



“Do We Think Alike?” – Experts’ Views on the Aesthetic Perception of Pua Kumbu Design Motifs’ Visual Complexity

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Abstract. Aesthetic perceptions are influenced by the formal aspects and visual substance of art, which prompt individuals to respond and reconsider their perspective. The purpose of this study was to evaluate experts’ aesthetic perceptions of the complexity of Pua Kumbu design motifs. The complexity of the symbols found in the design motifs contributes to a lack of interest in understanding the meanings of these motifs, particularly among the younger generation. Therefore, through the utilization of interviews with structured and unstructured questions, a qualitative technique was employed to investigate the experts’ aesthetic perception of the visual complexity of the design motifs. The findings provide a fundamental understanding and emphasize the importance of preserving traditional human values, with the hope that hand weaving, as a valuable heritage, will endure and maintain its significance in the long term.

Keywords: *aesthetic perception; design motifs; Pua Kumbu; visual complexity.*

1 Introduction

Various scholars have performed substantial research on aesthetic perception in a variety of fields and under various labels. Aesthetic judgement [1], aesthetic appreciation [2], aesthetic assessment [3], and aesthetic experience [4-6] are some other synonyms of aesthetic perception that reflect on similar meanings and characteristics pointing to human sensory reflections on the visual arts. Baumgarten coined the term ‘aesthetic’ in 1750 after he determined disciplines such as painting, drawing, and sculpture to be key aspects in aesthetic perception [7].

Artists, as do perceivers, contribute to the aesthetic perception process. The method is guided by three major principles: 1) knowing that visual art is an interpretation of something other than art; 2) grasping the essence of art, including subject matter, and 3) sharing intellectual traditions. Both the artist and the perceiver can compensate for flaws in their visual system and so communicate effectively [8].

Furthermore, aesthetic perception is a complex interaction produced between visual stimuli and individual understanding that link in generating opinions, either favorable or negative, depending on the visual complexity of the visual art [9]. The degree of difficulty in reconstructing an image's description is defined as visual complexity [10]. As a result, the final work of visual art is the result of the compression of various significant aspects of visual complexity, which is presented to and appreciated by perceivers in the end. Intricate visual elements can offer a distinct viewpoint on how perceivers respond and form their aesthetic perception.

2 Literature Review

Pua Kumbu textile has a significant cultural value as one of the artifacts originating from the Iban indigenous tribe in Malaysia. It is a tangible cultural treasure that is reverently protected by the Iban community, especially the older generation [11,12]. According to Sim & Khan [13], the Iban people are known for their resilience as a tribe. In ancient times, they would go to great lengths to preserve their culture and prevent their traditions from disappearing. The Iban way of life and beliefs find expression in local items like Iban textile, which incorporates design elements inspired by the local flora, fauna, and animistic practices.

The opaque meanings embedded within the design motifs contribute to the waning interest in this art form among Sarawak's younger generation [14], tourists, and individuals from different ethnic backgrounds [11,12,15]. Consequently, this remarkable artistic creation has been subjected to mistreatment and neglect. Recently, a social media influencer publicly criticized the Ngepan Iban, the traditional Iban costume, in a video shared on various social media platforms [16]. This disrespectful act sparked outrage among the people of Sarawak, particularly the Iban community. Such behavior stems from a lack of exposure and knowledge barriers. As highlighted by Wahed *et al.* [11], individuals who have been exposed to this art form tend to develop a heightened aesthetic appreciation for Pua Kumbu textiles. Those who possess knowledge about Pua Kumbu are more likely to cultivate a positive aesthetic perception while upholding and preserving Sarawak's tangible cultural heritage in its finest form.

Thus, the primary aim of this study was to explore the aesthetic perception of experts of design motifs found in Pua Kumbu textiles. Consequently, the specific objectives pertaining to the study's focus were as follows:

- To assess the aesthetic perception of the **visual complexity** of design motifs used in Pua Kumbu textiles among **weavers and academicians**.

The goal of this qualitative study was to explore design motifs applied to Pua Kumbu textile while also eliminating unsolved obstacles linked to the textile knowledge gap. Finding a good way of bridging this gap will add to the richness of the knowledge pool as well as to positive aesthetic perceptions among perceivers while preventing misinterpretations, mistreatment, and misuse of the textile products.

3 Materials and Methods

3.1 Methodology and Design

In this study, a qualitative research methodology was utilized to explore the aesthetic perception of the visual complexity of Pua Kumbu design motifs as perceived by weavers and academicians. The research objectives were addressed through the implementation of semi-structured questions, observation, and analysis of relevant documents.

