

# Weavers' Aesthetic Perception on the Visual Complexity of Pua Kumbu Design Motifs: An Exploratory Study

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**Abstract.** Visual complexity can offer a unique direction on how perceivers react and shape their aesthetic perceptions, relying on the art's formalistic elements and visual content. This study aims to evaluate the weavers' aesthetic perception of the complexity of the Pua Kumbu design motifs. The complicated art piece was highlighted as the Iban identity, which resembles the Iban's way of life, beliefs, taboos, and surroundings hidden in the textile patterns. The weaver's interpretation is its success in transferring the knowledge to the perceivers as they are the storyteller of this majestic art piece. The complexity of the symbols presented in the design motifs contributes to the lack of interest, especially among the young generation, in understanding these motifs' meaning. Thus, a qualitative approach was used to explore the weavers' perception of the design motifs' complexity using interviews in structured and unstructured questions. The findings contributed to a basic understanding and the sustainability of traditional human values, hoping that the textile as a valuable heritage will survive and remain relevant for the long term.

**Keywords:** Aesthetic Perception, Design Motifs, Intangible Heritage, Pua Kumbu, Visual Complexity.

## 1 Introduction

Aesthetic perception is defined as effects, attentions or conceptual interpretive reactions to any visual art [1]. Technically, the effects are obtained from two properties; 1) the visual complexity of many elements to construct an art, and, (2) the cognitive system of processing the visual arts [2]. Analysing a work of art is not just merely looking, but there is a need to appreciate the work intrinsically to obtain some form of understanding. The complexity of an artwork is seen as a collative variable [3], with the various elements of art included in the artwork to become one. Sun and colleagues [4] defined visual complexity as the degree of difficulty in the reconstruction of a description of visual art. It is associated with factors such as colours, texture and edges, curvature, object number, object size, pattern regularity, pattern compositions, and

other related elements [4]. The complexity plays a significant role in the perceiver's aesthetic preferences [5,6]. It suggests that the aesthetic perception is a function of the perceiver's processing dynamics: the more fluently the perceiver can process an image, the more positive is their aesthetic response [4].

Visual complexity can offer a unique direction on how perceivers react and shape their aesthetic perceptions. Perceivers can better understand the visual art's intrinsic or hidden meaning if analysing it entirely instead as separate elements to stimulate the end perception. Redies [7] suggested the evaluation of aesthetics does not only rely on the external or formalistic objects, colour, line, shape, form, texture and more, but also the context or content of the visual art. The response generated from prior experience shapes the justification, judgement, or perception, which later channels the information data as the ultimate result of the process to the perceivers' perception [7].

The phrase, "art for art's sake" is always expressed when it comes to art appreciation, but it does not disregard who and from where they come into their knowledge of art. Practically, when dividing the barriers between imagination and logic, it can be argued that art can be experienced at the same time for its social, moral, and intellectual values, and not only for its own sake [8]. Studies conducted by Fayn and colleagues [9] as well as Wahed and colleagues [10] argued that for those with art knowledge, their aesthetic perception is related to knowledgeable connoisseurship, although beauty appraisal is not solely about beauty [9,10]. Nevertheless, for some other scholars, aesthetic is described as the understanding of the 'underlying process' of the aesthetic perception [11,12]. To some extent, the underlying process of the aesthetics perception is interrelated with science where the process is defined as 'neuroaesthetics' [13-18].

Tinio's model highlighted the relationship between art-making and appreciation, which were related to one another. The artist's aesthetic perception during the early stage of art-making is parallel with the final stage of aesthetic perception [19]. The core of the aesthetic perception begins with the artist who appreciated the artwork first. Then, the perceivers evaluate visual art based on the perceivers' prior knowledge. The process of generating aesthetic perception involves not only perceivers but also includes the artists. The process consists of three essentials conventions; (i) perceivers should realise that visual arts are the interpretations of something; they are not just art, (ii) the process of capturing the art's essences involve the subject matter, and (iii) distribution of intellectual traditions. Successful communication between an artist and a perceiver can be achieved despite the artist's or the perceiver's visual deficits. They can compensate for any abnormalities in their visual systems [20].

