Malaysia Textile Craft Industry: Innovation Inspired by Bamboo for Batik Block Contemporary Design

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Abstract. Block Batik in batik industry has been practised in Malaysia since 1920s. It also known as "Batik Cop" or "Batik Terap". The block for stamping or "Sarang Batik" normally made from steel with variety design on the surface of it. The beauty of the block batik pattern designs depend on the fineness and creativity of the motifs designed that engraved on the surface of the block by the expertise of the engraver. Therefore the objective of the study is to produce new design for block batik used from natural sources which is bamboo as a block to stamp the design for batik. The study emphasized on the uses of bamboo sticks cutted from bamboo tree sections as a block to create new geometric and spontaneous design for block batik design. Bamboo is one of the tropical resources in Malaysia. The light weight of the bamboo sticks alternatively can reduce the consequences towards the practitioners rather than using block made from steel which is more heavy than bamboo. The structure on the bamboo vascular cross sections scattered around the trunk create circular motif, dots and dotted lines. The uniqueness of the motif and pattern using bamboo as a block depends on the creativity in manipulating the structure of the bamboo with stamping techniques and the application of wax and the color techniques. A variety of designs such as overall repetition, vertical stripes and horizontal stripes as well as color overlays and tones highlight the creativity of the batik design. Such designs can be featured in the market especially for production of handicraft products, interior decoration and clothing design. Therefore, this study significantly gives an ideas and inspiration for batik entrepreneurs in producing block batik by using bamboo as new natural based batik design at a lower-cost.

1. Introduction

Batik industry in Malaysia has been operating since the early 19th century and nowadays, it is significantly contributing to the economy development. Batik is one of the unique products of handicraft which is highly appreciated among Malaysians. The evolution or innovation in block production technique based on flora or plants started since the prehistoric time;- '*Batik blocks during the prehistoric times were made of bamboos, stones, and then woods. The stone block is not representing the life of stone ages, instead there were batik motifs engraved on the stone's surface, the blocks were heat up first to certain degrees, dipped into colours, and then were placed on a white piece of fabric. The hot temperature of the stone makes the colours dry faster, not dissolving into other parts of the fabric*'[1]. Based on this statement, it is clear that the Batik practitioners at that time, innovatively and creatively

understand the materials and techniques to produce textile patterns compatible with the current technology at that time. Nature is the closest source in their life as new inspirations required in that period of time. Norlelawaty [2] through her interview with Mr. Kamaruzaman in 2013 stated that, *'In earlier time, Malay community used the young stem of banana plant as the stamp but now the batik fabrics are produced through modern equipments, such as the technological appliance that use computer as a sketching tool to be applied onto the white fabrics'.* The evolution of batik blocks in Malaysia especially the manufacturing and producing process is progressing along with the current development and contemporary. Malaysia's batik industry has been developing and its materials and techniques are also experiencing advancement, encouraging a good competitive environment within industries to produce some uniqueness and originality.

The evolution and innovation of Block Batik production in this country can be observed based on the cronology of technological development at that time, based on research done by Norlelawaty [2] which stated that the batik practitioners used various types of batik block in previous time to enrich the variety of patterns and motifs on the fabric surface. The techniques used started with the usage of young banana stems, potatoes, surface of soft woods to metals after some transformations in the batik techniques and manufacturing industries. From that explanation, we can understand the transformation phase of certain materials is affected by its compatibility in term of strength in batik processing, pattern uniqueness and the details quality as well as the productivity of batik based on current market demands.

1.1 Batik Block

Copper or steel batik block has been a familiar tool for batik processings, printing, or pattern design on white fabric's surface which is common to the batik entrepreneurs especially in Malaysia (Figure 1 & 2). Prior 20th century, batik block was made of woods and then undergo transformation process into copper or steel-based batik block in early 20th century. The problem statement of this study is focusing on the lack of expertise in batik block production and making, where batik block production requires someone with high skill of craftmanship in creating batik block from selected copper or steel pieces. Some of other aspects that influence this study come from previous research by Mohd Azhar Samin [3], regarding alternative Batik in viewing potentials and results in method of batik patterns production. He emphasized on the significance of researching new techniques or new exploration in Malaysia batik industry for the contemporary batik to provide new and authentic method of pattern design in current batik industry. Thus, the main objective of this study is to find other resolutions to design batik block pattern based on natural sources**.** One of the sources is bamboo, which also known as common natural sources that can be harvested from our environment.