3.2 Participants

In this investigation, a purposive sample strategy [17] was used. Sampling using non-random criteria was chosen so not every individual had an equal chance of being included. The individuals chosen for this study met the criteria required by the researchers, i.e., Pua Kumbu weavers and Malaysian academicians who came solely from the textile and art culture fields were chosen to justify the aesthetic perception of the visual complexity of design motifs applied on Pua Kumbu textiles and unexplored art knowledge.

The basis for selecting these individuals as the sample was that their criteria fit the research objectives. An expert is described as someone who has extensive knowledge in a specific field in which he or she is involved [18]. Clearly, having experts in the study will help in comprehension of the subject, thus contributing to broader knowledge and benefits in the current study. Table 1 presents descriptions of the participants. In this study, maintaining confidentiality and participant privacy was of the utmost importance. To achieve anonymity, a participant coding system was employed, assigning unique codes to each

individual. It is important to note that this coding system was solely utilized for the purpose of data analysis and protection of the participants' identities.

Table 1 Descriptions of the participants and coding.

Participants	Representative	Years of Experience	Coding
Pua Kumbu Weavers	Belaga, Sarawak	10	IN (W1)
	Song, Sarawak	15	IN (W2)
	Ulu Yong, Kapit, Sarawak	10	IN (W3)
	Ulu Yong, Kapit, Sarawak	15	IN (W4)
	Ulu Yong, Kapit, Sarawak	20	IN (W5)
Malaysian academician in the textile, and art culture fields	Universiti Malaysia Sarawak (Unimas)	25	IN (A1)
	Universiti Teknologi MARA (UiTM)	25	IN (A2)
	Universiti Malaysia Sarawak (Unimas)	15	IN (A3)
	Universiti Malaya (UM)	14	IN (A4)

3.3 Instruments

Two sets of interview questions were devised for both participant groups. The first set was specifically designed for the Pua Kumbu weavers, aiming to gather relevant information about the design characteristics of the motifs applied to Pua Kumbu textiles (see Table 2). Thematic analysis was employed to generate these interview questions.

Table 2 Themes and interview questions for interviews with weavers.

Dependent Variable	Categories	List of Questions
Visual Complexity	Design characteristics	- What elements are employed as design motifs in the Pua Kumbu? - Could you provide insight into the origins of the design motifs' shapes? - What color options can be utilized for the textile? - What served as the inspiration for these design motifs?

For the second set, the interview questions were constructed for the Malaysian academicians from the textile and art culture fields. A total of four questions were designed to meet the research objectives. Each question that was created was considered carefully to collect and analyze the information from the participants (see Table 3).

Table 3 Themes and questions for interviewing the academicians.

Dependent Variable	Categories	List of Questions
Visual Complexity	Design Characteristics	• Do you comprehend the regularity of the pattern in the applied design motifs? • What is your opinion on the composition of the design motifs? • What are your thoughts on the color combinations used in Pua Kumbu? • How do you perceive the size of the design motifs in Pua Kumbu?

The results were documented and carefully examined to suit the study's objectives. The frequency of words used repeatedly on similar subjects and words voiced by participants were counted and assessed using qualitative analysis. To gain more insight and bridge the research gap, the semi-structured interview was advantageous and suitable for the current study. Unstructured translations of all questions were read and translated for greater participant understanding. Each participant's interview lasted for 30 to 60 minutes.

3.4 Data Saturation

For the expert sample size, a total of five Pua Kumbu weavers and four Malaysian academicians from the textile and art culture fields were selected to participate in the study. According to Romney *et al.* [19], four to five experts as participants to be included in one study is sufficient if the participants have a high level of knowledge and expertise in relation to the topic of inquiry (Figure 1).

