Linking Competencies with New Product Development For Malaysia SMEs Furniture Designers – An Overview

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ABSTRACT
Design becomes more relevant to growing furniture industry. Design strategy in New Product Development (NPD) is still weak in most Malaysia SMEs furniture manufacturers. Furniture business is highly competitive with shorter development cycle and low price strategy puts pressure to designers who work around the product development. Lack of competence that interlink with unclear work process hence aggravates the situation. This study determines the improvement of competencies during new furniture product development life cycle and ways to improve furniture product quality for SME furniture manufacturers. This study uses literature survey to determine the Product Life Cycle, Sustainability and Competencies as key enablers to enhancing NPD. Results of this paper would include reviews and identification of key enablers for enhancing NPD for furniture design improvement. The results are expected to lead toward enhancement of NPD for furniture manufacturing. After the introduction of the background problems, this paper will present literature on New Product Development improvement and describe the research methodology before presenting the expected result. This study contributes in enhancing understanding about the dynamic knowledge interaction in NPD in furniture industries. It provides strategies to reduce time-to-market and best practice in ways to integrate different functions such as competencies, knowledge and quality in SME furniture manufacturers.

INTRODUCTION

The furniture industry in Malaysia experiences significant and rapid changes, with some emerging challenges. Like any other industries, furniture manufacturers serve to large demanding customers. Short product life cycle and high customer expectations motivates furniture manufacturers to continuously improve their products. However, developing new products is not an easy task. Many furniture exporter countries shift their operations to cheaper producing countries, whilst Malaysia SME furniture manufacturers are still struggling to alleviate their level of performance.

Research has been carried out by (Quesada-Pineda & Gazo, 2007), found that flow charts, comparison matrices, performance indicators, and other types of process documentation are the gaps in many furniture manufacturers.

Furniture purchasing decision is not exclusively driven by price and functions. Many industries indicate that designers play an important role to grow the business. A well-designed furniture with comfortable and practical features usually appeals many purchasers. As an example, Kartell an Italian furniture maker revolutionize furniture business by introducing corporate roles of designers as part of business strategies with distinctive design (Verganti, 2006), (Dell’Era & Verganti, 2010). This is how designers can create niche market and provide competitiveness against others.

Methodology:
This study uses literature survey to determine the Competencies, Product Life Cycle and Sustainability for NPD and identification of key enablers for enhancing NPD.

Product Life cycle in New Product Development (NPD):
A Product Life Cycle (PLC) concept is a way to describe how a particular product evolves in stages. In the 80’s, PLC as described by (Short, 1985) emphasized that flexibility is the key to PLC. In contrast, design has been understood by many scholars as problem solving and problem framing activities, which leave gaps in product development. Not many people realize that by focusing on PLC, it...
reduces 20-50% of development time for a project (Griffin, 2002). Hence, SME furniture manufactures may adjust the product life cycle in the right approach that fit their capabilities and capacity.

NPD is a complex and time-consuming process that produces fail and successful products. The process either creates a new process or innovate the existing one. This scenario encourages engineers and designers to constantly explore new ways in order to keep products up to date with the expectation of the highly competitive market. (Ali, 2000) in his research posits that NPD will be successful only if the customers accept the products. He suggested that bringing the product too early to marketplace would not necessarily guarantee easy acceptance by inexperienced customers. This may contradict with their current behavior. (Szymanski, Kroff, & Troy, 2007) who argues that product that is innovative and new to market is more important than it is new to the firm. Therefore, due to limited expertise and resources along the product life cycle, it gives challenges to SMEs to meet this approach.

Formalized NPD commonly happens at large organizations (Berends, 2012). It involves risk; therefore, with lack of resources, SMEs may face many hurdles to apply formalized NPD. Besides their level execution of activities, many processes are not well structured and implemented. (Klepper, 1996) explains by saying that product and process innovation are closely linked. Organization will not focus to the product and process innovation until product showed slow in performance. Focusing on design is one way to initiate the NPD, (Fabricius, 1994) sees that many organizations started to address design as way to speed up productivity and development. Even though many think that rapid technology advancement is the most crucial in NPD. On contrary, it actually starts with ideas.

Understanding PLC for Organization Sustainability:

Many sustainability initiatives have been made in furniture industry with numerous process changes. No doubt, this showed that design for sustainability also raises an increasing trend. (Valipoor & Ujang, 2011); (Chiu & Chu, 2012) found that most sustainability efforts committed in environmental performance. (Cross, 2007) in his article identified that sustainability starts with observation around society, new behaviors, new organization models and new ways of living. His evaluation includes that sustainability is dominantly driven by cost, environment and material that confront the designers’ traditional way to acquire new skills or competence. Imparting those features it may change the way designer think and develop the products. For example, the use of rubber wood can be categorized as environmentally friendly (Ng & K., 2012) that give advantage for this highly competitive business. This study is agreeable by (Abdullah, Zahari, & Lamat, 2013) that durable material of wood emphasize the sustainability with combination of product and culture.

Clearly this shows that, the whole life cycle process becomes more complex. (Chiu & Chu, 2012) evaluated Spagenberg et al. who identified skills, creating change agent, awareness, learning together, ethical responsibilities and synergy as principles for design sustainability. Many parts of the study show that sustainable design supports new product development and the challenges are along the development cycle which agreeable with (Cross, 2007). Even though the designers through dynamic integrated activities have substantially made the progress during the PLC, the impact may not immediate or may not yield the desired outcomes.

