

Challenges of Sustainable Design in Malaysian Furniture Industry

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Abstract. During the last years, efforts to find more environmentally sound solutions have been getting stronger in business and production. Particularly, in developed countries sustainability has become a competitive factor for many manufacturing companies. However, for developing countries, which have started considering environmental problems as a new paradigm, there will be more challenges through less resource and experience. Rapid development and consequently high dependency on wide economic networks, force Malaysia, as one of the leading developing countries, to follow the global trends like sustainability. This paper helps illuminate the state of sustainability in Malaysia. The paper first discusses the issues and challenges that need to be addressed in the process of improving environmental performance in design and simultaneously considering social and economic concerns. In next part, it interprets the results of a qualitative study on furniture design teams in Klang Valley (the most developed state of Malaysia) considering their challenges of implementing sustainable design (SD) in practice. The findings of nineteen semi-structured interviews led to the conclusion that the major challenges contain: limited knowledge of SD principles among design teams, lack of awareness about sustainability among furniture buyers, lack of a clear vision for future progress of furniture industry in sustainability, lack of strategic thinking, and weakness in copyright law. Most of these problems have causal relationships to other challenges, which are discussed in conclusion section, and are caused by the fact that sustainability is still a new concept in Malaysia.

Keywords: Sustainability, Furniture Design, Design Challenges, Malaysian Furniture Industry

1. Introduction

Malaysia, as a country that affirmed sustainable development policies of World Commission for Environment and Development (WCED) in 1987, has to face the challenge of sustainability. In fact, “the concept of sustainable development has been introduced by the government since 1996 in Malaysia after realizing that problems with pollution have spread all over the country” [1]. Deforestation, hazardous wastes, water pollution and vehicular emissions are the other environmental problems that Malaysia has to deal with within the context of rapid development [2].

Products are defined as one of the major causes of these environmental problems [3]. It is also estimated that 75% of the environmental impacts that a product makes throughout its lifetime can be determined at the design stage [4]. The role of designers in this challenge, therefore, is indisputable. They are able to use the potential of SD to tackle the environmental problems. Sustainable product design enables manufacturing companies in addition to improving environmental performance; enhance their products’ efficiency and quality, and simultaneously develop their opportunities in the market [5].

Since Malaysia is today the world’s 10th largest producer of furniture, 3rd in Asia and 2nd in the ASEAN region [6], furniture design is an important area to be considered for implementing sustainability.

2. Challenges of Sustainability

Challenges of employing sustainability could be various depending on different factors such as the type of product, knowledge of established principles, consumers’ expectations, manufacturers’ policies and

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facilities, legislation, local resources, etc. In Malaysian furniture industry, a survey that is conducted in 2009 revealed that the adoption of green manufacturing practices is limited among wooden furniture producers [7]. Another study in 2008 discovered that the readiness to adopt chain of custody certification among wooden furniture manufacturers was low. [8]. This certification has the objective to ensure the wood products really come from an environmentally certified source. Although the number of studies on the environmental aspect of furniture industry is still small in the country, all results demonstrate the poor implementation of sustainability. In addition, integrating sustainability into furniture industry has not been studied from design perspective yet.

When companies try to embrace sustainability issue into their product design practice, they have to develop their own definitions about sustainability and ensure that the new principles are operational. Design managers frequently meet challenges such as making suitable design policy, controlling and evaluating SD process, and improving organizational learning. Management and design tools also need to be identified to integrate existing corporate resources into the sustainable product design process [9].

Many challenges would also rise due to a number of decision makers. Designers have to know how deal with these kinds of challenges too. Finding a patron to support SD concepts like a sympathetic upper manager, being up-to-date about environmental policies, and trying to work with the positive parts of these policies rather than thinking about applying pressure to change the policy are some of the suggested ways for facing these challenges and encounter obstacles in corporations [10].