## **2 Literature review**

The Ibans' way of life and beliefs are implicated in the local products, such as the Iban's textile embedded with design motifs inspired by flora, fauna, and animism. The Iban ethnic group is very fond of clothing and ornaments, so various attires are designed to fit both genders, male and female [21]. The tangible cultural heritage owned by the Iban people is limitless, which is still implemented to date. One of the sacred and protected tangible cultural heritages that still exist until the present day is Pua Kumbu. Pua Kumbu is the most famous cotton textile among the Iban people in Sarawak and is produced using the weaving technique [21]. The Ibans are

bound by their customs and beliefs and are well-crafted in the Pua Kumbu design motifs. The work or weaving of the Pua Kumbu is related to women, and their respective statuses in the community could be identified from the motifs weaved [1]. Even though the design motifs are difficult to interpret, the motifs and colouring are usually inspired by the surroundings and depict the Ibans' rituals and beliefs. Most design motifs are visual representations of animals, plants, and even daily activities. However, other design motifs are more complex and abstract [25].

Judge and colleagues proposed that human emotions are robust upon connecting to the world embellished with cultural artefacts [22]. It is suggested that visual art exists when it comes into contact with aesthetic stimuli, which in turn evokes emotional reactions [23]. Chatterjee & Vartanian [24] argued that people's aesthetic perceptions are contradicted when dealing with different arts from different cultures. In other words, what seems beautiful to the people of one culture may be perceived otherwise by those of other cultures [24]. Everything can become a motive that triggers the perception when the aesthetics perception process is compromised. The visual complexity of the design motifs applied is based on a combination of several geometrical designs inspired by nature and interpreted according to the weavers' understanding of their meaning and symbols. Although most Iban people have religions that are not tied to the old beliefs of animism, they are still associated with ancient rituals closely linked to mystical elements. The complexity of symbols represented in the design motifs applied on the Pua Kumbu contributes to the lack of interest, especially among the young generation, in understanding the meaning of these motifs [25].

Thus, the knowledge of the intangible cultural heritage lies in the hands of the weaver. If this knowledge is not passed down to others, it will be buried forever and become extinct. The difficulty in understanding the motifs adds to the misunderstanding and led to misinterpretation of the meaning and association with mystical elements, which led to its misuse. This conduct could offend the feelings of the Iban community. Therefore, accurate knowledge of the design motifs on the Pua Kumbu among the weavers is necessary to comprehend the experts' point of view. This study aimed explores the weavers' aesthetic perception of the complexity of the Pua Kumbu design motifs.

### **3 Methods**

This study used the qualitative research method to understand the visual complexity of the Pua Kumbu design motifs based on the weavers' aesthetic perception. The semi-structured interviews were employed, emphasising the combination of both structured and unstructured interview questions. The researchers' list of questions was used as a guideline, and the questions were treated accordingly to meet with participants' conditions, emotions, and locations [26]. Thus, there is freedom and flexibility for the participants and the researcher to change and add questions accordingly to meet the objectives of the study.

Purposive sampling (also known as evaluation, selective or subjective sampling) was employed in this study [27]. Thus, the specific samples, the Pua Kumbu weavers, were selected to justify the visual complexity of the design motifs applied to the Pua Kumbu. Expert is defined as having comprehensive knowledge in a particular area that they are involved in [28]. The Pua

Kumbu weavers as the study experts will better understand the textile, thus contributing to the broader knowledge.

Thematic analysis was used where the interview questions were developed to elicit relevant information regarding the design origins, design characteristics, taboos or rituals and the production of the Pua Kumbu. The interview questions were divided into four sections: (1) design origins, (2) design characteristics, (3) taboos/rituals and (4) production, which need to be explored and answered by the respective participants (Table 1). The images of the Pua Kumbu design motifs printed on an A4-sized paper was disclosed to the weavers to enlighten the findings. It took about 60 minutes to complete the session for each weaver.

