Institute of Creative Arts and Technology

Aesthetic Perception: Visual Complexity and Art Knowledge of Design Motifs Applied on Pua Kumbu Textile

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Aesthetic Perception: Visual Complexity and Art Knowledge of Design Motifs Applied on Pua Kumbu Textile

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.



……

Signature

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My PhD started as a curiosity. I wanted to know what a PhD is all about. I never expected this experience would launch me forward and change me for the better. I am glad that it made me stronger. I would not have completed this incredible journey without the people around me who gave me support in everything I do. Therefore, I would like to take this opportunity to thank everyone who contributed to this fantastic experience.

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ABSTRACT

This study examines the human aesthetic perception of the legendary Pua Kumbu textile. The research problem is introduced by highlighting the unique characteristics of the textile and its cultural significance. Specifically, the study investigates how individuals perceive the aesthetic qualities of the textile, and what factors may influence these perceptions. Human aesthetic perception differs based on their understanding of visual complexity and visual art knowledge. An effective aesthetic perception process may contribute to a positive aesthetic perception, influenced by their environment, knowledge, and cultural perspective, among other factors. This study explores the perceivers' aesthetic perception of the intangible cultural heritage (ICH) of Pua Kumbu design motifs. This study has four objectives: to measure the aesthetic perception of participants about the design motifs, examine the aesthetic perception of visual complexity, investigate the design motifs' art knowledge among weavers and academics, and formulate a novel framework for safeguarding the ICH of Pua Kumbu textile. This legendary textile belongs to the Iban indigenous tribe in Malaysia and is sacredly safeguarded by the Iban people, particularly the older generation. The Pua Kumbu is weaved beautifully with design motifs inspired by nature, Iban culture, ancestors, and mythology. However, the complexity of the Pua Kumbu design motifs contributes to the current lack of interest in this art form, particularly among Sarawak's younger population, tourists, and people of other races. As a result, this beautiful art form has been misused and neglected. The researcher employed a triangulation concurrent mixed-method design, including quantitative and qualitative data collection. Through a quantitative approach, 400 participants were required to respond to the Art Reception Survey-Revised (ARS-Revised) questionnaire. In contrast, two phases of interviews were conducted among five Pua Kumbu weavers and four Malaysian academics from the field of textile, art, and culture through the

qualitative approach. The perceivers' positive aesthetic perception of Pua Kumbu textile was influenced by gender, background, and the participants' art knowledge. The visual complexity of the design motifs comprises five distinct categories: flora, fauna, humanoid, abstract, and contemporary. Each category has unique features determined by the Pua Kumbu weaver's creativity in arranging the design motifs. The weaver's encrypted "message" was embedded in the Pua Kumbu textile. It was found that Pua Kumbu textiles do not receive proper community recognition. The community's acceptance of this beautiful textile is still minimal, and more attention is needed, particularly in "feeding" the perceivers with Iban local knowledge. The art knowledge of Pua Kumbu's ICH should be disseminated to the general public to preserve this historical textile. One significant contribution of this study is the development of the AKVC Aesthetic Perception Framework, which strives to eliminate the knowledge barrier while protecting the ICH of Pua Kumbu textile by integrating artificial intelligence (AI). Publicizing the ICH of Pua Kumbu textile and adopting digital technology can increase community acceptance, eliminate knowledge barriers, and contribute to the global preservation of this "unspoken" but profound knowledge, enabling Pua Kumbu to make its mark as a unique textile.

Keywords: Aesthetic perception, art knowledge, artificial intelligence, ICH, Pua Kumbu textile, safeguarding, visual complexity

Persepsi Estetik: Kerumitan Visual dan Pengetahuan Seni Terhadap Motif Rekaan Yang Diaplikasikan pada Tekstil Pua Kumbu

ABSTRAK

Persepsi estetik manusia adalah berbeza berdasarkan pemahaman mereka terhadap kerumitan visual dan pengetahuan seni visual masing-masing. Proses persepsi estetik yang berkesan boleh menyumbang kepada persepsi estetik yang positif yang kebiasaannya dipengaruhi oleh faktor persekitaran, pengetahuan dan perspektif budaya individu. Kajian ini meneroka persepsi estetik manusia terhadap Warisan Budaya Tidak Ketara (WBTK) motif rekaan yang terdapat di tekstil Pua Kumbu. Kajian ini mempunyai empat (4) objektif utama: untuk mengukur persepsi estetik manusia terhadap motif rekaan Pua Kumbu, mengkaji persepsi estetik kerumitan visual, menyiasat pengetahuan motif rekaan Pua Kumbu dalam kalangan penenun dan ahli akademik, serta menghasilkan rangka kerja novel untuk melindungi Warisan Budaya Tidak Ketara (WBTK) tekstil Pua Kumbu. Tekstil legenda ini adalah kepunyaan masyarakat Iban di Malaysia dan dilindungi dengan baiknya oleh kaum ini, terutamanya oleh generasi yang lebih tua. Motif rekaan Pua Kumbu adalah diinspirasikan daripada alam semula jadi, budaya asli masyarakat Iban serta peninggalan nenek moyang mereka, dan mitologi. Namun begitu, kerumitan motif reka bentuk yang terdapat pada tekstil ini menyumbang kepada kurangnya minat masyarakat terutama dalam kalangan penduduk muda di Sarawak, pelancong, dan masyarakat dari bangsa lain. Oleh yang demikian, bagi mengupas permasalahan ini, penyelidik telah menggunakan 'triangulation concurrent mixed-method' bagi tujuan pengumpulan data kuantitatif dan kualitatif. Melalui pendekatan kuantitatif, 400 peserta dikehendaki menjawab soal selidik Art Reception Survey-Revised (ARS-Revised). Sebaliknya, melalui pendekatan kualitatif, dua (2) fasa temu bual telah dijalankan dalam kalangan lima (5) penenun Pua Kumbu dan empat

(4) ahli akademik Malaysia yang berkepakaran dalam bidang tekstil dan seni budaya. Data yang diperolehi mendapati kewujudan persepsi estetik positif adalah dipengaruhi oleh jantina, latar belakang dan pengetahuan seni individu. Kajian ini menunjukan kerumitan visual motif reka bentuk Pua Kumbu adalah terdiri daripada lima (5) kategori berbeza: flora, fauna, humanoid, abstrak dan kontemporari. Setiap kategori itu mempunyai ciri-ciri unik yang ditentukan melalui kreativiti si penenun dalam menyusun motif rekaan di tekstil. 'Mesej' yang disulitkan oleh penenun telah disusun dengan sebaiknya melalui susunan rekaan motif yang terdapat di Pua Kumbu. Secara harfiahnya, Pua Kumbu tidak mendapat pengiktirafan masyarakat dengan sewajarnya. Penerimaan masyarakat terhadap tekstil ini masih minimum. Oleh yang demikian, perhatian yang lebih diperlukan, terutamanya bagi memastikan ilmu WBTK yang ada pada tekstil ini dapat disebarkan kepada masyarakat. Kajian ini telah berjaya membangunkan Kerangka konseptual; AKVC Aesthetic Perception yang juga merupakan sumbangan utama kajian ini. Kewujudan kerangka konseptual ini adalah untuk menghapuskan halangan pengetahuan yang berlingkar dalam kalangan masyarakat berkenaan penerimaan kepada Pua Kumbu, dengan mengintegrasikan penggunaan kecerdasan buatan. Dengan mengintegrasikan teknologi digital, ia dapat meningkatkan penerimaan masyarakat, menghapuskan halangan pengetahuan, dan menyumbang kepada pemeliharaan global pengetahuan 'tidak terucap' tekstil, dan secara tidak langsung, membolehkan keunikan Pua Kumbu ditonjolkan dengan lebih baik.

Kata kunci: *Persepsi Estetik, Pemuliharaan, Pengetahuan Seni Visual, Tekstil Pua Kumbu, Kecerdasan Buatan, Kerumitan Visual, Warisan Budaya Tidak Ketara, WBTK*

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LIST OF ABBREVIATIONS

AES	Aesthetic Experience Scale
AI	Artificial Intelligent
ARS	Art Reception Survey
ARS-Revised	Art Reception Survey- Revised
AR	Augmented Reality
AKVC	Aesthetic Knowledge Visual Complexity
AK	Aesthetic Knowledge
CCI	Cultural and Creative Industries
EU	European Union
ICH	Intangible Cultural Heritage
IKEA	Ingvar Kamprad Elmtaryd Agunnaryd
I-CREATE	Institute of Creative Arts and Technology
IR 4.0	Industrial Revolution 4.0
JRF	Jordan River Foundation
MACPA	Malaysia Arts Cultural Practitioners Association
MR	Mixed Reality
ML	Machine Learning
RWMF	Rainforest World Music Festival
SAAF	Scale of Aesthetic Appreciation of Film
SDG	Sustainability Development Goal
STB	Sarawak Tourism Board
STEM	Science, Technology, Engineering, and Math
TCH	Tangible Cultural Heritage

TIPR	Traditional Intellectual Property Right
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
UNIMAS	Universiti Malaysia Sarawak
VAIAK	Vienna Art Interest & Art Knowledge Questionnaire
VIP	Very Important Person
VR	Virtual Reality
3D	Three Dimensions

"Styles may change, details may come and go, but the broad demands of aesthetic judgment are permanent."

– Roger Scruton.

CHAPTER 1

INTRODUCTION

1.1 Preamble

"New thoughts of aesthetics emerged when the perception creates diversity"

-Prameela, P.K

The core of this study is to investigate the role of human aesthetic perception in the preservation of cultural heritage, focusing specifically on the Pua Kumbu textile. Pua Kumbu is a unique and precious cultural artefact that symbolizes the cultural identity and heritage of the indigenous communities of Sarawak, Malaysia. However, in the face of the Fourth Industrial Revolution (IR4.0), there is a risk that this heritage may be lost as the focus on technology and innovation overshadows the importance of cultural traditions. Therefore, the correct aesthetic perception of Pua Kumbu is critical in preserving this heritage for future generations.

The textile's beauty stems not only from its visual complexity but also from the art knowledge embedded in it, which embodies stories and meaning. Thus, in bridging the gap, three samples of participants, ARS-Revised participants, Pua Kumbu weavers, and Malaysian academics in textile and art culture fields were attained to lead the study in formulating a novel framework for safeguarding the intangible cultural heritage (ICH) of Pua Kumbu textile.

To achieve this goal, the study proposes a novel framework that guides the correct interpretation of Pua Kumbu by understanding the cultural context, symbolism, and meaning behind the designs and motifs of the textile. Through this framework, individuals can learn

to "read" the Pua Kumbu textile correctly, leading to a greater appreciation and understanding of this cultural heritage, and ultimately, its preservation. By developing the correct aesthetic perception, individuals can play a crucial role in safeguarding the intangible cultural heritage of Pua Kumbu in the face of IR4.0.

The study argues that individuals with exposure to the arts possess a heightened understanding of cultural heritage, which plays a crucial role in its survival and prosperity during the Fourth Industrial Revolution (IR 4.0). The human aesthetic perception is varied and closely related to the environment in which one lives, the knowledge acquired, cultural perspective, and more. For example, the Pua Kumbu textile, a magnificent textile from the Iban community of Borneo Sarawak, requires a unique aesthetic perception to fully appreciate its cultural significance. However, it has been found that most laypeople struggle to understand the design motifs used in Pua Kumbu textile due to the knowledge gap about Pua Kumbu's intangible cultural heritage (ICH).

This lack of understanding has led to misinterpretation, misuse, and misconduct towards this cultural textile, which highlights the importance of promoting greater exposure to the arts and understanding of cultural heritage. Despite the significant role of aesthetic perception in the preservation of cultural heritage, limited research has been conducted on the topic, especially regarding Pua Kumbu. Despite the importance of Pua Kumbu as a cultural heritage item in the Iban community, there is a lack of comprehensive research on the aesthetic perception of its design motifs. This research gap indicates a need for further investigation into the cognitive processes that underlie the creation and appreciation of Pua Kumbu, as well as the development of effective strategies for safeguarding its intangible cultural heritage. By addressing this research gap, the study aims to formulate a novel

framework that can contribute to the preservation and transmission of Pua Kumbu's cultural heritage, ensuring its continued relevance in modern society. Specifically, this framework will focus on developing a nuanced and accurate aesthetic perception of Pua Kumbu's design motifs, which can empower individuals to play a crucial role in promoting and preserving Iban cultural traditions amidst technological advancements.

In sum, this study highlights the significance of human aesthetic perception in the preservation of cultural heritage, specifically with regards to Pua Kumbu, and emphasizes the importance of promoting cultural traditions amidst technological advancements. The findings of this research suggest that promoting greater exposure to the arts can enhance the transmission of cultural heritage and ensure its continued relevance and importance in modern society. By shedding light on the research gap in the aesthetic perception of Pua Kumbu, this study aims to contribute to the ongoing efforts in safeguarding its intangible cultural heritage and promoting a better understanding and appreciation of this cultural textile.

1.2 Background of the Study

The concept of aesthetics has its roots in the Greek term "aesthesis," which encompasses all actions involving the acquisition of knowledge through the senses of hearing, sight, touch, smell, and taste, eliciting a range of responses including awareness, emotional responsiveness, and expressive communication relationships (Simpson, 2000). The term "aesthetics" gained prominence in the English language in the 18th century, attributed to Alexander Gottlieb Baumgarten, a German philosopher who defined it as the philosophy of "liberal art," "fine art thinking," or "sense knowing" (Beiser, 2011; Hardt, 2005). This concept of aesthetics is particularly relevant in the context of this study, which

seeks to explore the role of human aesthetic perception in the preservation of cultural heritage, with a specific focus on the Pua Kumbu textile.

Vandenabeele (2007) described empirical perception as ‘individual will,’ which can only be perceived within the body's inner sensations. For instance, when we are running, the action triggers the body to move, accompanied by a sensation of movements to drive the body to move. The sensations that arise could be in the tangible or intangible forms, aims, or motives (Vandenabeele, 2007) that one wants to achieve. By having the correct perception, it can accomplish the mission. Vandenabeele's (2007) statement can be related to the claim that one’s ultimate determination can change everything. It is the power of the mind over the body (Marchant, 2016).

This notion represents a critical topic to study because perception can vary, as seen in numerous definitions and theories. It involves different types of processes such as recognising (being aware of), organising (gathering and storing), and interpreting (binding to knowledge) sensory information. The human senses of sight, hearing, touch, smell, and taste receive the environmental signs and simultaneously generate the perception (Chapter 3, n.d). The feeling that arouses from an aesthetic perception stem from the art reception process, which has undergone a complicated cognitive process. Verbovsek and colleagues (2015) mentioned that the process includes communication processes connecting the arts’ consumers, creativity, artists, and their artworks (Verbovsek, 2015). The art reception process involves many essential factors such as cognitive stimulation, negative emotion, expertise, self-reference, artistic quality, and positive attraction (Hager et al., 2012).

Fechner (1876) highlighted that the main components of the aesthetic processing require stimulus, determined by comprehensive characteristics such as symmetrical or asymmetrical (Berlyne, 1971; Fechner, 1876; Jacobsen, 2010), the simplicity or complexity of visual art (Berlyne, 1970, 1971), formalistic and content (Redies, 2015), as well as novelty or familiarity (Berlyne, 1970).

The selection of preferences in every aesthetic art is detected by the choices of perceivers towards the visual complexity applied to it (Eysenck, 1940). The variety of elements applied to the visual arts object allows the perceivers to savour them artistically, or as Eysenck (1997) defined it, an activity of measuring 'good taste.' According to the research of Eysenck, it can be deduced that the choice to decide depends on individuals. Not everyone has the same interest and taste, which explains why there are different arts brands and designs introduced to meet the various tastes of consumers.

Sun and colleagues debated that the vital indicator of the aesthetic process is visual complexity, which contributes to a greater impact on the perceivers during an art assessment (Sun et al., 2014). However, in the challenging and advancing era, the 'good taste' is perceived as the combination of intellectual and personal taste of the beholder (Myszkowski et al., 2018). Analysing a work of art is not just merely looking. There is a need to appreciate the work intrinsically to obtain some form of understanding and contributes to the perceivers' knowledge pool. The complexity of an artwork is seen as a collative variable (Berlyne, 1974), with the various elements of art included in one artwork. The more fluently a perceiver can process an image; the more positive their aesthetic response will be (Sun et al., 2018).

Relatively, the perceiver acceptance of the work of art depends on numerous factors such as the visual complexity (Sun et al., 2018), the art knowledge (Tschacher et al., 2015), and “aesthetic fluency” through direct instruction and prior experience of art knowledge (Smith & Smith, 2006). Smith and Smith (2006) further pointed out that the interaction of aesthetic perception can be perceived when the aesthetic is effortlessly attached to the art knowledge, which is measured closely according to perceivers’ age, art training, and art education.

Gruner and colleagues (2019) stated that the perceivers' art knowledge is treated as a foundation to help them form a better understanding of art. Those without the basic art knowledge require extra effort to comprehend the visual art displayed to them (Grüner et al., 2019). In studying tangible cultural heritage, a passionate feeling for art combines art knowledge and art appreciation possessed by a person (Bourdieu & Darbel, 1991). The earlier a person is exposed to arts; the more dynamic relationship can be built by the perceiver, which results in better constructions of their acceptance.

Miller and Hübner (2019), exploring the aesthetic preferences of paintings among the untrained (laypeople) and the trained (experts), suggested the art experts were able to form better understanding than laypeople (Miller & Hübner, 2019). Particularly, the way humans appreciate something is different from one another, as it is usually based on how they see and react towards the subject. The distinction between untrained and trained perceivers creates a gap in evaluating and criticising a work of art, which also depends on the level of art appreciation a person possesses (Silvia, 2009).

Moreover, Pietras and colleagues (2018) examined the role of the prior art knowledge in aesthetic studies among 181 Polish students (N-181) enrolled in various programmes at the Pedagogical University of Cracow and the University of Physical Education in Cracow, Poland. The findings revealed that art students understood visual art better than other groups, Sports, and Humanities, measured by the students' aesthetic experiences across figurative, abstract, and contemporary paintings (Pietras & Czernecka, 2018). The trained perceivers have a better visual art assessment than untrained perceivers, who need more time to understand, evaluate, and form opinions due to lack of experience and exposure.

The phrase "art for art's sake" is always expressed in 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 (Simpson, 2000).

Judge and colleagues proposed that human emotions are robust upon connecting to the world embellished with cultural artefacts (Judge et al., 2020). It is suggested that visual art exists when it comes into contact with aesthetic stimuli, which evokes emotional reactions (Gerger et al., 2014). Chatterjee and Vartanian (2016) 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 (Chatterjee & Vartanian, 2016). Everything can become a motive that triggers the perception when the aesthetic perception process is compromised.

The analysis of a cultural heritage object is not only through observation but also to achieve some form of understanding, which can be inherently understood. The aesthetic expression of human feelings is related to the mechanism of perception (Ellsworth & Scherer, 2003). When the sensation is evaluated as something that can be grasped, it forms a point of human interest (Silvia, 2005; Silvia, 2009). Notably, human understanding and sensitivity led to positive perceptions (Fayn et al., 2018). By having the appropriate knowledge of a particular subject, one's interest and curiosity can be explored. Additionally, those exposed to art enjoy a greater degree of aesthetic perception. The knowledge of cultural heritage objects should be shared with the younger generations so their appreciation does not disappear with time.

In the last decades, UNESCO has shown significant progress in preserving cultures. Accordingly, UNESCO defined intangible cultural heritage (ICH) as the collective definition of knowledge, practices, expressions, and skills carried by communities that recognise these features as part of their cultural heritage. Also called living cultural heritage, it is usually expressed in several forms. These forms include oral traditions, performing arts, social practices, rituals, and festive events. This idea can be extended to the knowledge and practices that concern nature, the universe, and traditional craftsmanship (D'orville, 2004).

Target 11.4 of Sustainable Development Goal 11 (SDG 11) intends to "enhance efforts to conserve and safeguard the world's cultural and natural assets" (Lim et al., 2021; Wang et al., 2018). Furthermore, UNESCO-initiated conventions such as the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage 2003 (UNESCO, 2004b) and the UNESCO Representative List of the Intangible Cultural Heritage of Humanity book

(UNESCO, 2009) for ensuring greater visibility of intangible cultural heritage in general as well as raising awareness of its significance.

According to Smeets (2004), the elements of intangible cultural heritage (ICH), due to their nature, are constantly evolving day by day, combined with their surroundings, and can sometimes disappear without having the right recognition and appreciation. Therefore, there is a need to increase awareness, especially among the younger generations, of the importance and protection of ICH.

Several innovations and systematic methods were implemented under the convention and the Agreement (1972), including a reasonable basis for preserving the various cultural heritage components. Notably, the extinction of any aspect of ICH may affect the growth of the global cultural plurality. Therefore, it is imperative to have more dialogue, collective understanding, and unity on the particular matter (D'orville, 2004). Nevertheless, ICH continues to be at risk and is gradually disappearing due to the lack of protection, dysfunctional government (D'orville, 2004), and accelerated globalisation (Arai, 2004). At Tokyo's International Conference on Globalisation and ICH, Arai revealed that the Japanese government made efforts to implement the safeguarding of ICH. Unfortunately, due to globalisation's rapid progress, he claimed that they had lost the 'fight' for maintaining their intangible cultural identity (Arai, 2004).

The impact of globalisation on the extinction of ICH can now be seen worldwide, especially in developing countries in Asia, Africa, and the Middle East (Arai, 2004). However, globalisation helps culture develop more effectively in some countries like Korea. In this context, the Koreans have accommodated globalisation by merging digital tools and

global networks into their ICH. This initiative reflects a change in attitudes and lifestyles from the conventional to the new (Jong, 2004) by introducing cultural diversity.

The latest developments indicate that a new form of media transition occurs through incorporating arts into education, especially in subjects such as Science, Technology, Engineering, and Maths (STEM) (Bandelli, 2018). The curricula are becoming increasingly creative in an integrated learning atmosphere (Ho, 2020). According to Adendorff and colleagues (2018), the growth of communication and knowledge-based societies characterises the 21st century. Moreover, the incorporation of Cultural and Creative Industries (CCIs) into the Fourth Industrial Revolution (IR 4.0) has minimised the skill deficit, which encouraged social integration, cultural diversity, and human growth (Adendorff, 2018). Lastly, digital art designs enable science and art to be integrated, communicated, and complemented. Notably, the possession of digital art, information technology, and art revealed a connection to the expressive arts (Ye, 2016).

The use of digital technology has exponentially increased in recent years and has invaded every aspect of life. Thus, it has often affected how developing societies experience heritage, be it their own or others. Cultural heritage has always been relevant, but the general awareness of, and disposition towards, these subject forms our sense of placing it. It also shapes our understanding, especially in the increasingly globalised world (Economou, 2015). The elements of ICH, due to their inherent nature, are constantly evolving. They combine with their surroundings and sometimes disappear without enjoying the appropriate level of recognition and appreciation (Smeets, 2004).

Many scholars have attempted to find the optimal and most effective formula to implement and know which future generations can maximise the benefit. However, the most important issues that can be itemised here are the correct aesthetic perceptions that must be transferred to the perceivers to ensure that ICH endures in the long term. It has been discovered that those introduced to art have a greater grasp of the nature of cultural heritage, allowing cultural heritage to thrive and prosper in the Fourth Industrial Revolution (IR 4.0) (Adendorff, 2018).