3. Methodology

This study was conducted among a group of nineteen participants including designers, design managers and CEOs working in local office furniture companies and organizations within Klang Valley region. Klang Valley is located in Selangor which is the most developed and populated state of Malaysia with more socio-economic and environmental problems than other states through its high growth rate [1]. It was also a strategic choice because the majority of manufacturing units, especially the most productive furniture manufacturing plants of Selangor are located in this area [11].

Interview was employed as the mean for collecting data since March to September 2010. A purposeful sampling strategy was formed based on these considerations: research objectives and scope, time span, recommendations of MRM (Malaysia Design Council) and FITEC (Furniture Industry Technology Centre) members. Semi-structured questions were employed to discuss on: participants' view of sustainability and sustainable furniture, environmental policies in furniture companies, capability and performance of their companies and the main challenges in following the SD principles. The process of data analysis was done by help of Nvivo8 because of its ability in classification, data storage and applying codes to the qualitative data.

4. Findings and Discussion

After analyzing the collected data, the findings were divided into five categories based on their different themes. In each category, findings are derived from analysing coded portions of texts and then presented in chart forms. The numbers in each chart display the number of coding references to the related concept. In other words, these numbers are the number of participants mentioned the coded passage of text multiplied by the number of times that concept is mentioned directly or indirectly.

4.1. Designers-related challenges

The most significant problem, relating directly to designers' discipline, is the fact that all furniture companies do not have to produce original designs. Copying the existing product designs is common. Consequently, design experts do not have much opportunity to get involved in the process of product development in order to use their knowledge of sustainability or other patterns in design. Indeed, professional design advice is seen unnecessary. This problem can be seen as an independent challenge which is able to cause negative consequences for Malaysian design society in addition to weaken the role of designers in employing SD principles.

The second most mentioned problem was disbelief in profitability of SD. Participants kept insisting that the most important aim of all activities in business is increasing the sale and design is not an exception. In

fact, they did not see sustainability as a profitable strategy. This can demonstrate another challenge which was limited knowledge of SD principles. Participants were aware of the general advantages of SD but they did not have a comprehensive knowledge of relevant principles. In fact while each of them had an understanding of separate principles, there was still some confusion about the whole picture. As a case in point, they knew that using eco-friendly or recycled materials will end to a more sustainable product, but they did not know how this strategy will help the business to make profit. It is true that SD will derive economic benefits through saving costs, but achieving the saving goals requires a strategic approach that integrates sustainability into all aspects of design and production. Following just one principle, such as selecting renewable materials, and include it in the traditional process will not end in saving.

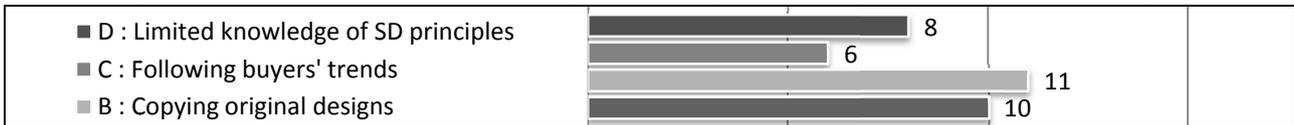


Figure. 1: Designers-related challenges; the number of coding references

Finally, some interviewees discussed that there is little benefit of following sustainability when it is not important for furniture buyers.

4.2. Company-related challenges

This group includes the challenges related to the culture, policies, technologies, approaches, and management systems in the studied companies. Among all discovered challenges, nothing is comparable with the fact that sustainability is not a priority for companies. It makes sense to claim that other mentioned problems in the chart will automatically end to this serious challenge.

One major problem was designers' lack of active involvement in the process of decision making which can lead to downgrading designers' ability in problem solving. This discovered challenge reaffirms the result of the previous study which demonstrated that one reason for current unsustainable product development is the non-participation of designers in final decision making and their lack of accountability to action [12]. Although the fact that designers are not involved in decision making was categorized as company-related challenges, it does not mean that designers must just wait to be given the opportunity to play an active role in supporting SD strategies and talk about it as a problem that they cannot help. Indeed second result of designers' complaint about not being involved in decision-making can be the reality that designers do not feel themselves in the front row of change.



