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THE 13TH INTERNATIONAL INNOVATION, INVENTION & DESIGN COMPETITION 2024

EXTENDED ABSTRACTS

e-BOOK

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INNOVATION, INVENTION &
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BAMBOO AS AN ALTERNATIVE TO BATIK BLOCKS IN THE PRODUCTION OF BATIK PATTERN DESIGN AESTHETICS

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ABSTRACT

In Malaysia, there are 59 species of bamboo from 7 genera. This plant can be an alternative to the existing batik blocks to create patterns with their own aesthetic value. The middle part and cross-sections of the vascular section of the bamboo stem structure spread throughout the trunk contribute to its own aesthetic value in batik pattern design. The study used two types of bamboo as batik blocks, *Bambusa blumeana* (bamboo thorns) and *Gigantocha albociliata* (honey bamboo). The focus of the study was to evaluate the aesthetics of the design pattern produced through both types of bamboo as a batik tool. For the study, the researchers used the theory of formalism by Clive Bell (1914/2014) and Roger Fry (1920/2011). The theory of formalism is based on the opinion that the formal aesthetic characteristics relied on the elements and principles of the art design in the bamboo stem structure that are determined by lines, appearance, texture, and diversity arranged in various ways to produce a balanced, orderly and harmonious design during the batik process. The results showed that bamboo as a batik block and its ties can produce a more interesting batik pattern design. Thus, this study serves as an artistic identity and determines the various designs of known textile patterns.

Keywords: Aesthetics, Bamboo, Pattern Design, Alternative, Block Batik

1. INTRODUCTION

Batik, an enduring craft in Malaysia, has thrived through millennia, fusing plant-based techniques with cultural ingenuity. Artisans, as underscored by Norlelawaty et al. [1], have historically drawn from nature, adapting techniques to their era. This study delves into bamboo's potential as a medium for batik pattern blocks, guided by Mohd Azhar Samin et al.'s [2] call for innovative approaches in Malaysia's batik industry. It aims to assess bamboo-derived batik designs' aesthetic appeal and acceptance through the lens of formalism theory, as elucidated by Robert Atkins [7]. Hekkert [3] emphasizes aesthetics as integral to shaping contemporary batik expressions. Designing motifs is pivotal in batik production, with inspiration drawn from nature, society, and culture, as discussed by Zamrudin Abdullah et al. [4]. The evolution of batik blocks from bamboo, stone, and wood reflects technological advancements, as observed in Norlelawaty et al.'s [1] study. Bamboo, once underestimated, emerges as a productive material, as highlighted by Fendi Ahmad Shah Amir Syah [6], offering opportunities for innovative batik designs.

2. METHODOLOGY

This research employs qualitative methods to investigate material quality and structure, utilizing a case study approach. Researchers selected bamboo species based on trunk structure and diameter, categorized into three sizes. A systematic sampling method was employed. Techniques and materials were selected creatively to match researchers' objectives. The methodology includes detailed descriptions of research sites, subjects, instruments, processes, and data analysis. The study aims to identify aesthetic values in contemporary batik design through a simple and systematic approach. Two bamboo species, *Bambusa blumeana* and *Gigantocha albociliata*, were chosen as subjects. These selections were based on trunk structure, diameter, thickness, and branching. The bamboo samples serve as the study material for creating bamboo motif patterns using the batik process.

Table 1 Visual appearance of bamboo structure

Types of Bamboo	Bamboo structure	Three different sizes (S,M,L)	Samples of bamboo structure/ three different sizes (S,M,L)		
			Small	Medium	Large
 <p>Bambusa blumeana (<i>buluh duru</i>)</p>	Culm diameter	S - 1.2 cm M - 2.6 cm L - 3.4 cm			
	Culm wall thickness:	S - 6 mm M - 7 mm L - 11 mm			
	Branching				
 <p>Gigantocha albociliata (<i>buluh madu</i>)</p>	Culm diameter	S - 1.2 cm M - 1.9 cm L - 2.3 cm			
	Culm Wall thickness:	S - 9 mm M - 10 mm L - 18 mm			
	Branching				

3. FINDINGS

3.1 Research in producing motifs design of batik patterns from bamboo structures

The research focuses on producing batik patterns from bamboo structures. Two types of bamboo, *Bambusa blumeana* and *Gigantocha albociliata*, are selected for study. Their stem structures, including diameter, thickness, and twigs, inspire pattern creation in the batik process. The bamboo's characteristics guide motif design, emphasizing round shapes and vertical lines. Experimental studies identify suitable bamboo structures for batik motifs, guiding pattern creation using batik hot wax. The resulting motifs, based on bamboo structure, adhere to design principles and elements. The study showcases motif samples reflecting the chosen bamboo's attributes, emphasizing cylindrical shapes and vertical lines. (See table 2 and 3).