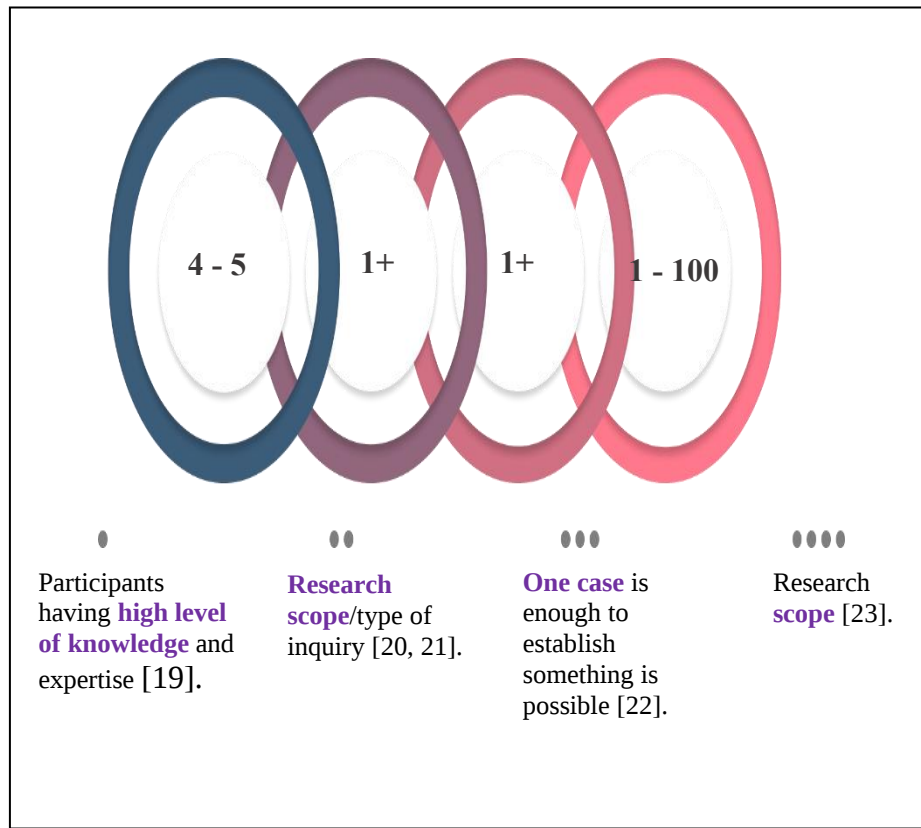


Figure 1 The expert sample size.

4 Results and Findings

This section explores the findings derived from the interviews conducted with the focus group, providing an analysis of their verbal responses. Nine participants were interviewed using semi-structured interview questions, which were administered in different formats. The interviews occurred at various times and locations, employing both face-to-face and online methods. The responses are presented in elaborate detail in the subsequent sub-sections.

4.1 Descriptive Analysis of Interviews on Visual Complexity

It was fascinating to watch how different weavers and academicians communicated their aesthetic perception of the visual complexity of the design motifs while remaining linked to one another. According to their agreement, the visual complexity of each design motif on Pua Kumbu textiles is based on Iban cultural traditions, nature, and the surroundings (see Table 4).

Table 4 Findings on research objective 1.

Research objective	Participants			
	Pua Kumbu weavers		Malaysian academicians	
Aesthetic perception of Pua Kumbu visual complexity	Design elements	The designs ‘Buah Gelung’ and ‘Ara’ are the most prominent elements used on Pua Kumbu textiles.	Composition	The design elements’ composition reflects the Iban identity, which is subjective, hampered by traditional intellectual property rights issues and taboos.
	Shape origins	The visual complexity of design motifs and shape origins is influenced by Iban culture, dreams, folklore, natural surroundings, ancestors’ heritage, flora, and fauna.	Size	The design motifs have a combination of different sizes and are dependent entirely on the interpretation and creativity of the weavers.
	Design inspirations	Nature, Iban culture, ancestors, and surroundings influence the design inspirations .	Color combination	The most appealing color combinations are those with natural tones.
	Color preference	Most weavers decided on earth tones and Sarawak flag colors , as well as incorporating blue and purple colors to fulfill current demand.		

4.1.1 Design Elements

Table 4 demonstrates that all Pua Kumbu weavers agreed that the principal features used in Pua Kumbu motifs are the *Buah Gelung* and *Ara* designs. The geometrical shapes used in the *Buah Gelung* design motifs add to the complexity of the motifs, which are dependent on the scale of the textile and the weaver’s interpretation.

“Buah Gelung”	IN(W1)*Bet-(DE-buge)2.11.19
“Buah Gelung is the main element for every Pua. It can be either ‘Buah Gelung 8’, Buah Gelung 5’ or other elements. The choice depends on the weaver.”	IN(W2)*Sng-(DE-buge)27.11.20.
“Buah Gelung and Ara.”	IN(W3)*Kap-(DE-buge&ar)28.11.20.
“Buah Gelung and Ara are the common motifs to be designed by the weavers. Most of the Buah Gelung are intentionally designed by the weavers to beautify the Pua and to complete the design.”	IN(W4)*Kap-(DE-buge&ar)28.11.20.
“Buah Gelung are inspired from Paku-pakis, bamboo shoots, and Ara.”	IN(W5)*Kap-(DE-buge&ar)28.11.20.