The present study recognizes that the tangible cultural heritage of the Iban people is boundless and continues to be practiced to this day. Among the sacred and safeguarded tangible cultural heritages that have endured through the ages is the Pua Kumbu textile. The Pua Kumbu textile is one of Malaysia's top cultural artefacts from the Iban indigenous tribe, protected sacredly by the Iban community, especially the older generation. Sim and Khan (2014) stated that the Iban community is famously known as a great tribe and survivor. During ancient times, they would do anything to protect their culture and tradition from perish. 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 textile is related to women, and their respective statuses in the community could be identified from the design motifs weaved. Even though the design motifs are difficult to interpret, the motifs and colouring are usually inspired by Iban's local surroundings, depicting the Ibans' rituals and beliefs. Most design motifs are visual representations of animals, plants, humanoid, abstract, and from Iban's local surroundings. However, the visual complexity of the design motifs is disclosed to be complex and abstract (Magiman et al., 2018), leading to the misconduct of intrinsic and extrinsic behaviour among perceivers.

In promoting greater exposure to the arts, individuals can play a crucial role in safeguarding the intangible cultural heritage of Pua Kumbu textile and ensuring its continued transmission and relevance in modern society. This way, the significance of human aesthetic perception in the preservation of cultural heritage is highlighted, specifically with regards to Pua Kumbu. It emphasizes the importance of promoting cultural traditions amidst technological advancements. Therefore, formulating a novel framework for safeguarding the intangible cultural heritage of Pua Kumbu textile is immediately needed to solve the global preservation of 'unspoken' knowledge and the intellectual property rights of communities over their cultural heritage. Technological advancement has also led to other opportunities for cultural dynamism, ensuring the critical conservation of Pua Kumbu textile accompanied by the knowledge to ensure that this ICH endures.

1.3 Problem Statement

The aesthetic perception of Pua Kumbu textile design motifs plays a significant role in the preservation of Iban cultural heritage. This perception is influenced by the complexity of visual elements present in the textile, which can affect the decision-making process of potential buyers. According to Bundgaard et al. (2017), aesthetic perception is driven by emotions towards visual arts, leading to experiences of beauty, aesthetic interest, or pleasure (Bundgaard et al., 2017). The visual complexity of colours, lines, shapes, patterns, object sizes, textures, and other elements used to create an art piece, along with the cognitive system for processing visual arts, are two properties that generate aesthetic effects.

The Pua Kumbu textile is an essential artifact of the Iban community's cultural identity, which has been passed down through generations. It is a textile made from handwoven cotton cloth and traditionally dyed with natural dyes from plants and insects.

The design motifs applied to the textile serve as a vehicle for transmitting the Iban local knowledge and identity of the Iban community among the locals and the international community. However, according to Magiman and colleagues (2018), the roles of these design motifs in preserving the Iban cultural heritage are hindered by knowledge gaps (Magiman et al., 2018).

Magiman et al. (2018) stated that establishing documentation is a significant effort to prevent the culture from extinction and keep it alive (Magiman et al., 2018). The idea of safeguarding intangible cultural heritage (ICH) is a noble purpose, but it is hampered by numerous obstacles, such as human ignorance, compounded by questions of morality, tradition, and worldview (Laleye, 2004).

In Malaysia, intangible cultural heritage (ICH) has been at risk of extinction due to the challenges posed by the shift in traditional values and the emergence of modern times (Mustafa & Saleh, 2017). It is worth noting that Malaysia's intangible cultural heritage is inherently multicultural, reflecting the country's rich diversity and heritage. However, despite its cultural richness, many aspects of ICH have suffered loss and extinction as a result of changing circumstances and diminishing community interest (Yusoff, 2018). These challenges have threatened the continuity and sustainability of ICH and underscored the need for urgent action to safeguard and promote these valuable cultural assets for future generations.

The Malaysia Tourism, Arts, and Culture Ministry (MOTAC), through the National Heritage Department (JWN), has listed 548 objects as 'Intangible Heritage' under the National Heritage Act 2005 (MalayMail, 2020), including the Pua Kumbu textile ICH. The Pua Kumbu textile, which is not new, demands serious attention from the government,

policymakers, and individuals who create, maintain, and transmit such heritage for future sustainability (Liu et al., 2017; Wahed et al., 2020b).

Despite the significance of the Pua Kumbu textile, most research related to it is written in personal or public blogs and is seldom academically researched. The Pua Kumbu textile is a tacit, verbally communicated knowledge that is exclusively learned by observation and demonstration. In particular, the production of the Pua Kumbu design motifs is based on the body of knowledge gathered through collective memory, the conservation of Pua Kumbu's knowledge and history (Jehom, 2015).

The intangible cultural heritage (ICH) of the Pua Kumbu design motifs is a complex art form that combines several geometrical designs inspired by nature and interpreted according to the weavers' understanding and creativity. Even though most Iban people have shifted away from animism and towards other religions, they are still influenced by ancient rituals, such as *"miring,"* which is closely linked to mystical elements in the creation of sacred design motifs in the Pua Kumbu textile.

To truly appreciate the aesthetic experience of Pua Kumbu textile design motifs, perceivers must be open and attentive, and possess a high level of sensitivity. This sensitivity is essential to ensure that the aesthetic process runs smoothly, as any disruption during the process can alter human perception (Simpson, 2000). For instance, the colour red, when viewed as part of the warm colour group, is often considered bold and attractive, indicating a sense of confidence. However, some individuals may not find red to be a suitable colour choice because it is perceived as loud and unsettling. Depending on the perceiver's perception, experiences received from the surrounding environment can be either pleasant

or unpleasant, and a perceiver's perception can change depending on the situation at hand (Simpson, 2000).

The article written in the local news stated that the Pua Kumbu textile is not an ordinary woven textile. It is considered haunted and dominated by ancestral spirits known as *Petara*. During ancient times, the textile was used to carry the *Antu Palak*, or the skull of an enemy beheaded during battle or hunting and religious rituals, cultures, and festivals (Adam, 2014). The difficulty of understanding the design motifs adds to the misunderstanding. It leads to misinterpretation of the meaning and association with mystical elements.

The complexity of symbols represented in the Pua Kumbu design motifs contributes to the lack of interest in this majestic piece, especially among the young generation (Magiman et al., 2018), tourists, and other races in Sarawak (Wahed et al., 2020a) in understanding these motifs further. Nevertheless, media content, standardised education, and invasion of uncontrolled mass tourism contribute more to the lack of interest and disrespected act of traditional cultures, especially to the youngster (Aikawa, 2004), which led to the mistreatment and misuse of this art piece. Recently, a social media influencer publicly mocked the *'Ngepan Iban'*- the traditional Iban costume in a video posted on social media platforms (Emma, 2021), causing a storming of anger among the people of Sarawak and Iban people exclusively. This disrespectful action resulted from the lack of sensitivity, ignorance, and knowledge barriers.

In other cases, the researcher attended an Iban conference in Betong, Sarawak, in 2019, where a Sarawak VIP wore a shirt with *"Burung Bersugu"* design motifs. The motifs,

however, were sewed backward, which was incorrect. This mistake should not happen, especially to someone who represents the Iban people.

Therefore, the value of information transmission is relevant not only for minority groups but also for developing countries (UNESCO, 2004a). The misinterpretation of the design motifs applied to the Pua Kumbu textile will lead to its misuse, and this conduct could offend the feelings of the Iban community. Therefore, accurate knowledge of the design motifs applied to the Pua Kumbu textile must be well-informed to the local and international community before it is worn. The motifs essentially carry different symbols and meanings.

Moreover, Dato Sri Empiang Jabu, the chairperson of Sarakup Indu Dayak Sarawak (SIDS) in 2014, stated that the Pua Kumbu textile with the high-ranking design motifs had been used as a carpet, demonstrating a disrespectful act by the users. This abusive behaviour can be managed and eradicated if the community understands the symbolic meaning of each Pua Kumbu design motif that is critical to the Iban community.

"I came across a friend of mine who used the Pua Kumbu textile as a carpet, and what saddens me is that the design motifs are regarded as sacred in the Iban community."

Sarakup Indu Dayak Sarawak (SIDS) chairperson, Dato Sri Empiang Jabu, 2014.

The intricate design motifs of the Pua Kumbu textile are characterized by different levels of complexity that are closely linked to the perceiver's aesthetic perception, potentially influencing their purchasing decisions. Visual complexity, as defined by Sun et al. (2014), encompasses various factors such as colour, texture, edges, curvature, object number, object size, pattern regularity, pattern compositions, and related elements (Sun et al., 2014), which significantly impact the perceiver's aesthetic preferences (Reber, 2012; Reber et al., 2004).

Thus, the visual complexity of Pua Kumbu design motifs raises questions about how it affects the aesthetic perception and decision-making of potential buyers.

As in Pua Kumbu's textile situation, the correct information is required to correct the perception of others outside of the Iban community about the design motifs with the hope that it will retain the culture (Magiman et al., 2018). Whereas too little complexity (such as simple repetitive patterns) can be uninteresting, and too much complexity (chaos or randomness) can be confusing (Birkin, 2010).

The Pua Kumbu intangible cultural heritage (ICH) is not merely a cultural expression. It represents the wealth of information and abilities to pass this information from one generation to another. The responsibility for protecting and transmitting the values and traditions of all cultures for the sake of future generations is not only one person's task but a universal responsibility (Arai, 2004) and cultural diversity (Rasmussen, 2004), which need to be equally recognised and respected by different cultural communities.

The art knowledge of the Pua Kumbu ICH lies secretly in the hands of the Pua Kumbu weaver. If this knowledge is not passed to others or spread, it will be buried forever and extinct. It is crucial to safeguard the ICH due to its dissimilar measures in protecting the tangible cultural heritage (TCH). The major difference of the ICH is ephemeral, indicating that its existence is not permanent but is temporarily passed or embodied. According to Smeets (2004), ICH completely depended on the human to accept the intangible knowledge and skills, subsequently continuing with the enactment and dissemination (Smeets, 2004).

Many factors cause the knowledge gap most perceivers face when dealing with this majestic art piece, the Pua Kumbu textile. The correct method of managing this gap will contribute to the richness of the knowledge pool, eliminate unresolved barriers, increase the

Pua Kumbu textile art knowledge, and contribute to the positive aesthetic perception among perceivers. Moreover, the Pua Kumbu textile ICH is closely related to Iban's culture, as it encapsulates customs, origins, thinking, beliefs, taboos, and Iban legends. Nevertheless, these elements are slowly being forgotten by many due to the lack of understanding, knowledge, and exposure. Therefore, perceivers need to receive the right information by using the right channel to construct a positive aesthetic perception when observing this textile.

The use of digital technology has exponentially increased in recent years and has invaded every aspect of life. Artificial intelligence (AI) is one such technology that has the potential to revolutionize the way we perceive and appreciate art. By analysing visual and other sensory inputs, AI algorithms can provide a more accurate understanding of the aesthetic qualities of artworks (Li et al., 2019). In the context of the Pua Kumbu textile, AI can be used to enhance the perceiver's understanding and appreciation of its visual complexity, which is a significant factor in aesthetic perception (Reber, 2012; Sun et al., 2014). The use of AI can also help in the conservation and preservation of the textile's intangible cultural heritage by creating digital archives that can be accessed and studied by future generations (Wang et al., 2023). Cultural heritage has always been relevant, but the general awareness of and disposition towards this art piece is our sense of placing it. It also shapes our understanding, especially in the increasingly globalised world (Economou, 2015). The elements of ICH, due to their inherent nature, are constantly evolving. They combine with their surroundings and sometimes disappear without enjoying an appropriate level of recognition and appreciation (Smeets, 2004).

The increasing issues related to the Pua Kumbu textile necessitate a comprehensive investigation of its aesthetic perception among various communities, including laypeople, experts, and local and international communities. Moreover, the advancement of digital tools provides opportunities for cultural dynamism and diversity, but it also raises concerns about the preservation of the ICH of the Pua Kumbu textile. Therefore, this study aims to explore the aesthetic perception of Pua Kumbu textile design motifs and its impact on the safeguarding of Iban cultural heritage. By developing a novel framework of aesthetic perception, this research intends to provide insights into the cognitive system for processing visual arts and generating aesthetic effects. Additionally, the study seeks to identify knowledge gaps that exist regarding the Pua Kumbu textile design motifs and contribute to their preservation for future generations, ultimately ensuring the continued transmission and relevance of the Pua Kumbu textile in modern society.

1.4 Research Objectives

The main purpose of this study was to explore the participants' aesthetic perception of the design motifs applied to the Pua Kumbu textile. Therefore, the objectives related to the focus of the study are as follows:

i. To measure the **aesthetic perception** of participants about the design motifs applied to the Pua Kumbu textile.

ii. To examine the aesthetic perception of **visual complexity** of the design motifs applied on Pua Kumbu textile among weavers and academics.

iii. To investigate the **art knowledge** of the design motifs applied on Pua Kumbu textile among weavers and academics.

iv. To formulate a **novel framework** for safeguarding the ICH of Pua Kumbu textile.

The aesthetic perceptions of participants with no background in art and laypeople were crucial to be measured to get their understanding of this majestic art piece. The findings would improve the participants' community acceptance and knowledge acquired through this art piece. Secondly, having the Pua Kumbu weavers' and academics' aesthetic perception of the visual complexity can enlighten the research findings and drive to safeguard the Pua Kumbu textile. The art knowledge hidden in every design motif of Pua Kumbu textile led to rationale justifications for constructing the design motifs. Finally, the findings were triangulated at the end of the chapter to understand the phenomena of the present study. The findings would lead to developing a novel framework to protect the ICH of Pua Kumbu textile.

1.5 Research Questions

The relationship between the research objectives and the research questions is closely related in a mixed-method study. The following are the four main research questions used by the researchers as guidelines throughout the study.

i. What is the **aesthetic perception** of participants about the design motifs applied in Pua Kumbu textile?
ii. What is the aesthetic perception of the **visual complexity** of the design motifs applied in Pua Kumbu textile among weavers and academics?
iii. What is **art knowledge** of the design motifs applied in Pua Kumbu textile among weavers and academics?

iv. What is the **novel framework** to be formulated for safeguarding the ICH of Pua Kumbu textile?

1.6 Theoretical Framework

In order to gain a holistic understanding of human aesthetic perception and the beauty of design motifs in Pua Kumbu textile, a theoretical framework is essential. For this study, the Unifying Model of Visual Aesthetic Experience (Redies, 2015) was adapted. This choice was based on several justifications. Firstly, the Redies Model provides a comprehensive and detailed analysis of aesthetic perception, which is crucial for understanding the beauty of Pua Kumbu textile design motifs. The model is divided into three stages, allowing for a thorough examination of the perceiver's processing of aesthetic experiences.

Secondly, the Redies Model incorporates both form and content analysis aspects, which are key indicators of individual success in aesthetic perception. This aligns with the focus of this study, which aims to analyse the design motifs of Pua Kumbu textile from both form and content perspectives. Thirdly, the Redies Model considers the role of natural and cultural environments in encoding the aesthetic perception process. This is crucial for understanding the socio-cultural context in which Pua Kumbu textile is created and appreciated. The model also highlights the role of emotions in aesthetic perception, which is relevant for analysing the emotional responses elicited by the design motifs of Pua Kumbu textile.

Overall, the Redies Model provides a robust and comprehensive theoretical framework for analysing the aesthetic perception of Pua Kumbu textile. Its emphasis on both form and content analysis, consideration of natural and cultural environments, and focus on

emotions aligns with the objectives of this study and makes it a suitable choice for theoretical guidance.

Moving on to the three stages of the Redies Model, the first stage is external information, which is the moment when the perceiver confronts the object of art for the first time. The object becomes the perceiver's focus, and consists of two main elements - form and content. Both form and content analysis aspects are key indicators for the contribution of individual success in aesthetic perception (Redies, 2015).

The second stage is the moment of truth, where the natural and cultural environment plays a role in encoding the process. Positive perception and positive evaluation channel the production of emotion (Dijkstra et al., 2017), which is the most significant element in this model. Figure 1.1 explains the perception of the beauty of form and the content of the visual art, both of which are processed by the perceptual and cognitive sensory.

In the third stage, the focus is on the relation of emotions shaped by the perceiver's contextual sensory, either positive or negative. Both form and content signal are processed in the adaptation box, associated with the deeper experiences of the beholder and the digestion of rationalization in their natural surroundings. According to Liu et, al (2017), the emotions generated from visual stimulation of form and content can be translated into aesthetic perception (Liu et al., 2017). It is widely expected that values that vary insignificantly with perception stimulation are either pleasant or unpleasant feelings.

By analysing Pua Kumbu textile design motifs through the lens of the Redies Model, this study aims to provide valuable insights into the aesthetic perception of this traditional Malaysian textile.

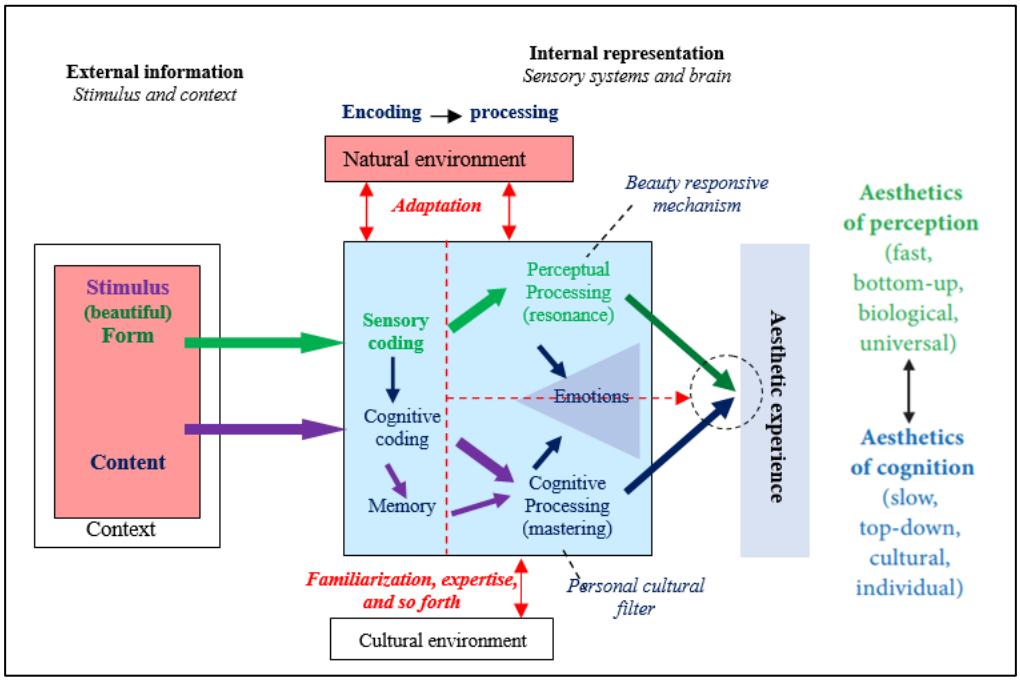


Figure 1.1: Unifying Model of Visual Aesthetic Experience (Redies, 2015)

1.7 Theory Explanation

1.7.1 The Unifying Model of Visual Aesthetic Experience

i. Form Analysis

According to Arnheim (1974), the structural features of shape, line, form, texture, material, colour, and other aesthetical features, including their compositional components applied in the visual arts, are the primary recognised structures for aesthetic appreciation. The composition of every element and principle of art and design in shaping the desirable of visual artwork deals with many angles, and the complexity of the visual art is based on one's point of view. It means that when more persons understand and are familiar with the elements applied, the less complex the visual becomes (Mcdougall et al., 1999), unlike the unfamiliar elements deemed a complicated visual (Forsythe et al., 2008).

ii. Content Analysis

Redies's model suggested that the evaluation of aesthetics relies not only on the external or formalistic objects, colour, line, shape, form, texture, and more but also on the context or content of the visual art. The responses generated from the stored memory of the prior experience shape the justification, judgment or perception, which later channels the information data as the ultimate result of the process to the perceivers' perception. Berlyn stressed the importance of experience as the stimulus to form the judgement of complexity since complexity acts as the collective variable, whereas prior experience is needed to generate a better aesthetic perception.

It indicates that the more experience people have, either directly or indirectly, could give an added perspective to establish perceptions (Berlyne, 1970; Berlyne, 1974). From Berlyn's point of view, this study agreed that experience could be referred to as prior

knowledge of the collective data on any specific subject. The relevant evaluation and perception can be acquired and transferred by having prior knowledge of the subject. In this case, the art knowledge of Pua Kumbu textile can helps the perceivers to generate a better and more positive aesthetic perception.

In a study conducted by Yang et al. (2019), the perceivers' adaptation and familiarisation with any cultural environment enhanced their aesthetic understanding and knowledge (Yang et al., 2019). Suppose the perceivers lack information regarding the input retrieved. In that case, the aesthetic perception process will be distracted, as they are understood differently in different cultures.

Zeki (2011) added that great visual art could distribute its messages and content to all perceivers without boundaries in every historical time frame. It can be proclaimed that the artist also plays an important role in transferring the message or knowledge to the perceivers efficiently, which can result in the correct form of perception among the perceivers (Zeki, 2011). In addition, the art knowledge received regarding the historical perspective and the artist's life story can increase the understanding of the contextual meaning possessed by every visual art (Cupchik & Gebotys, 1988; Nodine et al., 2008). Guner et al. (2019) declared that other factors, such as experience and art genuineness (Benjamin & Jennings, 2010), keep the perceiver's aesthetic perception increased and grown, not solely because of the visual arts.

1.8 Significance of the Study

This study is important in preventing the Pua Kumbu textile ICH from being forgotten and misinterpreted by locals and international perceivers. It also prevents extinction and keeps the culture alive. As a response, the knowledge barriers that lead to textile maltreatment and misuse should be rectified as soon as possible. The proper way of

bridging this gap will contribute to the richness of the knowledge pool while removing the remaining unsolved hurdles. The visual complexity of each Pua Kumbu textile design motif was elegantly arranged based on the Pua Kumbu weavers' imagination and creativity, which integrated with the Iban art knowledge and encapsulated customs, origins thinking, beliefs, taboos, and Iban legends.

Significantly, this study is expected to be useful to the body of knowledge, Sarawak state, the industry players, academics, and the Malaysian community. The safeguarding of the ICH of Pua Kumbu textile is a collaborative effort that requires the solidarity of spirit, cooperation, and harmony from all to ensure this traditional cultural heritage is maintained and relevant in the digital economy era.

1.8.1 Body of Knowledge

Globally, various issues related to aesthetics are updated from day to day from various stories and scopes. However, problems still exist, and gaps remain empty and should be filled. This study only digs a piece of the identified issues to ensure that this study can benefit all, including researchers and practitioners. The knowledge gained from this study would benefit those who want to investigate the aesthetic perception further, especially regarding the design motifs applied. Future researchers could use the information as a reference and guideline to conduct a similar study. Those closely related to the Pua Kumbu textile production, such as the Pua Kumbu weavers and textile academics, would benefit from advancing the technology in making this textile. Subsequently, society will be updated about the information gained and awareness raised about this subject matter. Through this study, the findings on the aesthetic perception of Pua Kumbu textile design motifs and the significance of its visual complexity and art knowledge can be disseminated to the broader

society. This will create greater awareness and understanding of the importance of safeguarding the intangible cultural heritage of the Iban community, particularly in the context of modern society's technological advancements. As a result, individuals and organizations can take appropriate measures to promote and preserve the cultural traditions associated with Pua Kumbu textile, ensuring its continued transmission and relevance for future generations.

1.8.2 The state of Sarawak in Malaysia

In essence, this work will benefit the Sarawak state in general and the Ibans community specifically to promote Sarawak's name internationally. The relationship between visual complexity and aesthetic value features of the Pua Kumbu textile will help generate understanding among the general Malaysian population. The Sarawak textile and tourism industry could also benefit from the findings of this study. Indirectly, those who wish to further understand the Pua Kumbu intangible cultural knowledge will be more aware of it. Subsequently, society will be updated about the information gained and awareness raised about this 'unspoken' heritage.

1.8.3 Industry

Those closely related to Pua Kumbu textile production, such as Pua Kumbu weavers, textile academics, Sarawak fashion designers, and the Sarawak textile industry, will benefit by advancing the technology in the production or application of this textile.

