

RATTAN FURNITURE DESIGN-TRAINING DELIVERY TOWARDS COMMERCIAL VALUE OF COMMODITY SECTOR

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Abstract

Rattans are climbing palms whose bare stem is used in the construction of cane furniture and mats. It is a vine that grows in tropical forests and is used primarily in the furniture industry. In 2014, the export of rattan furniture in Malaysia is ranked lowest with a value of RM35.14 million compared with wooden furniture exports valued at RM6.32 billion. The decline of the export value will negatively affect the revenues of rattan furniture industry and result the risk of job loss. There are three phases conducted in this Knowledge Transfer Programme, which are: design, production and commercialization. It is believed that craftsmen and rattan producers who engaged in rattan production will receive immediate benefit. This article is a perspective from industrial design academicians to cope with rattan furniture design development issue. This perspective could be referred and adapted by rattan industry players in Malaysia to be more updated with current R&D process. This would enable them to compete with international market. With proper design development process, rattan furniture producers will be able to produce more desirable products that could attract foreign buyers, so it might increase the export value of rattan furniture.

Keywords : Furniture design, rattan furniture industry, design process, knowledge transfer program

1. Introduction

It has been known that rattan material is elastic yet very strong. Rattan is friendly to be processed with

bare hand, this implies of less technology investment is required in the production process. Rattan furniture design is very popular with recliner or swing-type chair at the beginning of 1960 until the end of 1990. Rattan furniture existed in many regular houses in Malaysia. The design of Rattan furniture corresponds with the level of expertise of the makers or the producers. Besides of the skill level of the production of rattan furniture design, the selection of rattan species would also affect the rattan furniture design style. From the early 2000 until now, rattan furniture export number keeps declining. This is allegedly caused by the fast changing of design trends According to Dr Jalaluddin Harun, director-general of the Malaysian Timber Board (MTIB), 'Design' is one of the key elements and key focus in all furniture products that targeted for commercialize. Design development should be the starting point for product before it is ready to market. In order to produce more competitive products to increase the export value of rattan furniture, style, trend and new design should be introduced to industry

To respond the poor condition of Malaysian rattan furniture export that keeps declining. Our Knowledge Transfer Programme (KTP) is designed to set up some activities to challenge and stimulate creative resources from key person in the rattan production. This programme is an educational support in a form of studio-type design-training to benefit craftsmen, producers.

We prepare three main activities:

- i. 1st Design-training is to emphasize creativity that yields more unconventional application of rattan material.

- ii. 2nd Design-training is to pay attention to maintaining rattan unique characters furniture design
- iii. 3rd Design-training is stressed on the advance and detail mock-up making and background study of trend and market analysis.

Those three activities are intended to participants to familiarize the special characteristic of rattan that would gain their knowledge of developing idea using mock-up model making. Prior to deliver the program, we carefully study the literature of previous similar activities of Design-training from overseas. This prior study is to provide us a ground understanding on the related issues of technical, cognitive, market, and trend as a primary background to conduct such activity. We finally concluded to apply a design-assistance-like situation referred to studio-based design tutorial. We apply a coaching-clinic type where designer challenge and stimulate participants to produce more creative ideas by means of scale mock-up design.

The objectives of the programme are as follows:

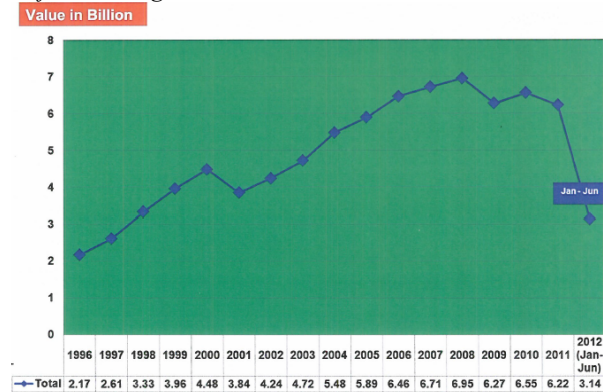
- i. To deliver a technique of creative conceptualization process in rattan furniture design development.
- ii. To raise the quality of production process and packaging design.
- iii. To update with current trend and international market
- iv. To maintain the spirit of rattan furniture expert/craftsmen as a symbol of national heritage towards modernization challenge.

2. Literature Review

Rattan is among the most important commodities of the country where the raw material is always considered valuable along with the results of other major timber. Rattan is known for its strength, elastic and light. It is considerably easy to bend and weave without losing its properties and strength (Eskak, 2014).

