

Traditional Craft Meets Contemporary: Exploring the Potential of *Kelarai Bertam* Weaving Technique in Modern Furniture Construction

Ahmad Fazlan Ahmad Zamri*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kedah,
Merbok, Kedah,
Malaysia
Corresponding author
Email: fazlan7538@uitm.edu.my*

Asrol Hasan*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kedah,
Merbok, Kedah,
Malaysia
Email: asrol726@uitm.edu.my*

Nurul Syafiqqa Said*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kedah,
Merbok, Kedah,
Malaysia
Email: nurulsyafiqasaid@gmail.com*

Received Date: **18.11.2023**; Accepted Date: **05.02.2024**; Available Online: **28.10.2024**

** These authors contributed equally to this study*

ABSTRACT

Kelarai Bertam is a traditional weaving method that has been used for ages to make comprehensive weaves for usage both indoors and outdoors in Malaysian homes. This traditional practice, however, is being explored as an innovative method to build modern furniture in response to the increasing need for unique and environmentally friendly designs. Using this detailed weaving technique, designers construct patterns and motifs that combine aesthetic appeal with practicality out of organic materials like rattan, bamboo, and pandan leaves. When applied to contemporary furniture, the outcome's combination of traditional craftsmanship and modern style is fascinating. This combination provides an opportunity to preserve and acknowledge traditional techniques while also emphasising the strength of Malaysian innovation in the present era.

Keywords: *Kelarai Bertam, Weaving Technique, Furniture Construction*

INTRODUCTION

This study looks at how the *Kelarai Bertam* weaving method could be used to make modern furniture by

finding new ways to use traditional weaving methods in modern design. Traditional crafts are becoming more popular again, and people are becoming more aware of how mass production influences the environment and past generations. This has led to a focus on using traditional elements in modern design. The *Kelarai Bertam* method, which uses natural materials and complex weaving patterns, is a one-of-a-kind way to create amazing, sustainable furniture that is both modern and traditional (Mariam et al., 2021). By looking at how this weaving method could be used in modern design, this study hopes to help create a more sustainable and culturally interesting way to make subjects.

LITERATURE REVIEW

Extensive research has been carried out in order to investigate the possibility of using the weaving technique known as *Kelarai Bertam* in the production of contemporary furniture. The study team investigated the history of traditional techniques used in the art form and experimented with various materials and processes in order to identify ways to incorporate the technique into construction. In addition, they studied the history of traditional techniques used in the art form. The unusual and textural weavings of *Kelarai Bertam* were the focus of this research, which also looked at the potential design applications of these weavings. The team discovered via their investigation that this method has significant promise in the design and manufacturing of furniture, bringing together traditional craftsmanship with modern aesthetics.

Handicraft

Products of this nature are known as handicrafts, and they are typically crafted not only by hand but also with the assistance of a few simple and straightforward instruments. They serve a number of purposes in our day-to-day activities. In most cases, individuals utilise it both as a decorative element and for the practical value it offers, such as a wall mat hanging on the wall to display the drawing room in a more attractive manner, dolls for the younger children, a rug for decorating either the floor of the drawing room or the bed that is on the floor of the room, and others. The nature of handicraft items, their designs, the kinds of materials used to make them, and the aesthetic interests and feelings that went into making them make them one of a kind. As defined by Dash (2011), handicrafts are the exclusive representation of a community or culture through the use of local craftsmanship and materials.

The *Kelarai Bertam* weaving technique is a traditional skill that has been practised in Malaysia, particularly in the state of Kedah, for many generations. The method involves the use of dried and split bertam leaves, which are then painstakingly intertwined in order to produce elaborate patterns and textures. This method of weaving was historically utilised in the production of traditional items for the home, such as rugs and mats. In recent years, designers and those who build furniture have shown an interest in *Kelarai* weaving because they recognise its potential for use in the construction of contemporary furniture. The weaving technique known as *Kelarai Bertam* offers a one-of-a-kind combination of technical and aesthetic attributes, in addition to a significant amount of possibilities for the production of furniture that is both practical and aesthetically pleasing. The technique's merits lay not only in its longevity but also in its capacity to produce stunning and unique spaces that give a touch of tradition to modern spaces. These strengths allow the technique to create striking and uncommon spaces that add a touch of tradition to modern spaces.

The Sources of Craft Field: Forest-Based

The country of Malaysia is extremely privileged in that it has a variety of natural resources, each of which contributes to the national income and economy. Local craft industries, ethnic communities in Sabah and Sarawak, and the Orang Asli community all work precisely to produce forest materials such as wood, bamboo, rattan, pandan, bemban, coconut shells, and serdang leaves. These products are used in the creation of handmade goods. Over 2,000 people are engaged in the handicraft business in the state of Sabah, making it the state with the highest concentration of entrepreneurs in this sector. In addition to Sabah, Sarawak is home to a sizable number of business owners who are actively engaged in the production of a wide variety of handicrafts that are derived from forest materials and are fundamentally rooted in traditional ways of life. These handicrafts are made from a variety of materials including wood, bamboo, Rattan, and Mengkuang.