Figure. 2: Company-related challenges; the number of coding references

Furthermore, participants mentioned that they were not sure whether sustainable products will worth changing production facilities. Their emphasis was on the lack of technology, proper facilities, and appropriate suppliers, while similar studies underlined lack of appropriate tools and methods for integrating sustainability, a system of knowledge sharing, and a large skill set of sustainable product design [13]. In general, the discussed changes in the present study were mostly related to infrastructures and basic issues. Some interviewees also noted that design is not undertaken as a formal activity in some manufacturing situations, which is not a surprising finding because of the mentioned weak copyright laws.

4.3. Customers-related challenges

Furniture buyers are not looking for sustainable products. Participants mentioned this fact by referring to the different purchase trends among their customers which are not compatible with environmental concerns. Some believed that this problem has its root in unknown sustainability issues to public in Malaysia. In the other words, it is a new concept in the country. If buyers do not wish to purchase sustainable furniture, one of the reasons could be the fact that they do not know about the positive effects of sustainable products on their lives. However, although unawareness is a real challenge, it sounds that relying on existing buyers' standards and not introducing new trends to them, will not only help to achieve sustainable development, but also make designers' role more inactive. Designers can enable people to live in a sustainable way by regenerating the context in which they live. This capability of design, which is not developed by the participants of this study, is emphasized in other studies. To increase consumers' demand for sustainable products the recommended suggestions include: designing long lasting products to be appreciated in a sustainable consumption context; designing updatable products, for example by physical modularity; developing new and pleasing alternatives to increase the number of sustainable products in the market and consequently the choices for buyers [14] .



Figure. 3: Customers-related challenges; the number of coding references

4.4. Standard-related challenges

Participants referred to a need for a comprehensive standard or certificate specifically for sustainable products. They indicated that the current environmental certificates only focus on raw materials. Some also discussed the lack of one central standard for furniture production in the country which is led to the lack of internal policies among furniture companies. Environmental policies are definitely a part of them.

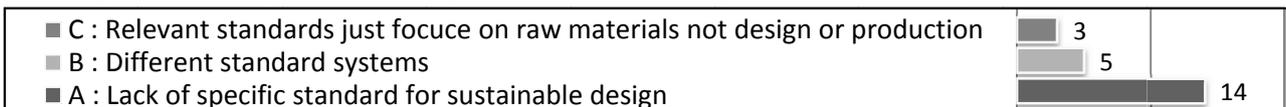


Figure. 4: Legislation-related challenges; the number of coding references

4.5. Government-related challenges

Although the existing standards of sustainability are developed mostly by government, particularly for government furniture suppliers and export makers, there is no strict enforcement of them. For instance, according to participants, in bids and RFPs (Request for Proposal) which are launched by government, SD is not considered as one of the main standards to be followed by producers who submit.

Some participants discussed about unchanging design standards in governmental projects. They pointed out that confirming final design for these projects is a long process and governmental organizations do not revise their standards quite often. When the design revision does not happen for a long period of time, companies' motivation for improving their designs by enhancing design values will not change as well. This is a damaging factor for sustainability, which is a new paradigm and needs to be seen as an improvement in the products' features.

By comparing with automotive industry, one interviewee correlated this situation in furniture industry to the lack of a clear vision for achieving sustainability. A close look at the government-related challenges reveals the importance of a powerful vision to help creating a disciplined framework and setting relevant standards. Strict enforcement is also needed to ensure following rules by furniture producers.