**Table 1.** Themes and questions for interviewing the weavers.

Theme	Questions
Design Origins	1. Can you describe the origins of the design motifs?
	2. Do the design motifs possess any intrinsic/hidden meaning?
Design Characteristics	3. What are the main elements applied as the design motifs of the Pua Kumbu?
	1. What colours can be applied to the textile? 2. What is the inspiration for these design motifs?
Taboos / Ritual	1. Does the weaver perform any ritual before weaving the textile? 2. Can anyone weave this textile?
	1. How long does it take to complete a Pua Kumbu? 2. Do you still use the traditional technique of producing the textile? 3. If you continue with this profession, are there any other types of design motifs that you want to propose or articulate into its production?

Validity is the forte of the qualitative study, which is related closely to the study's findings [29]. The member checking procedure was utilised in this research and incorporated with developing themes, case analysis, cultural perspective and more. This study involved five (5) participants from multiple backgrounds and locations. The in-depth interviews were conducted to obtain the participants' interpretation of the study. The participants' names were not revealed but coded systematically to maintain the participants' confidentiality. Member checking was conducted after the sessions ended, and it took approximately 4–6 weeks for the researcher to analyse the raw data and transcribe it. The research data was emailed to the participants to check on the accuracy of the findings. Table 2 shows the schedule of member checking data for every participant.

**Table 2.** Member checking schedule and date of interviews.

Participants	Date of Interview	Venue/ Platform	Date of Member checking
W(1)	2 November 2019	Betong, Sarawak	25 November 2019
W(2)	27 November 2020	Song, Sarawak	26 December 2020
W(3)	28 November 2020	Kapit, Sarawak	27 December 2020
W(4)	28 November 2020	Kapit, Sarawak	27 December 2020
W(5)	28 November 2020	Kapit, Sarawak	27 December 2020

## 4 Results and Findings

This section reflects on the results of the in-depth interviews with the interviewees. It presents the analysis of their verbal responses during the interviews and discussions. Five weavers from different places around Sarawak were interviewed using the unstructured interview questions and delivered differently to the targeted participant. Table 3 shows the interview coding and theme of the Pua Kumbu weavers. The details of the transcription are included in the following section.

**Responses:** This subsection highlights the responses from the weavers to illustrate their aesthetic perception of the Pua Kumbu design motifs' visual complexity. The responses were categorised into four sections: (1) design origins, (2) design characteristics, (3) taboos/ritual and (4) production.

### 4.1 Design origins

In the field trip conducted in five different places in Sarawak, most of the weavers have a mutual understanding of the design, which originated from dreams, Iban folklore, nature, flora, and fauna. Furthermore, the Pua Kumbu weavers' inspirations are from Iban culture, nature and their surroundings. Some weavers gathered inspiration from the earlier designs from their ancestors. Most of the weavers understand the meaning of the humanoid design motifs only (Table 3).

**Table 3.** The interview coding and theme (design origins).

Informant	Origins	Meaning	Inspiration
W(1)	Dreams, folklores	Yes, the humanoid design motifs	Nature and Iban's culture
W(2)	Nature, flora, and fauna, inherited from ancestors	Yes, but the uncertainty of the meaning	Nature and imitation of the earliest design
W(3)	Inherited from ancestors, dreams, flora motifs	Yes, the humanoid design motifs	Ancestor and surroundings.
W(4)	Inherited from ancestors, nature, flora motifs	Yes, the humanoid design motifs	Ancestor and surroundings.
W(5)	Inherited from ancestors	Yes, the humanoid design motifs	Ancestor, surroundings, imitations