In 2012, imports of rattan products globally neared \$745 million (UNcomtrade, 2013). However, the export value of rattan furniture in Malaysia for the last decade has dropped until 50% compare to previous years (see, Table 1). MTIB stated rattan-based furniture has the lowest rate of exports in 2014, at the rate of RM35.14 million compared based furniture wooden furniture which is at rate RM6.32 billion. This seems caused by less desirable design and less knowledge in design development so that difficult for producers to enter and compete in the global market.

Table 1. Malaysia export of wooden and rattan furniture



(Source: MTIB and DOSM, 2012)

International Development Research Centre (IDRC) as described by W. Liese (2007) outline the strategy to enhance the use of the cane products:

- i. Increase the use of technology to enable the manufacture of a variety of products produced with a higher-quality level, especially the increase in the surface finish to enhance the aesthetic value and the durability of rattan products.
- ii. Colorless and improve the process of packaging used for the manufacture of wicker furniture; product packaging development and walls;
- iii. Effective design development costs in addition to applying contemporary features.

To be competitive in the current global market, rattan furniture manufacturers and makers have to adopt innovative strategy that will provide them the ability to innovate and to be more productive. Apart from the issue of material and transportation cost, the lack of design skills in the production has brought disadvantage. New ideas are necessary for rattan furniture producers to improve their product. In order to understand user preference on physical needs and psychological needs. A research conducted on the psychological needs of consumers revealed that more consumers are willing to pay a higher price for higher level of satisfactions (Lu & Wang, 2011). Unfortunately, most craftsmen are unwilling to invest and to learn about design and development.

As stated by Abdullah (2010) the main purpose of industrial design process is to meet the needs of the users through understanding of the intangible and tangible elements of design. The influence of industrial design is unrestricted as industrial design services can be applied in most industries (Ulrich & Eppinger, 2000). The process of industrial design has been described as phases of activities that are primarily user-driven rather than technology driven (Gamser, et al., 2006; Walsh, 1996). This implies that industrial design process relates mainly to aspects between user and the artifact rather than the relations internal to the artifact.

2.1 Creativity and design-training

In some cases, the teaching of design and creativity to craftsmen/conservative individuals can be a difficult task because they possess conservative viewpoints and lack an understanding of the creative process. However, scholars believe that creativity can be learned by instruction and training. Efforts have been made to provide direct instruction that involves the students' cognitive abilities and processes (Ripple 1999). At a basic level, creativity and design-training hopes to introduce widely known design methods. Gaps that may develop in the conceptual design process that occurs between craftsman/conservative individual and design trainers during a design-training program may correspond to the most obvious barrier to creative thinking: habit. The term habit refers to an individual's well-learned ways of thinking and responding (Dodds, 1999). At the same time, a design-training program cannot simply rely on the typical conceptual design process because this process may serve as fixation (Junaidy, et. al 2015).

3. Methodology

We conducted a design workshop/training in which we offered design-training (in-studio design-training). The study was carried out using traditional design method that comprised of three (3) phases. We believe that to challenge participants with practical experience would help them gaining better knowledge in this particular issue. People who directly engaged in true experience would comprehend knowledge better than acquiring merely from reading or writing. Here, we approach an informal yet planned workshop.

3.1 Phase 1 - Presenting the idea (2D)

The percentage of the transfer of knowledge from the researcher estimate around 80%.

- i. Ideation Sketches.
- ii. Idea development.
- iii. Idea proposal.
- iv. Final design & detailing.
- v. Mock up fabrication.
- vi. Technical drawing or package drawing
- vii. GA drawing or full scale drawing or tape drawing
- viii. Panel presentation

3.2 Phase 2 - Fabrication processes (3D)

The percentage of the transfer of knowledge from the researcher estimate around 50%

- i. Material selection.
- ii. Fabrication.
- iii. Model or prototype.

3.3 Phase 3 - Commercialization (Final Prototype)

The percentage of the transfer of knowledge from the researcher estimate around 10%

- i. Refine prototype.
- ii. Testing prototype.
- iii. Pattern.
- iv. Mass production.

4. Results and Discussion

Knowledge Transfer Programme is a collaboration program with MTIB to infuse and enhance rattan furniture industry design skills with the latest development of world rattan design. In this programme, we separate this program with three methods of transfer of knowledge. The purpose of these three phases is to introduce rattan furniture producers with proper design and development process that widely used. We divide as the followings:

- The first transfer phase is a general knowledge of rattan,
- The second transfer phase is about design theory,
- The third transfer phase is hands-on skill.

