Ingenuity Incision in Traditional Malay Wood Carving Calligraphy Motif

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Abstract. Malay woodcarvings are an ornament that symbolizes the identity and creativity of the Malay community at the house or palace. The difference will be in the design complexity and the number of ornaments used to decorate the palaces. Motif is considered one of the primary elements behind the creation of woodcarving and is included visually in various arts and crafts categories. Thus, the purpose of this study was to present an analytical study to investigate the visual forms of calligraphy motifs on the ornamentation wood carving at Istana Tengku Long, Terengganu. The study utilized the qualitative methodology in collecting data besides the field study at the selected palace and in-depth interviews with related persons. The Fractal Dimension Analysis (FDA) was applied to measure the complexity of the intricacy of the calligraphy panel. The finding indicated that the Islamic belief in the daily activities and local culture has assimilated to produce such intricate calligraphy motifs in Istana Tengku Long. The combination was carved in two compositions together with relief which, non-relief forms and floral motifs were the types of motifs that dominated the woodcarving at Istana Tengku Long. The Quranic verse of the calligraphy motifs gives the implied meaning to the royalty status and socio-culture of the Malay during that period. The knowledge gained from the study presents the Malay royalty's belief that the verses would influence their daily life and the palace as a place of residence. This study will contribute to the understanding of cultural assimilation and its impact on the architectural component revolution, specifically the ornamentation of the building. Preserving the calligraphy motif with indigenous incision shows the sustainability of Malay craftsmanship in wood carving. It emphasizes the inheritance of the aesthetic ornamentation in the traditional timber palaces in Malaysia that potentially involved heritage tourism and education prospects.

1 Introduction

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Woodcarving was a style of embellishment that adorned the timber buildings of Kelantan and Terengganu from the 1850s to the late 1940s and was appreciated for its intricacy and complexity in design. This architecture represents the vernacular forms with standard features, materials, and embellishments for ordinary people in this region [1]. In Malaysia and Southern Thailand, woodcarving is part and parcel of vernacular Malay architecture and craft. Timber architecture, such as boats and canoes, hiltts and sheaths of weapons, musical instruments, and utensils, are adorned with carving motifs of flora, calligraphy, geometry, fauna, and cosmic features [2]. However, recent scenarios indicate a gap in the Malay woodcarving heritage advancement and analysis, especially in traditional Malay royal palaces. These include developing new motifs for contemporary use, competing with worldwide woodcarving items, and correctly documenting cultural heritage products. If no action is taken, the prestigious legacy of woodcarving will be lost. In order to live up to the history, woodcarving knowledge has been passed down through the centuries.

Very little work is done to document and research the forms, placement, and meanings of ornaments in our heritage buildings, from houses to shops, mosques, palaces, temples, and kongsi houses [3]. The issues raised in this study are based on not many timber palaces standing in Malaysia. There is a dialectic debate about preserving Malay architecture, focusing on the Malay house. Scholars have been interested in the subject of the Malay Mosque's ornamentation and relics since the early 1980s, but there has been little follow-up. Similarly, academics have not produced extensive research and documentation to record the Malay's traditional wood carving. Although a few collections documented contemporary Malay houses produced by local scholars, there was no recount of the significance of housing elements and construction techniques, nor wood carving.

The principal element of woodcarving consists of motifs, patterns, philosophy, sources, incisions, and decorative patterns [4]. Noor and Khoo also agreed that Malay woodcarving's physical form is defined by the shape and pattern, the composition of the motif, the pattern of ordering principles, and the types of perforation and incision within the predetermined shape, size, and dimension of a hardwood board or panel [5]. Before beginning to carve, carvers will consider the motif designed based on the technique appropriate for the type of wood and the part that will be carved [6]. Hence, in traditional woodcarving, motif is employed aesthetically as the primary component and is crucial to many different forms. Based on this consideration, a study on traditional woodcarving at Istana Tengku Long has been developed. This article aims to analyse the intricacy of motifs used in the woodcarving application at the calligraphy panel at this palace. Istana Tengku Long was built in 1904 by Tengku Long because of his marriage to Tengku Embung from the relatives of the great king of Terengganu. Istana Tengku Long was moved from Kampung Raja, Besut to the Terengganu State Museum site in Bukit Losong, Kuala Terengganu.