1.8.4 Academia

The study will benefit academia in terms of allowing the research to disseminate new knowledge regarding the subject area, while the findings of the study will also contribute to the large body of research in general.

1.9 The Novelty of the Study

This study presents a novel conceptual framework for conserving and safeguarding the intangible cultural heritage (ICH) of the Pua Kumbu textile. By exploring participants' aesthetic perception, Pua Kumbu textile visual complexity, and art knowledge, this framework aims to enhance the visibility of the textile and disseminate ICH knowledge worldwide. The data gathered from multiple sites contribute to a better understanding of the textile, thus bridging gaps in perceivers' knowledge and leading to the safeguarding and appreciation of this art piece.

To achieve the Malaysian Science, Technology, Innovation, and Economy goals of socio-economic drivers, this study takes advantage of science and technology to preserve the intangible knowledge of the Pua Kumbu textile through the advancement of the artificial intelligent. This innovative approach is expected to lead to global preservation efforts and protect the intellectual property rights of communities concerning the ICH of Pua Kumbu textile.

1.10 Scope of the Study

The ICH of Pua Kumbu textile is the primary focus of this study, and the aim is to resolve the knowledge barrier in the transmission of the subject matter about the ICH applied through the Pua Kumbu design motifs to future generations and preserve cultural diversity and enrich the perceivers' aesthetic perception. Therefore, to achieve the aim, the researcher has divided the research into four objectives (refer to section 1.4, page 16) guided by the four research questions to ensure this study remains on the right trajectory.

Specifically, this study focused on three dependent variables; (1) participants' aesthetic perception, (2) the Pua Kumbu design motifs' visual complexity, and (3). Pua Kumbu art knowledge. All variables were applied to measure the study's independent variable, Pua Kumbu textile. Therefore, to measure the participants' aesthetic perception, the Art Reception Survey - Revised (ARS-Revised) (Wahed et al., 2019) is the instrument applied among 400 participants visiting Tun Jugah Foundation Sarawak textiles museum and the Waterfront, Kuching, Sarawak.

Furthermore, to achieve the second and third objectives of the study, a qualitative approach with the one-on-one interview was applied among the experts, Pua Kumbu weavers, and Malaysian academics; in the textile and art culture fields. By using the in-depth interviews, the experts' aesthetic perception of the visual complexity and Pua Kumbu textile art knowledge was revealed in chapter 4. Finally, by having all the relevant data regarding the study, a novelty framework for safeguarding the ICH of Pua Kumbu textile can be successfully formulated.

1.11 Limitation of Study

To ensure the smoothness of the study and relevancy, several key factors were identified as limitations of the study, namely:

1.11.1 Limitation of Location

This study only concentrated on the areas in Sarawak that have been narrowed down based on the study population. The focus of the study location for objective one is concentrated in the Kuching Waterfront, Tun Jugah Foundation, Kuching, and Sarawak Textile Museum. These three locations are the focal point for tourists visiting Sarawak and are strategically important in achieving the study's objectives. Meanwhile, for the Pua

Kumbu weavers, the location was narrowed to the specific area of the weavers, which are Kapit, Song, and Belaga. The locations were narrowed to the Rajang Ibans, also known as *"Bilak Sedik Iban,"* who are the majority group of the Iban people. They can be found living along the Rajang River in Sarawak. Meanwhile, there is no limitation on the location of academics as long as they have completed the specific requirements of the present study.

1.11.2 Limitation of Participants

This study only involved:

i. The 400 participants (N-400) of the Art Reception Survey- Revised (ARS-Revised) questionnaire.

ii. A total of five experts of Pua Kumbu weavers who have more than ten years of experience in weaving the Pua Kumbu textile and lived along the Rajang River, Sarawak.

iii. Four Malaysian academics with expertise in textiles and art culture fields. The study chose academics who are also practitioners with more than ten years of experience in the domains.

1.11.3 Limitation of Time

Delays have occurred due to the COVID-19 pandemic, slowing the data gathering procedure. The data-gathering period runs from the middle of 2019 until early 2021. The researcher completed the data collection and transcripted the interviews data in June 2021.

1.11.4 Limitation of Content

This study only focused on the intangible cultural heritage (ICH) of the design motif applied to Pua Kumbu textile as the subject matter. The theoretical framework by Redies (2015) acted as a guideline for the researcher to be on the right path. The two main parameters of perceiver aesthetic perception; visual complexity, and art knowledge, are dependent variables of the study and are highlighted towards the end of the final chapter.

1.12 Definition of Terms

1.12.1 Aesthetic Perception

Aesthetic perception includes the values of the feeling of any visual art (Bundgaard et al., 2017), which prompts interest when dealing with the arts either the feeling yields the beauty, aesthetic interest, pleasure, or any sort. The channel of feeling produced by the perception process can also be translated as appreciative judgment, appraisal, or numerous evaluations and are the basis for the beauty of the art appreciation process. An aesthetic perception arises in response to works of art or other visual arts (Hager et al., 2012). Depending on the perceiver's perception, experiences received from the surroundings and the environment could be pleasant or unpleasant. Moreover, a perceiver’s aesthetic perception can change based on the situation faced at that moment.

Furthermore, the perception feeling involves different types of processes such as recognising (being aware of), organising (gathering and storing), and interpreting (binding to knowledge) sensory information. The human senses, such as sight, hearing, touch, smell, and taste, receive the signs from the environment and simultaneously generate the perception (Chapter 3, n.d).

1.12.2 Art Knowledge

In the present study, the art knowledge refers to the Pua Kumbu textile art knowledge, which includes customs, origins, thinking, beliefs, taboos, and Iban legends. The visual complexity of the Pua Kumbu textile is constructed by the Iban's local knowledge, which mostly did not understand greatly by the perceivers hindered by knowledge gaps.

The possession of an opinion regarding a work of art in the knower is defined as knowledge of the art. It is thought that knowledge in art exists. However, this knowledge may be tacit, particularly because there is no 'right' or 'wrong' way to understand a work of art (Hamer, 2010). For some, art knowledge can be interpreted as the technique used by the artist and the philosophy underpinned in every creation of visual arts (Cazeaux, 2019) and the thoughts and sensations expressed during the aesthetic process (Kant, 1987).

1.12.3 Visual Complexity

Visual complexity appears as an activator to trigger individual preferences towards the tangible object of cultural heritage. Studies on visual complexity have been conducted since the early 20th century and influenced by its origin in the Gestalt psychology theory and are still studied today. Sun and colleagues (2018) defined visual complexity as the degree of difficulty in reconstructing 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 (Sun et al., 2014, 2018). The complexity plays a significant role in the perceiver's aesthetic preferences (Ball et al., 2018; Reber, 2012) in building the perceivers' lifelong interest in deciding whether to like or dislike the visual arts (Huang et al., 2020).

1.12.4 Pua Kumbu Textile

The Iban community is known as Sea Dayak in the State of Sarawak, and the community is the largest group of the indigenous population of Malaysia Borneo (Wei, n.d). Historically, the Iban or Sea Dayak community lived as nomads in Borneo, and they were known for their bravery and courage, which reflected their reputations as fighters and head hunters, and they were feared by many (Hays, 2008; Sim & Khan, 2014). Pua Kumbu textile, made of cotton, is the most famous textile among the Iban people in Sarawak. It is made using the woven weaving technique. People are bound to their customs and beliefs, and the understanding is well-matched and crafted in the Pua Kumbu textile. In most societies, weaving is often linked to women, and her status in the community can be revealed from the type of motifs weaved. While most motifs are visual representations of animals, plants, and even daily activities, others are more complex and abstract. Intricate patterns on the Pua Kumbu textile are often traditional and hereditary.

1.12.5 Intangible Cultural Heritage (ICH)

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) defined ICH as the collective definition of knowledge, practices, expressions, and skills carried by communities who recognise it as part of their cultural heritage. Also called living cultural heritage, it is usually expressed in one of the following forms: oral traditions; performing arts; social practices, rituals, and festive events; knowledge and practices that concern nature and the universe; as well as traditional craftsmanship (UNESCO, 2004a).

1.13 Summary of Chapter 1

The present chapter encapsulated the idea of exploring the participants' aesthetic perception in transmitting their insights into the Pua Kumbu textile visual complexity and art knowledge of the ICH values embedded in the textile. The perceivers' aesthetic perception of the art piece varies, creating gaps, which occur due to the lack of Pua Kumbu textile art knowledge, insensitive to other cultures, which mislead the perceivers' aesthetic perception of heritage objects. In this sense, any misconception about ICH art pieces would have a long-term beneficial or detrimental impact on future generations.

Thus, to have better insight into the study, the researcher employed the quantitative and qualitative approaches specifically to obtain the relevant data from the targeted participants to achieve the study objectives at the end of the journey. The research questions were constructed to align with the research objectives and path the way in discovering the results and findings, and finally, preserving the values and traditions of Pua Kumbu textile and eliminating the knowledge barrier to benefit future generations in pathing the way to the Fourth Industrial Revolution (IR4.0).

"Art is the imposing of a pattern on experience, and our aesthetic enjoyment is recognition of the pattern."

— Alfred North Whitehead

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

This section presented the supporting evidence, references, and documents of previous studies significant to this present study. The review of the relevant literature compilation could improve the study's understanding. The historical, theoretical, and practical contributions to the field of aesthetics outlined in this chapter parallel numerous manifestations of aesthetics that have appeared in art, philosophy, psychology, mathematics, and science. The topic of aesthetic perception, visual complexity, and art knowledge was examined throughout the critical review process. The review also included a comprehensive analytical review on safeguarding the cultural heritage products from other countries and regions. Evaluating the literature concisely would provide a foundation for selecting the appropriate research methods and mapping the aesthetic perception within the field to its contribution to the body of knowledge and the engagement with the current practice. This review was systematically peeled through philosophies, previous investigations, and artistic engagements to generate a solid grounding. This chapter was orderly arranged from the aesthetic, theoretical framework to the branches of existing knowledge related to the aesthetic perception study. The measurement of the aesthetic perception was discovered and shed thoroughly to get the insight and be utilised further.

2.2 A Map of the Literature

The literature map is provided in this chapter to organise the literature to understand this study better. Figure 2.1 (see page 39) illustrates a map that shows the collected literature on aesthetic perception in visual arts studies. Every subtopic was arranged differently, from

the main topics narrowed down to subtopics and then to sub-subtopics. The literature review commenced with the introduction of aesthetic perception initially, which was to give a broad understanding of the topic studied. Next, the literature map outlined the aesthetic perception models, consisting of seven models that portray different characteristics of each, which led to the discovery of the theoretical framework, 'The unifying model of visual aesthetic experience' (Redies, 2015). Redies model was constructed to understand that the aesthetic experience lingered in the perceiver's cultural and natural environment, which includes both form and content analysis of the visual art.

The formalistic of visual art was discussed further in the following sub-topic, introducing visual complexity as one of the major contributors to the impactful aesthetic perception among Pua Kumbu textile perceivers. The next sub-topic is on the content component of the Redies model, which was considered the key indicator of the perceivers' aesthetic perceptions. Redies highlighted that prior experience with visual art would help generate a greater understanding of the visual art object. The prior experience is generated from multiple angles, such as the art knowledge of visual art, which ensures the fluency of the aesthetic perception. As for this study, the ICH of Iban art knowledge was the gems that needed to be grasped to reach the aim of the study, safeguarding the ICH of Pua Kumbu textile. The previous study on art knowledge from 2016 to 2021 was explored to reach the gap between the studied topic in art and aesthetic studies (see Table 2.1, page 55).

Next, the literature map indicates the established instrumentation utilised to measure the study's dependent variables, the aesthetic perception of the design motifs applied to the Pua Kumbu textile. The Art Reception Survey (ARS) (Hager et al., 2012) was utilised as the current study's survey instrument to measure the aesthetic perception of the design motifs

applied to the Pua Kumbu textile. The review of the ARS previous study was revealed in the following sub-subtopics (see Table 2.2, page 69), indicating that the ARS instrument was applicable to be used in different domains of aesthetic studies, namely, art writing (Quiroga, 2020), painting (Miller & Hübner, 2019), figurative (Pietras & Czernecka, 2018), abstract painting (Pirgie, 2016; Wang, 2018), representational art (Wang, 2018) and film (Doicaru, 2016). Heading to the next sub chapter leads to another topic, which is safeguarding the cultural heritage art form. The previous studies on the safeguarding the ICH in other regions and countries worldwide were included (see section 2.9.1, page 77), such as the study of safeguarding the textiles (Hidayat & Fatmahwaty, 2014; Sardjono et al., 2015; Siamwalla, 2019; Untari et al., 2020), safeguarding on the design motifs (Mathew, 2018; Mawuli, 2019; Tresnadi & Sachari, 2015), products (Sugiarti et al., 2019), and finally, the craft products (Siamwalla, 2019; Yang et al., 2018).

A review on the safeguarding of the ICH previous study preceded the sub-topic on the general overview of Malaysia on safeguarding the ICH and, in Sarawak, specifically. The Iban community and the continuity of cultural heritage were introduced in the next sub-topics, followed by the aesthetic features of the Pua Kumbu textile subtopic. Finally, having the literature map indicated in this chapter is pathing the way of constructing the relevant novelty framework of safeguarding the ICH of Pua Kumbu textile in the Fourth Industrial Revolution (IR4.0). Figure 2.1 (see page 39) shows the road of the literature map, which covers all of the relevant and significant literatures related to this research study.

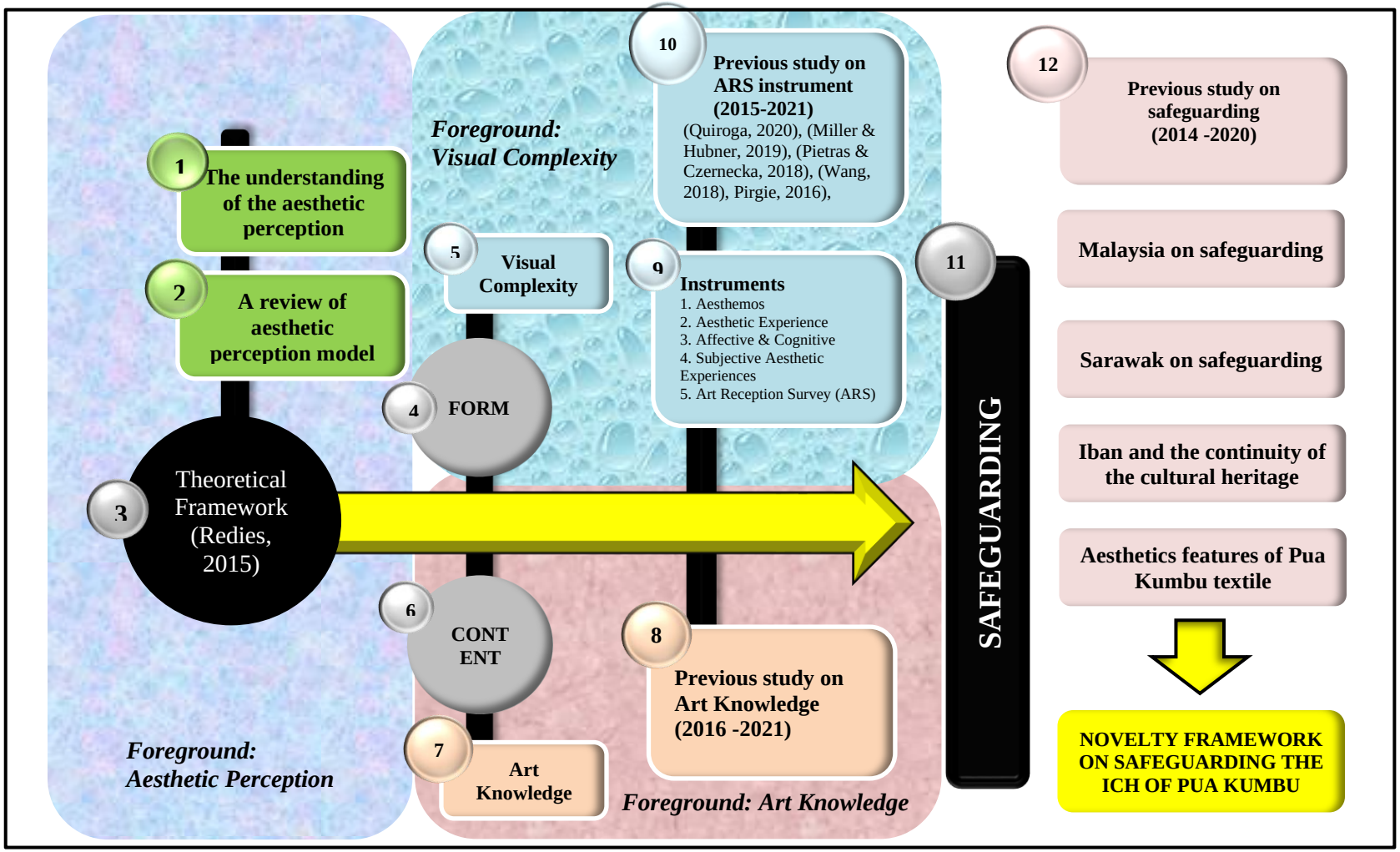


Figure 2.1: A Literature Map of the Literature Review

2.3 Background of the Study

Beauty is a phenomenon that has been studied for centuries, and while some may argue that it simply exists, it is important to recognize that beauty is not a result of chance. The perception of beauty is influenced by a multitude of factors, including education, culture, and the passage of time. Furthermore, beauty can manifest itself in various forms, such as physical appearance or artistic expression. However, it is essential to note that the presence of beauty in an object or person is not solely responsible for its aesthetic value. Rather, it is the interaction between the object or person and the perceiver's cognitive processing that creates a sense of beauty. Delle Donne (2010) argues that reliable elements of aesthetics within an object contribute to its beauty, and how the perceiver processes these elements also plays a critical role in the aesthetic experience (Delle Donne, 2010). Therefore, it is crucial to acknowledge that the perception of beauty is not just a passive act, but an active process that involves both the object and the perceiver.

Even though beauty is like an ‘everyday’ phenomenon to everyone, it is difficult to define it. However, according to Haubrich (1998), it is possible to explain beauty if we apply a psychological theory. It is reflected that the concept of beauty is deliberately extensive as it covers the sensational feeling of what we like, what we find fascinating, interesting, great, funny, or inspiring. Additionally, Delle (2010) stated that the pleasant feeling, either more or less intense, depends on our perception aroused by beautiful things around us. Most of the greatest philosophers in this world, such as Plato, Aristotle, Kant, Hegel, and Schopenhauer, have a mutual understanding that pleasure is a central element of aesthetic experience (Otto, 1993) or ‘flow’ (Csikszentmihalyi, 2008) which essentially inspires one’s ‘move’ (Schindler et al., 2017).

Every visual art affects humans differently, and only the great one consists of both beauty and alluring content (Else et al., 2015). None can claim that their artistic preferences are better than others because people's choices depend on the beholder. Studies conducted by Meecham and Sheldon (2005) as well as Scruton (2011) argued that for those with art knowledge, their aesthetic perception is related to knowledgeable connoisseurship, although beauty appraisal is not solely about beauty (Meecham & Sheldon, 2005; Scruton, 2011). Nevertheless, for some other scholars, aesthetics is described as understanding the 'underlying process' of aesthetic perception (Kirk et al., 2009; Leder & Nadal, 2014). To some extent, the underlying process of the aesthetic perception is interrelated with science, where the process is defined as 'neuroaesthetics' (Cela-Conde et al., 2011; Chatterjee, 2003, 2011; Cupchik et al., 2009; Leder et al., 2004; Skov et al., 2018).

To truly understand the language of art, individuals must be given the opportunity to form their own opinions, perspectives, and perceptions, even if they deviate from conventional norms. The process of perception, as defined by Dutton (2013), involves making sense of the world through the acquisition, understanding, organization, and categorization of sensory data (Dutton, 2013). However, the act of perception is far from simple and involves complex cognitive and perceptual mechanisms that are shaped by one's experiences, cultural background, and societal influences. As such, it is crucial to recognize that there is no singular or "correct" way to perceive and interpret art. The next section will delve further into the understanding of aesthetic perception and its relevance to the present study.

2.4 The Understanding of Aesthetic Perception

There has been extensive research on aesthetic perception conducted by different scholars in many directions and names. Aesthetic judgement (Leder & Nadal, 2014), aesthetic appreciation (Bundgaard et al., 2017), aesthetic assessment (Ellsworth & Scherer, 2003), and aesthetic experience (Marković, 2010; Palmer et al., 2013; Redies, 2015) are some other aliases of aesthetic perception, reflecting on similar meaning and characteristics pointing to the human sensory reflections on the visual arts. The term aesthetic was first introduced by Baumgarten in 1750 when sensitive subjects such as painting, drawing, and sculpture were discovered to be critical elements in aesthetic perception (Gregor, 1983).

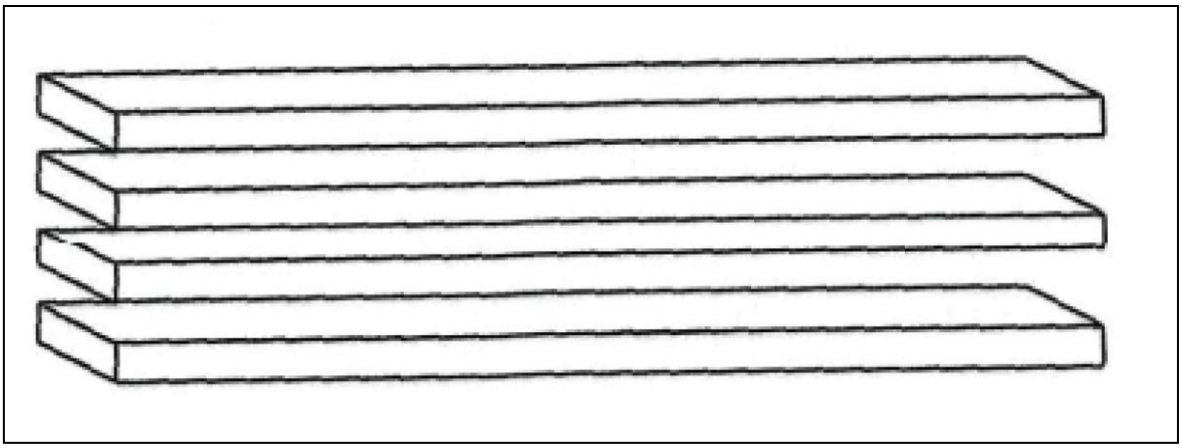


Figure 2.2: A Perception of Wooden Block

The channel of feeling produced by the perception process can also be translated as appreciative judgment, appraisal, or numerous evaluations and are the basis for the beauty of the art appreciation process (Bundgaard et al., 2017). Several cases display an illusion that the visual arts frequently contribute to misinterpretation, resulting from unmatched perceptual systems. Otherwise, the visual representation is planned to be misinterpreted. In Figure 2.2, there are four wooden blocks on the left and three on the right, and these objects

would have a problem to be built up (Chapter 3, n.d). A perceiver might misjudge the number of wooden blocks due to the arrangement of lines of the objects. However, at a glance, most perceivers can see there is just a stack of wooden blocks without putting any concern on the number.

Aesthetic perception is a complicated relationship between visual stimuli and individual understanding, which links to generating opinions, either positive or vice versa, depending on the visual complexity (Xenakis & Arnellos, 2014). Aesthetics can be categorised into two groups: a person's sensible qualities toward an object and the feeling that arose can be pleasant or unpleasant. It involves aesthetic perception and reflective movement (Harries, 2009; Kant, 1987). It is found that 'reflective' is a perceiver's personal experience when dealing with the visual object (Harries, 2009).

Aesthetic perception is referred to as affecting tone, described as lovely and charming. The description of aesthetic perception is correlated with adjectives like exceptional and profound. The convergent evidence and theory indicate that certain aesthetic perceptions vary from mild positive satisfaction. The answer of novelty and ambiguity is at the basis of those states and not the fluent production of enjoyment (Marković, 2010).