Handicraft Materials-Bertam

Various kinds of natural materials are utilised in the manufacturing of handicraft products. Raw materials are, without a doubt, preferable to those found in products that utilise the use of a manufactured material. One of the advantages of using natural materials is that they have more advantages for the environment. The examples of natural handicraft material are Bertam, Bamboo, Nipah Palm, Rattan, Coconut Shell and Bemban.

Hopes (2021) describes *Kelarai Bertam* weaving as a traditional craft technique that combines chequered weaving employing symmetrical squares to form patterns of motifs. This technique is said to have originated in Malaysia. It is a frequent practice to utilise it as a decorative technique on woven mats, and different patterns have different connotations attached to it (Mariam. et al., 2023).

The *Kelarai Bertam* weaving technique has the potential to be explored in the context of contemporary furniture construction. Unique and aesthetically pleasing furniture can be made by fusing this age-old skill with today's cutting-edge design techniques. Consider these avenues for research into the use of Kelarai Bertam weaving to contemporary furniture design:

Seat Weaving

Kelarai Bertam weaving can be used to construct woven seats for chairs and benches (Bohnhoff Furniture and Design, 2016). This is an application that is quite similar to that of Danish corded benches or cane chairs. The incorporation of this can provide contemporary furniture designs an air of time-honoured craftsmanship.

Panels and Surfaces

The weaving technique of *Kelarai Bertam* can be used to decorate the panels and surfaces of furniture, such as table tops and cabinet doors. This has the potential to generate elaborate patterns and textures, which will add visual interest to the piece of furniture.

Innovative Design

Innovative and modern furniture designs are possible for designers since they are able to draw inspiration from the traditional patterns used in *Kelarai Bertam*. According to Zheng and Zhu (2021), it is possible to make one-of-a-kind and aesthetically arresting pieces of furniture by fusing traditional features

with contemporary aesthetics.

Material Selection

Traditional *Kelarai Bertam* weaving is done with natural materials like bamboo or rattan; however, modern furniture creation is free to experiment with the use of a variety of materials. For instance, synthetic fibres or metal wires could be utilised to create a finish that is both contemporary and long-lasting.

Collaboration with Craftsmen



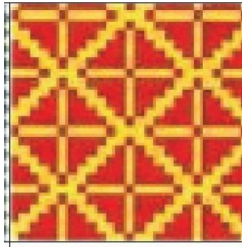

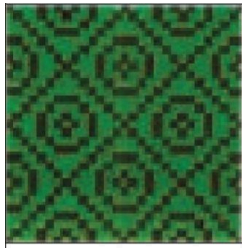

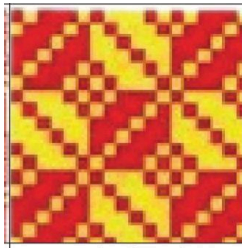
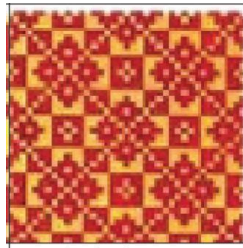


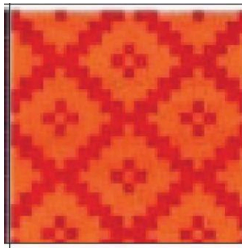
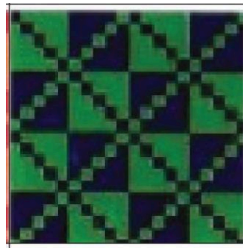
It is possible to ensure the authenticity and quality of the *Kelarai Bertam* weaving process when it is used for the creation of modern furniture by working in collaboration with expert craftsmen who specialise in the technique. This partnership presents an opportunity to maintain and showcase old forms of workmanship, which is another benefit.

It is possible for designers to produce one-of-a-kind and culturally significant pieces of furniture using the *Kelarai Bertam* weaving technique by combining it into the building of modern furniture. These pieces of furniture merge the aesthetics of traditional craft with those of contemporary design. This not only increases the worth of the furniture, but it also contributes to the maintenance of traditional workmanship and helps to promote its use.