2 Literature review

2.1 Motifs of Malay woodcarving

Woodcarving is a process that requires the ability to transform a solid plank or block into relief and non-relief components, which is learned through apprenticeship. It is an art that has yet to be influenced by other elements and blended with the Malay community, especially in the Malay Peninsula. Research done by Ali et al., (2019) has shown that the role of ornamentation can be categorized into three: ornamentation as structure, ornamentation as decoration, and ornamentation as a functional component [7]. Based on an interview with a well-known woodcarver, En Noorhaiza Noordin postulated that the basis of traditional
carving refers to the processing and filing of the six main elements, namely the source, motif, pattern, decorative style, technique, and philosophy [8].

Malay wood carving history goes way back to the country's establishment. But with time, it evolves according to the ideology of the people. The first is animism, followed by Hindu-Buddhist ideology, and the third is Islamic influence [9] supported by [10] that Malaysia has gone through various cultural, artistic, and religious development stages. Before the emergence of Islam, there were three primary sources for motifs of nature in Malay traditional craft, namely floral (plant), fauna (animal), and cosmic (universe). Floral motifs are the most prominent and recurring decorative patterns in woodcarving [11]. The motifs were chosen as the natural tropical settings provide forms of flora, fauna, and cosmos that serve as inspiration for depicting natural or abstract forms onto timber boards [2].

The arrival of Islam in Malaya from Arabia, Persia, and India in the 14th century AD opened a new chapter in Malay society which was well received and became the community lifestyle. In the art of wood carving, elements that contradicted the teachings of Islam began to be slowly abandoned and replaced with more appropriate elements comprising geometry, organic and abstract elements. The ideological shift of animism and Hindu-Buddhism to Islam has shown clear developments of motifs. Table 1 shows that the motifs comprise a symbolic meaning in their original Hindu-Buddhist contexts, which have been passed down to the present.

**Table 1.** The elements of traditional wood carvings in Malaysia

<table>
<thead>
<tr>
<th>Pre-Islam (Before the 14th Century)</th>
<th>Description</th>
<th>Post-Islam (Post 14th Century)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewa</td>
<td>He appears on the hilt &amp; believes he protects the owner invincible in a fight.</td>
<td>Tuhan</td>
</tr>
<tr>
<td>Kala</td>
<td>A disobedient creature who was supposedly sentenced to eat himself, Shiva later reversed the penalty and made it a Protector and was used as acuan putu</td>
<td>Punca Bunga Ukir</td>
</tr>
<tr>
<td>Makara</td>
<td>The head and body of 'Makara' are shaped like fish, and an elephant's trunk is attached to the mouth.</td>
<td>Sulur Bayu</td>
</tr>
<tr>
<td>Mount Meru Stupa</td>
<td>Refer God in Hinduism</td>
<td>Kepala</td>
</tr>
<tr>
<td></td>
<td>Representation of the earthen stack in the Indian cemetery &amp; a symbol of Buddha entering the Nirvana</td>
<td>Buah Buton</td>
</tr>
<tr>
<td>Pohon Beringin</td>
<td>Another type of animal immortalized in Malay woodcarving is the naga or dragon.</td>
<td>Pohon Budi</td>
</tr>
<tr>
<td>Padma / Lotus</td>
<td>A fragrant flower</td>
<td>Bunga Tunjung</td>
</tr>
<tr>
<td>Naga</td>
<td>Not applicable for motifs</td>
<td>Discourage in usage</td>
</tr>
<tr>
<td>Garuda / Jentayu</td>
<td>The garuda is renowned as Vishnu's chariot and was also used to convey the royals in any important procession in the Malay realm.</td>
<td>Petala Indera / Gagak Sura</td>
</tr>
</tbody>
</table>