Dewey (2005) and Jo Hatch (2012) justified that aesthetic perception is not restricted to visual arts. Still, it involves all expressions, including the diversity of trans-disciplines of biology, chemistry, physics, mathematics, and psychology. At the same time, Leder et al. (2019) stated that the key to understanding beauty is applying the symmetrical structure (Leder et al., 2019). Furthermore, the relationship between art bridges the gap to science, thus making the arts easy to understand and acceptable to all. The aesthetic processing does not only involve art, but it also includes a compilation of other disciplines.

Figure 2.3 showed a more complex illusion when the artist illustrated two people drawing a part of the face of an older man in the middle. The ambiguity presented can usually be traced easily, but the explanation is complicated or sometimes not even perceived. One might look at the primary object, followed by the secondary object, which may necessitate more attempt and time (Chapter 3, n.d). Our visual sensory can generate similar computation, but not as good as expected.

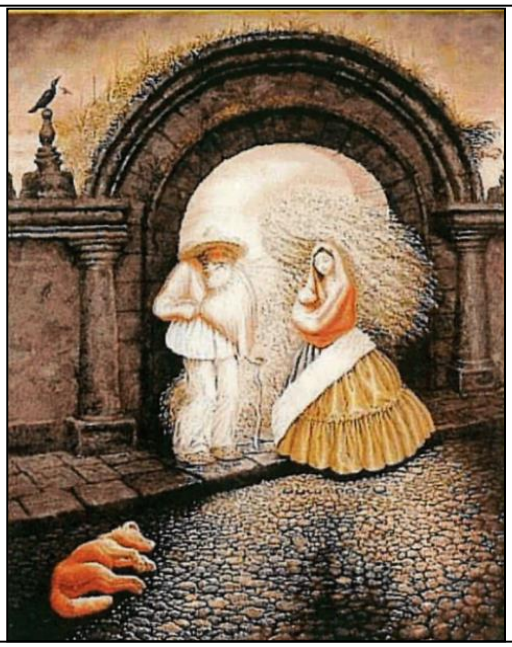


Figure 2.3: A Complicated Image

The aesthetic emergence of human feelings is associated with perception (Ellsworth & Scherer, 2003). When the stimulus is assessed as something that can be understood, it becomes human interest (Silvia, 2005). Meanwhile, human understanding and sensitivity lead to positive perception (Fayn et al., 2015). By having the right knowledge of a particular subject, one's interest and curiosity can be explored and nurtured.

The study found that the aesthetic process happens naturally due to the visual arts not pre-existed (Xenakis & Arnellos, 2014). Visual arts are deemed thorough evaluations associated with emotion and physical adjustments (Shusterman, 2013) or reactions (Chatterjee, 2011) during intercourse. The intercourse which happens later constructs the perceivers' aesthetic perceptions on whether they like or dislike the displayed arts.

Figure 2.4 highlights that our vision system is frequently not under our full control and most of the time, it is not static either. Looking closely at Figure 2.4(a), the black squares are generated between the white spaces, while the black circles appear in Figure 2.4(b). However, suppose one stops and gazes at an intersection of the spaces between the black squares. In that case, the perceiver can manage to prevent the "spots" from becoming visible (Chapter 3, n.d).

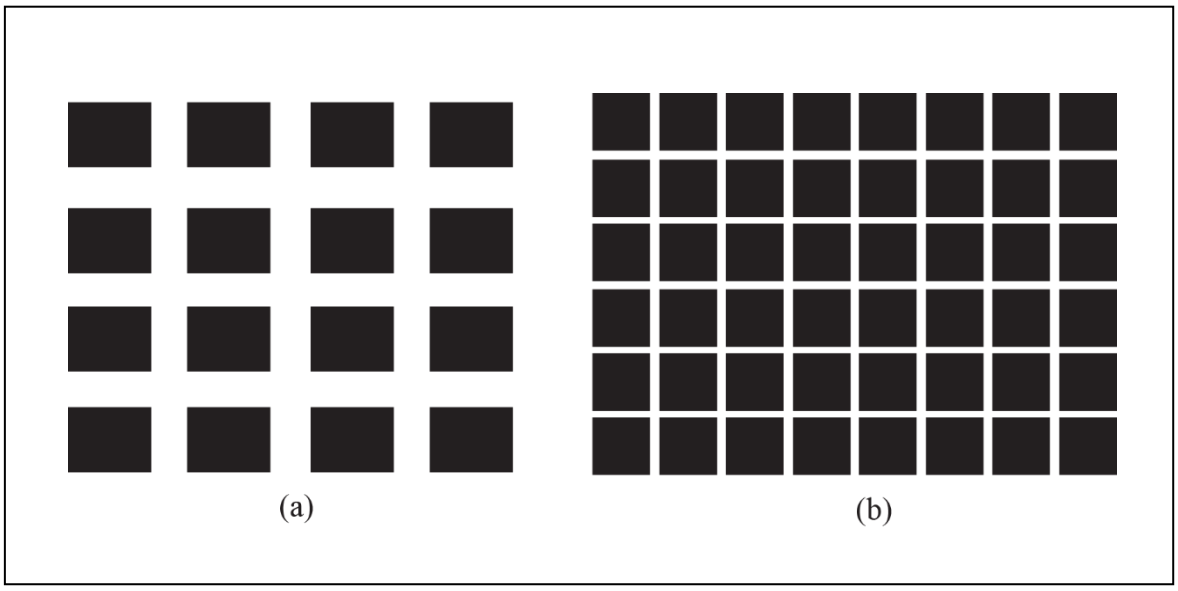


Figure 2.4: The Hermann Grid Illusion: (a) Illusionary black squares appear over the complete image; (b) like (a) but even more dynamic and engaging

Kant (1987) stated that the cognitive dynamics of a human being is generated upon seeing beautiful things, valuable and implanting aesthetic values. Beauty is not derived from the property of an object but is gathered from the feeling created by multiple cognitive areas known as 'imagination' and 'reason.' The pleasant or unpleasant feelings produced depend on how the sensory processes the information (Kant, 2000). It can be debated that human feelings are subjective to their personal feelings toward the object, including past experiences and knowledge acquisitions.

To summarize, the process of generating aesthetic perception involves both the perceivers and the artists, with three essential conventions at play. Firstly, perceivers must realize that visual arts are interpretations of something, rather than just objects in themselves. Secondly, capturing the essence of art requires attention to the subject matter. Lastly, distribution of intellectual traditions plays a crucial role. Despite any visual deficits present in either the artist or the perceiver, successful communication can still be achieved. Both parties can compensate for any abnormalities in their visual systems (Weir & Mandes, 2017). This concept of aesthetic perception models leads us to the next section of this review, where we explore various models that shed light on this complex phenomenon.

2.5 A Review of the Aesthetic Perception Models

The models of "perception," "emotion," or "cognition" were initially introduced in 1960, which opened an exploration new path in the aesthetical study, combining psychology and neuroscience (Skov, 2019). According to Skov, the aesthetic perception that appears in the final stage of a visual stimuli process is the reaction of limitless sensory property in the participants' brains. In experimenting and evaluating aesthetic procedures, many scholars have shaped different aesthetic working models in conjunction with understanding the

aesthetic perception and the involvement of selected processing stages. The next subsections elaborate on all clusters and approaches used in detail.

2.5.1 Information-Processing Model

Leder and Nadal's (2014) cognitive model of information processing has been widely cited in the literature as a significant contribution to understanding aesthetic experiences and judgment. However, some scholars have criticized the model for oversimplifying the complex processes involved in aesthetic perception (Bullot & Reber, 2013). The model proposes that aesthetic experiences are the result of cognitive and affective processing that involve several stages of information processing in different brain regions, including the cortical, subcortical, and reward circuits. While this provides a useful framework for understanding how the brain processes aesthetic information, it does not fully capture the complexity of the aesthetic experience.

Moreover, the model's emphasis on the perceiver's cognitive system overlooks the role of the social and cultural context in shaping aesthetic experiences and judgments (Bullot & Reber, 2013). The model also fails to account for individual differences in aesthetic preferences and experiences, which may be influenced by factors such as personality, mood, and prior experiences with art (Leder et al., 2004).

In conclusion, while Leder and Nadal's (2014) model has provided a valuable framework for understanding aesthetic experiences, it is important to consider its limitations and the need for more comprehensive and nuanced models that account for the social, cultural, and individual factors that shape aesthetic perception and judgment. Figure 2.5 (see page 48) illustrates the multiple processing stages that occur during aesthetic experiences that are rewarding and pleasing.

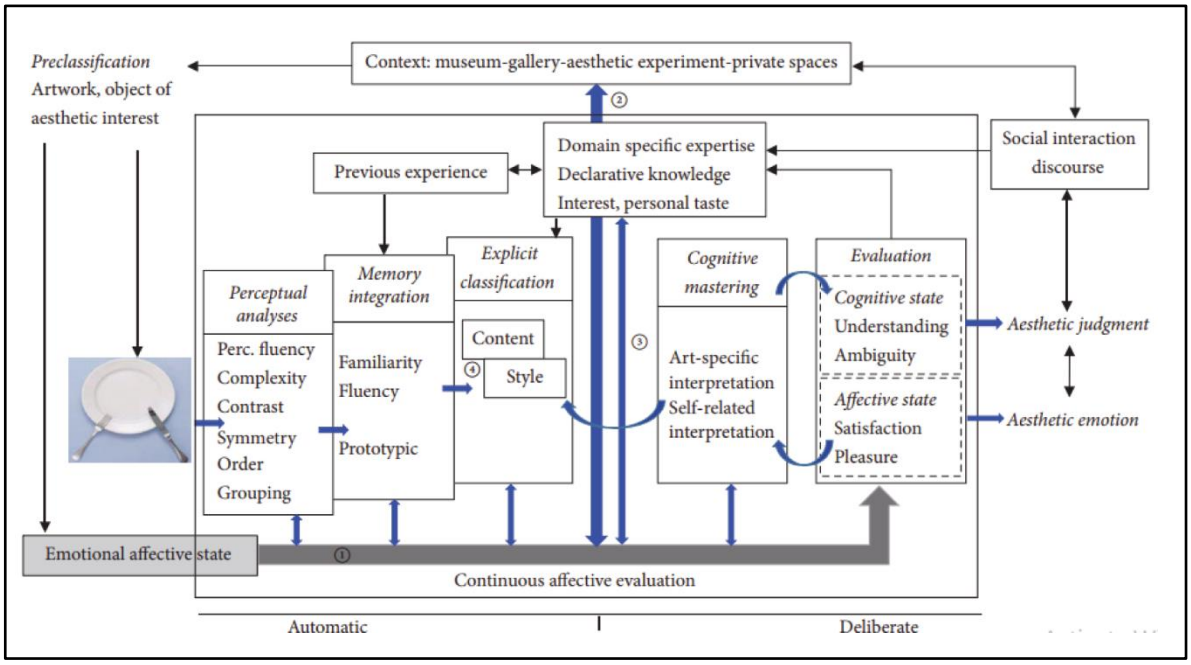


Figure 2.5: Model of Information-Processing Model (Leder & Nadal, 2014)

2.5.2 Neuropsychological Model

The model proposed by Chatterjee (2003) has been a prominent framework for understanding the neural mechanisms involved in aesthetic experiences (Chatterjee, 2003). However, the model has been criticized for its overreliance on neuroscientific findings, which has resulted in a narrow focus on the bottom-up sensory processes involved in aesthetic perception. While the model offers valuable insights into the neural correlates of aesthetic experiences, it neglects the top-down cognitive processes and socio-cultural factors that shape our aesthetic preferences and judgments (Pelowski et al., 2017; Silvia, 2005).

Furthermore, the model's emphasis on the self-rewarding experiences of aesthetic perception ignores the possibility that aesthetic experiences can also be challenging, thought-provoking, and even discomforting. Aesthetic experiences are not always pleasurable, and a more comprehensive model of aesthetic perception should account for the full range of

aesthetic experiences, including those that do not necessarily result in positive affective states (Brielmann & Pelli, 2017).

Critics argue that the model's narrow focus on the neurophysiological mechanisms of aesthetic perception does not capture the complex nature of aesthetic experiences, which involve both cognitive and affective processes as well as socio-cultural influences. The model's limitations highlight the need for a more interdisciplinary approach to understanding the mechanisms of aesthetic perception that incorporates insights from psychology, philosophy, and the social sciences (Chatterjee & Vartanian, 2016).

In conclusion, while the model proposed by Chatterjee (2003) has been a valuable contribution to the study of the neural mechanisms of aesthetic experiences, its overreliance on neuroscientific findings and neglect of socio-cultural and cognitive dimensions highlights the need for a more comprehensive and interdisciplinary approach to understanding aesthetic perception (refer to Figure 2.6).

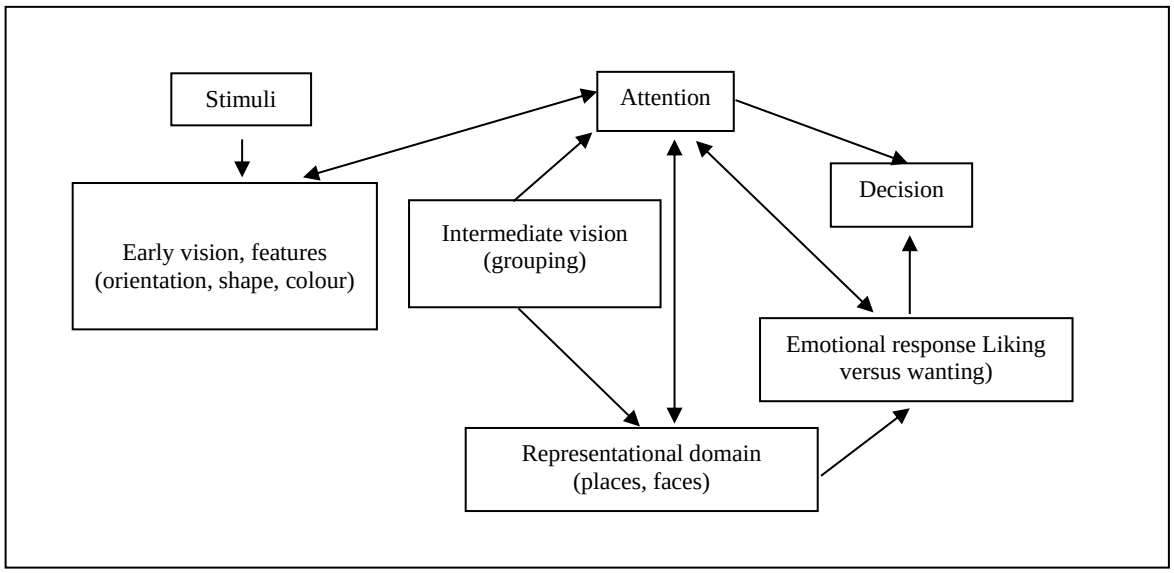


Figure 2.6: Chatterjee's Feed-Forward Model

2.5.3 Quarter Model of Human Emotion

The model proposed by Koelsch et al. (2015) offers a compelling framework for understanding the neural underpinnings of aesthetic perception (Koelsch et al., 2015). However, while the model integrates neurofunctional aspects of emotional processing, it overlooks the potential biases and limitations of using language as the primary modulator of emotions. Additionally, the model fails to account for the influence of socio-cultural factors on aesthetic perception, which can significantly shape our aesthetic preferences and judgments (Silvia, 2009).

Moreover, the model's emphasis on the appraisal or evaluation process as the endpoint of aesthetic perception oversimplifies the complex nature of aesthetic experiences. The aesthetic experience involves a range of cognitive and affective processes beyond evaluation, such as attention, perception, and memory, that contribute to our overall experience of art (Bullot & Reber, 2013). Therefore, a more comprehensive model of aesthetic perception should incorporate the full range of cognitive and affective processes involved in aesthetic experiences and consider the impact of socio-cultural factors on aesthetic preferences and judgments.

In sum, the model proposed by Koelsch et al. (2015) provides a valuable neurofunctional framework for understanding aesthetic perception, but it neglects important socio-cultural and affective dimensions. To develop a comprehensive understanding of aesthetic perception, researchers should incorporate a broader range of cognitive and affective processes and consider the influence of socio-cultural factors on aesthetic preferences and judgments (see Figure 2.7, page 51).

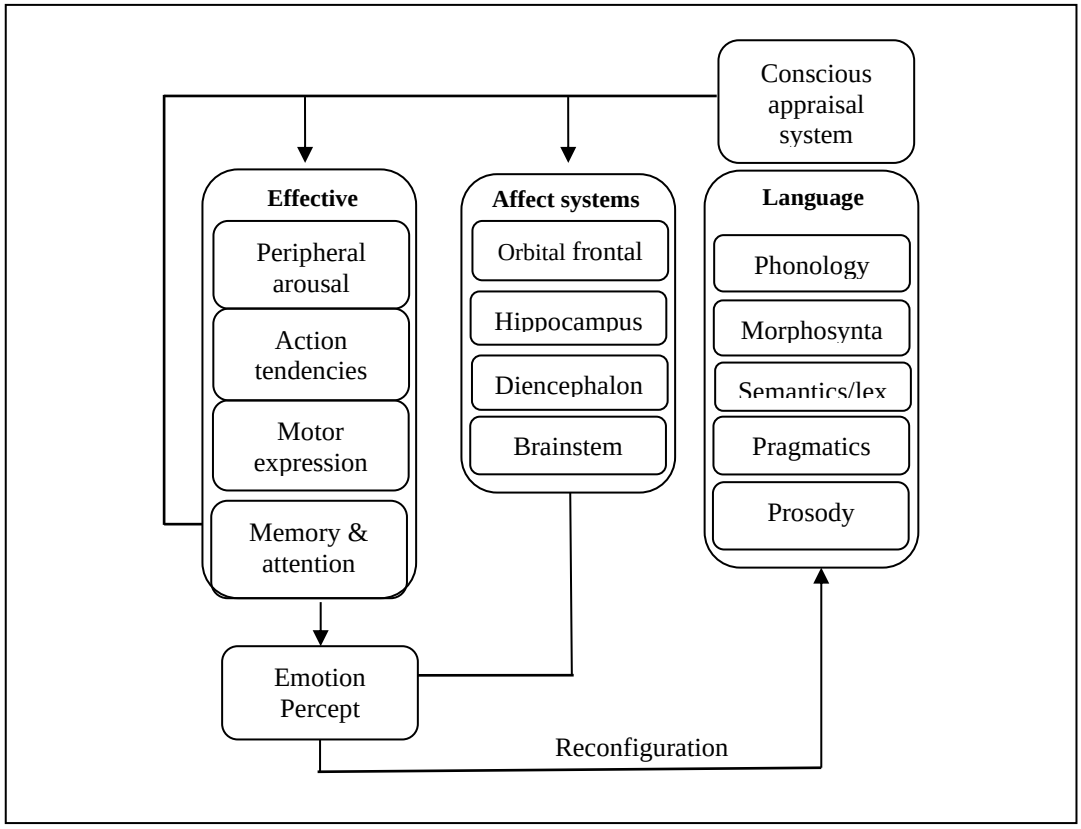


Figure 2.7: The Quarter Model of Human Emotion (Koelsch et al., 2015)

2.5.4 Hierarchical "Feed-Forward" Model

The integration of network and computational tools in cognitive and psychological studies has brought new insights into the core of aesthetic research. While these methods offer valuable quantitative approaches to measuring complex systems, they also have potential limitations. For instance, the use of mathematical models in aesthetic studies may oversimplify the subjective and multifaceted nature of aesthetic experiences, reducing them to measurable properties and features (Silvia et al., 2021).

Nonetheless, the application of computational methods has also led to significant advances in understanding the statistical and emotional characteristics of aesthetic experiences. Thumfart and colleagues' (2008) model, which combined statistical and

emotional features of visual textures, offered a novel approach to white-box modelling (Thumfart et al., 2008). This approach allowed for the identification of the interactions between aesthetic properties and features at different levels of complexity, offering a more nuanced understanding of the aesthetic experience (Liu et al., 2017).

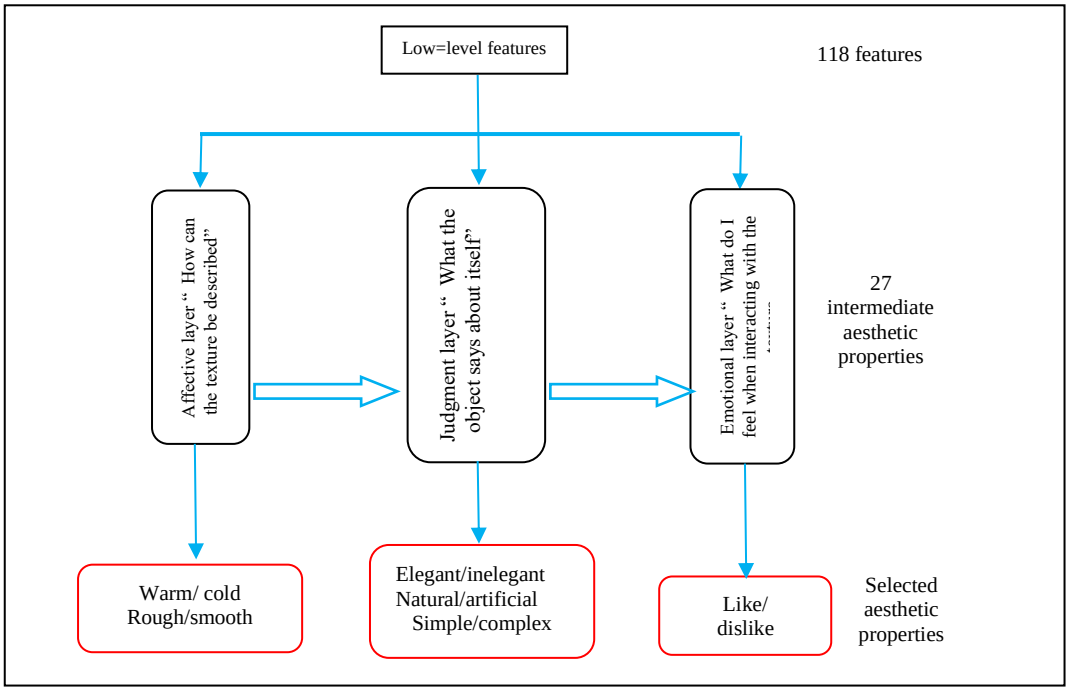


Figure 2.8: Hierarchical Feed-Forward Model (Thumfart et al., 2008)

However, it is worth noting that the use of computational tools alone may not be sufficient to capture the richness and diversity of aesthetic experiences. A comprehensive understanding of aesthetic perception requires the integration of multiple approaches, including qualitative methods, to capture the complex interplay between subjective experiences and objective features (Pelowski et al., 2017).

Furthermore, while computational tools offer valuable quantitative approaches to studying the statistical and emotional aspects of aesthetic experiences, they may oversimplify the subjective nature of these experiences. A more comprehensive approach to understanding aesthetic perception should incorporate multiple methods, including qualitative and subjective measures, to capture the full range of aesthetic experiences.

2.5.5 Hierarchical Feed-Forward Dual-Layered Model

The model proposed by Liu et al. (2015) builds upon the Hierarchical Feed-Forward model developed by Thumfart and colleagues (2011), providing valuable insights into the complex processes underlying aesthetic perception. However, the model has been criticized for oversimplifying the multifaceted nature of human perception, as it focuses exclusively on visual textures and does not account for individual and socio-cultural factors that shape aesthetic preferences and judgments (Silvia, 2015).

Moreover, the model's narrow focus on the evaluation of aesthetic values as the endpoint of aesthetic perception overlooks the importance of other cognitive and affective processes in generating aesthetic experiences. Brielmann and Pelli (2017) argue that a comprehensive model of aesthetic perception should include a wider range of aesthetic experiences beyond explicit evaluation or appraisal.

