

# Integrating Product Emotions Study in the Industrial Design Education for Sustaining Affective Consumers

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## Abstract

*This article highlights the importance of product emotions study in the industrial design education. The incorporation of product emotions during the design of an artefact is important as it embodies the socio-cultural preference towards that artefact, hence supporting one of the three sustainable development components—social sustainability. Therefore, through the application of product emotions study, Malaysian products could elicit positive emotions that will lead to consumer-product's 'affective sustainability.' We conducted a preliminary survey among the industrial design academia to gauge how we can effectively incorporate the product emotions component into the Malaysian tertiary curriculum. We first present a selected background literature on product emotions and explain the types of response processing using examples from the market. We then explain our research method and present the results and analysis. At the conclusion of this article, we recommend how industrial design education can integrate the aspect of product emotions in its curriculum and highlight the need for research in this area if Malaysian products wish to gain sustainable affection in the global markets. We hope that the successful integration of product emotions will enable local manufacturers to improve their sales revenue and develop larger market for their products.*

**Keywords:** Product Emotions, Affective Consumer, Product Design, Styling

## 1. Introduction

The incorporation of product emotions is important as it embodies the socio-cultural preference towards such artefact, hence supporting one of the three sustainable development components—social sustainability. Tan Sri Dr. Ahmad Tajuddin, in his welcome address during the First International

Industrial Design Conference held in Kuala Lumpur, Malaysia in 1991 said that, "The consumer of today are far more conscious of quality than ever before and are willing to pay for products that not only meet the highest specifications but, for certain market segments, products that are also a cut above the rest in that they are aesthetically satisfying."

Truly the sophisticated Malaysian consumers are more conscious in 'the style' of the product they buy. Some are very particular in its branding and are willing to spend more money on certain expensive items of their likings. The increasing popularity of foreign-interest companies such as Ikea, Tesco, Marks and Spencer, and Debenhams shows that good product design and styling is well accepted by Malaysians and is their number one priority. Moreover, massive imported goods from overseas have been invading our local shops for many years and this strongly proves that Malaysians accept the western influence without much hesitation.

When consumers view and interact with beautiful artefacts that surround them, they would experience much happiness and pleasurable feelings. The feeling of happiness is an example of the ability of the artefact to elicit emotions. Other feelings include surprise, elegance, interest, etc. that match the consumers' expectation and experience. Here, the role of designers is valued as they are responsible for producing artefacts that have the ability to elicit the above-mentioned qualities. The success of an artefact depends on how well the designer creates its appearance, and how the artefact functions for the consumer. Despite this inherent importance of both needs, Malaysian designers prefer to concentrate on one that is developing the outlook for the artefact. Having a good outlook means that the artefact carries certain aesthetical beauty quality that solicits the users' preference when buying a product. However, many scholars (such as Detmer, 1991; Hodges, et al., 1997) state that aesthetics alone is insufficient to ensure long-term affection towards certain artefacts.



Consumers have long realized since the Age of Streamlining of the automotive industry in the 1930's that the combination of aesthetics and styling in their surrounding artefacts could shape the world, and determine how they live in. With substantial changes in current economical, social and technological understandings, manufacturers are encouraged to produce with a purpose to cater the demands of 'style-conscious' social groups. This trend is apparent today as reported by Hodges, et al. (1997) that, '*Increasingly, 'style-conscious' goods began to penetrate the mass market and alter the life-styles of vast numbers of people*' and without neglecting the main functional purpose.

New artefacts that are currently displayed on the shelves portray attractive designs that encompass the understanding of design concept, color, shape, rhythm, dominance, balance, transition, variety, and unity. Technology is no less important as it plays an important role to make the product saleable besides pure styling. The good combination of design and technology can be described then as successful in fulfilling the user's needs. However, we have difficulty in distinguishing on the basis of their technical characteristics, quality and pricing. A good example is the mobile phone. How does one price a Nokia vs. a Motorola cell phone unit?

We note that most Malaysian manufacturers generally emphasize on the styling and technical features, and giving less consideration to the aspects of consumer affection including product experience—an aspect that is closely related to pleasure and emotions. Hence, this is one area that Malaysian design researchers must improve upon. We can create a greater advantage for manufacturers in fulfilling user preferences by integrating the psychological interaction between the artefact and the consumer.