4.1 The first phase

The first workshop is intended to transfer complete resource of rattan knowledge that held within a day. The objective of this first workshop is to provide a full information and issues from the past, present and future of rattan design across the world. This is expected to trigger the industry so that they more enthusiast, be opened, and challenged to practice current method of design development. Further, This workshop also discussed and presented a comprehensive studies of rattan furniture Design in Malaysia, Europe and Southeast Asia. Through a complete resource of rattan potential would definitely convince the recipients from rattan industry to reconsider and revitalize their existence in order to keep up with current development.



Figure 1. Presenting the idea



Figure 2. Ideation sketches



Figure 3. Idea development

furniture however must not deviate from its original essence. A final design idea is selected based on acceptable rationales and justifications. A validation exercise is also conducted on the design by potential consumers and experts. Once the final design is selected, the process is continued to refinement of the design to further enhance the features to the overall rattan furniture design. For this workshop, Industry players were targeted as the subject, but some academicians were also involved

During the workshop, participants were challenged to explore specific character of rattan that difficult to accomplish to other material such as wood and metal. We find that many of the participants treated rattan as wood, this probably happened because either wood or fabricated board is the most familiar to their experience. From this phase, it was quite clear that designers did not feel easy to disassociate rattan from wood; this unsurprisingly limited them to achieve or explore more unique form, shape or creative idea. In fact, rattan is known for its elastic and flexible characteristic, this character might help one to achieve desirable appearance, but in the other hand, it might be a barrier for certain idea as well. However this second training phase is supposed to push out participants' sense to be able to respond rattan characteristic. Besides participants were requested to comprehend the special character of rattan, they have been also reminded on what left during the idea development. Participants completely immersed on the technicality issue and the design styling, none of the participants matter to market-related issue. This means, trend and consumers issue are completely detached from the design process. Further, this second phase workshop is meant to lead participants to consider the market issue and to apply the characteristic afterwards. That issue was underlined throughout the design workshop, since that issue is very critical in regards to further stage of manufacturing the product.

At the second phase of design workshop, all participants utilized a pseudo material (metal wire) as an example to approach with scale model. However, using real material is supposed to easier participant to sense the characteristic of the rattan. The hands-on method would help designers to understand more of the possibility and limitation of the material before entering the commercialization stage.

4.2 The second phase

In this second phase, we target local designers to acquire theory and knowledge of utilizing the characteristic of rattan materials. The execution of the design process begins with identification of the suitable design that is to be adapted. A real scale mock up will help them to figure it if any of difficulty occurred. A conceptual design of a modern rattan



Figure 4. Scale Mock Up



Figure 5. Design review and refinement

4.3 The third phase

The KTP third design-training has just been conducted. The KTP third design-training is the ultimate activity of this Programme. At this third phase we emphasize on the advance detail mock-up making and put attention on trend and market analysis. The workshop is planned as the ultimate and final workshop that bring up all advance technique and latest knowledge to the participants (See, Fig. 6a, 6b, 6c).



Figure 6a. The Third phase of design-training delivery of KTP Flagship Project



Figure 6b. The third workshop emphasize on the advance technique and latest rattan knowledge to the participants

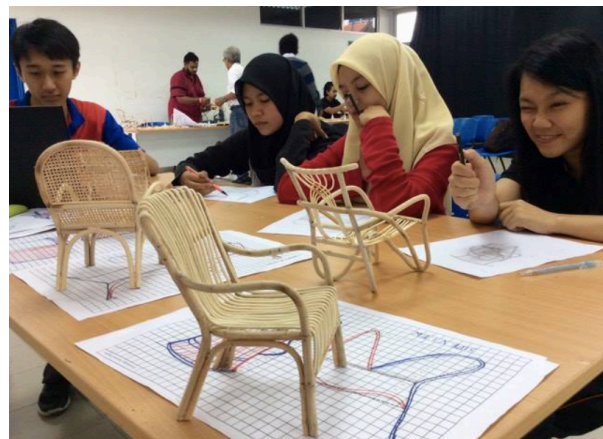


Figure 6c. The third workshop emphasize on the advance technique and latest rattan knowledge to the participants



Figure 6d. The works of participants of the Third workshop

5. Discussion on Categorizing the Mock-up Modeling Methods in Rattan Chair Design-Training

Overseas government has begun to focus on rural industry development because of its potential for employment opportunity and to maintain national

and cultural identities. They implemented technical assistance programs, such as design-training, to improve local master craftsman's skills and creativity levels. However, there is less resource available of a proper deliverable design-training method that emphasizes specific circumstances and resources of the training. Prior to the implementation of the KTP, we have conducted study recording and categorizing few mock-up modeling methods in chair design-training, specifically on rattan industry. Studies were conducted through active visits by direct contact from rattan practitioners outside Malaysia. The categorization has listed over few specific methods that has been delivered in some rattan design workshop trainings at few countries (e.g., Indonesia, Denmark, Germany). Our categorization is based on common issues that correspond to the implementation of rattan design workshop. The followings are common issues has been identified:

- Target (T1),
- Resource (R),
- User (U),
- Skill (S),
- Time (T2).