### 3 Methodology

The first method is an interview with a professional craftsman, Muhaimin Hasbollah from Pahang. Besides, the methods used were a collection of data on elements of woodcarving from a literature review in existing journals by previous researchers, and books alongside the documentation of measured drawing of Istana Tengku Long and a site visit to Istana Tengku Long was conducted to verify motifs applied to each woodcarving composition on-site. An
in-depth interview with Professor Dr. Sohirin Bin Muhammad Solihin was done to understand the application of Quranic Verse and Arabic Calligraphy as ornamentation from the Islamic perspective. A fractal dimension represents a precise gauge of the proportional intricacy and variety of geometric details in an image or object. Fractal Dimension Analysis (FDA) measures how a pattern fills space and can be used to quantify the level of complexity in patterns such as woodcarving panels. One advantage of using fractal dimension is that it can provide a more detailed understanding of the complexity of a pattern, and its application also can be in multiple dimensions via the visual 2D templates. Fractal Dimension Analysis (FDA) analysis provides a valuable tool for characterizing the complexity of natural systems, particularly those that exhibit self-similar patterns at different scales [13]. Numerous scientific and medical research studies have extensively employed diverse adaptations of the fractal analysis technique to assess and juxtapose intricate entities. Beginning in the early 1980s, an increasing cohort of scholars and designers has recognized the impact of fractals on architectural concepts [14] [15].

In order to apply box counting method to woodcarving panel, a grid is superimposed over the image, and each square inside the grid is methodically examined to determine the presence of any lines (often referred to as information in scientific contexts) from that plan portrayal. The number of boxes with lines is then recorded, generally by cross-hatching the cell and counting the number of cells marked in this manner. Then, a smaller grid is placed on the same image, and the procedure is repeated, but at a different scale, with the number of boxes with lines recorded as well. The number of boxes with detail in the first grid \( N(s_1) \) is then compared to the number of boxes with detail in the second grid \( N(s_2) \).

\[
D_b = \frac{\log(N_{s_2}) - \log(N_{s_1})}{\log(1/s_2) - \log(1/s_1)}
\]

where

\( N(s\#) = \) the number of boxes in grid number “\#” containing some detail
\( 1/s\# = \) the number of boxes in grid number “\#” at the base of the grid

4 Discussion and findings

Istana Tengku Long is decorated with tremendous wood cravings ornamentation. The Quranic calligraphy is located at the wood panel above the doors facing the river at the original Kampung Raja, Besut, Terengganu site. Figure 1 shows the location of the panels.

\[\text{Figure 1. The location of the Quranic calligraphy at the palace.}\]

The Quranic verse carved on this wood panel is from Surah Assaff (61 : 13) "..help from Allah and an imminent victory.." (Figure 2). From the interview with Professor Dr. Sohirin
Bin Muhammad Solihin, the Islamic law of putting the Quranic verses as the ornamentation is Mubah, and it should be as the intricacy of the art and must not become a belief. This verse is a hope for gaining the victory of a person in his life and any effort and probably used as a prayer. In addition, calligraphy ornamentation is acceptable as a culture only but rejected as a belief. Istana Tengku Long was a presidential palace for Royalty and the Ruler of Besut. Therefore, it was believed that the importance of this verse in their daily life was a prayer to gain victory in ruling the state and any intention these Royalties wished.

![Image of Quranic verse calligraphy applied to a wood panel with a bird image](image)

**Figure 2.** The Quranic verse calligraphy was applied to the wood panel with the image of a bird.

The selection of the Quranic calligraphy panel is the subject of study as it is a complete pattern that has always been chosen by woodcarvers and also can be analyzed by the FDA. The reason for complete pattern selection by the woodcarver is that it allows for more intricate and complex designs to be displayed on the panel, such as intricate scenes, motifs, or stories that cover the entire surface. Additionally, complete patterns provide a uniform visual flow across the panel. It creates a sense of unity and cohesion by extending the pattern across the entire surface. This is desirable when the woodcarving is intended to be a focal point or a stand-alone work of art. In addition, a complete pattern of woodcarving can be used to depict various interconnected scenes or elements, allowing for a sequential representation of woodcarving. The panel analyzed using the box counting method from FDA shows the complexity pattern with viewing the 2D visual analysis of 1.613 value as shown in Table 2.