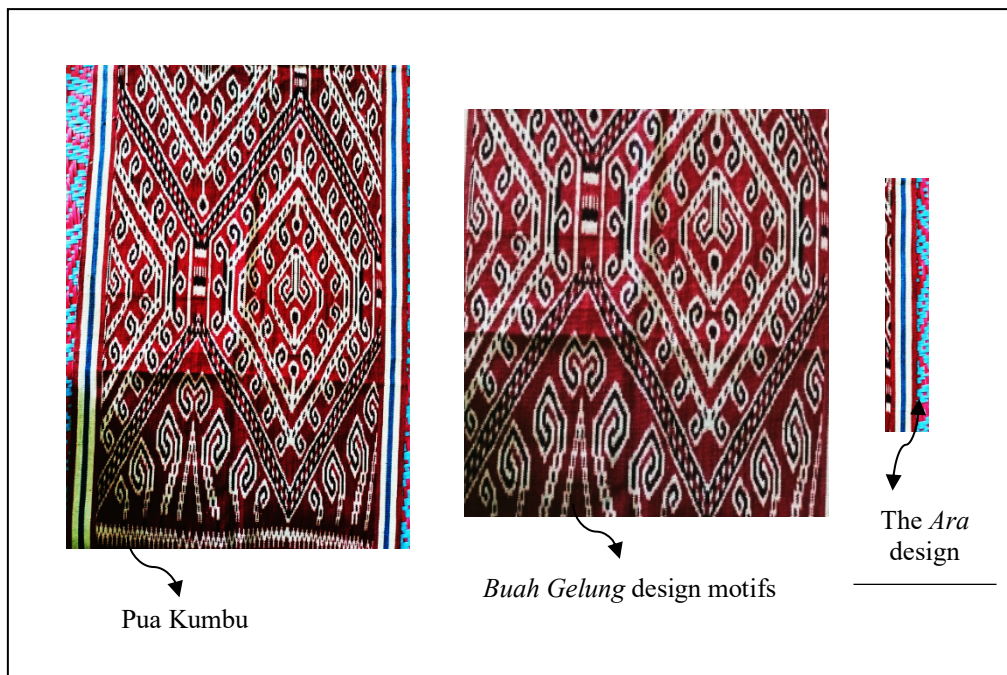
### 4.2 Design characteristics

Table 4 shows all of the Pua Kumbu weavers agreed that the major elements applied to the Pua Kumbu motifs are '*Buah Gelung*' and '*Ara*' design (Figure 1). The complexity of the '*Buah Gelung*' design motifs can be found in the geometrical shapes applied on it, which are based on the size of the textile and the interpretation of the weaver.

**Table 4.** The interview coding and theme (design characteristics).

Informant	Elements	Characteristics	
			Colour
W(1)	Buah Gelung	Red, black, yellow, white, maroon	sometimes purple
W(2)	Buah Gelung	Red, black, maroon, ochre, brown	
W(3)	Buah Gelung and Ara	Red, black	
W(4)	Buah Gelung and Ara	Red, black, white	
W(5)	Buah Gelung and Ara	Red, black, white, sometimes blue.	

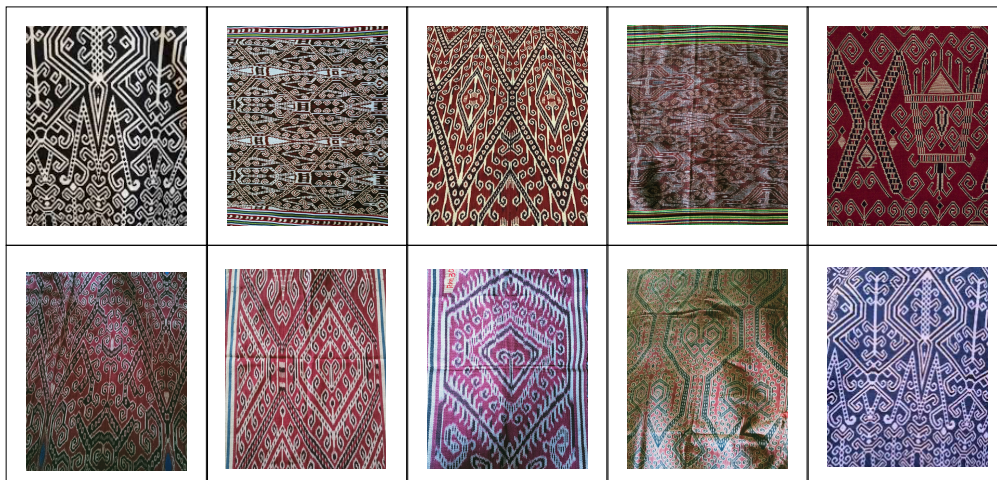
The '*Buah Gelung*' motifs can be found in many Pua Kumbu designs inspired by the *Pakupakis* plant shape (Figure 1). This motif can be named *Buah Gelung 5* or *Buah Gelung 8*, depending on the calculation of the curves made by the weaver. Meanwhile, the *Ara* design at the top and bottom of the textile with repetitive colourful lines does not possess any hidden meaning and act as a border to beautify the textile (Figure 1). Most of the narrative delivered by the weavers decorates the centre of the Pua, and is accompanied by branches of floral elements scattered around it.