Kelarai

Kelarai is a technique of chequered weaving that develops a pattern of motifs using local flowers, fruits, and animals (Nur Syahidah et al., 2022). This pattern is produced using a straightforward but attractive pattern of continuous squares that are symmetrical. Since its inception, the arrangement of simple patterns has developed into a large number of unique *Kelarai* designs. These designs are distinguished from one another by the use of distinct methods of production or weaving. *Kelarai* is utilised in the production of a variety of products, including those that are used on a daily basis such as mats and food coverings, as well as those that are used as decorative elements in traditional architecture such as walls and windows

Table 1: Malay traditional *Kelarai* weaving pattern of motifs

			
1. <i>Kelarai Tampok Manggis</i>	2. <i>Kelarai Mak Mek</i>	3. <i>Kelarai Jari Kedidi</i>	4. <i>Kelarai Empat Sebilik</i>
			
5. <i>Kelarai Bunga Cengkih</i>	6. <i>Kelarai Cik Kedah Ketapang</i>	7. <i>Kelarai Tepak Anjang</i>	8. <i>Kelarai Bunga Pecah Lapan</i>
			
9. <i>Kelarai Bunga Cina</i>	10. <i>Kelarai Cik Kedah Berakar</i>	11. <i>Kelarai Mata Ketitir</i>	12. <i>Kelarai Sambas</i>

(Source: Author's collection)

Kelarai Bertam

Kelarai Bertam handicrafts are made in a process with several steps. Even though the exact steps depend on the object being made, here are some general steps in the production process in Table 2 below:

Table 2. Bertam Handicraft Production Proses

 <p>(i)</p>	 <p>(ii)</p>	 <p>(iii)</p>
<p>Choose Bertam stems that are mature enough to cut down</p>	<p>Remove the thorns off the stem of the Bertama plant with great care</p>	<p>After the Bertam stick has been tied together, it is ready to be used</p>
 <p>(iv)</p>	 <p>(v)</p>	 <p>(vi)</p>
<p>Weaving by hand with Bertam sticks that have had the bark peeled off of them</p>	<p>Use a cleaver to scrape the inside of the stem of the Bertam's plant</p>	<p>Bertam's stem should be cut into four half equal in size.</p>

(Source: Author's collection)

The process of manufacturing *Kelarai Bertam* handicrafts is challenging and time-consuming, which demands a high level of skill and attention to detail from the craftsmen involved (Table 2, i, ii, iii.) The final result, however, is a product that is not only original but also physically appealing, and it reflects the cultural heritage of the Malay people

Kelarai Bertam Weaving Technique

Kelarai Bertam weaving technique is a traditional craft originating from the states of Kedah, Terengganu, and Kelantan, Malaysia. This weaving technique involves the intertwining of strips of soft rattan or bamboo, with the aim of creating intricate patterns. Historically, *Kelarai Bertam* weaving was used to create products such as baskets, mats, and hats. However, the potential of this weaving has grown in modern times, and artists and designers are exploring new ways to incorporate it into furniture construction. *Kelarai Bertam* weaving technique is characterised by its unique pattern texture, which adds a touch of elegance and sophistication to contemporary furnishings.

Description of the technique

Malaysians have practised the *Kelarai Bertam* technique of weaving for centuries. Using a specialised loom, strips of young bertam leaves, a form of palm plant, are woven into intricate patterns. The mat-like weave that results is known for its flexibility and natural aesthetic (Table 2, iv). In recent years, the technique has been adapted for contemporary furniture construction, with designers such as *Kelarai Bertam* weaving chairs, tables, and other pieces to add a touch of traditional craftsmanship to modern designs. A combination of traditional and modern elements has resulted in a distinctive and fashionable approach to furniture construction, highlighting the potential of archaic craft techniques for modern applications.

Description of the technique Materials used in the process

The *Kelarai Bertam* weaving technique is an ancient tradition that has been passed down through Malaysia. This technique involves putting together strips of bertam, a type of palm leaf that is abundant in Southeast Asia. The weaving process produces a durable and intricately patterned material that can be used for various purposes. In modern furniture construction, *Kelarai Bertam*, a unique and eco-friendly material, can add character and texture to contemporary designs. To create *Kelarai bertam*, craftsmen first select the best-quality bertam leaves, then soak them in water to soften them (Table 2, v). The softened leaves are then woven together using a combination of special techniques and tools. The resulting material is versatile and visually stunning, showcasing the skill and artistry of the weavers.

Description of the technique Materials used in the process Steps involved in the weaving process

The *Kelarai Bertam* weaving technique is a Malay traditional craft that has been passed down from generation to generation. This sophisticated weaving technique involves creating complicated designs with strips of bertam leaves, a form of palm (Table 2, vi). The bertam leaves are soaked and stripped before being woven together in a precise design using a little wooden needle. Bertam leaves, thin rattan sticks, and a wooden needle are utilised in this method. The weaving process entails repeating a certain pattern throughout the width of the material, which can be time-consuming and demanding. However, the resulting woven material is long-lasting and suitable for a variety of uses, including furniture construction.