Furthermore, while Liu et al.'s (2015) model provides valuable insights into the hierarchical structure of aesthetic perception and the importance of low-level features and aesthetic properties, it is limited by its narrow focus and oversimplification of human perception. A more comprehensive model of aesthetic perception should consider a broader range of aesthetic experiences and incorporate individual and socio-cultural factors that influence aesthetic judgments (see Figure 2.9, page 54).

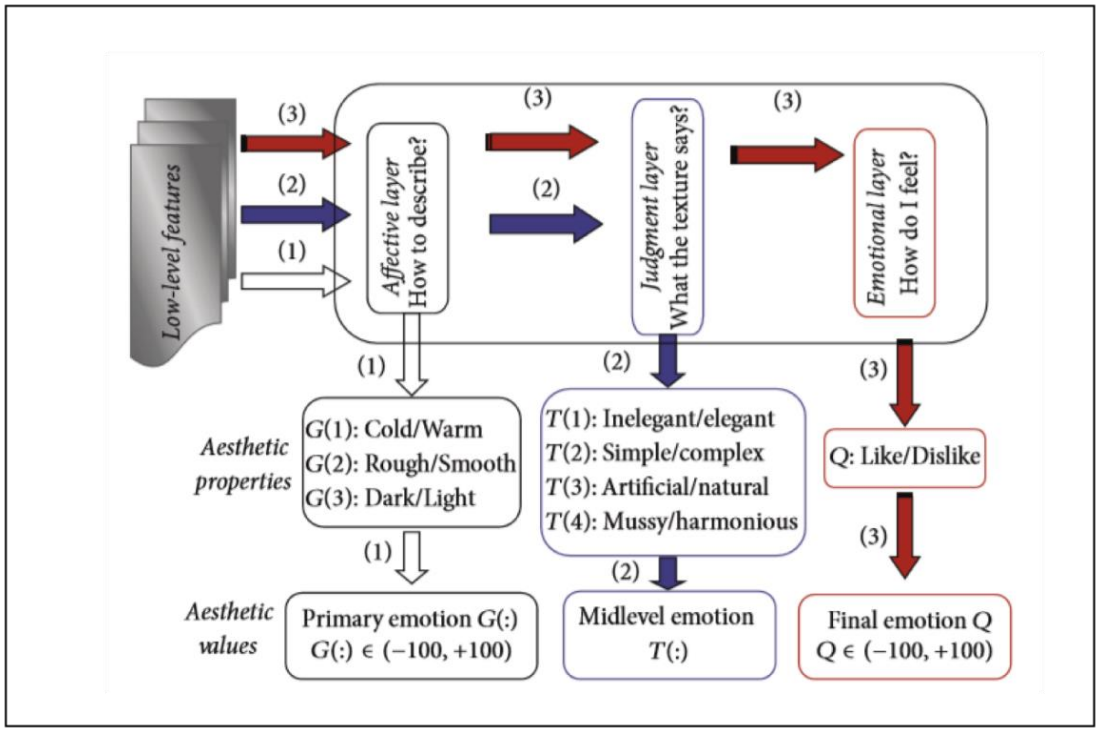


Figure 2.9: The Hierarchical Feed-Forward Dual-Layered Model (Liu et al., 2015).

2.5.6 Mirror Model of Art

Tinio's model highlights the close relationship between art-making and art appreciation, suggesting that the initial aesthetic perception experienced by the artist during the creative process parallels the final aesthetic perception experienced by the viewer (Tinio, 2013). While the model offers a unique perspective on the artistic process and its relationship to perception, it oversimplifies the complexity of aesthetic experiences by reducing them to a linear correspondence between the artist and viewer.

Furthermore, the model's emphasis on the role of prior knowledge in shaping aesthetic perception neglects the role of contextual factors, such as socio-cultural influences and personal experiences, in shaping individual aesthetic preferences and judgments (Silvia,

2009). A more comprehensive model of aesthetic perception should account for these contextual factors and their impact on the subjective experience of aesthetic appreciation.

Despite these limitations, the model's integration of art-making and art appreciation provides a valuable framework for understanding the connection between creative expression and aesthetic perception. By emphasizing the importance of the artist's own aesthetic experiences in shaping the final aesthetic product, the model highlights the significance of individual differences in aesthetic preferences and judgments.

In summary, Tinio's model offers a unique perspective on the relationship between art-making and art appreciation, but oversimplifies the complexity of aesthetic experiences and neglects the role of contextual factors in shaping individual aesthetic preferences and judgments. A more comprehensive model of aesthetic perception should account for these contextual factors while also highlighting the significance of individual differences in aesthetic experiences (see Figure 2.10).

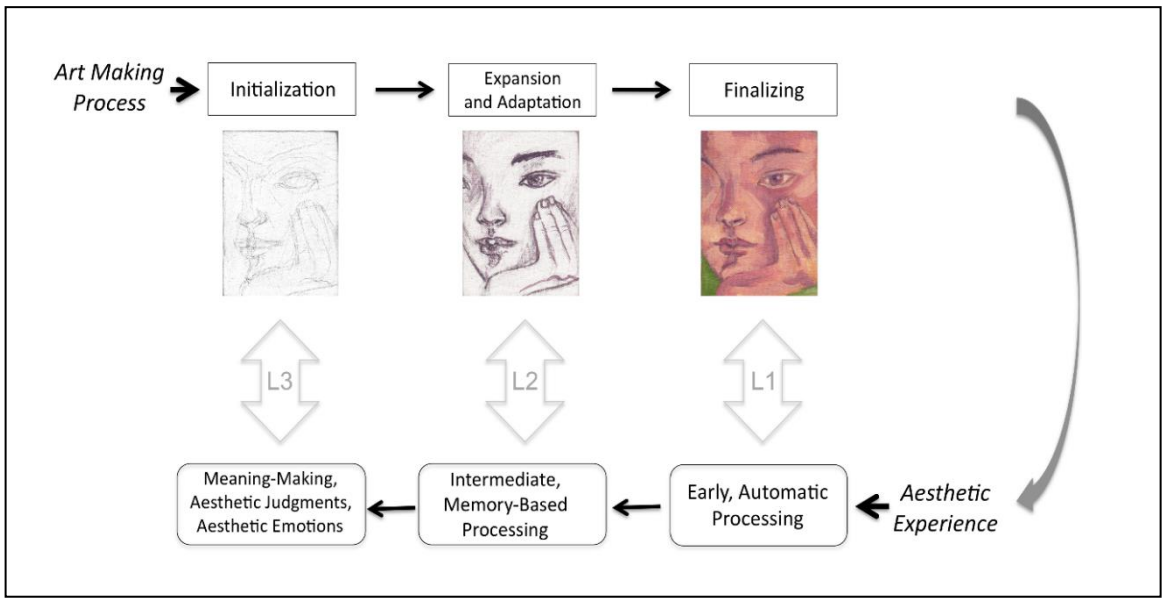


Figure 2.10: The Mirror Model (Tinio, 2013)

2.5.7 Unifying Model of Visual Aesthetic Experience

The unifying model of visual aesthetic experience model aimed to justify the factors that contributed to the individual aesthetic perceptions of visual art (Redies, 2015). It was proposed that perception is derived from form and content aspects (refer to Chapter 1, Figure 1.1, page 23). The most significant element in this model is perceptual and positive evaluation channelled in the production of emotion and aesthetic perception (Dijkstra et al., 2017). For the form component, the visual complexity of the arrangement of colours, shape, line patterns, and texture contributed to form aspects (further elaboration in section 2.6). Meanwhile, furnishing the perceivers with art knowledge contributes to the greatest aesthetic perception (further elaboration in section 2.7, page 58). This model was applied as the theoretical framework of the present study (see Chapter 1, page 21).

2.6 Visual Complexity

Visual complexity did not only exist in the art field, but it has also influenced almost every scientific field since the 1980s (Mitchell, 2009). The complexity term is categorized into two; first, the quality makes a system complex, and second, complexity as a quantity (Standish, 2008). The quantity element is including the various types of lines, shapes, forms, textures, or colours applied in any visual art form. Sun and colleagues (2014) stated complexity defines degrees of difficulty in reconstructing the description of an image (Sun et al., 2014). Therefore, the final handiwork of visual art results from the compression of different important elements of visual complexity, which are presented to and appreciated by perceivers at the end.

Studies on visual complexity have been conducted since before and influenced by its origin in the Gestalt psychology theory. The principles of visual perception outlined by Wertheimer (1920) were reactions to Wilhelm Wundt's research. Wertheimer's study focused on the comprehensive discussion of the human mind and behaviour. The mind perceives every object as a whole set or an element of a more complicated system.

The seven principles underpinning this theory are interrelated with human visual perception, which can be as simple or complicated as possible, conditioned to the perceiver's input sensory (King & Wertheimer, 2005). The visual complexity could offer a unique direction on how perceivers react and shape their aesthetic perceptions. Perceivers can understand better the intrinsic or hidden meaning of visual art if analysing it entirely instead of as separate elements to stimulate the end perception.

Regarding the fluency of aesthetic perception, visual complexity is also being emphasized and further explored. Redies (2015) stated that dynamical processing is interrelated with the positive aesthetic perception, which then helps the perceiver to easily process an image (Reber, 2012; Reber et al., 2004) and has more preferences (Sun et al., 2014).

However, when the sample size is numbered in thousands, the empirical experiments would become time-consuming for the participant. Consequently, the empirical experiments could not yield a general guideline for aesthetic evaluation. The application scope of psychology theories is not clear, as complexity may vary greatly for intra and extra-category images (Sun et al., 2014).

Thus, it can be implied here that one of the important indicators for aesthetic perception is the element of visual complexity applied to the visual arts. However, the relationship between complexity and aesthetic perception is still controversially debated and requires further discussion. Sun et al. (2014) pointed out that the limitation of sample size becomes the main difficulty in psychological experiments. It leads to the problem of insufficient complexity range (Sun et al., 2014).

2.7 Art Knowledge

Bourdieu and Darbel (1991) conducted a study on the aesthetic perception stimuli of the art knowledge among museum visitors to gather their experiences in the museum regarding the visual arts exhibited there. As an art sociologist, Bourdieu stated that every art carried an unspoken message or code, which could be deciphered and comprehended. Bourdieu identified this aesthetic activity as "educated taste," which allowed the perceivers to have full of 'authority' to feel the art's 'flavour' (Bourdieu, 1979).

In a study conducted by Cotter et al. (2021), artistically engaged individuals had higher aesthetic fluency than those with non-artistic backgrounds (Cotter et al., 2021). The study found that art styles, concepts, design elements, and principles are easier for a person who is good at art than someone who does not know much about art. According to Specker et al.'s (2020) study, art knowledge could be gained independently from formal education in art. For example, visiting museums or reading books on art (Specker et al., 2020). A guided tour through the exhibition increased the understanding and evaluation of contemporary art (Szubielska & Sztorc, 2019). Ultimately, it can generate the understanding and awareness of visual artwork.

This notion is supported by the Bimler et al. (2019) study, which found that appreciation of art by perceivers with art knowledge is more complex, with more sophisticated strategies for analysing an artwork's collative properties and semantics while parsing its "visual rightness" to unfold its visual meaning (Bimler et al., 2019). Critical analysis is much more required for the person with art knowledge to complete the aesthetic perception process.

According to Reymond et al. (2020), experts scored significantly higher on art interest than laypeople. The study aims to objectively investigate the effect of altered saturation as an image feature that frequently varies unintentionally in digitally reproduced art images on the Internet. The findings revealed that colour saturation has no significant influence on liking, cognitive, or emotional aspects. However, for laypeople, increased colour saturation resulted in more positive assessments of an artwork. In contrast, it resulted in increased confusion (Reymond et al., 2020).

Silvia et al.'s (2021) study of measuring individual differences in art knowledge and expertise revealed that the art novices are more strongly affected by low-level stimulus features (symmetry, complexity, prototypicality, colour, and curvature). Meanwhile, an individual with art knowledge is more sensitive to formal, conceptual, and historical features (Silvia et al., 2021). This is reflected in the fact that the perceiver can generate a better aesthetic perception and be more sensitive to the artwork content by having the right amount of art knowledge.

The connection between visual complexity and art knowledge is vital in performing aesthetic studies. It was justified in the past study that by having a greater positive perception, the perceivers can better understand the art. In other words, the perceivers'

enjoyment of evaluating visual art can be achieved by having the greatest consumption of art knowledge (Tschacher et al., 2015) and "aesthetic fluency" through direct instruction and prior experience (Smith & Smith, 2006). Furthermore, Hager et al. (2012) conducted a study evaluating the perceivers' perceptions of paintings and their relation to art knowledge. In the Art Reception Survey (ARS) developed by Hager and colleagues, 194 participants participated in the study. The result concluded amazing findings in which the knowledgeable participants in art were able to translate the hidden message of the painting by associating it with the artist and historical background. Until today, the studies on art knowledge and aesthetic perception are continuously being conducted by considering every aspect of art, sociology, psychology, and art pedagogy. Multiple methods and approaches are necessary since numerous disciplines are connected to art knowledge and aesthetic perception studies.

2.7.1 Previous Study on Art Knowledge

Many researchers have studied art knowledge to understand its relationship to aesthetic perception better. Most studies have underlined the importance of art knowledge (Afhami & Mohammadi-Zarghan, 2018; Bimler et al., 2019; Cotter et al., 2021; Pietras & Czernecka, 2018; Reymond et al., 2020; Silvia et al., 2021; Szubielska & Sztorc, 2019) in producing positive aesthetic perception among perceivers.

People's art knowledge uniquely influences their understanding and interaction with art and is measured in several ways. In the past six years (from 2016 to 2021), other researchers have approached numerous visual stimuli of art via photographs (Reymond et al., 2020; Silvia et al., 2021), paintings (Bimler et al., 2019; Cotter et al., 2021; Pietras & Czernecka, 2018; Reymond et al., 2020; Specker et al., 2020; Szubielska & Sztorc, 2019) and figurative artwork (Pietras & Czernecka, 2018). Research conducted by Silvia et al.

(2021) on 100 psychology students at the University of North Carolina in Greensboro assessed individual art knowledge and competence variations and yielded predictable results. It has been discovered that low-level stimulus features such as symmetry, complexity, prototypicality, colour, and curvature have a greater impact on art novice students. Meanwhile, art experts are drawn to contextual, formalistic, and historical qualities (Silvia et al., 2021).

Cotter et al. (2021) discovered a similar result, demonstrating that artistically engaged individuals exhibited greater aesthetic fluency than non-arts students (Cotter et al., 2021). This research included 1,791 non-arts undergraduate students and 1,442 artistically involved persons (examples; students studying visual art and art museum visitors). A comparison of persons with and without art knowledge was performed using the aesthetic fluency scale (Smith & Smith, 2006), which indicated that items connected to art styles were the easiest for the participants to understand, while items related to art concepts and artist were more challenging to those without the art knowledge.

Specker et al. (2020) used the Vienna Art Interest & Art Knowledge Questionnaire (VAIAK) on western art paintings at Galeria Labyrinth art gallery to recruit 600 participants, including both laypeople (psychology students) and art history students. Initially, the study was conducted to establish a tool for measuring art expertise. The findings indicated that perceivers' art knowledge might be acquired through formal art education and informal education by visiting museums or by reading books on art. According to Szubielska and Sztore (2019), a museum exhibition tour enhances participants' comprehension and judgment of contemporary art. When participants were exposed to a substantial quantity of contextual information, their aesthetic perception improved.

It was proven that the participants' art knowledge improved when they were constantly exposed, involved, and closed to the work of art or the process. Many studies corroborate this viewpoint, demonstrating that persons with art knowledge can readily interpret visual art coherently from a formalistic and contextual perspective. Moreover, by having the art knowledge, experts have better insight into cognitive and emotional aspects of the art than laypeople (Reymond et al., 2020), more complicated, including more advanced techniques for analysing an artwork's collative characteristics and semantics (Bimler et al., 2019) and perceived aesthetics greater compared to the laypeople (Pietras & Czernecka, 2018).

Table 2.1: Data Extraction Table Referring to Included Studies

Author	Issue and Objective	Method	Findings
Silvia et al., 2021	***Issue:*** the aesthetic preference for glossy and matte materials among individuals. ***Objective:*** Measuring individual differences in art knowledge and expertise.	***Study Design***: Experimental design. **Tool:** The aesthetic fluency scale and the art experience questionnaire. ***Participant:*** 100 psychology students, the University of North Carolina at Greensboro. **Visual stimuli:** Glossy photos and matte photos.	1. Art's novices are more strongly affected by low-level stimulus features (symmetry, complexity, prototypicality, colour, and curvature). 2. Art experts are more sensitive to formal, conceptual, and historical features.
Cotter et al., 2021	***Issue:*** The used an Item Response Theory approach to better understand the scale's functioning in two samples—artistically engaged individuals and non-arts students. ***Objective:*** To examine the Aesthetic Fluency Scale in samples of artistically engaged individuals and non-arts students using an IRT approach.	***Study Design***: Experimental design. **Tool:** The aesthetic fluency scale. ***Participants:*** 1,791 undergraduate non-arts students and 1,442 artistically engaged individuals (i.e., students studying visual art, art museum visitors). ***Visual stimuli:*** Painting.	1. The artistically engaged individuals had higher aesthetic fluency than the non-arts students. 2. The results suggest that the items vary in their difficulty, with items related to art styles being easiest and art concept and artist items being more difficult.
Specker et al., 2020	***Issue:*** There has been no unified and validated measure to test for art expertise or even an agreement on the dimensions of art expertise. ***Objective:*** To develop a tool to measure art expertise.	***Study Design***: Quantitative and Qualitative. ***Data collection:*** 3-stage validation process ***Participant:*** (600 participants) with both lay people (psychology students) and art history students. ***Tool:*** Vienna Art Interest & Art Knowledge Questionnaire (VAIAK) ***Material***: Western art paintings.	1. Art knowledge could be gained independently from formal education in art. 2. Example: by visiting museums or by reading books on art. 3. VAIAK questionnaire is covered art styles, artists, techniques, and iconography.

Table 2.1 continued

Reymond et al., 2020	***Issue:*** Most people encounter art images as digital reproductions instead of originals on a computer screen. With the development of digital technologies, high-resolution artworks can be accessed anywhere and anytime. Since these digital images depict the same content and are attributed to the same artist as the original, it is often implicitly assumed that their aesthetic evaluation will be similar. ***Objective:*** Investigate the effect of altered saturation as an image feature that often varies unintentionally in digitally reproduced art images on the Internet.	***Study Design***: Quasi-experimental mixed-subject design. ***Data collection:*** Survey **Tool:** Vienna art interest and art knowledge questionnaire (VAIAK). ***Participants:*** 72 psychology students from the University of Basel and 75 art-history students from the University of Basel and the Academy of Art and Design, University of Applied Sciences and Arts Northwestern Switzerland. **Subject:** 16 high-quality digital colour photographs (100 dpi) paintings, 9 of the original paintings, and 7 paintings were from other art museums.	1. Experts scored significantly higher on art interest than laypersons. 2. Results suggest that colour saturation does not exert a major influence on liking. Cognitive and emotional aspects. 3. For laypersons, the increase in colour saturation led to more positive assessments of an artwork, resulting in increased confusion for art experts.
Bimler et al., 2019	***Issue:*** The observer's expertise is a factor in aesthetic appraisal. ***Objective:*** To examine the influence of art training on the aesthetic response and clarify the nature of the Representational/ Abstract distinction.	***Study Design***: Experimental. ***Data collection:*** Survey ***Participants:*** 30 Experts and 33 Non-experts (Art and Psychology students). **Subject:** 24 paintings of the early 20th century. (12 representational, 12 abstract)	1. Experts rated Abstract artworks as more interesting, beautiful, informative, and sophisticated, distinguishing them less markedly from representational artworks. 2. Appreciation of art by experts is more complex, with more sophisticated strategies for analysing collative properties and semantics of artwork while parsing 'visual rightness' to unfold its visual meaning.

Table 2.1 continued

Szubielska and Sztore, 2019	***Issue:*** Art expertise is a factor moderating the influence of contextual information in appreciating artworks. ***Objective:*** Investigate whether educational activities through guided tours through an exhibition change the appreciation of art when young experts view contemporary art in a gallery.	***Study Design***: Quasi-Experimental ***Data collection:*** Participants viewed and assessed the artworks presented at the gallery twice – before and after taking part in a guided tour led by a gallery educator. ***Participant:*** First-year students of artistic faculties. ***Material***: 8 pieces of contemporary artwork	1. Young experts' reception of works of art is changed when they are under the influence of extensive contextual information. 2. A guided tour through the exhibition increased the understanding and evaluation of contemporary art.
Pietras and Czernecka, 2018	***Issue:*** The personality, demographics, and art experience proved to play an important role in reactions to visual art. ***Objective:*** Investigating the influence of personal characteristics on aesthetic judgments of visual artwork.	***Study Design***: Quasi-experimental mixed-subject design. **Tool:** The Aesthetic Reception Survey (ARS), Bermond-Vorst Alexithymia Questionnaire, The Need for Cognitive Closure Scale, and NEO Five Factors Inventory. ***Participant:*** Polish university students. Sports (N = 85), Humanities (N = 46) and Arts (N = 50) **Visual stimuli:** Figurative, abstract, and contemporary paintings	1.Students with art - experience (Art students) influenced art reception. 2.Art students perceived aesthetics as greater compared to the other two groups.
Afhami and Mohammadi Zarghan, 2018	***Objective:*** Examine the associations between the Big Five personality dimensions, aesthetic judgment styles, and art interest.	***Study Design***: Quantitative. ***Participant:*** 253 university students in Tehran, Iran. ***Tool:*** The Five-Factor Model (FFM) or Big Five.	1.Art interest was significantly associated with openness to experience, emotional stability, and aesthetic judgment styles.

2.8 The Instrument of Measuring the Aesthetic Perception

The mechanisms applied to measuring aesthetic perception are interrelated with various instrumentation theories. The aesthetic emotions scale or Aesthemos was developed by Schindler and colleagues, which consisted of four subscales; a) prototypical aesthetic emotions, b) pleasing emotions (positive affective valence), b) epistemic emotions (pleasantness and meaning as sources of enjoyment), and d) negative emotions (negative evaluation regarding aesthetic merit), the first subscale of this theory captured the feeling of the pleasantness of visual arts (Schindler et al., 2017).

The Aesthemos instrument was created for assessing aesthetic emotions and yet is relevant to a wide range of domains. Consisting of 21 subscales, this instrument was the initial instrument that integrated various emotions covering all the pleasant and unpleasant feelings in evaluating aesthetic perception (Schindler et al., 2017).

In contrast to Schindler and colleagues (2017), Hagtvedt and colleagues constructed a mechanism to measure the visual stimuli of visual arts, which involves the affective and cognitive components. It was highlighted that the high stimulation of unease, anxiety, uncertainty, disquiet, sadness, despair, gloom, and loneliness could trigger a person's negative emotions.

Meanwhile, positive emotions of both low and high stimulation can trigger the feeling of excitement, enthusiasm, thrill, happiness, joy, gladness, and serenity. Hagtvedt et al. (2008) added that the cognitive factor is activated by the feelings of curiosity, aesthetics, creativity, and skill. It is justifiable because the focus of this instrument is mostly on the emotions triggered after the perceiver experienced the visual art (Hagtvedt et al., 2008).

Therefore, it can be questioned whether the artist can successfully deliver the right message through the art and whether the perceiver manages to grasp it correctly.

Tröndle and Tschacher (2012) developed a questionnaire on subjective aesthetic perceptions containing five subscales: aesthetic quality, surprising or humouring element, negative emotion, dominance, and curative quality. These subscales are the main indicators to measure aesthetic perception and increase the perceiver's enjoyment of visual arts (Tröndle & Tschacher, 2012). In the meantime, the Aesthetic Experience Scale (AES) by Stamatopoulou underlined four main elements to measure the aesthetic perception: emotional closeness, experiential, emotional, paratenic mode, and expressive perception (Stamatopoulou, 2004). All these elements are connected to and aimed at fulfilling the appreciation in the process of arts.