**Fig. 1.** The full decoration of Pua Kumbu (1), the *Ara* design patterns (2), and, the multiple sizes of *Buah Gelung* design motifs (3).

In terms of colour preferences, most weavers agreed on earth tones and the Sarawak flag colours: red, black, white and maroon. W(1) and W(2) mentioned that different dye colours, such as blue and purple, were included to meet contemporary demand. Weavers still uphold the old tradition and the historical concept of designing the art piece with slight modifications in terms of the colours and selection of the design motifs (Figure 2).

- W(1): *“Colours follow the weaver creativity. Basically, following the colour of the Sarawak flag, such as red, black, yellow, white, dark maroon and sometimes purple. The green colour rarely used in the Pua Kumbu”*
- W(2): *“It doesn’t matter but the base should be in red or maroon because Pua Kumbu is looking great in red colour. During the back days, most of the colour is extracted from the natural sources, which produce the earth colour like red, ochre, brown and black”*
- W(3): *“Red and black are the most privileged colours to be applied on the Pua Kumbu. I used the natural dyed for the red and black colour. I planted the plant to make the red colour and used Ghai to process it. For the black colour, I used the natural dyed from Engkudu fruits”*
- W(4): *“Red, white and black is the most colours to be applied”*
- W(5): *“Mostly is red, black, white and sometimes is the blue colour. But if the contemporary weavers want to used other kinds of colour, it also was permitted. But the colour will not represent the Iban culture”*



**Fig. 2.** The variety of Pua Kumbu design motifs and colour.

### 4.3 Taboos /rituals

Table 5 identifies the weavers’ with codes W(1), W(3) and W(4) who mutually agreed that the ‘*miring*’ ritual should be performed to the humanoid figure and predatory-type of animal design motifs like *Nabau*, *Seru Anga*, *Badan Satu Kepala Dua*, *Mandi Di Sungai Linga Jul*, and *Baya* to seek permission from the Iban goddesses before weaving (Figure 3). However, weavers W(2) and W(5) do not practise the ‘*miring*’ ritual anymore.

- W(1): *“Will be perform simple ritual like ‘miring’, like biting the charcoal or in Iban is called ‘berketuk besi’ activity”*
- W(2): *“I learned to weaved since my teenager’s year, inherited from my mother and my grandmother. Which they did not teach me to do any rituals when weaved the Pua. so, when I do the Pua, I apply the same with no inceptions of ritual”*
- W(3): *“If the motifs are sacred and have the god images, I will perform the Miring in order to get the blessing”*
- W(4): *“The design with the high-ranking motifs like humanoid design, will performing the Miring, but for the simple motifs like flora, no need to perform the rituals”*
- W(5): *“I am not performing any ritual like ‘miring’ or else because my grandmother also did not apply ‘miring’ ritual too”*



**Fig. 3.** The humanoid figure and predatory-type of animal design motifs.

Other interesting findings revealed when weavers W(1) and W(5) agreed that the Pua Kumbu textiles can be weaved by anyone, with no gender bias. However, the other two weavers have different opinions (Table 5).