RESEARCH METHODOLOGY

A mix of qualitative and quantitative study methods were used to figure out how the *Kelarai Bertam* weaving technique could be used to make modern furniture. At first, a review was done to learn more about the traditional skill and what it meant in the past. After that, interviews and surveys were done with *Kelarai Bertam* weavers and designers to find out what they thought about the method and how it could be used to make modern furniture. Experiments with 3D modelling were done to see if the method could be used to build furniture. Based on the results, these methods taught us a lot about how the *Kelarai Bertam* process can be used in modern furniture design and how it can be used technically and creatively.

The objective of the research design and methods used in this study was to find out how the *Kelarai Bertam* weaving process could be used to make modern furniture. A qualitative study design was used to find out more about the craft and how it is used today. Traditional weavers and furniture designers were interviewed in a semi-structured way to find out what they thought about putting traditional weaving methods into furniture designs. Participatory Action Research (PAR) was also used to make it easier for the weavers and designers to work together to make samples of furniture. Cornwall and Jewkes (1995, as cited in Vaughn & Jacquez, 2020) suggest that Participatory Action Research (PAR) is a research methodology emphasising direct engagement with local priorities and perspectives, focusing on a research-to-action approach. In this context, PAR aims to provide a comprehensive understanding of the cultural heritage of the *Kelarai Bertam* weaving technique and its potential for contemporary design.



Figure 1. Research Design
Qualitative and quantitative data collection and analysis

The collection and evaluation of both qualitative and quantitative data are important parts of any research project. According to Creswell (2014), qualitative research constitutes an approach aimed at delving into and comprehending the significance that individuals or groups attribute to social or human issues. This method usually entails gathering and scrutinising non-numerical data such as interviews,

observations, and focus groups. In contrast, quantitative research involves the collection and analysis of numerical data such as statistics and polls. On the other hand, quantitative research encompasses data collection that can be quantified and subjected to statistical analysis, serving to either substantiate or challenge alternative assertions of knowledge. Hence, by looking at both qualitative and quantitative data, the study aims to get new ideas, find trends, and arrive at conclusions. Both ways are useful for getting a full idea of the research question, and they can work well together. Which method to use depends on the study question and the kind of data that is collected. When researchers use both qualitative and quantitative methods, they can learn a lot about the thing they are studying. This lets them come to strong conclusions. When both ways are used to find out how the *Kelarai Bertam* weaving technique could be used to make modern furniture, it gives a deeper understanding of the subject.

Surveys and interviews

Surveys and interviews with artisan and consumers were conducted to gain insights and perspectives on how the traditional *Kelarai Bertam* weaving technique can be incorporated into modern construction. An artisan is a skilled craft worker who makes or creates material products by hand, either partially or wholly. Furniture, decorative art, sculpture, apparel, food items, household things, and instruments and mechanisms such as a watchmaker's handmade clockwork movement are examples of these objects. Artisans practise a craft and can achieve the expressive levels of an artist via experience and aptitude. They shared their expertise and knowledge of the weaving technique, while sharing their creativity and ideas on potential applications of the technique in furniture design. Consumers also provided valuable feedback on preferences and interest in furniture pieces made with *Kelarai Bertam* weaving technique. The surveys and interviews give a deeper understanding of the market demand and potential for this weaving technique in the modern furniture industry, and it can be used to unique and culturally-rich furniture pieces that appeal to a wide of consumers.