**Table 2:** The box counting method for TO6.

<table>
<thead>
<tr>
<th>Grid</th>
<th>Woodcarving panel</th>
<th>N(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid 1: 7 x 4</td>
<td>![Woodcarving panel image]</td>
<td>28</td>
</tr>
</tbody>
</table>
The table 2 shows analysis of woodcarving panel TO6 by implementing box counting method from FDA. The intricacy of this complete panel with a complexity of FDA value of 1.613 gives a sign that the woodcarver did authentic craftsmanship that can integrate the Quranic calligraphy as an image of a bird with open wings. This ingenuity work only can be seen at Istana Tengku Long and should be preserved as a future reference. After conducting box counting analysis from Fractal Dimension Analysis (FDA), the woodcarving panel was brought to master craftsmen for verification and discussion on elements of woodcarving in a composition. An interview was held with master craftsmen who have vast experience and expertise in the art of woodcarving to acquire insights into the various factors that contribute to the difficulty of woodcarving panels. The purpose of the interview was to learn about their opinions, approaches, and considerations when carving delicate and complex patterns in wood. The interview information throws light on the different aspects that determine the complexity of woodcarving panels and offers significant insights into the artistry behind these magnificent works of art. It such an honoured to had the privilege of interviewing a master craftsman with decades of experience in the field, Mr Norhaiza Nordin from Seni Ukir
Bakawali, Besut, Terengganu and Mr Muhaimin Hasbollah from Inakraf Woodcarving, Temerloh, Pahang. During the interview, the topic such intricacies of woodcarving, discussing the various techniques and approaches that are used to create stunning works of art, the role of design and pattern-making in woodcarving, as well as the importance of selecting the right tools and materials for the job was delved. This is also agreed that the traditional Malay palaces differ regarding construction features and adornment owing to distinctions in customs and ultimate power between the royals and commoners [16]. The detail motif is explained in Table 3.

**Table 3.** The elements of the woodcarving panel with Quranic calligraphy

<table>
<thead>
<tr>
<th>Coding</th>
<th>TO6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motif</td>
<td>Caligrafy &amp; Sulur kacang</td>
</tr>
<tr>
<td>Pattern</td>
<td>Awan larat/ pola lengkap pemindang</td>
</tr>
<tr>
<td>Technique</td>
<td>Relief carving without incision</td>
</tr>
<tr>
<td>Source</td>
<td>Source from the seeds (semicircle base)</td>
</tr>
<tr>
<td>Type of Pattern</td>
<td>Complete</td>
</tr>
<tr>
<td>Design Elements</td>
<td>Flowers, leaves, stems</td>
</tr>
<tr>
<td>Elements of panel</td>
<td>2-symmetrical with rectangular base panel and semicircle frame</td>
</tr>
<tr>
<td>FDA Value</td>
<td>1.613</td>
</tr>
</tbody>
</table>

**5 Conclusion**

Pattern intricacy can be significantly affected by the size of a panel. A larger panel can accommodate more design elements and details, but it requires more outstanding expertise and precision to carve. In addition, the panel size can influence the pattern's design and composition, as well as the carving techniques used. By considering the panel size and its effect on the overall intricacy of the pattern, the carver can produce stunning results that showcase the elegance and complexity of this ancient craft. The Quranic verse is a divine prayer for a believer, and the culture has assimilated the verse as the ornamentation as a sign of Muslim. The intention, however, cannot be measured by the observant as the observant can only appreciate the beauty of the ingenuity of the intricacy of the wood carvings. Preserving the calligraphy motif with indigenous incision shows the sustainability of Malay craftsmanship in wood carving. It emphasizes the inheritance of the aesthetic ornamentation in the traditional timber palaces in Malaysia that potentially involved heritage tourism and education prospects.

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