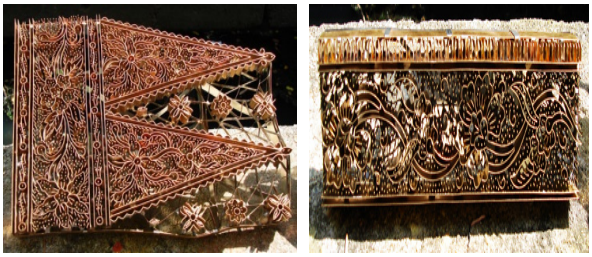

Figure 1 and 2. Batik copper block, which is Malaysian Tradition method of making batik sarong
Source: http://mybatik.org.my/malaysian-batik-block-print-sarong/

1.2 Bamboo

Bamboo is one of the natural sources that can be exploited from our environment and also is widely used in the manufacturing of craft products to interior design products. Based on the forestry department in peninsular Malaysia [4], bamboo is a type of plant that is easily accessible in Malaysia and can also be found near our own residents. Bamboo is categorized as monocotyledon group of Gramineae family, from grass type. Bamboo also grow and thrive in a moderate weather, semi-tropical climate. It grow better in an open area with good drainage system. Bamboo can be observed in 2 forms of growth forms

which are monopodial (single apical meristem) and sympodial (succession of apical meristems) (Figure 3 & 4). The whole bamboo in Malaysia typically grow in form of sympodial. It is estimated that there are 59 species of bamboo in peninsular Malaysia with 7 genera which are *Bambusa, Dendrocalamus, Dinochioa, Recemobamboos, Schizostachyum, Thyrsostachys dan Gigantochloa.*

Figure 3 and 4.. Sympodial Bamboo

Overall, these bamboos have been the source of side and main incomes for some local community. The bamboo structure usually can be recognized by the hollow space in its vertical centre and its vascular cross sections that scattered around its trunk. Its surface gives out marks or motifs that are cylinder or circle in shape, which also become the inspiration for this study in producing contemporary and geometry-based designs. Hence, the main objective of this research is to investigate physically the application of bamboo as main component in designing patterns of batik block, as well as experimentation with cutted bamboo trunks for batik block to see if the resulted patterns and designs are suitable enough. The pattern design produced from the available selected bamboo structures need to be tested through batik processing method in current industry. As as result, the application of bamboo structure as batik block can be new alternative to substitute the usage of copper or steel. Moreover, the outcome of this research could meet the consumer demand in term of modern and contemporay batik pattern design in batik craft and textile industry in Malaysia.

2. Problem Statement

Batik industry is one of the valuable Malay craft and art heritage. This legacy has been established for quite a long time with not only possessing high art value but also contributing significantly in economy growth. However, there are still many impediments in its way but manage to keep standing until today. The question regarding batik issues is surrounding the progress status and development of the industry in Malaysia especially the east coast area such as Kelantan and Terengganu, where its market sale, processing technique, and materials usage in term of Batik pattern design are still stagnant. If we look into the supports provided by the government, we can witness such advocacies through agency such as Perbadanan Kemajuan Kraftangan Malaysia, which exist to provide many initiatives to increase the production in a formal way by establishing National Craft Institute (Institut Kraf Negara) that offers certificate and diploma exclusively in Batik textile and craft, as well as managing a series of workshops for local Batik entrepreneurs to increase their skills and creativity in Batik manufacturing industry.