We posit that good psychological interaction is very important since the character and the performance of an artefact would determine the mood and feelings of the consumer. When the artefact's response exceeds our expectation, it will definitely produce the feelings of satisfaction and happiness. On the contrary, negative thoughts will emerge instead that will eventually lead to feelings of dissatisfaction, anger, disappointment and boredom. Therefore, we posit that Malaysian designers—more so the future designers—must understand and apply the psychology of the consumers' emotional responses towards any kind of artefacts they create. No more can they depend on their designers' construal. This emerging responsive elicitation through design is recognized as the 'Product Emotions' study (Desmet and Hekkert, 2002).

For the Malaysian automotive industry, the awareness to require product emotions study for the local brands becomes critical when many brands are unable to provide intangible emotional benefits that meet the consumers' preference. A statement by the Taylor Nelson Sofress's Malaysia Group Account Director, Kamarul Salleh mentioned that, "*successful brands are characterized by the ability to provide intangible emotional benefits that buyers want while keeping existing owners satisfied and committed to their brands. Proton and Perodua are relatively weak on these factors, which point to the potential threat to their market dominance as competition intensifies*" (Business Times, 7<sup>th</sup> October 2005<sup>1</sup>).

Such statement points to the need for the local automotive manufacturers to venture into new methods in fulfilling customers' expectations and become competitive globally. If this drive is followed through, there is a very good chance for the local brands to affect a shift in marketplace for "*Japanese cars Honda and Toyota are Malaysian favorites in the non-luxury segment, while Mercedes and BMW are the luxury car of choice in the country, according to a recent study.*" (Ibid.).

Against this background introduction, we introduce the term *product emotions* and using successful products as comparisons, explain the different response-processing types an artefact could elicit. Then, we present our survey method, its results, and conclude with a discussion on how industrial design education can integrate the aspect of product emotions in its curriculum. The article also highlights the need for research in the area of product emotions in order for Malaysian products to gain sustainable consumer affection in the global markets.

## **2. Background Literature**

In most developed countries in US, Europe and Asia, product emotions study has been widely practiced and some of the products from these countries are categorized as pleasurable products. Big companies like Nokia, Philip and Nike adopt emotional design strategy for their product development in order to increase their sales volume and customer's emotional satisfaction (Desmet, et al., 2003). In this section, we present selected articles that will help us define the term product emotions and the types of responses affiliated with them.



## 2.1 Definition of product emotions

Product emotions are composed upon the intangible understanding defined as the process of psychological interaction between consumers and the artefact (Desmet, 1990; Desmet and Hekkert, 2002). The resultant artefact produced after such a study has been undertaken during its product development lifecycle can be called as an 'emotive product' (ibid.). Desmet (1990) argues that product emotions are not special types of emotions, but are as 'real' as, and have the same qualities as the emotions we experience in our social interaction. We can feel cuddly when we have many soft pillows on a sofa for example. Furthermore, most people queried whether an artefact could elicit emotions at all. Desmet and Hekkert (2002) answered that the artefact could when it could act as an emotional stimulus. Similarly, the matching concern is that the artefact could also correspond or collide with these stimuli. Hence, design is successful when the artefact elicits positive feelings towards its purchase, and on the contrary it is unsuccessful if consumers reject it.

An artefact that consists of good styling together with useful function will normally elicit emotions that stimulate the user's emotional responses towards it as long as the artefact matches the consumer's concerns. In this context, concerns represent the user's objectives or preferences prior to purchasing a product. One person, for instance, may like *Proton Perdana V6*, whereas the same car model may disappoint another person. It depends on the emotional response level elicited by the car that matches with the user's objectives or preferences. Desmet (1990) explains the process of psychological interaction between consumer and product in a basic model of product emotions in Figure 1.

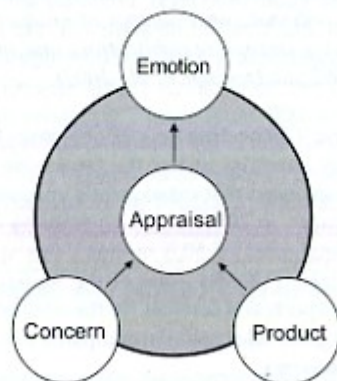


Figure 1: The basic model of product emotions  
(Adapted from Desmet, 1990; Fig. 1)

Figure 1 explains the basic process of how products are being evaluated psychologically. Initially, human will choose to buy a product base on their concern. For example, 'Why do I feel attracted to a raincoat? Because I have a concern of staying dry during a golf tournament.' This illustrates a process of signaling a personal relevancy (i.e., having a dry appearance) towards a product (i.e., a raincoat) due to a concern (i.e., if it rains during a golf tournament) that is conceptualized as a process of appraisal (i.e., the importance of having a raincoat). Desmet (1990) states that an artefact will only elicit emotions if it either matches or mismatches a concern. Here, the appraisal may end with the reasoning that "I will buy a raincoat if it looks like it is going to rain at the golf tournament."