- W(1): *“Anyone can, no matter of their gender. However, in the past, weaving activity was strictly for the woman. But now, after the Pua Kumbu commercialised successfully, the man also was encouraged to weave”*
- W(2): *“Everyone can, but not male. Any religious or ethnic can do the weave, besides male”*
- W(3): *“Anyone can, but not male”*
- W(4): *“Anyone that is keen to weave, they are welcome. But it is rare to see the male weaver, and not any of them can be found in Kapit”*
- W(5): *“Anyone can, including the opposite gender, as long as they are interested in doing the weaving activity”*

**Table 5.** The interview coding and theme (design taboos).

Informant	Taboos	
	Ritual	Who weaved?
W(1)	Perform <i>miring</i> for the humanoid design motifs only.	Anyone can
W(2)	Not performing the ritual.	Not Male
W(3)	Perform <i>miring</i> for the humanoid design motifs only.	Not Male
W(4)	Perform <i>miring</i> for the humanoid design motifs only.	Anyone can, but not male
W(5)	Not performing the ritual.	Anyone can

#### 4.4 Pua Kumbu production

Table 6 shows the questions on the Pua Kumbu production, which includes the duration, technique and other types of design motifs proposed. Most of the weavers agreed on the duration to complete one Pua Kumbu is in one month and a half. However, W(1) took about three months to complete a Pua Kumbu. The transcripts were recorded as follows:

- W(1): *“For full-time weavers, it takes the fastest period of 3 months to finish Pua, with small size and simplicity of design motif. However, for a bigger size, complex and using the old type of yarn, it can take up to a year”*
- W(2): *“It took about 1 month to do the setting of the design and approximately 2 weeks to complete the 2X4’ size of Pua. The hustled is on the initial step, which the setting of the desired design should be conducted manually”*
- W(3): *“A month to finish one Pua, including to set the design”*
- W(4): *“Depends on the size. But the setting of the design motifs is taking a long time like a month, and the weaving activity is only taking two weeks”*
- W(5): *“It took about 2 weeks to set and complete one Pua Kumbu for the size of 2 x 6 feet”*

All of the Pua Kumbu weavers agreed to continue with the traditional technique. However, W(2) and W(5) discontinued the use of the original dye and the transcripts were recorded as follows:

- W(1): *“For people like me who like the traditional way, the Pua Kumbu value is much more important even though it is expensive. And for me, I prefer to use the traditional method since it also has to do with the Iban cultural values”*
- W(2): *“I still practise the traditional way, but the colour is not the natural dyed colour anymore but the artificial colour”*
- W(3): *“Yes, still. The weaving machine is still the old version of the machine and the colour is from the natural dyed”*
- W(4): *“Yes, still until now”*
- W(5): *“Yes, still. It just on the colour I used the artificial colour due to the limited time to get the resources and I do not have ‘Ghai’ - which is the place to process the natural colour of threads!*

**Table 6.** The interview coding and theme (production).

Informant	Duration	Production	Propose
		Technique	
W(1)	3 months	Traditional	Original Iban design and modern.
W(2)	1 month and half	Traditional, but the colour is using artificial dye	Original Iban design and modern.
W(3)	1 month	Traditional	Original Iban design
W(4)	1 month and half	Traditional	Original Iban design
W(5)	Less than 1 month	Traditional, but the colour is using artificial dyed	Original Iban design and the MH730 design

To conclude the interview with the final question on whether they want to propose any other design motifs instead of the original Iban design, one informant W(5) reflected with an interesting answer as follows:

- W(5): *“I would like to add the motif of MH730, - the crashed aeroplane, which has a significant story behind it”*

With the above statement, the 76-year-old Pua Kumbu weaver with more than 30 years of experience added a poignant final touch to the interview session. Regardless of whether to uphold Iban cultural values in the art pieces, the need to add and modify certain elements is open to discussion. Even if this trend is not universally popular, the idea could be the stepping stone to preserving the culture and eliminating the knowledge barrier of the Pua Kumbu design motifs. This iconic action suggested that the Pua Kumbu weavers were open to new changes and not bound only to the design motifs of Iban culture (Figure 4).



Fig. 4. The motifs of aeroplanes can be detected at the bottom of Pua Kumbu textile.

## 5 Discussions

Most of the design motifs applied on the Pua Kumbu textile have significant relations to the Iban culture, encapsulating Iban's customs, ways of thinking, taboos, surroundings, and legends which are slowly forgotten by the more recent generation due to insufficient understanding, knowledge, and exposure. Therefore, with the effort of safeguarding the art pieces for unaging relevance, it is urgently compulsory to understand the weavers' interpretive method on visual complexity of the design motifs. To bridge this gap, this paper offers three sophisticated discussions specifically aimed at safeguarding Malaysia's cultural heritage, and are simultaneously parallel with the study's objective; to explore weavers' aesthetic perception on the visual complexity of Pua Kumbu design motifs.