Yayasan Budi Penyayang Malaysia have been organising a high prestigous competition known as Piala Seri Endon that highlights Batik design as their centerpiece, now in their 15th edition and has become an aspiration for batik makers and fashion designers. Besides introducing some new talents and great Batik designers towards the development of Batik industry, Nori Abdullah hoping that Piala Seri Endon 2017 could discover more genius minds that bring out the innovation and creativity in design production as well as new techniques in fabric design. Importantly, we can see some different approaches being applied. Instead of designing motifs inspired mainly by flora and fauna, the new participants exhibit different patterns that never been seen before. This uniqueness could attracts young generations or youths to bring back Batik as heritage identity to be used as daily or casual wear. Yayasan Budi Penyayang Malaysia keep on providing the supports in effort to encourage good competitive environment in Malaysia Batik textile.

2.1 Lack of Expertise in Steel Batik Block

Block Batik requires a very high skilled craftsmanship in a block making process due to its reliance on metal materials such as copper, zinc and iron. In 1950's, candles as a printing tool was introduced by Batik practitioners in East Coast region especially in Kelantan. Based on Norlelawaty [2], the makers of Batik block started to use metal pieces such as iron and copper to create the block. The pattern design made by metal is more neat and fine in features. However, the industry of Block Batik in Malaysia has been regressing because of the lacking in expertise that specialise in the techniques of block production especially metal-based block. For example, there are only three practitioners left in Kelantan who are skillful in batik block making [2]. The problem statement of this study is also further supported by previous research done by S. Mahfuz [5], based on his interview with Mr. Mohd Rashid Jusof, a Block Batik practitioner who actively involves in Block Batik manufacturing since year 1995 until today said;- Block Batik production requires someone with high skilled craftsmanship who can make Batik block by shaping the copper or iron pieces that were selected carefully. Furthermore, 62 years old Mr. Zakaria or commonly known as Pok Ya, is the only individual left who has a very high skill in making the Batik block in Terengganu.

2.2 Lack of Nature-based Materials Applied in Pattern Design of Block Batik in Malaysia.

Batik blocks during the prehistoric times were made of bamboos, stoness, and then woods. The stone block is not representing the life of stone ages, instead there were batik motifs engraved on the stone's surface, the blocks were heat up first to certain degrees, dipped into colours, and then were placed on a white piece of fabric. The hot temperature of the stone makes the colour dry faster, not dissolving into other part of the fabric [1]. Norlelawaty [2] through her interview with Mr. Kamaruzaman in 2013 stated that,'In previous time, Malay community used the young stem of banana plant as the stamp but now the batik fabrics are produced through modern equipments, such as the technological appliance that use computer as a sketching tool to be applied onto the white fabrics'. However, due to lack of understanding in term of creativity and innovation among Batik practitioners in Malaysia, nature-based materials from environment are not being applied as a significant tool of nature-inspired batik blocks, with the potential to contribute to the design of Batik block and indirectly position itself as the same level as metal-based Batik block. Some other aspects that influence this study are based on previous research done by Samin [3] regarding the alternative Batik in viewing potentials and outcomes in technique of pattern design. He emphasized on the significance of researching new techniques or new exploration in Malaysia batik industry for the contemporary batik to provide new and authentic method of pattern design in current batik industry. Thus, the main objective of this study is to find other resolutions to design batik block pattern based on nature sources.

2.3 Batik Textile Craft Industry Needs to Discover New Innovation

Factor that contribute to the problem of Batik textile issue in Malaysia craft industry is majorly related to the lack of research focusing on the new ideas and innovations in the context of techniques, materials and Batik production method. This mentioned problems are agreed by Ibrahim Che Omar [6], stating that nowadays many issues related to Batik industry are affected by marketing strategy, competition with the modern clothing industries, as well as less in creativity and innovation in producing attractive and exclusive designs. Innovation in equipments and tools, making process techniques, and pattern design in Batik can be an inspiration in motivating, building and developing the Batik industry. 'Without the innovation, Batik must be in silent condition, static, tasteless, and dull'. 'Research and documentations related to Batik literatures as well as relevant innovations need to be encouraged and incited so the significant foundings and information can be expanded in effort to establish Malaysia's Batik at world level [7].

