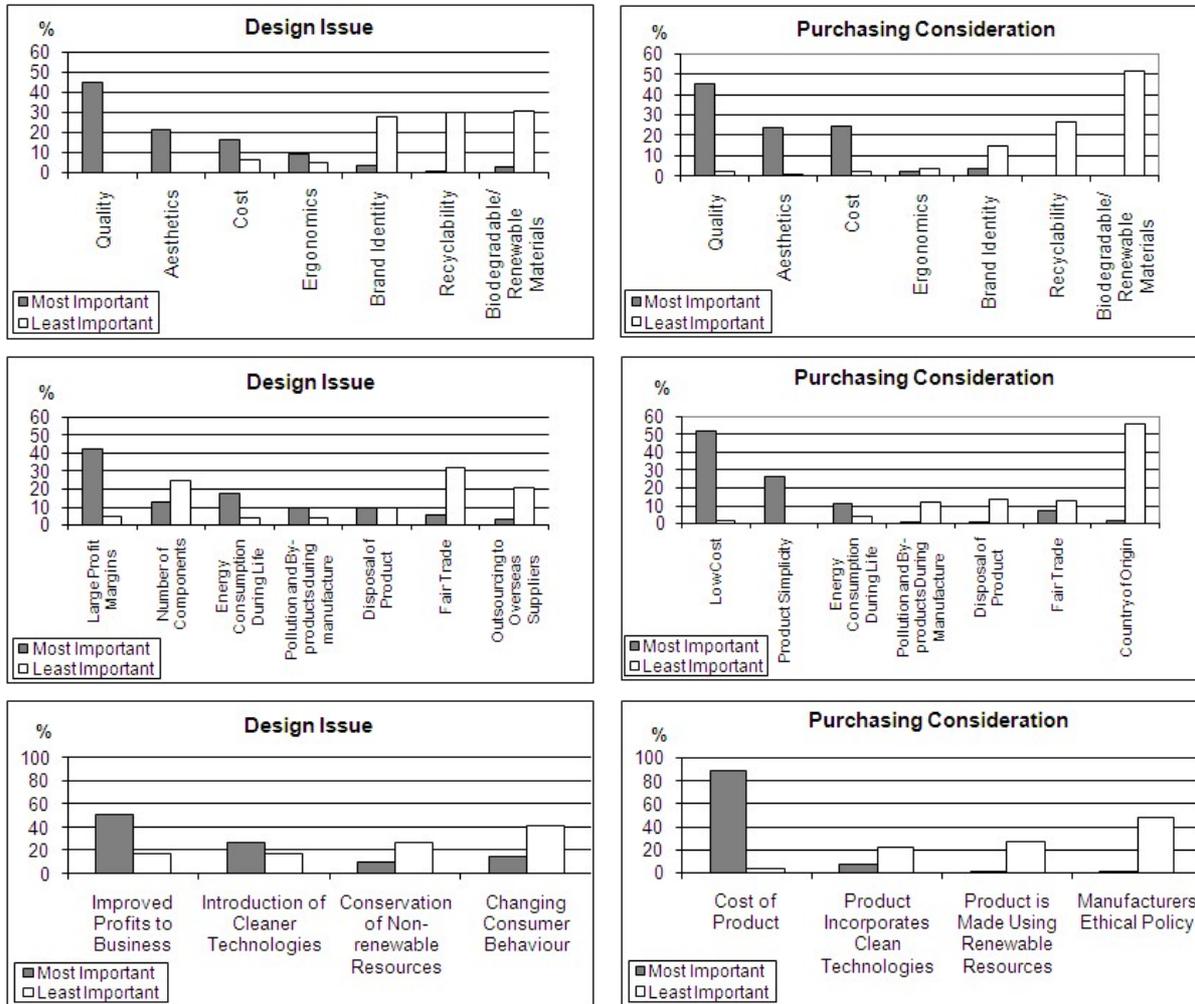
4 CONTEXT AND METHODS

Sustainability has been incorporated into the design curriculum at Bournemouth University for some time. This study was initially prompted by reflection on this provision and the impact it has had on the work that the students do in the course of their study. Issues associated with the sustainability agenda have permeated various elements of the Design course syllabi in units that include projects, materials and manufacturing and business. To ascertain the degree of overall impact, a survey was carried out in early 2009 amongst more than 200 undergraduate design students to establish the way in which they consider sustainable issues, either as designers or as consumers. Two questionnaires were designed with correlating criteria, to represent key decisions that could arise during a design project or a purchase occasion. Half of the students were asked to rank criteria relating to their design approach while the other half were asked to rank similar criteria in relation to their purchasing habits. The students were not told the nature or purpose of the survey or which group they were in, only that their responses should reflect their own opinions. The results were subsequently collated and broken down by design-course and academic level to see whether the results differed depending on the nature of the design course the students were studying or their stage in design education.