### *Pua Kumbu Design Motifs categories*

This study identified five (5) different categories of design motifs which have been widely applied on the Pua Kumbu textiles, and segregated based on the choice of the designs applied: (1) Floral, (2) Animal, (3) Humanoid, (4) Abstract, and (5) Contemporary (Table 7).

Table 7. Pua Kumbu design motifs categories.

Categories	Types	Ritual
Flora	<i>Paku-Pakis plant</i> , bamboo shoots and <i>Midin leaves</i>	No ritual
Animal	<b>Predators:</b> snake ( <i>Nabau</i> ), crocodile ( <i>baya</i> ) <b>Non-Predators:</b> birds, lizard, spider, crab, fish	<i>Miring</i> ritual No ritual
Humanoid	<i>Dewa Kepala Dua</i> , <i>Petara</i> , and goddesses	<i>Miring</i> ritual
Abstract	Mountain, trees, rivers	No ritual
Contemporary	Airplane, Mosque, Sarawak flag	No ritual

Many floral designs were originally inspired by the plants' motif and centred on floras blooming in the vicinity of their surroundings, such as Paku-Pakis plant, bamboo shoots and Midin leaves. Most floral motifs can be designed by anyone as it does not embody any rituals or taboos such as miring. They are merely yet essentially displayed as supplementary decorations within the central motifs, which are designs of humanoid figures or predatory animals. Most of the narrative delivered by the weavers are decorated at the centre of the Pua, accompanied by the branches of floral elements scattering around it.

The animal or fauna design motifs were generally inspired by Iban myths and legends, which encompassed several types of animals, such as snakes (Nabau), crocodiles (baya), birds, lizards, spiders, crabs, fish and others. It is understood that the design of the animate motifs could not simply be arranged within the textile, but it should consider the complete set of design motifs. The crocodile (baya) motifs should be designed together with those of the house (the square-shaped pattern) that consisted of food such as fish or people, believing that they could calm the baya spirit. Iban people perceived the animated design motifs as sacred and having souls, thus they could not be designed unelaborately without proper understanding. The weavers operated on the belief that if the design motifs incorporated names, the complete set of designs should be presented by the weavers.

*“There is one design from my ancestors, a motif of ‘Seru Anga, Badan Satu Kepala Dua, Mandi Di Sungai Linga Jul’. If the design motifs have name such as this one, the weaver should include ‘food’ to ‘ease’ the design, like putting the image of ‘humans or fish’. If not, the weaver will get sick”.* W(3)

Meanwhile, the design motifs with humanoid figures and predatory animals like the Nabau and Baya were deemed magical and powerful, and they were highly ranked as motifs among the Iban community. These prominent design motifs could only be woven if the weavers were granted permission from the Iban goddesses via dreams. The dreams were signs from the goddesses that the craftsmen could create the design motifs, and it ought to be preceded with the conduct of the miring ritual as to avoid bad omens. In fact, most highly ranked design motifs could only be woven by the eldest weavers with extensive experience.

Some other weavers portrayed the design motifs of Pua Kumbu in different angles and themes, which were approaching a different concept and contemporaneous in presenting the idea on the sacred textile. The 76 years old weaver was representing the humanoid images of the Muslims in praying act, with the elaboration of mosque designed at the bottom centre, and flags decorated on both sides. Surprisingly, the idea was contradictory to the common look of textiles; - antique, mysterious and full of plants.

*“I get the inspiration from Muslim’s mosque, and I included the three male figures at the bottom, as symbol of Islam. The mosque I described was in the shape of dome, added with two flags on both sides”.* W(5)

A further observation and in-depth interview revealed that the weaver had three Muslim sons in-law and thus had been accustomed to the Islamic culture since early age. In spite of different religions and cultures practised by them respectively, still, the assimilation was discernible in the incorporation of the mosque as part of her Pua Kumbu design. This act demonstrated that the weaver willingly embraced the integration and assimilation of contemporary design motifs,

rather than clinging to the ordinary look of the Pua Kumbu. The weaver wanted to show her appreciation of her surroundings, and families by weaving her stories into her design.