INTERVIEWEE	Dialogue Between Syafqa and Puan Naimah On 9 June 2023	Dialogue Between Syafqa and Puan Naimah On 5 July 2023
NURUL SYAFQA BINTI SAID	Syafqa: Sebelum berbingca dengan lebih lanjut, saya nak tanya adakah berbandan bertam sama? Puan Naimah: Berbandan bertam tidak sama, saya menggunakan Bertam untuk penghasilan kraftangan.	Syafqa: Puan saya nak tanya untuk penyimpanan batang bertam ni ada cara khas ke? Mungkin kene simpan dalam rumah je ke? Puan Naimah: Kalau batang bertam ni dia tak khalak lagi cara simpan, tapi kalau batang bertam yang dah disiap raut ye kit akeno jaga elok-elok sikit lah sebab batang bertam boleh kene air tapi yang dah siap raut tak boleh.
INTERVIEW DATE	Syafqa: Batang bertam ni boleh disimpan berapa lama ye? Puan Naimah: Batang bertam ni kene belah dulu baru boleh simpan lama kalau tak nanti dia dah kering dah susah nak belah.	Syafqa: Kenapa ye? Apa yang akan jadi kalau lainya kena air? Puan Naimah: Biasa nya dia akan jadi warna hitam macam tompok-tompok hitam. Tapi kalau kene minyak pon boleh jodikan dia hitam.
9 JUNE 2023 & 5 JULY 2023	Syafqa: Tak jugak, kit akeno pilih batang bertam yang dah matang je untuk penghasilan kraftangan ni. Puan Naimah: Batang bertam ni senang tak nak dapat?	Syafqa: Ouh kalau kita warna kan pun dia akan jadi benda yang sama ke? Puan Naimah: Haah, lagipun kalau warnakan nanti bahagian yang sama ke? lama cat boleh tercabut, nanti akan jadi buruk.
TIME SET	Syafqa: Tak jugak, kit akeno pilih batang bertam yang dah matang je untuk penghasilan kraftangan ni. Puan Naimah: Batang bertam ni senang tak nak dapat?	Syafqa: Kalau bertam ni kan tetahanan dia sama ke macam buluh? Puan Naimah: Eah tak lah, bertam ni dia lagi lembut dri buluh.
10:00 A.M & 8:00 A.M	Syafqa: Dia banyak je dalam hutan tu tapi susah lah nak amik. Puan Naimah: Dalam 40-50 batang je sebab bawa motor jadi tak boleh nak amik banyak.	Syafqa: Masa proses anyaman ni kenapa tak buang ye bahagian hujung dia? Puan Naimah: Yang hujung ni tak buang supaya nanti dia tak selera, jadi lebih mudah proses menganyam tu.
TIME ESTIMATION	Syafqa: Kraftangan bertam ni boleh diwarnakan ke? Puan Naimah: Saya tak sarankan untuk warna sebab nanti lama-lama dia jadi bunak. Kalau nak saju syelek boleh, sebab nanti dia akan jadi lagi cantik.	Syafqa: Ouh macam tu, agak-agak berapa lama masa yang di ambil untuk menganyam ? Puan Naimah: Kalau macam saiz 4ft x 4ft boleh siap dua keping satu hari.
4 HOURS	Syafqa: Kalau kraftangan bertam ni boleh tahan berapa lama ye? Puan Naimah: Lama, saya ada simpan satu kraftangan bertam ni dah lebih dari 60 tahun dan masih elok lagi.	Syafqa: Saiz bilah ni memang ada specific saiz ke ? Puan Naimah: Eah tak jugak, kalau nak bunga kecil bilah pon kene kecil.
PARTICIPATIONS	Syafqa: Paling kecil saiz yang boleh di hasilkan berapa ye? Puan Naimah: Kalau kecil 1ft x 1 ft sebab motif dia boleh saiz ni je kalau paling kecil.	Syafqa: Biasa sekurum bunga berapa bilah? Puan Naimah: Sekurum biasanya 11 bilah je.
PUAN NAIMAH BINTI KASA	Syafqa: Boleh saya tahu motif apa yang digunakan? Puan Naimah: Biasanya saya guna motif setempuk manggis tapi kalau ada pelanggan yang hantar design sendiri pon saya boleh buat.	Syafqa: Kalau tak cukup saiz kita tambah je, selite kan je bilah yang baru. Puan Naimah: Yang bahagian cerah ni memang kene raut ke? Kenapa yang gelap ni pun tak raut?
MEDIUM	Syafqa: Ada beza ke Kedah punya kraftangan bertam dengan negeri lain? Puan Naimah: Saya rasa tiada sebab memang biasa orang guna motif yang sama je.	Syafqa: Yang bahagian cerah ni memang kene raut ke? Kenapa yang gelap ni pun tak raut? Puan Naimah: Yang bahagian cerah ni saya saja je raut supaya dia jadi lagi cantik, kalau bahagian gelap ni dia sama je kalau raut pon.
FACE TO FACE INTERVIEW	Syafqa: Jadi kiranya tiada motif yang melambangkan kraftangan ni dari negeri tertentu ke? Puan Naimah: Betul, setakat ni masih belum ada lagi motif yang boleh dikatakan melambangkan Kedah.	Syafqa: Ouh faham, kalau nak menganyam kan, ada cara susun bilah bertam ni ke? Puan Naimah: Ada, sebelum anyam susun kepala dengan kaki selang seli. Kepala yang bahagian atas siasa ni bertam.
	Syafqa: Boleh saya tahu tak alatan apa je yang digunakan untuk penghasilan kraftangan bertam? Puan Naimah: Dua benda je parang untuk meraut dengan Ganding getah untuk rapatkan bertam ni.	Syafqa: Kenapa ye kene buat macam tu? Puan Naimah: Sebab saiz ada ada beza sikit hujung dengan pangkal jadi nak kurangkan Nampak perbezaan tu, kita kene susun macam tu.
	Syafqa: Saya nak tanya, dekat Kedah ni ada pengusaha lain ke untuk penghasilan Kraftangan Bertam ni? Puan Naimah: Untuk kawasan sekitar ni ada saya dan adik ipar saya je.	Syafqa: Batang bertam ni kan tak mudah patah ke? Puan Naimah: Tak mudah patah tapi jangan tarik kuat sangat tapi kalau patah kitab oleh ganti atau sambung je balik.
	Syafqa: Ouh okay, saya rasa itu sahaja soalan untuk hari ini. Terima kasih ye puan. Puan Naimah: Sama-sama.	Syafqa: Ouh faham, baiklah terima kasih.