Table 2 Part of bamboo structures that were selected to be made as batik blocks in designing patterns through stamping technique.

Bamboo structure	Three different sizes (S,M,L)	Samples of bamboo structure / three different sizes (S,M,L)			Samples of bamboo structure / Branching			
		Small	Medium	Large				
Gigantocha albociliata (duluk madu)	Culm diameter	S - 1.2 cm M - 1.9 cm L - 2.3 cm						
	Culm wall thickness	S - 9 mm M - 10 mm L - 18 mm						
Samples of batik block process		Samples of batik block pattern design motifs from bamboo						

Table 3 Part of bamboo structures that were selected to be made as batik blocks in designing patterns through stamping technique.

Bamboo structure	Three different sizes (S,M,L)	Samples of bamboo structure / three different sizes (S,M,L)			Samples of bamboo structure / Branching				
		Small	Medium	Large					
Bambusa bhumeana (duluk eler)	Culm diameter	S - 1.2 cm M - 2.6 cm L - 3.4 cm							
	Culm wall thickness	S - 6 mm M - 7 mm L - 11 mm							
Samples of batik block process		Samples of batik block pattern design motifs from bamboo							

3.2 Study on producing batik block patterns through the technique of applying wax and batik coloring
 The study explores the creation of batik block patterns using wax application and coloring techniques. Experimental findings reveal suitable bamboo structures for batik motifs, guiding the design process based on design principles and surface elements. Technical and formalistic considerations are pivotal in batik design, with each designer's expertise influencing the quality and technical execution. Figure 1 illustrates this process, demonstrating the integration of formal elements like lines, appearances, spaces, and colors into batik pattern designs. Designers utilize these formalistic elements to craft cohesive motif images or pattern designs, showcasing their creative prowess and skill.



Figure 1 Process of designing pattern of batik blocks through stamping technique and coloring

In batik design, composition is pivotal for arranging motif elements harmoniously, ensuring diversity in direction, size, color, and arrangement. This requires designers to deeply understand design principles, especially in batik pattern creation. Composition serves as a crucial formalistic element, enriching pattern creativity. Crafting contemporary batik patterns demands a harmonious composition, necessitating designers to master design elements and principles thoroughly. Formal elements like lines, motifs, appearances, spaces, colors, braids, arrangements, harmony, and diversity are intricately integrated into batik pattern production, as illustrated in Figure 2.

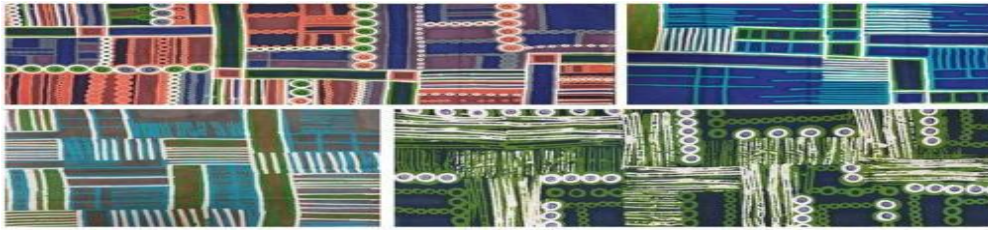


Figure 2 The results of pattern designs of Batik block through the Batik making process by stamp or impression technique with bamboo as materials

4. CONCLUSION

The study successfully demonstrated the potential of bamboo structures, particularly twigs and bamboo stems (Table 1), in creating intricate batik pattern blocks. Through systematic experimentation and research processes, various motifs were explored, showcasing the adaptability of bamboo to produce diverse designs. These findings, illustrated in Tables 2 and 3 and Figure 2, underscore the feasibility of utilizing bamboo as an alternative material in the batik industry. Moreover, the integration of bamboo materials not only offers a sustainable solution but also contributes to the development of natural materials in community art. However, further evaluation of experimental measurements is essential to address individual perception and aesthetic appreciation, ensuring seamless integration into batik pattern design. By embracing material innovation aligned with societal demands, this research has the potential to strengthen the batik industry, making batik products more popular and productive. It is anticipated that knowledge sharing among stakeholders will foster continued exploration and conservation of contemporary batik motifs in Malaysia, enriching the cultural heritage and economic landscape of the country.

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