Many researchers indicated the importance of sustainability, however with lack of finance, human resources and expertise they may prevent SME companies to achieve the desired benefits in short period of time. SMEs must be creative to find ways in order to inform the customers on sustainability efforts that had been taken that impacting their products.

Designer Competencies during Product Life Cycle:

Furniture design is no longer about a creative art. Customers usually purchase product based on their expectations and needs (Miesler, 2011) within their budget and likings. Some may buy based on lifestyle, comfort and usability. Competent designers develop products that attract attention. However, lack of studies had been conducted about design area during new product development. This creates mismatch between customer needs and designers’ capability. (Rams, 1983) explains that some good designs require prerequisites knowledge and skill that need to be met. Good design somehow integrates with organization strategies and policies. Therefore, to produce a well-accepted design, collaborative efforts must take place between the designer and members of the organization. The success of the product relies at many levels and not dependable on designer alone. Top management also needs to be actively involved in monitoring the whole process.

In this study, it is recommended for the designers to improve their dynamic capabilities approach. Many studies indicate that furniture design is highly depends on special skill of design when coming up with new products. Successful products need a lot of thinking and hard work before they can be produced and marketed. (Björklund, 2013) in his report explains expertise leads to superior performance. Today, customers are looking products that give value for their money. A good designer provides balance between needs and business strategies and translate the customers’ needs into business ideas. If the companies fail to comply that, expected price and features probably unable to be met.
Successful products have strong market positioning and sustainable. Developing knowledge is time consuming and this area has been given lack of attention. Design thinking around short product life cycle gives pressure and challenges to designers as well. Thus, problems have to be brought to the next level on how they being solved in practice. Many studies indicated that knowledge to be master by designer couldn’t be acquired in short period. Designers also cannot work alone even though in general they like to work in silo. It is commonly assume that many designers work in isolation. It is recommended that designers to integrate with other disciplines in order to improve collaboration. Improvements of collaboration, knowledge and expertise enable knowledge to flow well in the organization.

A well-defined design process may speed up time-to-market. Many furniture businesses add trendy features beside form and functions. (Tang, Lee, & Gero, 2011) stated that function-behavior-structure integrates design process with cognitive psychology process.

Copying has becoming a norm when manufacturers pay attention to profit and short product life cycle. However, this practice won’t lead to sustainable products as well.

Because of lack of resources and skilled workers, many manufacturers may not have an original design. If we follow the current trend, today, consumers are starting to seek for more sophisticated design especially the younger consumers. Therefore copy and imitate seems common practice and the easiest way to do things (Gasparski, 2003). Good furniture influences our emotion more than quality. Furniture that is easy to use and meeting expectations offers long lasting emotion.

**Competencies and Design Practices:**

Designer can deliver successful product by adopting the required skill and knowledge. Weakness in design may create gap in other areas. (Fisscher & Weerd-nederhof, 2000) mentioned that NPD process being important that it impacting the whole performance of the organization. The crucial action is an iterative process taking account feedback information from various parties inside or outside the company. Understanding each other’s roles, expectation and knowledge may provide the desired impact for transformation of knowledge. (Ibrahim & Paulson, 2008) has broaden the perspective earlier to include job interdependencies and knowledge flows along product life cycle

As design knowledge is mostly tacit, it is very challenging on how to manifest it in explicit form. In order to produce quality products, manufacturers have to ensure that designer is equipped with the right competencies, system and process. Ability to convert knowledge into something productive will enhance their capability. Improving the level of design competencies and quality of product development will push Malaysia SME furniture manufacturers to becoming mass producers.

**Discussion and Conclusion:**

Designers are encouraged to distinguish between real talent and skill. Skill development from novice to expert requires structured programs. Many studies indicate that experience alone is no longer sufficient. Designer has important roles to drive product development by exploring new applications, work process based on available resources and capabilities (Ravasi & Lojacono, 2005). The study indicates that interaction between designer and manager also eminent during evaluation and selection of new ideas. Good design in a way must have interactions and requirements to fulfill. In Malaysia many manufacturers focus on price-based thinking, copy and modify and neglect interaction with important members in the company. We can summarize that NPD is an integrated process. Linking competencies to SMEs product life cycle may control to a certain extent length of product life cycle phases. It is a good sign that many furniture manufacturers have no longer operate using traditional method that emphasizes on copy and imitate approach. The paper also views that integrated and dynamic design approach is paramount with aim to improve product quality. In light of the above, knowledge and competencies level are important aspects to be considered in order to forecast future performance. As such, manufacturers can minimize the risk of failure before their successful products released in the marketplace.

Based on the above, it is beneficial if future studies offer more highlights on people centered design. An introduction of design for sustainability concept which is people centered in new product development is starting to gain popularity. This concept initiates a positive shift from a typical profit centered approach. As many customers dissatisfied with failed products, it is imperative for the SME furniture manufacturers to give more attention to people rather than too much on economies. The idea is to make an improvement of living conditions that suit people lifestyle. Hence it minimizes the behavior of copy and imitates style of designing.

SMEs furniture manufacturers had many problems in their list. For the furniture manufacturers that involved in design, a distinct way to cope with the challenges is by increasing their knowledge base. The literature reveals that tacit knowledge is dominant in new product development however does not flow well in the organization (Ibrahim & Paulson, 2008).

Therefore, design has significant contributions to the SMEs furniture manufacturers. It is achievable by changing the ways designers think and do things in more sophisticated way. We have some notions that
competence is fixed however in a dynamic environment where decision making is more complex; structured skill mastery, expertise and proficiency programs implementation along the new product lifecycle obviously will offer substantial values to the SMEs.

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REFERENCES