Figure 2. Interview Transcribe Data
 (Source Author's collection)

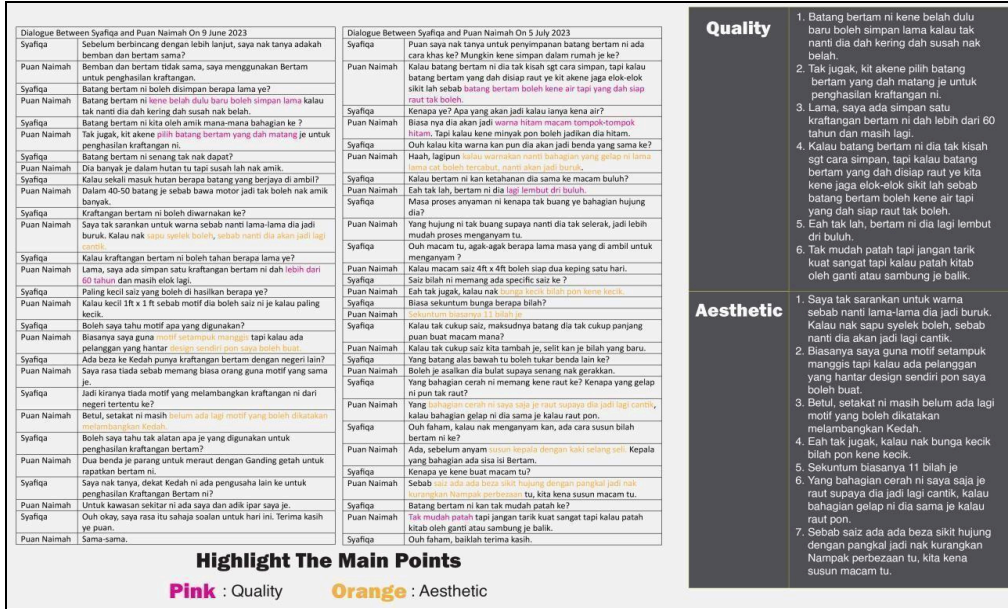


Figure 3. Manual Familiarisation
 (Source Author's collection)



Figure 4. Interview Analysis

FINDINGS

The results of using the *Kelarai Bertam* weaving method to make modern furniture and the discussions about it show how traditional crafts can be used in modern design. The exploratory study looked at the unique qualities of *Kelarai Bertam* weaving, like how durable and flexible it is, which makes it a good choice for many modern furniture uses. The discussions also showed the challenge it is to keep crafting

remaining in the modern world and how much innovation is needed to do so. Also, the study gives artists and designers a chance to make furniture designs that honour traditional crafts but are also new and eco-friendly. Overall, the results and talks show that the *Kelarai Bertam* weaving method has a lot of potential to fill a need in modern furniture, where designs that are both unique and good for the environment are highly valued.

Technical and aesthetic potential

Kelarai bertam weaving is a traditional craft that has a deep place in Malaysian culture. It has a lot of technical and aesthetic possibilities for making furniture. Thin pieces of bertam leaves, a type of palm leaf that grows in Southeast Asia, are woven together to make intricate patterns and textures. Weaving with natural fibres is a way to make things that are long-lasting and good for the environment. The intricate and natural designs that are made by weaving are a unique and interesting part of furniture design. *Kelarai bertam* weave is not only a great example of traditional craftsmanship, but it is also a good example of how modern furniture can be made and used in a way that is good for the environment.