2.4 Lack of Confidence among the Batik Practitioners on the Potential of Bamboo as Material in Producing Batik Block.

Society's perception on bamboo as a soft and cheap plant is not relevant anymore because bamboo can be exploited in a productive way [8]. Bamboo also known to be as some craft product materials by Malaysians and typically belong to rural and small manufacturing industry with low technological equipments but requires such high skilled workers and craftmen. Minister of Main Industry plans to explore huge potential of profit in world bamboo market which now reaching to AS$68.8 billion in 2019 [9]. This effort can be realized by outlining strategic framework to develop upstream and downstream industry of bamboo plantation in Malaysia. Nowadays, there has been an establishment of Malaysian Bamboo Society (MBS) since 5th September 2016 that celebrates government policy, Minister of Main Industry (Kementerian Industri Utama) that has vision to strengthened the development of bamboo industry by empowering the innovation and technology through research, development and commercialization as well as leading the bamboo entrepreneurs in any fields to produce competitive and progressive bamboo industry towards TN50.

3. Research Objectives

i. To identify the application and effectiveness of bamboo material as Batik block to design the patterns through alternative methods in Batik making process.
ii. To produce an alternative framework of pattern design production through natural sources such as bamboo as Batik block for the practitioners of Batik textile craft industry.

4. Research Questions

i. Is bamboo can be applied as Batik block to design Block Batik patterns through alternative way of Batik making process?
ii. Is the alternative framework for pattern design inspired by natural sources such as bamboo-based Batik block can be applied as an alternative to the practitioners of textile craft in Block Batik?

5. Research Methodology

This study is a qualitative research with a case-study approach through studio practice and experimentation. Based on Miles & Huberman [10], research founding that operating in qualitative mode usually characterized with solid base, rich and meaningful data that lead to unexpected outcomes. Indirectly, it could become a point of reference and providing answers to any questions that may exist beforehand.

Through studio practice and experimentation, the research focused on selecting suitable bamboos by observing its structures and parts to be applied as block for designing purpose in patterns of Batik block. For example, selecting some type of bamboo in circular shape with series of sizes from the smallest to the biggest. The twig part can also be a suitable tool to give some effects during the Batik making process by applying the candle wax onto the fabric surface. The twigs were arranged depends on the suitability of the patterns that appear spontaneously such as multiple types of lines.

Figure 5,6 and 7. Part of bamboo structures that were selected to be made as Batik block in designing patterns through stamping technique.

Based on the outcomes of the experimentation in selecting bamboo structures for Batik block motifs, the next process was to acquire or design Batik block patterns based on the principle and elements of design on the fabric surface including colouring process through Batik colouring.

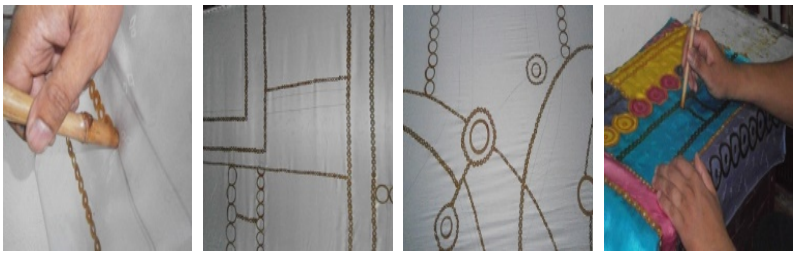

Figure 8. Process of designing pattern of Batik blocks through stamping technique

Figure 9. Process of designing pattern of Batik blocks through stamping technique and colouring.

The recognition and assessment of the products were carried out through the participations in series of exhibitions and competitions. It also aimed to see how far the outcomes of the experimentations can be acknowledged or validated, recognized, and commercialized equivalent with the Batik industry demand in Malaysia. Moreover, the judge panelists are academicians, industry practitioners, and professionals in design industry who have experienced in local textiles field.