Hereafter is abbreviated as TRUST. **Target (T1)** is the objective of the workshop or training, this corresponds to the learning outcome of the program. This can be an introduction, technical know-how or design know-how. **Resource (R)** is a condition of the availability of rattan materials and specific tools. **User (U)** means of the subject or the recipient of a design-training, it is composed of participants, e.g. design student/ academician, master craftsman/ industry, and novice. **Skill (S)** is so much related to the participant's prior knowledge in relation to rattan production, it can be a design, business, craftsmanship and production knowledge. **Time (T2)** is the time allocated for the workshop, hours is the shortest time allocation, and days referred to 2-7 days, and lastly, months which implies of more solid knowledge of both, design creativity and rattan design technicality.

The categorization of TRUST as common issues correspond to the practice of rattan design workshop would help us to select appropriate method to be delivered in a rattan design-training that held in different location and different circumstances. When each of those common issues of TRUST shows some limited condition or resource, the TRUST chart may be useful to address the appropriate mock-up modeling methods to be delivered at a rattan chair design-training (see, Table 2.)

Table 2. TRUST chart, identified common issues during a rattan design workshop (Authors)

	COMMON ISSUE	CAT	METHOD
1	Target (T1)		A. Flexible Pole Mock-up modeling method utilizing small diameter rattan, or substituted material e.g., PVC pipe.
	Design know-how	A	
	Technical Know-how	A/B	
	Introduction	C	B. Cable/Wiring Mock-up modeling method utilizing metal wire plastics
2	Resource (R)		
	Rattan Available	A/B	
	Tool Available	A/B	C. Straw Mock-up modeling method utilizing practical and affordable plastic straw
3	User (U)		
	Master craftsman	A/B	
	Student/Academician	A/B/C	
	Industry	B/C	
	Novice	C	
4	Skill (S)		
	Design	A	
	Craftsmanship	A/B	
	Production	B/C	
	Business/Management	C	
5	Time (T2)		
	Months	A	
	Days	A/B	
	Hours	C	

We have listed some specific methods that has been delivered in some rattan design workshop trainings overseas and categorized as three methods as follows:



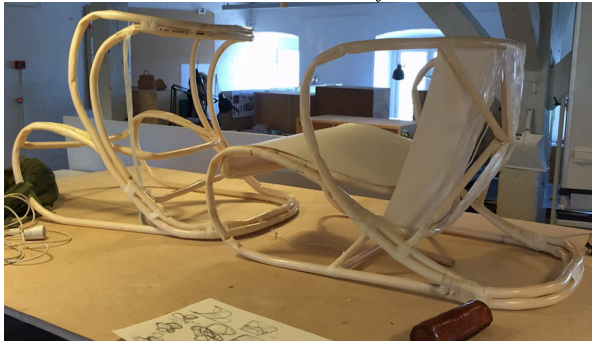


Figure 7a, 7b and 7c.

Method A (Flexible Pole)

Mock-up modeling method utilizing small diameter rattan, or substituted similar material e.g., PVC pipe.

(Source: (a). The Royal Danish Academy of Fine Arts Schools of Architecture, Design and Conservation training in Cirebon (2014), (b). Pusat Inovasi Rotan Indonesia (PIRNAS) and (c). Designer Dispatch Service/DDS2016, Ministry of Industry, Indonesia).



Figure 8.

Method B (Cable/Wiring)

Mock-up modeling method utilizing metal wire/plastics (Source: (a). The Royal Danish Academy of Fine Arts Schools of Architecture, Design and Conservation during a design training in Cirebon, Indonesia, 2014)



Figure 10. Method C. Straw

Mock-up modeling method utilizing practical and affordable plastic straws

(Source: (a). Rattan Designer Cirebon/RADEC, 2015)

6. Conclusion

There are hindrances to revitalize rattan design development in industry, the main hindrance is very less support has been given to promote rattan as national potential and heritage. Learning from the success from other countries in market competition Government, University, Industry and Community are required to take extra effort to promote rattan as valuable resources. This can also be infusing rattan knowledge in the content of educational activities as curriculum, seminar, workshop, competition, training, branding, etc. Support from government, university, and industry and also the community would ensure the future success. This program should be implemented consistently and be maintained its sustainability. Industry must consider of setting-up an in-house professional designer or R&D team to be able to achieve more desirable products towards commercialization at international market.

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