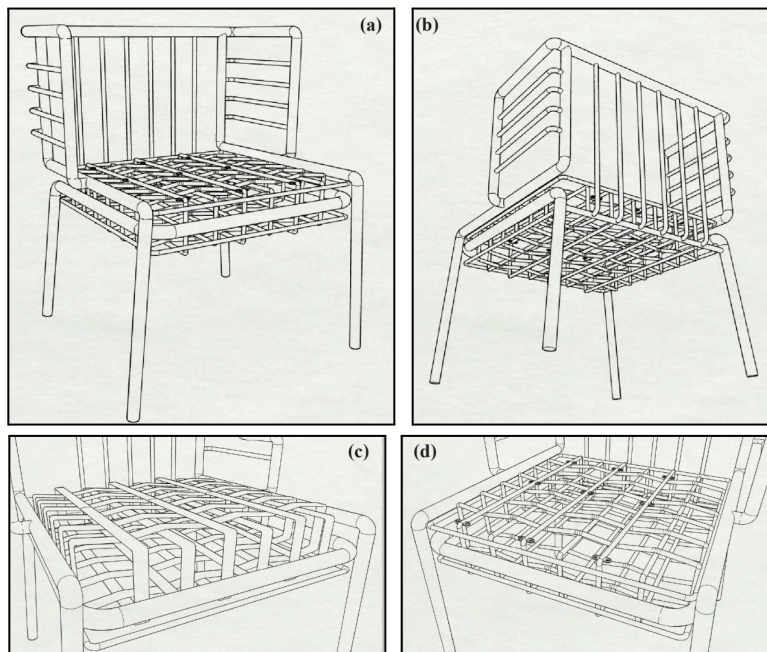


Figure 2. Designers illustrate images of (a), (b), (c), and (d) potential technical and aesthetic uses of the *Kelarai Bertam* weaving method in furniture construction
(Source: Author's collection)

Strengths and weaknesses of *Kelarai Bertam* weaving in furniture construction

For years, the *Kelarai Bertam* technique has been employed in furniture manufacturing, producing distinctive, detailed patterns that display the talent of local artisans. However, as with weaving, its application in furniture has advantages and disadvantages. One of the advantages of *Kelarai Bertam* weaving is its durability, with a tight weave that can sustain the weight of heavy furniture. It also provides a natural quality to any piece, which may be quite effective in modern furniture design. However, weaving may be time-consuming and needs a high level of expertise, making mass production

challenging. Furthermore, because natural materials are used in the weaving process, it is prone to dampness and sun damage, which may limit its use in certain areas.

Design strategies for integrating *Kelarai Bertam* weaving with modern materials and for

The design strategies for integrating *Kelarai Bertam* weaving with modern materials and forms involve gaining a comprehension of traditional weaving techniques and determining how to incorporate them into modern furniture designs. This requires knowledgeable artisans who can convert traditional patterns and textures into new forms that complement modern themes. Exploring the potential of the *Kelarai Bertam* weaving process in modern furniture construction can be aided by 3D design illustration software. Designers can use this software to experiment with novel materials, create unique designs, increase production efficiency, and visualise the finished result. By creating digital models of the furniture piece, designers can also experiment with different colours, textures, and finishes to achieve the desired effect. In addition, designers must use materials that complement the weaving technique and create a unified aesthetic with current furniture trends. To create an elegant and distinctive design, a balance must be struck between traditional and contemporary elements, and the manufacturing process must be contemporary.

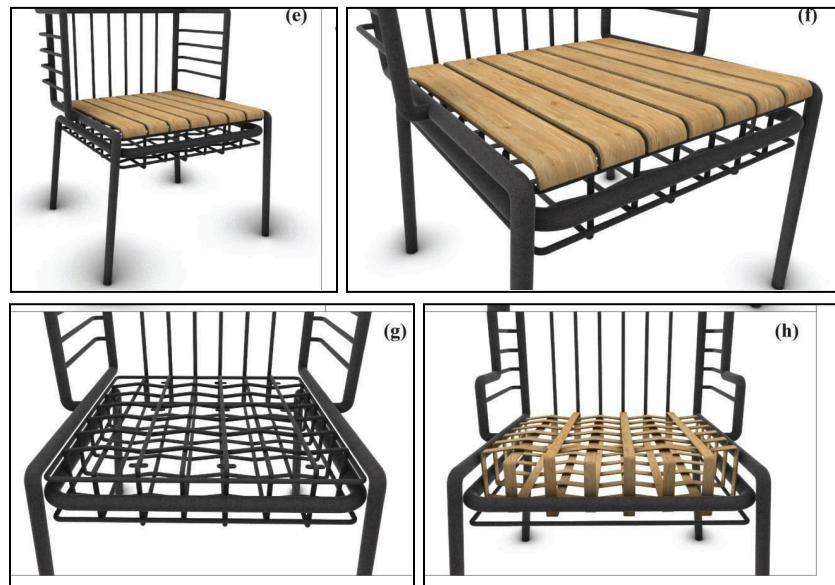


Figure 3. Designers illustrate images of (e) 3D design illustration software can be used to create innovative and contemporary furniture designs by drawing inspiration from traditional *Kelarai Bertam* patterns, (f) an elegant and distinctive design with the combination of hybrid materials, (g) Synthetic fibres or metal wires can be used to achieve a modern and durable finish, and (h) combining traditional elements with modern aesthetics, unique and visually striking furniture pieces.