The Art Reception Survey (ARS) instrument by Hager and colleagues has six factors for analysing the aesthetic perception, including cognitive participation, the affective assessment (positive or negative), artistic quality, and creativity as well as expertise (Hager et al., 2012). A total of 28 items of ARS were used to measure the aesthetic perception of the visual arts. It can be seen here that every factor that appeared in the ARS represented the diversity of measures needed for analysing in detail by each of the perceivers.

As illustrated in Table 2.2 (see page 69), cognitive stimulation is the first factor in the ARS, which indicates the ability to process cognitive mastering depends on a person’s knowledge. The second factor, negative emotionality or negative emotion or negative effect, refers to the experience of receiving negative emotions. The third factor shows that expertise is related to the level of skills or knowledge possessed by the perceiver regarding the visual arts. In measuring the fourth factor, self-reference refers to the individual’s tendency to

remember or recall information when information regarding the visual art is linked to them. The artistic quality measures the understanding of originality and technical skills. The last or fifth factor is positive attraction.

Table 2.2 (see page 69) displays most of the aesthetic instruments, which included negative emotions as part of the emotional stimuli in the aesthetical process. This was due to the consideration that not all visual arts were appealing; in fact, some could trigger sadness rather than enjoyment. Silvia (2009) stated that the aesthetic process should not eliminate any uneasy or negative emotions since those are also the natural responses toward visual arts (Silvia, 2009).

Table 2.2: The Comparison of Five Instruments on Measuring Aesthetics Perception

Theory	Subscales								
Aesthemos (Schindler et al., 2017)	Prototypical Aesthetic Emotions (The pleasantness of the feeling)		Pleasing Emotions (positive affective valence)		Epistemic Emotions (Pleasantness and enjoyment)		Negative Emotions (negative)		
	beauty, fascination, being moved		Joy, humour, vitality, energy		Surprise, interest, intellectual		Ugliness, boredom, anger		
Measure of the affective and cognitive components (Hagtvedt et al., 2008)	**Emotion Factors**				**Cognitive Factors**				**Evaluation**
	Negative (h)	Negative (l)	Positive (h)	Positive (l)	Curiosity	Aesthetic	Creativity	Skill	Evaluation
	Unease, anxiety, uncertainty	Sadness, despair, gloom	Excitement, enthusiasm, thrill	Happiness, gladness, serenity	Curiosity, intellectual	Aesthetically, attractive, beautiful	Original, distinct, creative	Workmanship. well crafted, skilfully made	Good, positive, pleasing
Art Reception Survey (ARS) (Hager et al., 2012)	**Cognitive Stimulation**	**Negative Emotionality**	**Expertise**	**Self-Reference**	**Artistic Quality**	**Positive Attraction**			
	curious, provoking, exciting to think about, is fun to deal with	feel afraid, sad, feel troubled, feel lonesome.	Can relate painting to its art historical context, to a particular artist, know this painting	Think about own life history, can associate painting with personal biography, personal memories linked to art	Unique, high level of creativity. composition is of high quality; artist's manner of painting is fascinating	Pleasant, is beautiful, thrills me, feel inspired by this painting			
Questionnaire on subjective aesthetic experiences (Trondle et al., 2012)	**Aesthetic quality**	**Surprise/humour**	**Negative emotion**	**Dominance**	**Curative quality**				
	Pleasing, beautiful, emotionally moving	Makes one laugh, makes one think	work conveys sadness, fear, anger, despair	Work experienced as dominant, stimulating	Well-staged and hung, suitable to all artworks				
Aesthetic Experience Scale (AES) Stamatopoulou, 2004)	**Cognitive synergies**	**Emotional closeness**	**Experiential emotional**	**Paratenic mode**	**Expressive perception**				
	Appreciate more when the form enhances its meaning, to realize that the knowledge increases enjoyment	To feel fulfilled when surrounded by beautiful things, to like a picture because of your colour preferences	To go away with a smile of pleasure when looking at an everyday scene, to forget time when participating in aesthetic activities	To feel excited when trying to paint something, to feel emotionally enhanced, fulfilled after appreciating arts	To enjoy trying to identify feelings on faces in portraits, to feel completely absorbed in art				

2.8.1 Previous Study on the Art Reception Survey (ARS) Instrument

In this study, the Art Reception Survey was chosen as the instrument for measuring human aesthetic perception, while the Redies model was used as the theoretical framework. The Art Reception Survey instrument was first introduced to measure painting according to six factors; cognitive stimulation, negative emotionality, expertise, self-reference, artistic quality, and positive attraction with 28 items (Hager et al., 2012). Notably, every factor that appeared in the ARS instrument represented the diversity of measures needed for analysing in detail by each of the perceivers. To examine the evolution of research and publications revolving around the aesthetic studies using the ARS instrument, a period between 2015 to 2020 was selected, an adequate period of 5 years.

The Art Reception Survey (ARS) instrument has been improvised to meet the domain of the various field of study. Pietras and colleagues (2018) highlighted the significance of the prior art knowledge in aesthetic studies among 181 Polish students (N-181) who enrolled in various programmes; Sport, Humanities, and the Arts programmes from the Pedagogical University of Cracow as well as the University of Physical Education in Cracow, Poland. The Art Reception Survey (ARS) instrument has been modified by employing 20 items instead of 28 items from the original version in measuring the students' aesthetic experiences across figurative, abstract, and contemporary paintings (Pietras & Czernecka, 2018). The findings revealed that Art students understood the aesthetic better than other groups, Sports and Humanities.

Next, Miller and colleagues (2019) distributed the ARS instrument (Hager et al., 2012), which consists of only three items of measuring three different factors of the Art Reception Survey which are Positive Attraction ("This painting is beautiful"), Cognitive

Stimulation ("This painting is thought-provoking"), and Negative emotionality ("This painting causes emotions"), to 40 students of University of Konstanz (N=40) using the online form study design. The study focused on understanding the aesthetic preferences towards the domain subject, Painting among the untrained or laypeople. The result suggested that art experts could form aesthetic perceptions better than laypeople, depending on their affective states (Miller & Hübner, 2019). Notably, the way humans appreciate something is different from one another. It is usually based on how they see and react towards the subject. Silvia (2005) agreed that people display different emotional appraisals towards art, making visual art interesting. Therefore, the distinction between untrained and trained perceivers creates a gap in evaluating and criticising a work of art, which also depends on the level of art appreciation a person possesses (Silvia, 2005).

The next study by Quiroga (2020) has improvised the ARS instrument by assessing the implication of fine arts writing toward aesthetic perception. Using the convenient sampling technique, the undergraduate students recruited from Texas Woman's University in North Texas were selected as the population of this study (N=397). A total of 15 items was administered, and the result detected an increase in the participants' art perception of fine arts through the engagement of the writing task. Essentially, the relation between fine arts in measuring the participants' psychological seemed difficult due to the limitation of cultural perspective and lack of collective agreement on the art definition among society (Quiroga, 2020).

Meanwhile, another study demonstrated a different idea of implementing the ARS through familiarisation with the self-relevance of the painting (Wang, 2018). The author adopted the ARS instrument with six factors and 28 items without removing any of them.

Using a simple random sampling technique, the survey was distributed online on the MTurk website to 360 participants (N=360). The use of ARS in the study acted as a screening purpose, which focused only on two factors in the questionnaire, self-reference and expertise, without further elaboration on the other factors (Wang, 2018).

Next, Pirgie (2016) demonstrated the idea of re-creating the museum by exploring the perceivers' art perception of the genuine and original artworks compared to reproductions and non-artworks. The abstract art in the museum was selected as the domain of the study with a population of 91 students at the University of Vienna (N=91). Using the convenient sampling technique, the Art Reception Survey (ARS) instrument (Hager et al., 2012) was distributed to the participants who were divided into three groups; Original Art (n = 30), the Reproduction (n = 31), and the Non-Art (n = 30). A total of 28 items of the ARS with six factors were employed in the study. The ARS instrument is showed significantly reliable to measure participants' connectedness with an artist, and by extension, with an artwork. The findings revealed that the original artwork was more pleasing than slides or computer images, and the Negative emotionality factor was rated the lowest in the original art (Pirgie, 2016).

Furthermore, the study by Doicaru (2016) revealed Art Reception Survey (ARS) was used in developing a new instrument for measuring the aesthetic appreciation of film; the Scale of Aesthetic Appreciation of Film (SAAF). Three hundred twenty-two students from the University of Amsterdam, nine from an experimental film at the Eye Film Institute in Amsterdam, 18 Facebook 'arthouses', and seven from the International Film Festival in Rotterdam were selected as the participants through a random sampling technique (N=356). One-way repeated measure design was used in this experimental study. The original 28 items

of the Art Reception Survey (ARS) instrument with six factors were employed in the study, with two more items inserted by the researcher. The literal reproduction from the ARS instrument was the change of the word “painting” to “film” (Doicaru, 2016).

The Art Reception Survey (ARS) was applicable in many domains of aesthetic studies. It has been proven by the previous literature review, which consisted of various domains in aesthetic studies. Nonetheless, some studies implemented the ARS instrument as the initial or screening purpose before proceeding to the new-fangled instruments or studies (Doicaru, 2016; Wang, 2018).

In all the past studies, the participants were mainly students of a large range of ages and mostly from western countries. This prevents a generalisation of these findings to a wider population. Future studies are recommended to compare the fields of aesthetics between foreigners or visitors and the locals. It is proven that comparative studies can widen the aesthetic evaluation result, thus contributing to new and different yet interesting findings.

The findings of the application of the ARS instrument in the previous study helped boost the perceivers’ understanding and, at the same time, assisted the researcher in categorising the trained and untrained perceivers. Trained perceivers have a better visual art assessment than untrained perceivers, who need more time to understand, evaluate, and form opinions due to lack of experience and exposure. Table 2.3 (see page 74) displays the Art Reception Survey (ARS) instrument (Hager et al., 2012) applied in various fields.

Table 2.3: Data Extraction of Studies Using the ARS Instrument

Author and Domain	Objectives	Main Findings
Art Writing on fine art **(Quiroga, 2020)**	▪ Exploring how writing on arts leads to explanatory depth and affects aesthetic appreciation. ▪ Exploring the perceptions toward the fine arts with how important people believe the arts to be.	▪ The finding shows that engagement in a writing task increases the perception of the fine arts. ▪ The fine arts are difficult to define and measure in psychological research mainly due to different cultural views and the lack of a definition that is collectively agreed upon in society.
Painting **(Miller and Hübner, 2019)**	▪ Investigating to what extent laypeople can infer the aesthetic preferences of others.	▪ The finding shows that laypeople rely more on their affective states when judging aesthetic stimuli than art experts.
Abstract painting, **Representational art** **(Wang, 2018)**	▪ Assessing the familiarity of the self -relevant with the selected painting, and not on a comparison of aesthetic appreciation of paintings.	▪ No significant difference could be observed between the original and reproduced. ▪ Original artworks were judged as significantly more interesting than computer images. ▪ Negative emotionality was rated as the least in the original art conditions.
Film **(Doicaru, 2016)**	▪ Developing a reliable and valid instrument to measure film's aesthetic appreciation, The Scale of Aesthetic Appreciation of Film (SAAF).	▪ The use of the ARS in this study permits the researcher to develop an instrument to measure the aesthetic appreciation of film.

2.9 Safeguarding the Intangible Cultural Heritage (ICH)

An intangible cultural heritage (ICH) is recognised as the primary source of cultural diversity, aiming to safeguard cultural diversity worldwide (Aikawa, 2004). Various debates revolve around who should be responsible for creating and preserving the intangible culture (Laleye, 2004). The questions include whether it is the influence of governments or the people of parties that determine how a community is founded. Governments and non-governmental organisations have made various attempts to address the issue of culture and heritage. For instance, the World Cultural and Natural Heritage protection convention was organised in 1972. A few decades later, the 2003 UNESCO (The United Nations Educational, Scientific, and Cultural Organisation) convention for the Safeguarding of ICH was introduced to ensure cultural sustainability.

According to the 2004 United Nations Development Programme (UNDP) Human Development Report, "cultural diversity has its importance because it stimulates customer preference and improves mutual understanding" (UNESCO, 2004b). This topic exposed a fascinating discovery that runs right through human progress into a modernised environment. The origins in ICH are what finally bring humans together. Thus, it is essential to safeguard ICH because of the distinct existence of its equivalents. The critical difference with ICH is its temporary character, implying its loose existence. Instead, ICH is exclusively handed down or represented, which depends heavily on individuals and communities.

Numerous communities and countries have sought other approaches to preserve their intangible heritage, including integrating a digital technology platform. The European Union (EU) has funded research networks with built-in technology of a multimedia environment. This idea enhances music education and promotes a new music training method, which

provides essential knowledge to the younger generation (Alivizatou-Barakou et al., 2017). On the same note, the Oral Traditions Project of the Vanuatu Cultural Centre has brilliantly innovated a 'heritage for development' project for indigenous groups and tribal communities using technologies (Huffman, 1996). This collaborative project aimed to invent a 'memory bank' of the traditional culture and cultural expressions with various representatives of different communities. Moreover, this project is beneficial to various entities, including the museum and students, offering quality educational programmes for schools and future community development.

In China, motion capture technology was applied to protect China's national dances (Shen et al., 2011), similar to Jamaican dances (Brown et al., 2005). A study collected 183 Jamaican dancers to evaluate their phenotypical quality, albeit not for ICH preservation purposes. In another study by Dobrian and Bevilacqua (2003), it was found that ICH could be transmitted successfully via game-like applications. In this context, the intangible culture can effectively promote and empower user experiences of culture with a consolidated trend in the technology-enhanced learning field (Dobrian & Bevilacqua, 2003).

Given these points, numerous games were created to appeal to the younger generation, such as (i) Icura, a 3D realistic game about Japanese culture and etiquette (Stone, 1990); (ii) Discover Babylon, highlighting the contributions of cultures from the ancient Mesopotamians to the modern-day (Engwall, 2004); and (iii) Papakwaqa, a game paying tribute to the Atayal minority in Taiwan (Troup et al., 2006).

Based on the literature in the study, ICH is an important element in defining and forming people's identities and communities, which led to the major key of contributing to the globalisation processes (D'orville, 2004), as humanity became the central element of

safeguarding the cultural heritage (Wulff, 2004). Thus, an effective way of preserving this heritage is required to ensure the culture will last and be accepted globally.

2.9.1 Previous Study on Safeguarding Intangible Cultural Heritage (ICH)

This review identified a growing body of literature reviewing various studies on the safeguarding of intangible cultural heritage (ICH) and, to a lesser extent, tangible cultural heritage (TCH). Many issues have been established concerning the research findings, which have been described as the only approach to match any ICH object at its finest. Although many scholars have touched on this issue, a lack of research has still been undertaken to safeguard the intangible heritage.

In the studies conducted by Mathew (2018) and Mawuli (2019), African and Ghana Adinkra's design motifs were further discussed to safeguard the knowledge of the Adinkra design motifs by adapting the design in different mediums. A total of 700 Adinkra symbols have been identified, enriched by a complex set of narratives based on ritual, tradition, and belief. One of the key issues identified is the knowledge barrier between the ICH and the perceivers. Based on Mawuli (2019), young generations' growing usage of Adinkra design motifs disconnected them from the roots, thus contributing to the misused of the motifs. The study was carried out to correct an aesthetic perception to retain ICH.

The Mawuli study (2019) found a better way to protect the ICH of Adinkra motifs. In collaboration with the Adinkra fabric manufacturers and academics, organising exhibitions and workshops to foster knowledge and raise awareness among audiences is needed. However, more funding from the government and stakeholders is needed to ensure that the ICH of Ghana can be preserved constantly (Mawuli, 2019). However, contrasted to other studies that revealed the adaptation of Adinkra design motifs to the silk linen sarees,

an Indian traditional costume was suggested to add aesthetic appearance values by the embodiment of two different cultural values in one medium (Mathew, 2018). This idea becomes an innovative, hand-crafted, eco-friendly traditional attire that matches every mood, occasion, and budget (Mathew, 2018).

In addition, a similar study on safeguarding the design motifs also reported the integration of Indonesian Batik ornaments as content in Nitiki's interactive game (Tresnadi & Sachari, 2015). The study has highlighted the importance of accurately assessing design motifs by correcting aesthetic perceptions and instilling the right knowledge. Public appreciation of batik's ICH is required to understand the interpretation, beliefs, and symbols transmitted through the ornamentations, especially to disseminate the values to the millennial generation.

Tresnadi and Sachari (2015) suggested two key findings that led to the preservation of the ICH of the batik ornaments by integrating traditional or heritage content into the digital interface of the Nitiki game. The findings can be summed up as (1) the principles contained in the batik ornaments in the Nitiki online game demonstrate how the traditional batik heritage survives in Indonesian society, and the versatility of batik in the digital environment, (2) by incorporating cultural ideals into the game, identity, life, social integrity and the preservation of batik culture are comparable (Tresnadi & Sachari, 2015).

A study by Yang et al. (2019) on the discovery of handicraft heritage is gradually losing its existence. It needs urgent attention to preserve cultural heritage and transfer art knowledge to the next generation (Yang et al., 2019). It is suggested by having certain policies that can promote, develop, and maintain traditional heritage skills and practices.

These policies also benefit artists by reviving their businesses and generating sustainable income and employment opportunities.

Next, Siamwalla (2019) has revealed a knowledge barrier to the development of products among established companies without the help of craftsmen. Therefore, the study was carried out to build a collaborative design between craftsmen manufacturing, the Jordan River Foundation (JRF), and renowned companies such as IKEA (Siamwalla, 2019). In addition, the Siamwalla study (2019) highlighted the knowledge of collaborative design development in textile crafts, linking multiple new spaces in the context of textile management and transforming knowledge of skills into a competitive advantage for the organisations involved. Findings also found that a collaborative work can enhance tangible and intangible qualities through collective research in the production of textile crafts (Siamwalla, 2019).

Another study revealed the European Union (EU) market had rejected the import of Indonesian batik due to the unfriendly eco-product made from artificial dyes. As a result, a study on making an ecological friendly batik to ensure the problem is resolved (Hidayat & Fatmahwaty, 2014). It was shown that while UNESCO recognised Indonesian batik as Indonesia's ICH, it declined to be imported to the European market due to the unfriendly usage of artificial dyed. Therefore, the harmful batik waste substance from chemical colourings was removed and substituted with natural colouring. Kanawida batik (Green Batik) was named for the invention of the natural dyes' batik. To ensure that the knowledge of Kanawida batik lasts for millennial generations, street children have been taught how to turn Kanawida batik into an environmentally friendly awareness and knowledge of their cultural heritage (Hidayat & Fatmahwaty, 2014).

The lack of marketing strategy also becomes an issue in safeguarding the intangible cultural heritage. One of the issues exposed in Kampung Batik Laweyan, Solo, Indonesia, is that most batik artisans do not establish the use of collective trademarks to compete with imported printed batik and preserve the traditional Batik cultural heritage (Sardjono et al., 2015). The study of Sardjono et al. (2015) suggested by having a collective trademark for the batik makers could protect and strengthen the local batiks while competing with imported batik traders and as an indicator of batik origins, thus allowing consumers to fully appreciate the cultural values of batik (Sardjono et al., 2015).

Another similar issue located in Magetan, east of the island of Java, Indonesia, which demonstrated the tourism development of the leather industry, but the stakeholders did not take advantage of the opportunity to establish craft tourism by including leather craft tourists in the field of educational tourism (Sugiarti et al., 2019). The study suggested that tourists supported the local government, craftsmen, and entrepreneurs by buying leather goods. However, there is no recent leathercraft design that meets market trends and high-quality demand, even though locals have the potential to serve as entrepreneurs by establishing a leather home industry that manufactures souvenirs for tourists and improves the local economy. Therefore, it is suggested that stakeholders be involved by including leather craft tourists in educational tourism, which will later lead to a remarkable insight into the preservation of tangible cultures globally (Sugiarti et al., 2019).

Another study has highlighted another issue, namely the gender cases arising in Sumba weaving production in Indonesia. Women have been known as being the people who carry on society's traditional knowledge and development skills. However, in contrast with males, their capacity to lead local entrepreneurship, economic growth, and development with

the preservation of intangible heritage was not recognised. The effect of modern forces of globalisation on local gender norms is viewed as a complex relationship to empower women. Untari and colleagues (2020) report that, while females are recognised locally for their expertise and experience, it is crucial to examine the integration and effect of Sumbanes cloth makers in world markets and gender roles in the society (Untari et al., 2020).

In the study of Untari et al. (2020), it was found that the change from domestic to small-scale weaving, in effect, required a move from consumption value to global market value. Nevertheless, the changes in the role of gender in cloth production led to possible shifts in cultural expectations about gender roles and processes. Even though women were respected and honoured for their expertise and knowledge locally, but not appreciated much like men in leading and managing businesses and organisations. Cell phones and social networking by a variety of young women and men can help in boosting cultural heritage products globally (Untari et al., 2020).

2.10 Malaysia on Safeguarding the Intangible Cultural Heritage (ICH)

Malaysia also plays a part in maintaining the national tangible and intangible cultural heritage (ICH) to ensure the continuation of the original traditions. These efforts align with the National Heritage Act (2005) and the Sarawak Cultural Heritage Ordinance (1993), which emphasise preserving the national culture and heritage either in the tangible or intangible culture. The Sarawak Heritage Ordinance states that the focus is highly on tangible cultures, such as the monumental historical object, historical buildings, and historical sites (Sarawak Heritage Society, 2005), which seems lacking and biased to the counterparts the intangible culture.

However, National Heritage Act (2005) addressed the gap and included the ICH as a significant component. Those components of intangible cultural heritage were well-defined as having the values of aesthetic, cultural, historical, archaeological, architectural, scientific, social, spiritual, linguistic, and technological. Under section 67, the cultural heritage was declared the intangible culture comprising any form of.

"Expressions, languages, lingual utterances, sayings, musically produced tunes, notes, audible lyrics, songs, folksongs, oral traditions, poetry, music, dances as produced by the performing arts, theatrical plays, audible compositions of sounds and music, martial arts."

(National Heritage Act, 2005).

This declaration was evidence of the efforts made by the Malaysian government to guarantee both tangible and intangible cultural heritages (ICH) are vital for the sustainability of Malaysian traditional culture. The support by the government benefits in safeguarding the 'unspoken' knowledge to ensure it will not disappear and be forgotten.

2.11 Sarawak on Safeguarding Cultural Heritage

Upon discussing the issue of preserving the cultural heritage, Sarawak is one of the finest examples, which exclusively has at least thirty-two ethnicities living together under one roof. The co-existence of various ethnicities revealed interesting findings: multiple distinctive cultural heritages symbolising their behaviours, beliefs, social, economic, and ways of living. Sarawak is known as 'The Land of Hornbills' situated northwest on the wild island of Borneo, with a total of 2.82 million in the population (State Secretary, 2021). Every Sarawak ethnicity still practices its own authentic culture and traditions with the integration

of globalisation hitherto. The Sarawak government made many approaches and efforts through the Sarawak Tourism Board (STB), along with the collaboration of various agencies to campaign for safeguarding the Sarawak cultural heritage.

The Sarawak government has established abundant events, programs, and activities to increase the awareness among the citizens and promote the cultural heritage globally, such as Rainforest World Music Festival (RWMF), Mukah *Kaul* Festival, *Lun Bawang* Festival *(Irau Aco), Babulang* Fiesta, *Bung Bratak* Fiesta, Gawai Festival and more. Those events are held annually and are significant because they contain symbolic values exclusive to each ethnicity in Sarawak.