## 2.2 Types of affective response and processing in product emotions study

It is not an easy task to decide on how consumers end up purchasing an artefact that suits their preference or objectives. Usually a decision will be made after the consumer appraised the product outlook and function that matches his or her concern and this can be considered as a process for establishing an affective response between product and user. According to Norman (2004), there are three types of affective response and processing: *visceral*, *behavioral* and *reflective*.

*Visceral processing.* Visceral processing deals with the attractive element of a product such as beauty. It is associated with the understanding of how things look, feel and sound. For example, the new Proton Perdana V6 is considered as a visceral design of a car that has the elegant look which portrays the Malaysian symbol of identity that is the emblem resembling the 'Wau Bulan' of Kelantan. Looking at the emblem we can associate it with the Malaysian Airlines (MAS) logo, which also portrays the same 'Wau Bulan' concept but is slightly different in its shape.





Figure 2 – Proton Perdana V6  
(available from <http://www.proton.com>)

*Behavioral Processing.* Behavioral processing is about activities that relate to subconscious level of everyday action such as walking, running, talking, etc. For instance, people who want to operate a newly designed mobile phone will have to learn about the functions of the keypad and interfaces gradually. To familiarize with the keypad and interfaces, they must ‘play’ with the product repeatedly until they become subconsciously capable of operating the product. In product emotions principal, behavioral design is about usage. Norman (1988) explains that performance is much related to the function of a product. No doubt, most of the consumers’ priority when buying an artefact is about appearance, but some will look for a well-functioned artefact. In this case, when the artefact functions well, it definitely will satisfy the consumer emotionally and this gives advantage to the manufacturer when it creates a sense of brand loyalty. Nokia is considered as one of the leading brands of cellular phones because it has created brand loyalty by introducing good design and user-friendly interfaces in their products.

For the design of products, the design process is a complex one. It involves many factors such as the user's needs, the product's function, the product's appearance, and the product's cost. The design process is a continuous one, and it involves many iterations. The design process is a complex one, and it involves many factors such as the user's needs, the product's function, the product's appearance, and the product's cost. The design process is a continuous one, and it involves many iterations.



Figure 3 – Nokia 9500  
(available from <http://www.shop500.com/Nokia-9500-Communicator-karta-MMC-128-MB-p>)

Furthermore, Nokia also uses emotional design strategy for their product development in order to increase its sales volume and customer’s emotional satisfaction. Desmet et al. (2003) found that, “Major corporations (e.g. Nokia, Philips, Nike) claim to have adopted an emotional design strategy for their product development, and design research has accepted this new interest for the experiential or emotional consequences of product use with open arms, leading to an increasing amount of publications and specialized conferences (Green & Jordan, 2002; McDonagh, et al., 2003).

Nokia’s catchy tagline ‘Connecting People’ increases the total sales volume tremendously in many countries and at the same time develops intense and loyal relationship among users that subsequently encourage others to purchase this product. Furthermore, in 2004, Nokia emerged as the top-selling mobile phone maker, with total sales of 50.6 million. This statement was strongly supported by *IC Insights (YEAR)*—one of the leading providers of market research and analysis reports and services for the integrated circuit industry)—which shows Nokia’s good sales position compared to other brands of leading mobile phone manufacturers.



*Reflective Processing.* The third type is reflective processing, which is about the user's image or prestige when using certain products. It is about creating things that you want to show off to people. For example, Titleist golf products (see Figure 4). This expensive product is usually for those who can afford it, with self-image purposes besides its good performance. The self-image created by Titleist when using their products shows the user's exclusive and prestigious taste. Furthermore, the sponsorship of few famous golfers such as Ernie Els, Davis Love III, Adam Scott and others has given the urge for golfers to own this 'high emotional appeal' product, which increases the passion towards the game and this brand.