### ***Weavers are the Masterminds***

Aesthetic perception is a function of the perceiver's processing dynamics: the more fluently the perceiver processes an image, the more positive is their aesthetic response[4]. Therefore, it might be expected that the fluency of the perceivers (weavers) in processing the information regarding the Pua Kumbu depends on their artistic knowledge [30]. The interrelation between knowledge and perception significantly impacts a perceiver's aesthetic interest, in such a way that they might develop either a positive or negative aesthetic perception.

In the case of Pua Kumbu, the makers and the perceivers, who belonged to the same group, possessed greater knowledge. This was especially true in the making of Pua Kumbu in terms of its weaving, technique, and history, which contributed to better aesthetic perceptions. This view is supported by a study on painting artwork [31], suggesting that prior knowledge of artwork is relatively influential to perceiver's aesthetic perception.

The Pua Kumbu weavers are the masterminds of the Pua Kumbu creations. The visual complexity of the Pua Kumbu design motifs is very subjective, which not only hinges on to shape, line, form, size, colour and forth, but it also relies on the stories that weavers try to portray in an art piece. Every design motif applied in the Pua Kumbu is connected to one another, and only by having all of the designs, can the weaver's idea be interpreted, not to mention, only a person with the Pua Kumbu art knowledge, can successfully 'read' the weaver's encrypted message. It is believed, the visual complexity of the Pua Kumbu lies in the hand and mind of the weavers, as they are the storytellers of this majestic textile.

### ***Pua Kumbu's Visual Complexity***

Weavers are the definite experts in the making of the Pua Kumbu textile. The visual complexity of the design motifs is the material version of imagination or an imitation of the original shape of the motifs, whether floral, animal, humanoid figures, abstract, or contemporary. In other words, It is dependent upon their freedom of choice. As for the complexity of the design motifs such as shape, size, the proportions, rhythms, and forth, they are completely based on the weavers' interpretations. Some weavers, in this study, felt affection for larger-shaped design motifs, while some preferred smaller sizes, which contributed to the great visual complexity for the perceivers. The design motif sizes had no significant meaning, nor did they affect the weavers' interpretation, as long as the central design motifs of the textile were designed in the complete set.

Notwithstanding, some weavers still uphold the old tradition and the antiquated concept in designing and producing the textile with a bit of modification of colours and selection of motifs to meets with the current demands. The use of dissimilar code of earthen colours has been widely used such as blue, purple, and green which allows wider market demand from various populations.

## 6 Conclusion

The visual complexity of Pua Kumbu is acknowledged due to the textile size and the arrangement of the design motifs in patterns that embody stories and are not purposely made for decoration. This complicated art piece highlights Iban identity as it resembles Iban's way of life, beliefs, and surroundings, which are hidden in every design motif. Most designs were bound to Iban beliefs and taboos and were constructed in the layout patterns of the Pua Kumbu's visual complexity. The weaver's interpretation was elaborated, resulting in the formation of one complete design that carries meaning.

In essence, traditional culture or way of life is passed down from generation to generation through oral traditions, behaviours, and materials. By discovering the authenticity of the Pua Kumbu design motifs visual complexity and the art knowledge hindered in the art piece, it would build the bridge to perceivers' understanding and thus lead to the positive aesthetic perceptions among perceivers, as well as leading to the safeguarding the intangible cultural heritage.

In conclusion, it is recommended that the authentic design motifs of the textile is being integrated with other surface of the product and furniture, in order to enrich the audience acceptance, to minimise the knowledge barriers and to safeguard the art piece from succumb to extinction. The implementation of the Iban's local knowledge of designing the textile through competitions, seminars, workshops, conferences, documentaries, and books writing, will generate and capture the audiences' interest, thus paving the ways of preserving the heritage. Future studies should consider more exploration on the area of the aesthetic perception in a qualitative manner, especially among textile academicians who can investigate it from different angles. This effort would further contribute to art knowledge, which is an important highlight of this study.

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