(Source: Author's collection)

CONCLUSIONS

As the article has shown, the *Kelarai Bertam* technique has a lot of potential as a way to make modern furniture that combines traditional craft with modern design. This study has not only shown how attractive and helpful weaving can be, but it has also shown how important it is to keep traditional crafts

and cultural traditions present. The conclusion to draw from this study is that combining previous skills with modern design leads to new and sustainable ways of completing various things. So, it is suggested that more study and promotion of these techniques be supported to keep traditional crafts alive and help modern design move forward. Overall, this study looks at how important custom is and how it could be used in modern practices.

In Malaysia, the *Kelarai Bertam* weaving style has a rich cultural legacy and history (Mariam et al., 2021). Designers and artisans can now apply this traditional craft to modern furniture development. The further development of this technique's technical and aesthetic expertise is essential for its success in current design. This involves experimenting with new materials, enhancing the weaving process, and researching design approaches that might emphasise the unique properties of the technique. The idea is to establish a new and exciting way of thinking about furniture design while maintaining tradition and cultural identity. Designers may produce distinctive furniture elements that embody both the traditional and contemporary by furthering their technical and aesthetic knowledge of *Kelarai Bertam* weaving, giving value and excitement to the world of design.

Kelarai Bertam weaving is important to local cultures. In recent years, this traditional craft has declined due to lack of awareness. Education and promotion of *Kelarai Bertam* weaving are needed to boost local communities' cultural worth. *Kelarai Bertam* weaving's potential in contemporary design and ecological textile production should be studied in the future. *Kelarai Bertam* weaving can be passed down to future generations through maintaining and promoting it. Even though the current study has shown that the *Kelarai Bertam* weaving method could be used to make modern furniture, there are still some problems and questions that need to be answered. For example, there hasn't been much study done on how long the *Kelarai Bertam* weaving method lasts or how it affects the environment. Also, more research needs to be done on how the *Kelarai Bertam* weaving method can be used to make different kinds of furniture and how it works with different kinds of materials. Understanding these problems and gaps will not only help the *Kelarai Bertam* weaving method get better, but it will also make it more likely that it will be used to make modern furniture.

ACKNOWLEDGMENTS

I would like to express my gratitude to the individuals listed below for their invaluable assistance and unwavering support during the process of preparing this research report. We would like to extend our heartfelt appreciation to all the individuals who participated in and contributed to the research on the integration of the *Kelarai Bertam* weaving technique in contemporary furniture manufacturing. This research would not have been possible without the invaluable assistance, direction, and diligent efforts provided by the individuals involved. We hereby express our gratitude to the following individuals: 1. The skilled weavers who are experts in the *Kelarai Bertam* weaving method taught us what they knew; 2. The designers who worked with us to find out how the *Kelarai Bertam* weaving method could be used to make modern furniture; 3. The participants were very kind and gave us a lot of their time and stories, which helped us understand the importance of the *Kelarai Bertam* weaving technique in Malay society.

Thank you to Mr. Asrol Hasan and Ms. Nurul Syafiqah from our team for their advice and assistance during the study process. They gave me priceless input on my research proposal, assisted me in clarifying my research topic, and offered a wealth of insightful and practical advice on how to carry out the study, analyse the data, and write the report.

REFERENCES

- Bohnhoff Furniture and Design (2016), technique – Bohnhoff Woodworking. [Online] Available: <http://www.bohnhofffurniture.com> (2016)
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage
- Dash, M. (2011). Buyers' Preferences of Product Design for Purchase Of Selected Indian Handicrafts with Special Reference to Orissa State. *Asia Pacific Journal of Research in Business Management*, 2 (6), 240 – 257.
- Hopes, W (2021), Artwork – Weaving Artwork. [Online] Available: <https://www.weavinghopes.com/artwork> (2021)
- Mariam Idris., Marzuki Ibrahim., & Ruwaidy Mat Rasul.(2023), Comparison Between the Arts of Terengganu Malay Kelarai And Sarawak Iban Kelarai in Woven Mats, *New Design Ideas*Vol.7, No.2, 2023, pp.392-406, Jomard Publishing
- Mariam Idris. & Marzuki Ibrahim. (2021). The influence of nature in the design of 'Kelarai' woven mat patterns produced by the Malay community in the East Coast of Malaysia. *AIP Conference Proceedings* 2347(1) (July 2021). <https://doi.org/10.1063/5.0055663>
- Nur Syahidah Taufik., Harlina Md Sharif. & Rajabi Abdul Razak. (2022). The Art of Kelarai in Malay Architecture. *International Journal of Environment, Architecture, and Societies*, 2(2), 122-135.
- Vaughn, L. M., & Jacquez, F. (2020). Participatory Research Methods – Choice Points in the Research Process. *Journal of Participatory Research Methods*, 1(1). <https://doi.org/10.35844/001c.13244>
- Zheng, Y., and Zhu, J. (2021). "The application of bamboo weaving in modern furniture," *BioResources* 16(3), 5024-5035, NC State University