4.1.2 Shape Origins

Most weavers possess a shared understanding of the designs, which are derived from dreams, Iban folklore, nature, plant life, and animals. Moreover, the Pua Kumbu weavers find inspiration in Iban culture, surrounding natural elements, and their environment. Certain weavers draw inspiration from ancestral designs that were created in earlier times.

“Usually, if you follow what you inherited from your grandparents, folk tales, weavers, either traditional or modern, motifs inspired by dreams from Iban goddesses and the goddess Kumang. From it, the weavers get the inspiration to use them as Pua Kumbu design motifs.”	IN(W1)*Bet-(DO-dre,fol)2.11.19
“The designs of Pua Kumbu motifs mostly come from <i>nature</i>, from <i>flora</i> and <i>fauna</i>. They were <i>passed down from previous generations</i> to the current ones. The motifs made now are mostly <i>imitated</i> from previous Pua fabrics or pictures.”	IN(W2)*Sng-(DO-nat,flofa,an)27.11.20.
“Usually, the design motifs come from <i>ancestors</i> and were <i>inherited</i> by female members in the family. I love to weave beautiful things, or when I get the inspiration from my <i>dreams</i>, then I weave. Most are <i>floral</i> motifs.”	IN(W3)*Kap-(DO-an,dre,nat,flo)28.11.20.
“That most of the design motifs we are weaving come from the collection of our <i>ancestors</i> as well as from <i>nature</i>. <i>Plants</i> are the major inspiration.”	IN(W4)*Kap-(DO-an,nat,flo)28.11.20
“Most of the motif’s come from my <i>ancestors</i>, and some I <i>modified to meet current demand</i>, and some were inspired from the <i>surroundings</i>.”	IN(W5)*Kap-(DO-an)28.11.20.

4.1.3 Design Inspirations

Most of weavers agreed that nature, Iban culture, ancestors and their surroundings are inspirations for them in creating design motifs. For participant IN(W2), the inspiration came from a very old design and for IN(W5) the inspiration came depending on what the weaver desired.

<i>“The nature and life of the Iban community.”</i>	<i>IN(W1)*Bet-(DI-nat,ic)2.11.19.</i>
<i>“Nature is the inspiration, besides by mimicking existing designs in the market.”</i>	<i>IN(W2)*Sng-(DI-nat,imed)27.11.20.</i>
<i>“Most of the design motifs that I created come from my ancestors, which are inherited from one generation to another. They mostly represent plants like pucuk-paku and rebung.”</i>	<i>IN(W3)*Kap-(DI-an,sur)28.11.20.</i>
<i>“I just follow the design of my ancestors and the surroundings.”</i>	<i>IN(W4)*Kap-(DI-an,sur)28.11.20.</i>
<i>The surroundings, flora and fauna inspire me. For example, if I encountered lizards in my long house, I employ them as a motif. The same goes for other motifs, like crabs and Iban people (mainly male). My ancestors' design will also be my Pua's main design. Sometimes I change it to suit my preferences.”</i>	<i>IN(W5)*Kap-(DI-an,sur,imit)28.11.20.</i>

4.1.4 Composition

The visual complexity of the Pua Kumbu design motifs is subjective and relies not only on factors such as shape, line, form, size, and color, but also on the stories the weavers aim to convey through a textile. Each design motif applied in Pua Kumbu holds a connection to others, and their combination allows the weaver's interpretation to be expressed. Only individuals with knowledge of Pua Kumbu art can successfully interpret and comprehend it. Academicians have affirmed that the visual complexity of Pua Kumbu resides with the weavers themselves, as they are true masters of this artistic creation.