Figure 4 - Titleist 690 MB Iron  
(available from <http://www.titleist.com>)

To date, subconsciously, most products in the market portray these three levels of processing and attractive response. Many fulfill the consumers' criterion but some do not. For instance Proton Juara, one of the Malaysian pioneers in multi-passenger vehicles (MPV), experienced poor volume in its sale that Autoworld Emzine (REF) wrote about the failure of Mitsubishi Motors Corporation in producing Proton Juara. The article elaborated that, "...The two models were the Mitsubishi Town Box which became the Juara, and the Pajero Mini. The arrangement sounded so promising because MMC said that it would even consider taking Proton's production and selling them as Mitsubishi in Japan. But the **poor reception and sales** of the Juara probably disappointed Proton and behind the scenes, there also seemed to be disagreements with MMC over the two projects and they were quietly terminated."

There are also comments saying that the exterior part which resembles a 'fierce' looking 'profile for the face of the Juara MPV' is not suitable in the culture of Malaysian people who are 'friendly' and 'welcoming' (see Figure 5). Similar

incident has happened in Japan where Japanese consumers rejected an American design for a new car because it was not 'smiling' (Baxter, 1995). Again, it is the consumers' emotions and culture that are involved, and must be considered seriously by designers.



Figure 5 - Juara MPV that failed to attract consumers  
(available from [http://ms.wikipedia.org/wiki/Proton\\_Juara](http://ms.wikipedia.org/wiki/Proton_Juara))

This shows that the Malaysian car user's consideration ranks high towards the visceral (appearance or styling) and reflective (the image portrayed when choosing a product) levels of processing. Furthermore, for Malaysian manufacturers and designers, it is a message for them to take serious action in conducting emotion study to ensure the success of the product they design and manufacture.

### 3. Research Methodology

Our background problem and literature review illustrate the importance of product emotions study to increase market shares for designed artefacts. We initiated a preliminary survey among sixteen (16) academicians in the industrial design fields at four (4) public higher learning institutions in Malaysia to gauge the acceptance level of including product emotions study within the industrial design education at tertiary level. We seek the following understanding among the academicians on:

- i) The awareness of academicians towards product emotions study. We anticipate an inclination of negative responses since none of the public universities include product emotions study in their curricula.
- ii) From which sources do industrial designers gather information on product emotions. We have listed the sources to include friends or colleagues, magazines, the internet, and books. We expect the internet to be the main source for product emotions study.



- iii) The level of understanding about product emotions study during the design of an artefact. Four categories of basic design consideration have been identified that are form/shape, function, interface design, and color. We expect the form/shape to dominate, as Malaysian industrial designers tend to follow consumers' style preferences.
- iv) The necessity for teaching product emotions study since current industrial design practice does not stress on design psychology.
- v) The level where the product emotions study can be integrated. We expect the component to be introduced as soon as possible due to its importance.
- vi) The stage when industrial designers should apply the product emotions study in a product development lifecycle. We believe product emotions studies should be conducted as early as possible.

The results were analyzed using descriptive analysis and presented in graph format in Section 4 below.

#### 4. Results and Analysis

The response rate among the respondents is 100% since the survey was conducted at the four public universities offering industrial design programs at undergraduate level. Based on the results obtained through the preliminary survey, about 90% of the industrial designers in the Malaysian academia are aware of the existence of product emotions study during the design of an artefact (see Figure 6). The results do not support our assumption that the local industrial design academics are unaware of this important component, and the need for further study on the reason why this happened should be advocated.

As to where the respondents acquire their product emotions information, results show that about 50% of the respondent obtained the information from the internet, about 20% from friends and books, and about 10% from magazines (see Figure 7). Information on product emotions is easily available through the internet, compared to books and magazines as they are very limited in the country. There is a dearth of titles in the main campus library of these public higher learning institutions.