The determination of the Sarawak government to safeguard the cultural heritage is also portrayed in the construction of the largest museum in Malaysia and the second largest museum in Southeast Asia, the Sarawak National Museum. The 31,000 square metres, five-floor high museum can occupy hundreds of historical artefacts (Borneo Post, 2018). This tremendous act indicated that the Sarawak government wanted to protect their cultural heritage from extinction by strengthening the way of promoting the historical-cultural knowledge through all possible channels, which their think was the best.

2.11.1 Iban Community and the Continuity of Cultural Heritage

The Europeans defined the indigenous people of non-Malay inhabitants of the Borneo Island as Dayak (Wei, n.d). According to Haddon and Start (1936), the word 'Dayak' was probably inspired by the Malay word- *'daya,'* which meant 'inland' (Haddon & Start, 1936). However, the finding by Haddon and Start was questionable due to the assumption saying the word *'daya'* defined as 'inland' was not correct. According to the Malay

dictionary with the English language translation, the word *'daya'* means 'effort,' not 'inland.' Historically, the Iban or Sea Dayak community lived as nomads in Borneo. They were known for their bravery and courage, which reflected their reputations as the fighters and head hunters and feared by many (Hays, 2008; Sim & Khan, 2014). 'Borneo Wildman' or 'Head hunter' was the title given to the Iban tribe (King, 1993; Munan, 1988).

Sim and Khan (2014) stated the origin of the word 'Iban' itself remained unclear due to no written records or historical evidence linking to it. However, the Iban community resembled one of the tribes in South East Asia, Sumatera, for instance, and in the area of Indo – the Burmese border (Sim & Khan, 2014). The Iban tribe forms 30% of the state's population of 2.5 million, which is also the largest of Sarawak's ethnic group. They are known as Sea Dayak because of their settlement during that time, which was next to rivers, and their skills in handling boats (Hays, 2008).

Some of the Iban communities still hold on to the spiritual belief concept; - animism - in good and evil spirits. They take the belief seriously, and messages conveyed through dreams are considered lessons or warnings from the spiritual world (Sim & Khan, 2014). Even though the modern Iban community has embraced Christianity, the old belief is still practised and worshipped. For example, Iban people traditionally believe in the spirit of *'Singalang Burung,'* which means the bird-god of war (Hays, 2008).

Iban's way of living and beliefs are implicated in their local products, such as the Iban's textile, which is embedded with design motifs inspired by flora, fauna, and animism. It was revealed that Iban's ethnicity is highly fond of clothes and ornaments, so various attires are designed to fit both genders; -male and female (Haddon & Start, 1936). Iban men's

clothing consists of *Sirat* or *Chawat* or waist cloth, coloured with red or blue cotton cloth, or sometimes, having an embroidered end made of natural materials.

In the meantime, Iban's women are fashioned with long cloth up to the knees that are called *bidang* or petticoat, decorated with dyed design motifs. The belts consist of a series of split rattan rings upon which the brass rings are threaded, then wrapped around the waist, and function as a corset. On top of that, the attire will be decorated with *Kalambi* or a jacket, whose cloth is longer than the men's. The girdle of coins, silver and brass chains or strips of coloured cane will be decorated at the top of a petticoat. At the same time, the neck will be adorned with *tanggok* or beads necklace, cane, and silver coins. The Iban lady also wears heavy earrings to match their look (Haddon & Start, 1936). It is found that the tangible cultural heritage owned by the Iban people is limitless, which is still implemented now. One of the sacred and protected tangible cultural heritages that still exist today is what most people identify as Pua Kumbu.

2.12 The Aesthetic Features of Pua Kumbu Textile

Southeast Asia's fame in producing textile from the local vegetable fibres was irrefutable. The emergence of cotton textiles introduced by Indian traders in the 7th century enhanced textile diversity. The Arab, Chinese, and Persian traders who arrived in Southeast Asia in the 7th century brought their goods such as silk and gold thread to introduce to the locals. The frame loom was introduced when Europeans arrived in Malacca in the late 14th century.

Early in the early century, the Indian traders introduced the portable back-strap loom and cotton thread as alternatives to bark-cloth textile to the people in Southeast Asia. Using a portable back-strap loom was easy. It only required two parallel upright poles to set up, which befitted these communities' nomadic requirements and simple lifestyles. The most popular was the ikat or ‘tie-and-die’ method. The warp patterns were created by selectively dyeing the longitudinal threads before weaving. When the dyed yarns were weaved with a plain weft, the warped patterns emerged fuzzily and indistinctly.

Some weavers introduced embroidery, tapestry weaving, brocade weaving, or supplementary weft embroidery to enhance the motifs. However, the old beliefs of misfortunes and death befalling upon them kept weavers from straying from traditional motifs and methods of weaving. Moreover, most of the design motifs applied were inspired by the ancient forms connected to ceremonial rites and animistic values. Iban is bound to their customs and beliefs, as the understanding is well-matched and crafted in Pua Kumbu textile.

Most societies relate the work or weaving to women, and their respective statuses in the community could be disclosed from the type of motifs weaved. In the olden days, motifs with humanoid figures could only be weaved by wives and daughters of the chiefs. These figures with raised arms and out-turned legs were representations of deities of the Iban's animistic religion. They served as a talisman to protect the wearer from danger and ensure a bountiful harvest for the season. Even though the design motifs are difficult to interpret, the motifs and colouring are usually inspired by the surroundings. They also explain a lot about the Iban's rituals and beliefs. Most design motifs are visual representations of animals, plants, and even daily activities. However, there are others which more complex and abstract.

The art of designing the Pua Kumbu textile design motifs is passed from generation to generation, from a mother to her daughter until today. Nevertheless, are Iban's women still practising weaving the art piece until now? Based on the study conducted by Kanyan and Zainurul (2015), the appreciation is still received from the new generations of respondents, but only for its aesthetic values, not the understanding of the intrinsic meaning or beyond it (Kanyan & Zainurul, 2015). Alarmingly, the intangible culture of Pua Kumbu textile shows a sign of retreating due to dispassionate attitudes exuded by some participants to understand the textile in detail. Therefore, can the intangible cultural heritage of Pua Kumbu textile survive in the industrial revolution era (IR4.0)? Proper actions are required to safeguard the ICH of Pua Kumbu textile.

2.13 Summary of Chapter 2

The literature reviews were comprehensively narrated and orderly linked to the subject matter; the Pua Kumbu textile. This study's focus includes the three main foreground: aesthetic perception, visual complexity, and Pua Kumbu art knowledge. The knowledge acquired from this study can bridge the perceivers' knowledge gap and be sufficiently established in this chapter. Moreover, the aesthetic perception working models and Redies model underpinning the aesthetic perception were explored and studied to understand the overall expansion. Nevertheless, the ARS instruments by Hager and colleagues (2012) have also been identified by analysing previous studies adapting the ARS questionnaire in their research.

Various studies associated with the safeguarding of the ICH in other regions and countries were analysed. The gaps were discovered to enhance understanding of how the issues are handled worldwide. Many approaches, techniques, and methods have been utilised

to ensure ICH objects are conserved. Hence, the Pua Kumbu textile was introduced in the final chapter 2. The appreciation of the visual complexity of the Pua Kumbu design motifs was not purposely for decoration but embedded with Iban's custom, belief, knowledge, etc surroundings and became the Iban identity, pride, and dignity.

Conclusively, the Redies psychological model was applied as the theoretical framework with the additional elements of visual complexity and Pua Kumbu art knowledge as the conceptual change strategy in achieving the study's aim. These two elements were the dependent variables in this study. Finally, the following chapter discusses the methods used and the analysed data in the study.

“Styles may change, details may come and go, but the broad demands of aesthetic judgement are permanent.”

— Roger Scruton

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The mixed-method design approach was used in this study to investigate the perceivers' aesthetic perception, visual complexity and the Pua Kumbu art knowledge of the intangible cultural heritage (ICH) of design motifs applied in the Pua Kumbu textile. In this chapter, the research design, the context of the research, sampling, research instrument, research procedure, data processing and analysis, and the pilot test, are discussed. Subsequently, the results gathered from this study provides a steppingstone for the researcher towards formulating a novel framework for safeguarding the ICH of Pua Kumbu textile exclusively. In this chapter, structure of the thesis is explained in details.

3.2 Research Design

The mixed-method design approach was adopted in this study which incorporates both a qualitative and quantitative approach to collecting and analysing data (Tashakkori & Creswell, 2007). Using a mixed methods approach can help develop new theoretical perspectives by combining the strengths of both quantitative and qualitative methods. Thus, rich insights are provided by addressing and overcoming the limitations associated with either method resulting in "meta-inferences",; an integrative view of findings from qualitative and quantitative strands of mixed-methods research (Creswell, 2009; Teddlie & Tashakkori, 2003; Venkatesh et al., 2013).

The research design acts as a guideline to achieve the purpose of the study. The research began with the problem statements and specific research questions – four questions –which the researcher answered and completed at the conclusion of the research (see Chapter 1, Section 1.5, page 21). The aim and objectives were achieved by answering the research questions. The research method is designed to represent the fundamental components of the work in sequence to acquire accurate and reliable data. The data are collected systematically through proper investigation.

Figure 3.1 (see page 92) illustrates the research design of this study, which was first initiated by selecting the triangulation concurrent mixed methods design approach for the current study. The data was then gathered using quantitative and qualitative methods using the triangulation design. Referring to Figure 3.1, the participants or the sample size were identified to fit this study in phase 2. To collect the quantitative data, the potential buyers of the Pua Kumbu textile in the commercial market and the visitors who visited the Waterfront Kuching, Tun Jugah Foundation, and the Sarawak Textile Museum in Sarawak are the targeted participants. Meanwhile, for the qualitative purposed, the study comprised different significant criteria of the participant to be interviewed, including Pua Kumbu weavers and Malaysian academics in the textile and art culture fields.

In phase 3, the ARS questionnaire by Hager et al. (2012) was used for the pilot study with thirty participants (see Figure 3.1, page 92). The updated version of the questionnaire was validated, the ARS-Revised by Wahed et al. (2019) and utilised as the instrument to measure the responses of 400 participants based on their aesthetic perception of the design motifs applied to Pua Kumbu textile, along with interviews question. Two sets of interview questions were prepared for the participants; (1) Pua Kumbu weavers, and (2) Malaysian

academics in textile and art culture fields. The details about these two methods are discussed later in this study (as part of phase 4). The findings of the interpretations were then collected using descriptive and inferential statistics and thematic analysis. The obtained inputs and information were then concluded as part of phase 5. The details of the research design for the current study are illustrated in Figure 3.1. The received data were triangulated in formulating a novelty framework for this study.

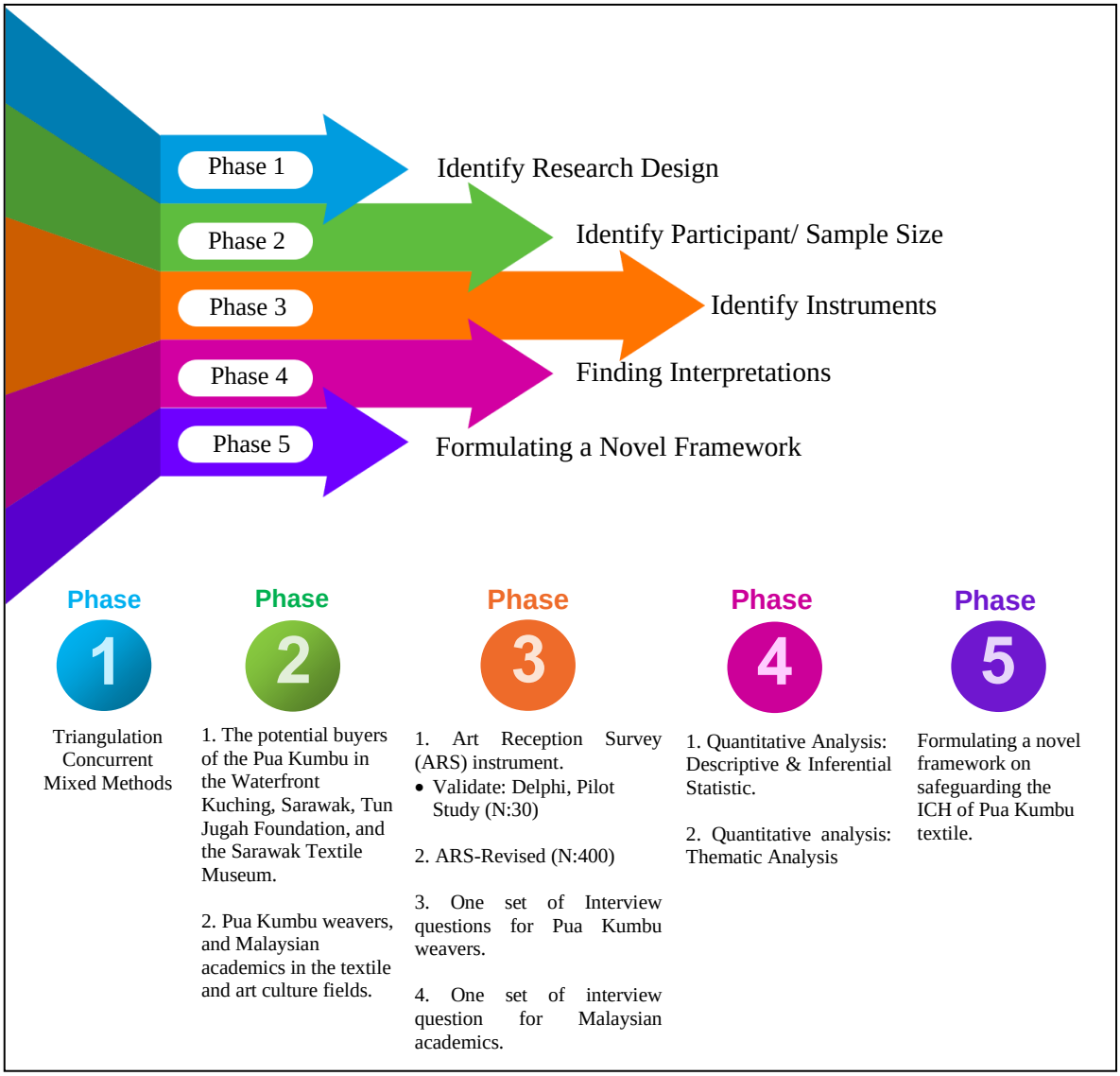


Figure 3.1: Research Design

3.3 Triangulation

In recent years, integrating the qualitative and quantitative methods has become quite common in conducting research (Bryman, 2006) since the mixed-method design can provide detailed and comprehensive data to achieve the research objectives and answer the research questions. Therefore, in exploring the perceivers' aesthetic perception, visual complexity and the Pua Kumbu art knowledge, a combination of qualitative and quantitative research design is employed in this study.

Creswell and Plano Clark (2007) synthesised five types of mixed-method research designs by dividing them into two groups of methods: sequential and concurrent. The sequential method comprises explanatory sequential design, exploratory sequential design, and transformational sequential design. The concurrent method encompasses embedded concurrent design, transformative concurrent design, and triangulation concurrent design.

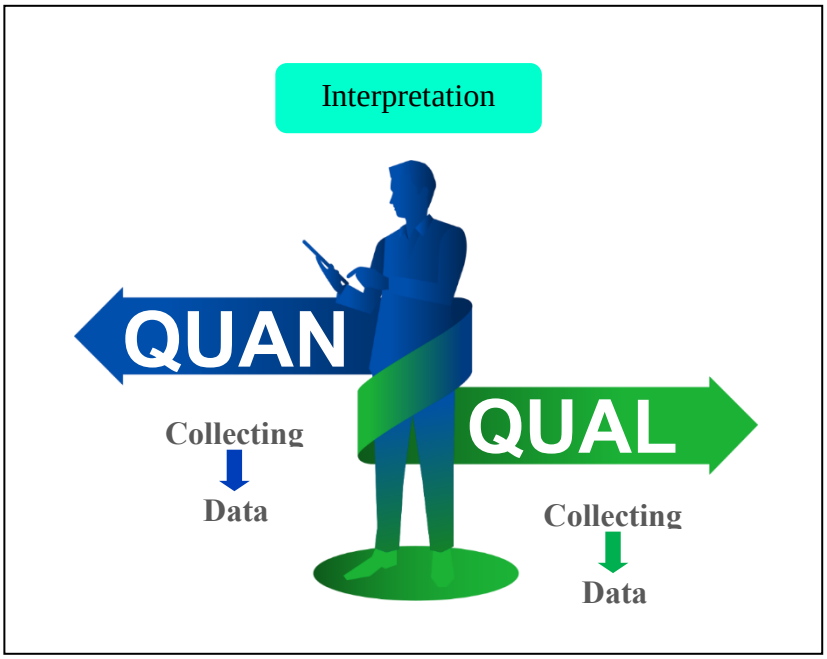


Figure 3.2: The Triangulation Concurrent Mixed Methods Design (adapted from Creswell & Clark, 2007)

The most appropriately employed method for this study was a triangulation concurrent mixed-method design, which contained quantitative data collection and qualitative data collection (see Figure 3.2, page 92). The intention of adopting the concurrent triangulation design in this study was to collect different data related to one topic and then integrate it for analysis and interpretation. This design can also assist in gathering information from different sources employing different methods to achieve the goal.

According to Creswell and Clark (2007), triangulation design (also called concurrent triangulation design) is the activity of collecting quantitative and qualitative data at one time (concurrently) before making a comparison between two databases (datasets) to observe any convergences, differences, or combinations that need to be considered. Implementing two different methods independently offers equilibrium and addresses the weaknesses of one method with the strengths of other methods. In other words, the strength of one method increases the strength of the other.

The study conducted by (Bryman, 2006) refers to the traditional view of integrating quantitative and qualitative research so that they may be mutually verified. Greene and colleagues (1989) contended that triangulation is involved with convergence, corroboration, correspondence, or results from different methods. The emphasis is highlighted on seeking corroboration between quantitative and qualitative data in coding the triangulation (Greene et al., 1989). Often, using one method is not sufficient to achieve the complete result. If the study requires more than one method to strengthen the findings, it should be acted upon.

Mixing or combing this design occurs when the researcher reaches the stage of interpretation and discussion. Mixing is performed by combining two data investigations into one (such as converting one type of data into another type for easy comparison) or by

integrating or combining the results of two datasets in the discussion. This design is effective and well-acknowledged amongst researchers, resulting in substantive and completely validated findings. Therefore, using both methods can provide detailed and comprehensive data, also aiding in the interpretation of data.

This concurrent mixed methods study aims to safeguard the ICH of design motifs applied to Pua Kumbu textile while simultaneously eliminating unsolved obstacles linked to the textile knowledge gap. The right way of bridging this gap will add to the richness of the knowledge pool and lead to positive aesthetic perception among perceivers while preventing misinterpretations, mistreatment, and misuse of the textile.

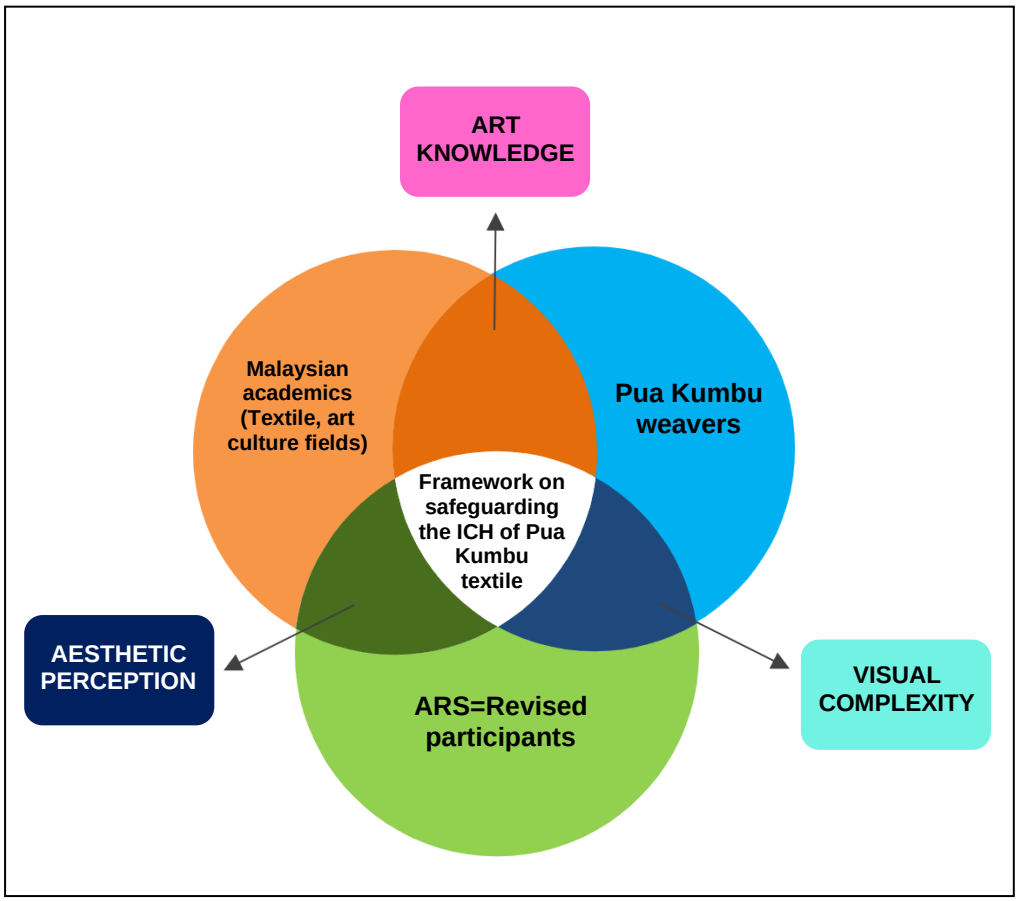


Figure 3.3: The Triangulation of the Study

In Figure 3.3 (see page 95), the Art Reception Survey-Revised (ARS-Revised) (Wahed et al., 2019) instrument was used to measure the perceivers' aesthetic perception of the Pua Kumbu textile. Meanwhile, the visual complexity and the Pua Kumbu art knowledge were explored using the interview approach among Pua Kumbu weavers and Malaysian academics in the textile and art culture fields at multiple research sites and times. Integrating quantitative and qualitative data aims to gain a deeper understanding of the research problem by bringing together data from participants' aesthetic perception, visual complexity, and Pua Kumbu textile art knowledge.

3.4 Research Framework

This study included three dependent variables: aesthetic perception, visual complexity, and art knowledge, with the Pua Kumbu textile serving as the only independent variable (see Figure 3.4, page 97). For the dependent variable 1, the aesthetic perception was measured using the ARS-Revised instrument (Wahed et al., 2019) among the buyers and visitors who visited the Waterfront Kuching, Sarawak, Tun Jugah Foundation, Sarawak, and the Sarawak Textile Museum in Sarawak. There are four factors with 21 items in the ARS-Revised questionnaire that participants must answer. The ARS-Revised questionnaire was constructed with the Likert Scale, from 1 to 5 (strongly disagree to strongly agree).

Meanwhile, for the dependent variables 2 and 3, both were designed qualitatively among the Pua Kumbu weavers and Malaysian academics in the textile and art culture fields. The one-on-one interview was conducted with the participants. Furthermore, the in-depth interview was held among participants in multiple sites and locations to understand better their makers, the Pua Kumbu weaver, and the Malaysian academics in textile and art culture perspectives.