6. Results

Overall, the objectives of this research were achieved through experimentations with a series of selecting processes on studied materials which is bamboo structures such as twigs and sticks (Figure 5). The bamboo twigs and sticks were used based on certain sizes, for example, Figure 6 and Figure 7 show the samples of batik patterns and motifs resulted from the used of variety of twigs and sticks sizes and candle wax stamping and pressing method on the fabric surface. Motifs were created spontaneously resulting with thick, thin, long, and short appearances of lines. Motifs such as circle or cylinder and also various sized-dots can be created based on the bamboo stick size that also can be applied in designing patterns for next processes.

Based on Table 1: The result of the next process is the design of Batik block pattern based on the discovered motifs previously. The process of designing the patterns were based on the elements and principal of design. The blueprint process of the pattern design were carried out by identifying suitable motifs compatible with the Batik block pattern design. The outcomes of the research can be observed in Figure 10, 11, & 12 showing successful results of the designers.

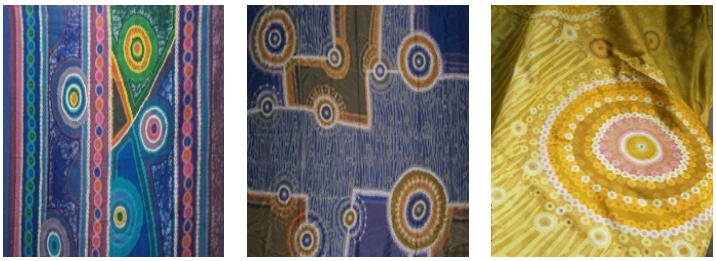

Figure 10,11 and 12. The results of pattern designs of Batik block through Batik making process by stamp or impression technique with bamboo as materials.

6.1 Piala Seri Endon Batik Design Competitions
This study have been started since year 2014 until 2019, and also have been recognized throughout some national competitions such as batik design contest of Piala Seri Endon organized by Yayasan Budi Penyayang Malaysia since 2003 to 2019. This competition is divided into three categories which are fashion, soft furnishing, and handicraft. This competition challenges the creativity of the contestants to create high quality batik, that based on research, techniques and commercial values. Yayasan Budi Penyayang Malaysia has been successfully bring out the best Batik designers that also contributing to the advancement and growth of Batik industry. Some of the participation entries through the Batik design contest of Piala Seri Endon are recorded below:

6.1.1 Piala Seri Endon Batik Design Competition 2014, Handicraft categories, Bamboo Inspiration. The researcher/contestant was successfully made into final stage of this competition. The researcher designed Batik block patterns by using bamboo as the materials and produced the handicrafts based on the theme given based in Figure 13 and 14.

Figure 13 and 14. Result of the handicrafts made and the recognition

6.1.2 Piala Seri Endon Batik Design Competition 2015, Soft Furnishing categories, Bamboo Inspiration -Second Prize Winner. The winning and recognition proved that this research study is accepted shows by the samples in Figure 15 and 16.

Figure 15 and 16. Artwork products and recognition from the competition

6.1.3 Piala Seri Endon Batik Design Competition 2016, Fashion categories, Circles of Line - Finalists. The successful achievement and recognition in this competition proved that this research study is accepted. Samples in Figure 17 and 18

Figure 17 and 18. Artwork products and recognition from the competition

7. Conclusion

As a conclusion, the objectives of the study was achieved. The outcomes of the research show that the innovative aspect in applying nature-based materials such as bamboo into contemporary block batik pattern designs able to provide new knowledge and perspective for batik industry especially for block batik in Malaysia. By applying the batik techniques including wax and colour, bamboo significantly can be a new material for block batik and provides spontaneous, contemporary design and motifs. Therefore, the research provides benefits to textile art researchers, batik practitioners, batik entrepreneurs, batik block manufacturers, and even the handicraft industries with nature-based resources and university student locally and abroad.

Acknowledgements

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