5 ANALYSIS OF THE RESULTS

The results showed some areas of differentiation between age cohorts and subject discipline but not in relation to sustainability issues where the greatest level of correlation was evident. Overall, the students regarded issues of sustainability to be the least important design or purchasing considerations, those criteria being consistently ranked lower than others such as aesthetics, quality, ergonomics and cost (See Figures 1-6). Whilst students are encouraged to reflect upon sustainable and ethical issues as part of their degree course, it is clear from the primary research conducted among undergraduate product design students, that their consideration to these issues, during the design process, more closely follows that of their individual purchase behaviour. We should not be surprised at this. As Davis and Moy [2] point out, as age cohorts increase, so does their affluence and idealisms, and accordingly they will be, "significantly more likely to buy ethical brands". But if industry is to become more sustainable then it is today's students that must develop empathy and understanding for what it is to be just that, both in their work as well as in their consumption. However, while the profile of sustainability has been raised by significant media attention and rhetoric, students do not feel motivated to engage with this aspect of design. Most undergraduate students study design because they want to learn to design products and artefacts that will be attractive and commercially successful. Relatively few students appreciate what is required to really make those products and artefacts sustainable throughout their life cycle. To give an example; when a piece of coursework was set (across the entire 2nd year of Bournemouth University's design framework) that required the students to produce an appraisal of the sustainability issues surrounding an aerosol can, most students reported back on the recyclability of the materials and some considered ways to reduce pollution associated with production and transportation. None of the 120 plus students suggested how the design could be redesigned from scratch to provide a fundamentally improved solution over the existing product. Sustainability issues are broad and complex and hence difficult to teach, as well as learn. Packaging them in a way that is convenient for teaching may reduce some of the problems associated with delivery, but it doesn't necessarily make them easier to comprehend. Where students can see a design consideration as a box to tick, they will more-than-likely pay lip-service to it (e.g. by providing such data as the recyclability of a selected material etc.) than consider the real issues that might be to the detriment of their preferred concept. Where students struggle to acquire sufficient information to solve the relevant issues they will naturally, wherever possible, avoid them. Decisions made at the concept selection stage have far reaching consequences, particularly in relation to sustainability. Without the necessary tools or information being available, the consequences of such decisions can be

very hard to predict and are therefore difficult to take into consideration. At Bournemouth University, where final year students propose their own major design projects, there has been an array of 'sustainability' related projects in recent years. While it is encouraging to see that students are considering these issues, the reality is that most product design students find that proposing a design project that is original and achievable while meeting the pre-requisite academic challenges of an undergraduate degree is no small demand in itself. Sustainability offers apparent opportunities for them to apply their particular design skills and knowledge of technology to innovative applications.



But while the projects fall beneath the sustainability mantle and are, on merit, largely successful, the broader and less tangible issues associated with sustainability often remain unaddressed. The range of sustainability issues associated with a typical design project can be so broad and diverse (such as 2nd or 3rd order considerations of material supply, energy consumption and disposal) that to consider them all would increase a project's complexity exponentially.

Figures 1-6. Respondents' ranking of design issues versus purchasing considerations

6 CONCLUSION

Whilst the sample for the research undertaken was limited to Bournemouth University design students, it seems likely that, assuming that this was a representative sample of students studying elsewhere, undergraduates following product design related degrees, design around their own purchase behavioral characteristics which do not necessarily take on board sustainability considerations. This conclusion closely aligns to research findings that have been conducted by others in relation to ethical consumption and different age groups of consumers.

From a student perspective, to 'design sustainably' is not an easily achievable task. By its nature sustainability poses a great number of very complex issues that must be considered and balanced against an array of different assessment criteria. When addressing the technological and humanistic

issues of their designs, students are mostly able to demonstrate synthesis. Introducing sustainability to their designs, however, will sometimes introduce product compromise and uncertainty, therefore making them less attractive to consider and/or combine.

Clearly, in order to design and develop sustainable products, product design students must have a detailed understanding of the ecological system in the context of their product. Design projects undertaken throughout the entirety of an undergraduate student's education should provide opportunities that motivate students to engage with the finer aspects of sustainability. This would be preferable to distinct 'sustainable design projects', that students may regard as quirky or contrived, as ultimately all design needs to be properly sustainable. As educators, we must consider how we can encourage them to address the sustainable agenda not through ideology but through pragmatic means. To do this, we must develop our own knowledge so that we fully understand how the sustainable agenda interacts with the design process. This will enable us to develop the learning strategy within our institutions so that our students are prepared for the future.

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