<i>“The first is in geometric composition. However, I find the geometrical one to be universal. The spiral is more intricate for the Iban motif's identity. The Iban motif is characterized by its intricacy in design. Excellent. That's how I feel about the Iban's identity: complicated.”</i>	<i>IN(A1)*Bet-(CMPLX-Com.idIB)2.11.19.</i>
<i>“It has a complicated composition. They must be sequential. And each motif from the bottom to the top is different. And each one has a tale. It's absolutely genuine. Our fabrics were occasionally haunted with spirits, unlike Malay textile. Because religious practice is also undertaken when making this textile.”</i>	<i>IN(A2)*Sa-(CMPLX-Com.autPosSTO)25.03.20.</i>

“The intricacy of each Pua is determined by its layout or pattern composition . One full Pua, for example, consists of a complete set of ‘family’ designs of ‘mother,’ ‘father’ and ‘son.’ In addition, a ‘food’ element, such as a vegetable or plant, should be included to round out the set.”	IN(A3)*KchZ-(CMPLX-Pat.cmplSet)28.07.20.
“There is a lot of complexity in the motif creation ; it’s not just the challenges of the motifs, but also the conventional intellectual property right issue that is dictated by taboos. Each family may possess several sorts of designs that may not be replicated by others without permission.”	IN(A4)*KchZ-(CMPLX-Subj.TICPtabs)30.07.20.

4.1.5 Design Size

The size of the design motifs employed in Pua Kumbu was discussed among the academicians. The academicians provided justification for the complexity, emphasizing its contribution to a better understanding of the overall patterns in Pua Kumbu.

“The Iban motif is a mixture of small-size motifs that are combined to form one design that represents Iban values, culture, and beliefs.”	IN(A1)*Bet-(OBJSZE-b&s,cmpltPAT)2.11.19.
“The weavers do it their own way. The weaver determines the size . So, we, the customers, get the Pua Kumbu as they are. We do not have the capacity to choose between receiving intricate and small patterns or large patterns. Unless they produce crocodile patterns in large images, but repetitively.”	IN(A2)*Sa-(OBJSZE-s&iPrfer.Brpet)25.03.20.
“ Finer patterns are produced by smaller design motifs . The pattern motifs developed by the weaver show the weaver’s competence and talents. However, other weavers like large pattern motifs that are deemed clear and well-designed.”	IN(A3)*KchZ-(OBJSZE-sfin/bgszebet)28.07.20.
“The majority of design elements is never questioned since they symbolize stories. The size of a motif varies depending on the Pua Kumbu’s storyline. A weaver’s interpretation of the design of Pua Kumbu is key.”	IN(A4)*KchZ-(OBJSZE-szeXimprtn)30.07.20.

4.1.6 Color Choice

In terms of color preferences, the majority of weavers unanimously favor earth tones, along with the colors featured on the Sarawak flag: red, black, white, and maroon. IN(W1) reported that to meet current market demand, weavers have introduced additional dye colors, such as blue and purple. While maintaining the traditional craftsmanship and historical significance of Pua Kumbu art pieces, weavers make minor adjustments in terms of color choices and design motifs.

“Essentially, the color palette often aligns with the hues found in the Sarawak flag , i.e., red, black, yellow, white, deep maroon, and occasionally purple. ”	IN(W1)*Bet-(DC-re,bl,yel,whi,mar,somPur)2.11.19.
“The primary color for the base should be either red or maroon, as Pua Kumbu are captivating in red. Historically, earth tones such as red, ochre, brown, and black were obtained from natural sources.”	IN(W2)*Sng-(DC-re,bl,mar,och,brw)27.11.20.
“The preferred colors traditionally used on Pua Kumbu are red and black. ”	IN(W3)*Kap-(DC-re,bl)28.11.20.
“The predominant colors to be utilized are red, white, and black.”	IN(W4)*Kap-(DC-re,bl,whi)28.11.20.
The colors commonly used are red, black, white, and blue. However, modern weavers may use different colors that do not represent traditional Iban culture.”	IN(W5)*Kap-(DC-re,bl,whi,somBlu)28.11.20.
“Natural earthy colors”	IN(A4)*KchZ-(COLCOM-Natcol)30.07.20.
“Typically, we use maroon as our primary color. However, we find blue and green to be too modern for our liking.”	IN(A1)*Bet-(COLCOM-Nat.b&gctmpty)2.11.19.
I’m fine with weavers using colors related to Iban culture , even if they are not traditional Iban colors. However, colors like green, yellow, and orange are not culturally significant.	IN(A3)*KchZ-(COLCOM-Nat.GYOxIB)28.07.20.
“Most Pua textiles nowadays are printed with brighter, long-lasting colors. However, at times, the colors are too intense and need to be diluted. ”	IN(A2)*Sa-(COLCOM-TonDwn)25.03.20.