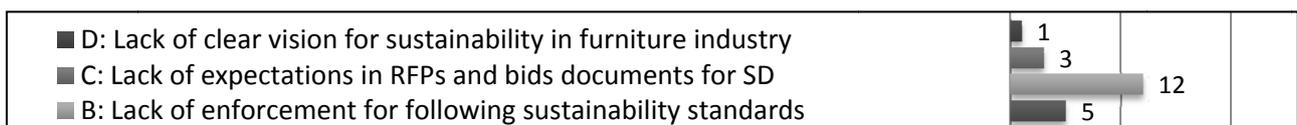


Figure. 5: Government-related challenges; the number of coding references

5. Conclusion

The findings have led to the conclusion that many problems are derived from the fact that sustainability is a new concept in Malaysia. The major difficulties to implement sustainable design principles in practice

are: limited knowledge of SD principles among design teams, lack of awareness about sustainability among furniture buyers, the lack of a clear vision for future progress of furniture industry in sustainability, the lack of strategic thinking, and weakness in copyright law. These problems resulted in the misconception that following sustainable design principles will reduce the profit in addition to fear of change in current facilities and process, weak sense of responsibility, lack of demand for buying sustainable products, lack of a rigorous standards, lack of enforcement to apply the standards, and finally weak involvement of designers in decision making. All mentioned problems led to the fact that sustainability is not a priority for office furniture companies.

To be set as a priority, sustainability needs to be introduced more in order to increase consumers' awareness and designers' knowledge of SD principles. In this way, furniture manufacturers will outline a powerful vision and consequently rigorous standards to achieve sustainable products.

Further work is required to evaluate the results of this study in a bigger sample size or different industry. Similar cases can be also studied as the resource for proposing practical solutions to the challenges.

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7. References

- [1] Sumiri, S.B., *Public Participation on Sustainable Development– Investigation of the Level of Sustainable Environmental Development, Understanding and Awareness, in Faculty of Civil Engineering*. 2008, Universiti Teknologi Malaysia.
- [2] Sumiani, Y., Y. Haslinda, and G. Lehman, *Environmental reporting in a developing country: a case study on status and implementation in Malaysia*. *Journal of Cleaner Production*, 2007. 15(10): p. 895-901.
- [3] Datschefschi, E., *The total beauty of sustainable products*. 2001, Switzerland: RotoVision SA. 176.
- [4] Diehl, J.C. and H. Brezet. *Design for Sustainability: An Approach for International Development, Transfer and Local Implementation*. in *EMSU 3*. 2004. Monterrey, Mexico.
- [5] Crul, M. and J.C. Diehl, *Design for Sustainability: A Practical Approach for Developing Economies*. 2006, United Nations Environmental Program: Paris.
- [6] MFPC, *Malaysia Furniture Trade Performance 2008*. 2009, Malaysian Furniture Promotion Council: Kuala Lumpur.
- [7] Ratnasingam, J. and K. Wagner, *Green manufacturing practices among wooden furniture manufacturers in Malaysia*. *European Journal of Wood and Wood Products*, 2009. 67(4): p. 485-486.
- [8] Ratnasingam, J., T.H. MacPherson, and F. Ioras, *An assessment of Malaysian wooden furniture manufacturers' readiness to embrace chain of custody (COC) certification*. *Untersuchung der Bereitschaft der Malaysischen Holzmöbelindustrie zu einer Chain-of-Custody-Zertifizierung*, 2008. 66(5): p. 339-343.
- [9] Yang, Y., *Managing sustainable product design by integrating corporate product development practice with ISO14001 Environmental Management Systems*. 2005, Arizona State University: United States -- Arizona.
- [10] IDSA, *Business-Ecodesign Tools, in Environmental Responsibility*. 2000: Virginia.
- [11] Hashim, N.J., *An investigation of factors leading to establishing downstream timber processing in Malaysia, in Wood Science and Forest Products*. 1998, Virginia Tech.
- [12] Mohammed, N., *Implementing EcoDesign in Design Consultancies: A welsh insight, in Science*. 2005, Cranfield University.
- [13] Richardson, J., T. Irwin, and C. Sherwin, *Design & Sustainability: A Scoping Report for the Sustainable Design Forum*. 2005.
- [14] Marchand, A., *Responsible consumption and design for sustainability*. 2009, University of Calgary (Canada): Canada. p. 202.