Awareness on Product Emotions Study

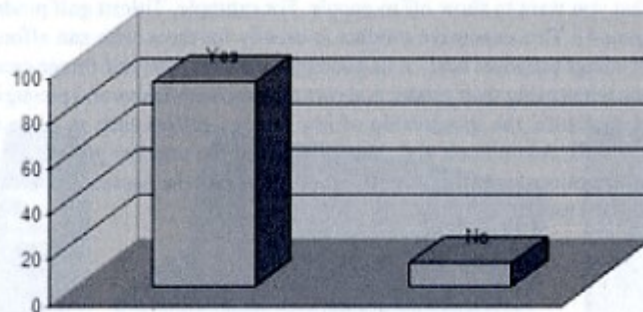


Figure 6: Awareness on Product Emotions Study

Source of Information

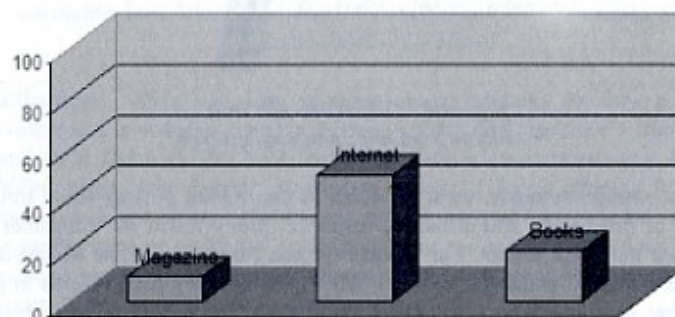


Figure 7: Source of Information

The results on the third inquiry show that 80% of the academicians consider all the four basic design elements (i.e., form/shape, function, interface design, and color) equally important elements in a product emotions study. The results (see Figure 8) do not support our earlier assumption that Malaysian industrial designers prioritize form/shape during the design of artefacts. It is heartening to know this fact since their support is critical in integrating product emotions study in the industrial design education.

### Basic Understanding on Product Emotions

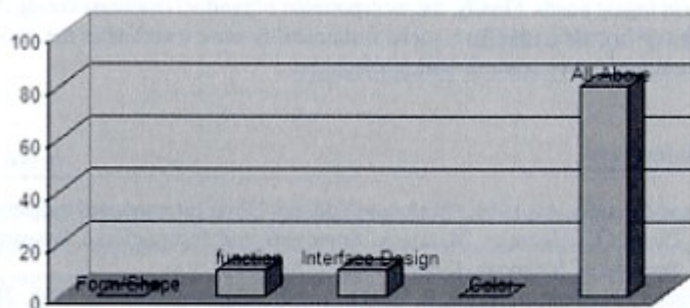


Figure 8: Basic Understanding on Product Emotions

Industrial designers believe that it is a necessity to teach the product emotions study at higher education level (see Figure 9). It is very important since industrial designers in practice do not stress much on the design psychology during the product development process. In fact, all of the respondents agree that it is necessary to introduce product emotions study if Malaysia wants to produce excellent designers who have knowledge on eliciting customers' emotional satisfaction.

### Necessity of Teaching Product Emotions Study

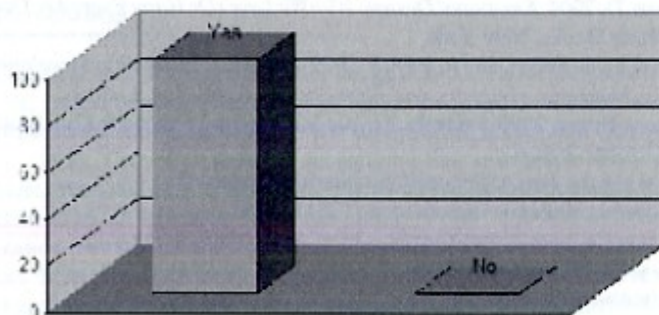


Figure 9: Necessity of Teaching Product Emotions Study

With all the respondents indicating the need to integrate product emotions study in the industrial design curriculum, 50% of them also indicate that the best time for its introduction is in the second year of a 4-year program (see Figure 10). The other 50% are distributed between the first, third, and fourth year of an undergraduate program. Our assumption is supported because the second year is the year when students are introduced to the design studio that have subject matters where they can test and apply product emotions study.

### Level of Teaching Product Emotions Study at Higher Education

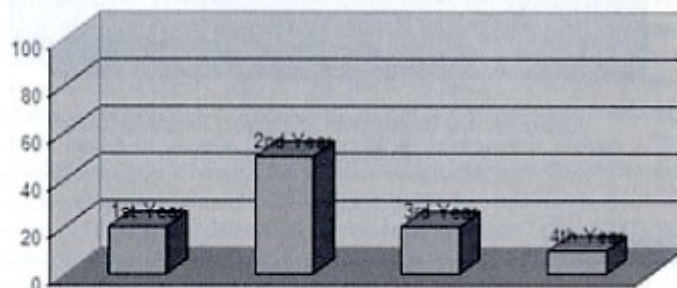


Figure 10: Level of Teaching Product Emotions Study at Higher Education.

Pertaining to the final inquiry as to when industrial designers should apply product emotions studies in a product development lifecycle, about 50% of the respondents believe that it should be applied during the research and investigation process (see Figure 11). It supports our assumption that the product emotions study should be conducted as early as possible. In this instance, multiple designers are involved at this very early stage. We also note a regression of product emotions study in the subsequent concept development, idea generation, and other life-cycle phases. It supports an earlier study by Ibrahim and Paulson (2005) that early understanding of the social needs have strong influence at earlier stages of the product development lifecycle, which regresses as the process progress.