5 Discussion

This subsection provides additional details based on the qualitative data findings. The essence of the art piece is inspired by Iban culture, dreams, Iban mythology, natural surroundings, and taboos, and is based on local knowledge gained by the Pua Kumbu weavers. The academician IN(A4) said unequivocally that taboo designs are customary intellectual property that protects the weavers’ rights in the creation of an art piece. Furthermore, it is often forbidden for other weavers to design and replicate the distinctive design motifs of other Iban families without authorization. According to IN(A4), any weavers who break the taboos would suffer misfortune, such as being ill or dying. Only the highest-ranking design motif, such as the *Petara*, typically retains this traditional intellectual property notion.

The textile’s design motifs are developed utilizing geometrical shapes that are embellished based on the weaver’s ingenuity, imitation of nature, mimicking existing designs, inheritance from ancestors, and the weaver’s interpretation.

Design motifs are still produced in the conventional manner but consumer demand and the availability of natural sources of materials are still considered. There is a need to preserve art pieces in this era while also protecting the weavers' cultural identity. Pua Kumbu weavers, on the other hand, are the undisputed masters of Pua Kumbu textile. The visual complexity of design motifs is a materialization of their imagination or a replication of the original shape of the motifs. In other words, it is contingent on their ability to choose. The complexity of the design motifs, such as shape, size, proportions, rhythms, and so on, is entirely dependent on the interpretation of the weaver.

The participants extensively discussed the size of the design motifs employed in Pua Kumbu. The academicians explained the significant role of visual complexity for a better understanding the overall patterns of Pua Kumbu. IN(A1) expressed agreement that the utilization of various design motif sizes obscures Iban values, culture, and beliefs.

The weavers' interpretations form the basis for creating design motifs in Pua Kumbu. Certain weavers are drawn to larger and more prominent design motifs, whereas others lean towards smaller sizes. This dynamic adds to the visual complexity experienced by perceivers. According to academicians IN(A2) and IN(A3), smaller pattern sizes result in more intricate and refined designs. The sizes of the design motifs themselves hold no significant meaning or impact on the weavers' interpretation, as long as the central design motifs of the textile are included as part of the complete set.

However, certain weavers continue to adhere to the traditional methods and concepts when designing and creating textiles, making minor adjustments to colors and motifs to meet present-day demands. The art piece incorporates earthy tones as well as the colors of Sarawak's flag, i.e., black, red, maroon, and white. According to academician IN(A2), the employment of dissimilar coding of earthen hues such as blue, purple, and green has been widely employed to allow larger market demand. The design motif for the Pua Kumbu textile can be adapted with everyday activities or national issues.

Ultimately, the weavers are the creative minds behind this remarkable art form, making decisions and designing each shape of the design motifs based on their own interpretation of the intricate patterns. If central design motifs are included in a complete set, along with motifs representing houses and food, the sizes of the design motifs do not seem to have a significant impact on the core meaning of the design motifs. Most of the weavers indicated that the utilization of visual complexity in floral design motifs is intended to enhance the beauty of the Pua Kumbu textile and establish a connection with the natural surroundings, without carrying any specific meaning.

6 Conclusion

In summary, the findings of this study unveiled experts' perspectives on the visual complexity of Pua Kumbu design motifs. This study was organized with the understanding that the weaver is the mastermind of Pua Kumbu design motif creation. The selection of geometrical shapes applied to the textile products is based on the weaver's understanding of nature, the surroundings, and taboos. Every design motif is infused with Iban knowledge, and the layman must learn about Pua Kumbu art skills to 'read' them successfully. The art of creating these textiles lies in the weaver's hands since they are the Pua Kumbu storytellers.

Additionally, the intricate designs of Pua Kumbu are not just a form of art but also an inheritance from the weavers' ancestors passed down from generation to generation. Each weaver learns and builds upon the techniques and motifs of their ancestors, adding their own unique creativity and skill to the tradition. Thus, the art of Pua Kumbu is a living legacy that has been handed down by the weavers' ancestors and is maintained by the current generation of weavers. Furthermore, the skill and knowledge required to create these intricate designs are not easily acquired. It takes years of practice, guidance, and patience to become a skilled weaver. The weavers are not only skilled artisans but also Pua Kumbu storytellers, weaving tales and messages into their textiles.

Finally, it is suggested that future research should explore additional elements that can influence aesthetic perception besides visual complexity. Visual complexity is acted upon as the 'outside appearance' of visual forms, rather than underlying characteristics such as art knowledge and prior experience. However, covering both extrinsic and intrinsic variables may deepen the perceiver's comprehension and lead to long-term sustainability of the textile.

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