## The Application of Product Emotions Study in Design Process

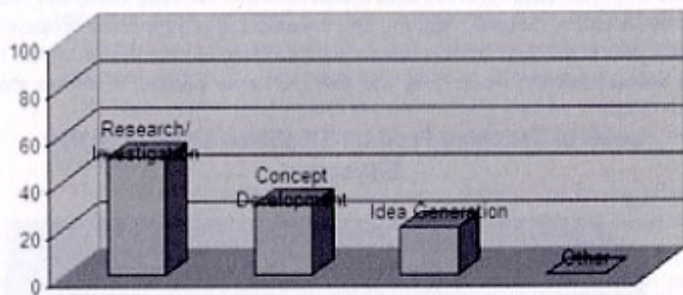


Figure 11: The Application of Product Emotions Study in Design Process

## 5. Conclusion

We have explained the importance of product emotions study and why the Malaysian design industry needs to incorporate this aspect during the product development lifecycle. The need becomes urgent now that Malaysian artefacts must sustain customer-product emotional ties as they compete at the global level. We described the three types of response processing—visceral, behavioral, and reflective—before describing the preliminary survey that we conducted among the public institutions of higher learning that offer industrial design programs in the country. To sum up, the preliminary survey indicates the lack of product emotions study during the product development lifecycle even when the academics believe that there is an urgent need to integrate product emotions study within the industrial design education at the tertiary level. While most product emotions information is available on the internet, there is a dearth of the product emotions subject matter in our local libraries as references for the students. We support that product emotions study would inculcate the skills and knowledge of the designers for ‘styling’ an artefact based on analytical and creative thinking during its development process. The study indicates that the best time to start acquiring this skill is at the second year of the tertiary education. Additionally, we also foresee the need for research in product emotions areas to encompass the followings 1) consumer emotional attachment in product appraisal and decision-making processes, 2) relating marketing approaches to product emotions studies, and 3) developing the

database for emotional responses for Malaysian products. We would like to propose such studies to focus on the automotive industry first due to its current urgent needs. Finally, the incorporation of product emotions during the design of an artefact supports social sustainability since it embodies the socio-cultural preference towards that artefact.

## 6. References

- Ahmad Tajuddin, Ali 1991, “Welcome Address,” First International Industrial Design Conference, Malaysia, Standards and International Research Institute of Malaysia. Kuala Lumpur, July 1991.
- Hodges, F., E. Dent, A. Stone, P. Sparke, and H. Aldersey-William. 1997. *The Design Source Book*, Knickerbocker Press, New York.
- Desmet, P. 1990. *Designing Emotions*. ID Studio Lab, Delft
- Desmet, P. 2003, A Multilayered of Product Emotions, *The Design Journal*, The European Academy of Design, Lancaster University.
- Desmet, P., and P. Hekkert. 2002. *The Basis of Product Emotions*. Taylor and Francis, London.
- Norman, E.A. 1988. *The Design of Everyday Things*. Bantam Doubleday Dell Publishing Group, Inc., New York.
- Pieter, D, P. Hekkert and M. Hillen. 2003. Values and Emotions. *Proceedings of the Fifth European Academy of Design Conference*, organized by University of Barcelona in Barcelona, Spain on April 2003.
- Jack Schofield. 2004. “From Apples To Doorknobs,” *The Star*, April 8: p. 21.
- Baxter, M. 1995. *Product Design*. Chapman & Hall, London.
- Norman, D. 2004. *Emotional Design: Why We Love (Or Hate) Everyday Things*. Basic Books, New York.
- Jomo, K.S., G. Felker, and R. Rasiah. 1999. *Industrial Technology Development in Malaysia – Industry and Firm Studies*. Routledge, London.
- Business Times. 2005. “Honda, Toyota Malaysians’ Favourite Cars Study.” October 7: p. 4.
- <http://www.the-cma.org/council/emotionVsEmotion.cfm>
- <http://www.cellular.news.com/story/12511.shtml>
- <http://www.auto-asia.com/members/briefings/malaybriefing.shtml>
- <http://www.titliest.com/player/>
- <http://www.nokia.com.my>
- <http://www.proton.com>
- [http://ms.wikipedia.org/wiki/Proton\\_Juara](http://ms.wikipedia.org/wiki/Proton_Juara)
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