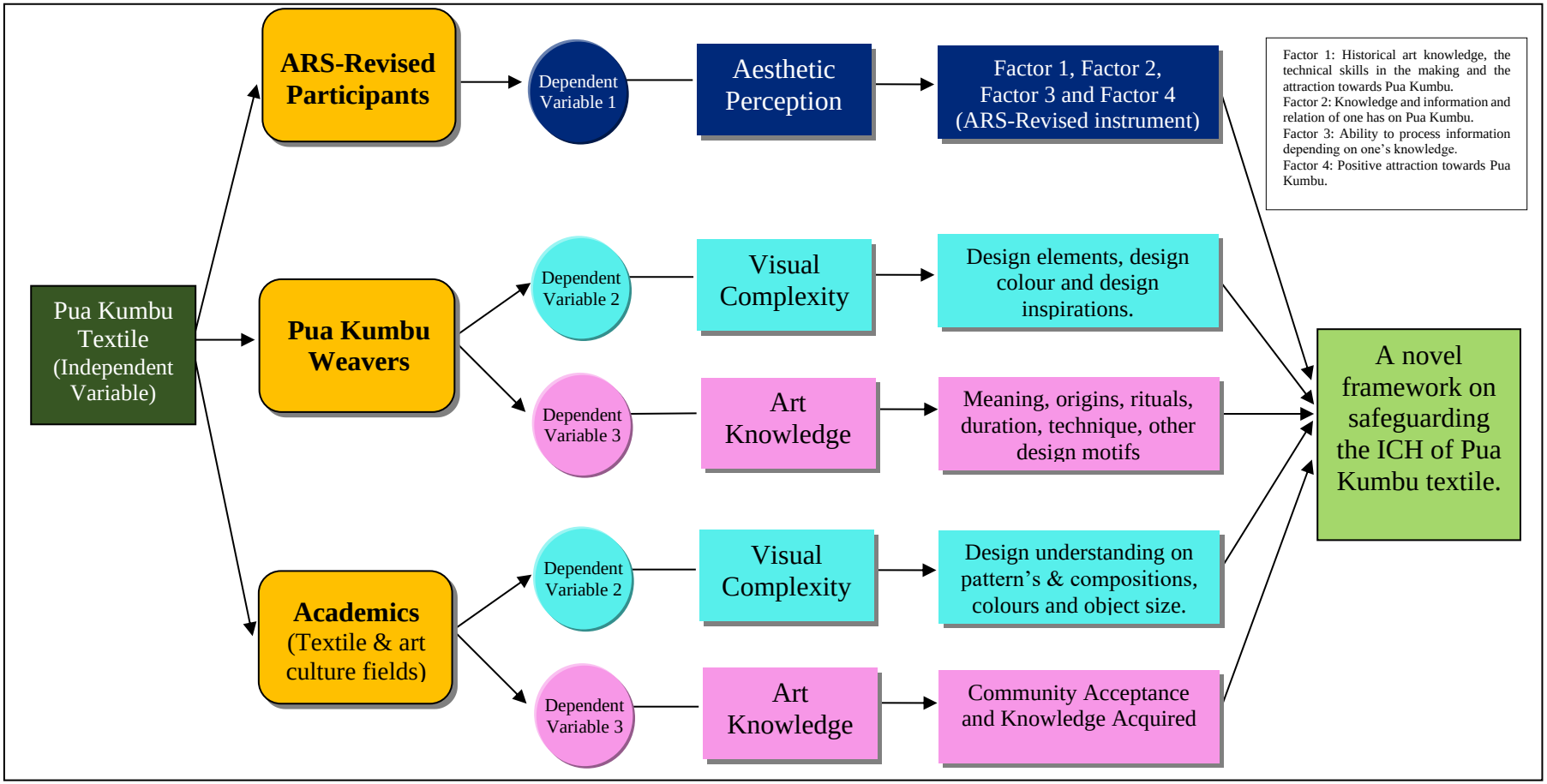


Figure 3.4: The Research Framework of the Study consists of Independent Variables and Dependent Variables

3.5 Population and Sampling

For some studies, the population may not be small enough to warrant the inclusion of the population size in the study. Although on the other hand, a study may include a large population, and not all of the population can be studied. This portion of the population is called the sample population (Nworgu, 1991). Large and complex populations often require considerable time, effort, and resources compared to smaller and much simpler populations (Cooper & Schindler, 2011). The population size also determines how much time, effort and expense are needed to solve a particular problem and conduct research (Creswell, 2014).

The ICH of the Pua Kumbu textile was the primary subject of this study to resolve the art knowledge barrier in the transmission of the dependent variables relating to the design motifs applied to the Pua Kumbu textile for future generations and to preserve cultural diversity. Referring to this issue, the sample population in this study consisted of the Pua Kumbu weavers and Malaysian academics of the textile and art culture fields, using a non-probability sampling technique, and potential buyers of Pua Kumbu textile in the commercial market were sampled using the probability sampling technique.

3.5.1 Probability Sampling Technique

3.5.1.1 The ARS-Revised Participants

The population of potential buyers of Pua Kumbu textile in the commercial market was sampled using the probability sampling technique (Table 3.1, page 99). The sample size of the probability sampling was determined as suggested in the work of (Sekaran, 2003).

With the estimation of 10,000 visitors per month to the museums (sources: Tun Jugah Foundation and Sarawak Textile Museum) and potential buyers at the Kuching Waterfront, a minimum of 373 participants were needed to represent the sample size (Krejcie & Morgan,

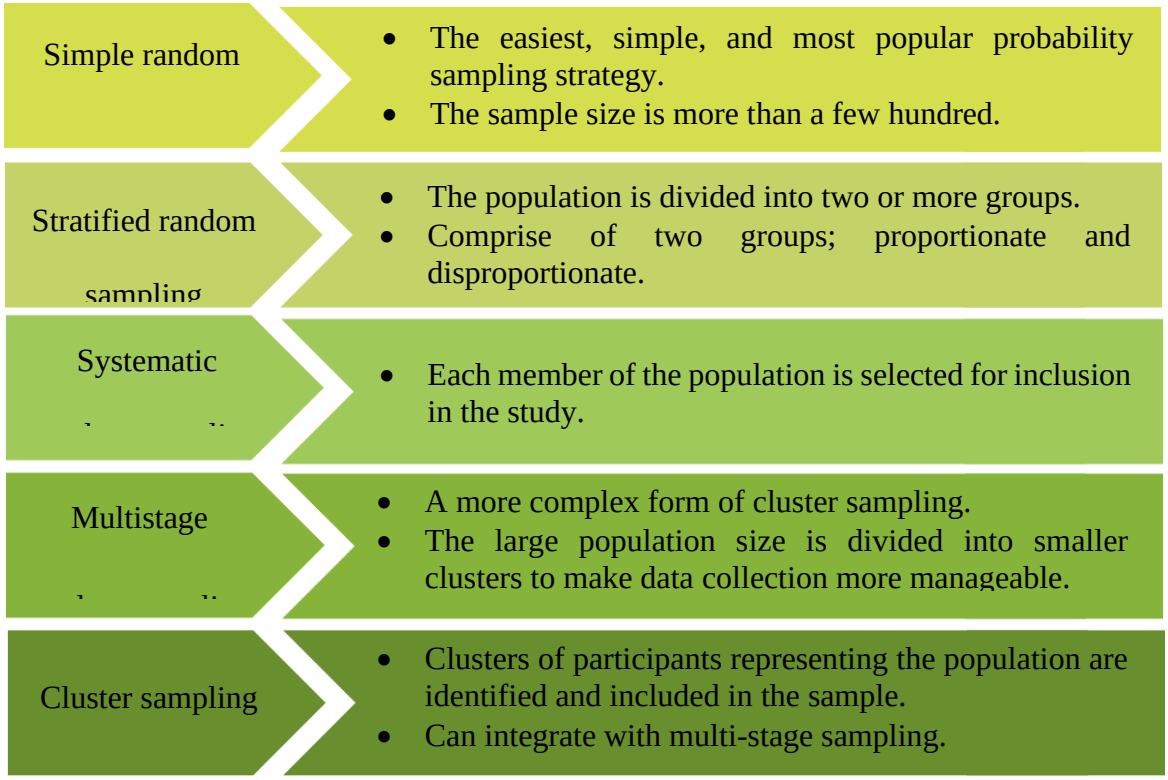
1970). In order to cater for the potential non-response rate, extra participants were added, making the final sample size was N = 400. This number was achievable in the present study.

Table 3.1: The Probability Sampling of the Study

Population	Sample	
Pua Kumbu Textile potential buyers	Visitors of Waterfront Kuching.	1
	Visitors of Tun Jugah Foundation, Kuching, Sarawak.	2
	Visitors of Sarawak Textile Museum.	3

The probability sampling technique in this study is defined as each population member having the opportunity to participate in the study with randomisation or chance as the core of the probability sampling technique (Saunders, 2012). Probability sampling consists of five different techniques: simple random sampling, stratified random sampling, systematic random sampling, multistage random sampling, and cluster sampling, as shown in Table 3.2 (see page 100).

Table 3.2: The Categorising of Probability Sampling (Saunders et al., 2012)



The simple random sampling technique (or random sampling) was applied in this study to collect the descriptive data. Many researchers have acknowledged this technique as the easiest, simplest and most popular probability sampling strategy used in research; "the logic behind simple random sampling is that it removes bias from the selection procedure and should result in representative samples" (Gravetter & Forzano, 2011). Theoretically, it is far easier to understand. However, the technique is challenging, if not difficult, to perform in practice. According to Saunders et al. (2012), the technique is challenging for the researcher to obtain a realistic sampling frame due to the need to work with a large sample size. Ideally, a sample size of more than a few hundred is needed in applying simple random sampling appropriately (Saunders, 2012).

3.5.2 Non-Probability Sampling Technique

A non-probability sampling technique, also known as non-random sampling, involves non-random selection based on convenience or other criteria, allowing the researcher to collect initial data easily (Saunders et al., 2012). Whereas, in a non-probability sample, the sampling is selected based on non-random criteria, where not every individual has the opportunity of being included. The individuals selected in this study complemented the criteria needed by the researcher (i.e., the Pua Kumbu weavers and Malaysian academics in the textile and art culture fields), as shown in Table 3.3.

Table 3.3: The Non-Probability Sampling of the Study

Population	Representative	Sample
Pua Kumbu Textile Weavers	Belaga, Sarawak.	Weaver 1
	Song, Sarawak.	Weaver 2
	Ulu Yong, Kapit, Sarawak.	Weaver 3
	Ulu Yong, Kapit, Sarawak.	Weaver 4
	Ulu Yong, Kapit, Sarawak.	Weaver 5
Malaysian academic in the textile, and art culture fields	Faculty of Applied and Creative Arts, Universiti Malaysia Sarawak (UNIMAS).	Academic 1
	Faculty of Art & Design, Universiti Teknologi MARA, Shah Alam (UiTM).	Academic 2
	Faculty of Applied and Creative Arts, Universiti Malaysia Sarawak (UNIMAS).	Academic 3
	Faculty of Arts and Social Sciences, Universiti Malaya (UM).	Academic 4

According to Saunders et al. (2012), non-probability sampling techniques are appropriate for exploratory, pilot, and qualitative research. The aim is not to test the hypothesis of a broad population but rather to develop an initial understanding of a small or under-researched population. Six types of non-probability sampling are suggested by Saunders et al. (2012), categorised differently based on their definition: purposive sampling, convenience sampling, multi-stage sampling, theoretical sampling, quota sampling, and snowball sampling, as shown in Table 3.4 below.

Table 3.4: The Categorising of Non-Probability Sampling (Saunders et al., 2012)

Purposive sampling	• Selective or subjective sampling • The judgment of the researcher selects the sample
Convenience sampling	• No limitation in selecting participants and accessible.
Multi-stage sampling	• More complicated contains more than one sample. • Large clusters of the population are divided into smaller clusters
Theoretical sampling	• The process of data collection for generating theory
Quota sampling	• Gathering representative data from a group • Consists of controlled and uncontrolled sampling
Snowball sampling	• The sampling method is used when characteristics to be possessed by the samples are rare and difficult to find

In the present study, purposive sampling (also known as evaluation, selective or subjective sampling) was employed (Saunders et al., 2012). The application and use of this technique were suitable in conjunction with the adopted approach in this study for selecting a sample of a population that depends on the researcher's judgment, having made special consideration given the nature of the research design, purpose, and objectives.

Thus, the specific samples, Pua Kumbu weavers and Malaysian academics exclusively from the textile and art culture fields were selected to justify the aesthetic perception of the visual complexity of the design motifs applied in the Pua Kumbu textiles to understand the acceptance and knowledge acquired by the community from the Malaysian academics' perspective.

The rationale for selecting these two samples as the participants is that their criteria met the research aims and objectives. An expert is defined as having comprehensive knowledge in a particular area that which he or she is involved (Newman, 2014). Evidently, having the experts in the study would resolve the understanding of the subject, thus contributing to the wider knowledge and benefits of the present study.

3.5.2.1 The Malaysian Academics in Textile and Art Culture Fields

To extend the understanding of the visual complexity among the Malaysian academics, the community acceptance and knowledge acquired by the community on the design motifs applied on Pua Kumbu textile, four experts from three renowned universities, Universiti Teknologi MARA (UiTM), Universiti Malaysia Sarawak (UNIMAS), and University of Malaya (UM), were selected as participants during the in-depth interview sessions. Their expertise in the vast area of textile and art cultural heritage related to the present study was most needed to strengthen the research findings. All participants have

extensive experience from 14 to 25 years in their studies. Table 3.5 encloses the description of every participant. Each participant was coded systematically to ensure the personal data were hidden and not revealed. The participants were coded as IN(A1-4), which is defined as 'Informant' (IN), 'Academic' (A) and the number from 1 – 4 indicates the code of participants (see Table 3.5).

Table 3.5: Descriptions of the Academic Coding

Participants	Position and Qualifications	Representative	Expertise	Year(s) of Experience	Coding
Academic 1	Senior Lecturer, Dr.	Universiti Malaysia Sarawak (Unimas)	Iban Arts, Culture and Heritage	25	**IN(A1)**
Academic 2	Senior Lecturer, Professor Dr.	Universiti Teknologi MARA (UiTM)	Malay Art Culture, teaches weaving	25	**IN(A2)**
Academic 3	Senior Lecturer, Assoc. Prof. Dr.	Universiti Malaysia Sarawak (Unimas)	Iban Arts, Culture and Heritage	15	**IN(A3)**
Academic 4	Senior Lecturer, Dr.	Universiti Malaya (UM)	Iban Arts, Anthropology and Sociology	14	**IN(A4)**

3.5.2.2 Pua Kumbu Weavers

The Pua Kumbu weaver was the storyteller of this majestic textile. The idea of every design motif's arrangement depends on the Pua Kumbu weaver's local knowledge and creativity. In the present study, five Pua Kumbu weavers from different locations in Sarawak, Belaga, Song and Kapit were selected to be interviewed. All Pua Kumbu weavers were coded differently from IN(W1-5) to make it easier for the researcher to analyse.

Table 3.6: Descriptions of the Pua Kumbu Weavers Coding

Participants	Year(s) of Experience	Representative	Coding
Weaver 1	10	Belaga, Sarawak	**IN(W1)**
Weaver 2	15	Song, Sarawak	**IN(W2)**
Weaver 3	10	Ulu Yong, Kapit, Sarawak	**IN(W3)**
Weaver 4	15	Ulu Yong, Kapit, Sarawak	**IN(W4)**
Weaver 5	30	Ulu Yong, Kapit, Sarawak	**IN(W5)**

3.5.3 Data saturation

For the expert sample size, five Pua Kumbu weavers and four Malaysian academics in textile and art culture fields were selected to participate in the study. According to Romney et al. (1986), four to five experts are enough participants to be included in one study if the participants have a high level of knowledge and expertise concerning the topic of inquiry (see Figure 3.5, page 105).

Meanwhile, according to Baker and Edwards (2012) and Denzin (2012), a minimum of one participant and more is enough if the participant completes the study's research scope or type of inquiry. Saunders and Townsend (2018) supported this statement and guaranteed that one participant is enough to establish the relevant findings. Furthermore, the number of participants can be maximized to 100 participants based on the scope of the study (Passerini, 2012). Figure 3.5 discloses the expert(s) sample size in detail.

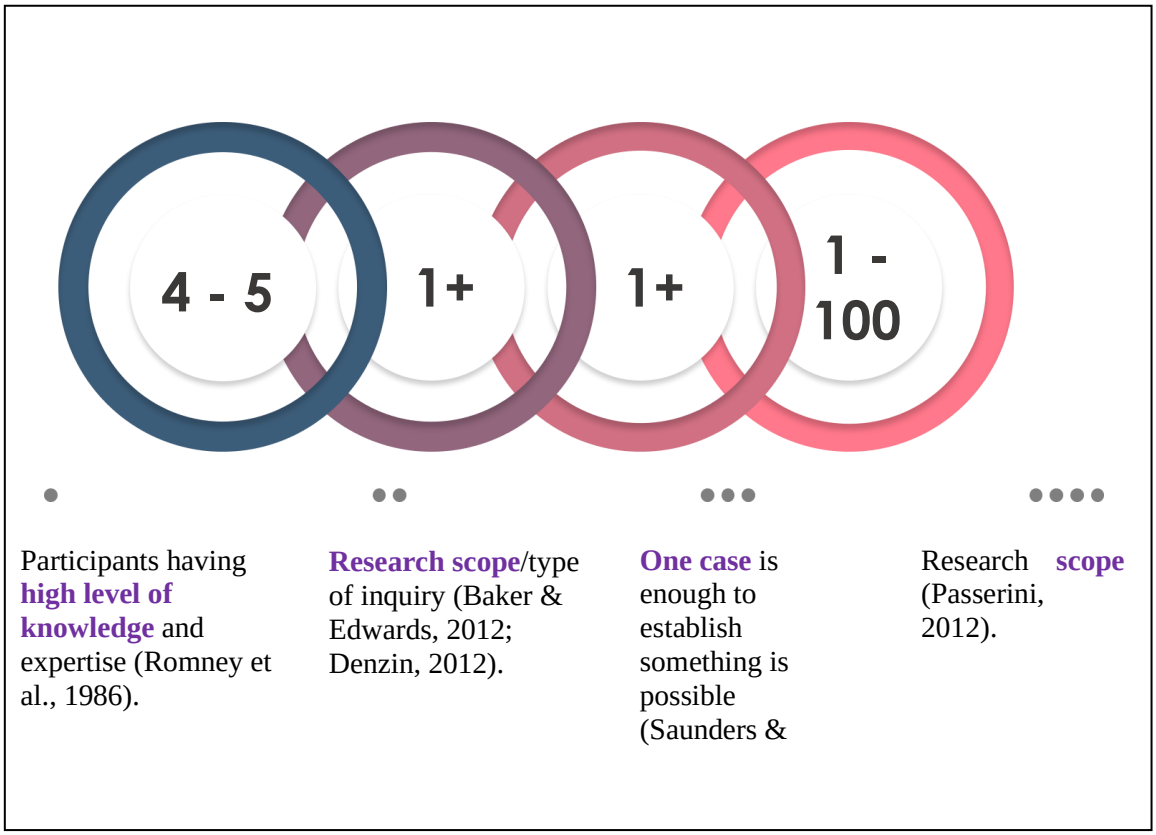


Figure 3.5: The Expert(s) Sample Size

3.6 Research Instrument

3.6.1 Art Reception Survey-Revised (ARS-Revised) Questionnaire

The Art Reception Survey-Revised (ARS-Revised) instrument was the improved version of the Art Reception Survey (ARS) by Hager et al. (2012) (refer to Table 3.11, page 104). For the initial phase of the pilot study, the ARS questionnaire has 27 items with six factors. And for the data screening purposes, thorough reliability and validity test was conducted using factor analysis on the dependent variables' items. Finally, the ARS-Revised questionnaire has 21 items and four factors (see Table 3.8, page 108).

The first section of the ARS-Revised instrument addresses the participants' demographic profile, including gender, age, education level, ethnicity, and monthly income (see Table 3.7). Meanwhile, the second section of the ARS-Revised instrument consisted of 21 items, relating to four factors to measure the perceivers' aesthetic perceptions of the Pua Kumbu textile. The items were rated using a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree". The four factors highlighted in the second section of the questionnaire are as follows:

Factor 1 Historical art knowledge, the technical skills in the making and the attraction towards Pua Kumbu textile.

Factor 2 Knowledge and information and relation of one have of Pua Kumbu textile.

Factor 3 Ability to process information depending on one's knowledge.

Factor 4 Positive attraction towards Pua Kumbu textile.

Table 3.7: The Demographic Section in ARS-Revised Questionnaire

Gender	Male			Female	
Age	18-25	26-30	31-35	36-45	46 years above
Education	Diploma/ O Level	A-Level certificate	Bachelor's Degree	Master's Degree	Doctorate's Degree
Ethnicity	Sarawak	Sabah	Peninsular Malaysia	Others	
Monthly Income	>RM1000	RM2001-RM3000	RM3001-RM4000	RM4001 and above	

The participants were instructed to respond regarding their level of agreement with the statements contained in the instrument. The ARS- Revised by Wahed et al. (2019) was used to measure the participants' aesthetic perception of the Pua Kumbu textile, measuring various aesthetic perception components consisting of four different factors (see Table 3.8).

Table 3.8: The Art Reception Survey-Revised (ARS-Revised) (Wahed et al., 2019)

Factors		Items
1	Historical art knowledge, the technical skills in the making and the attraction towards Pua Kumbu textile.	1) I can relate this Pua Kumbu textile to its historical art context. 2) This Pua Kumbu textile makes me think about my own life history. 3) The composition of the Pua Kumbu textile is of high quality. 4) This Pua Kumbu textile is very innovative. 5) This Pua Kumbu textile features a high level of creativity.
2	Knowledge and information and relation one has on Pua Kumbu textile.	1) I know this Pua Kumbu textile. 2) I have an idea of what the weaver is trying to convey in this Pua Kumbu textile. 3) I can relate this textile to a particular weaver. 4) This Pua Kumbu textile mirrors my own personal emotional state.
		5) I can associate this textile with my own personal biography. This Pua Kumbu textile makes me think about my own life.
3	Ability to process information depending on one's knowledge.	1) It is exciting to think about Pua Kumbu textile. 2) I would like to learn more about the background of this textile. 3) It is fun to deal with this Pua Kumbu textile. 4) This Pua Kumbu textile is thought-provoking. 5) This Pua Kumbu textile makes me curious.
4	Positive attraction towards Pua Kumbu textile.	1) The weaver's manner in creating Pua Kumbu textile is fascinating. 2) This Pua Kumbu textile is beautiful. 3) This Pua Kumbu textile is pleasant to look at. 4) This Pua Kumbu textile thrills me- 5) I feel inspired by this Pua Kumbu textile.

3.6.2 Interview Instrument

One-on-one interviews are commonly employed for data collection in social research. Growing interest and attention have been revealed in the literature on the process of conducting interviews, particularly relating to the role of the interviewer and the relationship between the interviewer and the interviewee. Individual interviews are an effective method of gaining insight into people's perceptions, understandings, and experiences of a given phenomenon, contributing to collecting in-depth information used in research. However, the interview process is more than a conversational interaction between two individuals and requires considerable knowledge and skills on behalf of the interviewer.

The in-depth interview consists of two sets of interview questions designed to be given to two different samples. The first set was exclusively created for Pua Kumbu weavers. The interview questions were developed using thematic analysis to elicit relevant information regarding the design characteristics, taboos, or rituals, Pua Kumbu production, and future design of Pua Kumbu textile. These four categories were separated based on the two dependent variables, the visual complexity and art knowledge which need to be explored and answered by the respective participants (see Table 3.9, page 110).

Table 3.9: Themes and Questions for Interviewing the Pua Kumbu Weavers

Dependent Variables	Categories	List of Questions
Visual Complexity	Design characteristics	• What are the **main elements** applied as the design motifs of the Pua Kumbu textile?
		• Can you describe the **origins of the shapes** of the design motifs?
		• What **colours** can be applied to the textile?
		• What is the **inspiration** for these design motifs?
Art Knowledge	Taboos / Ritual	• Do the design motifs possess any **intrinsic/hidden meaning**?
		• Does the weaver perform any **ritual** before weaving the textile?
		• Can **anyone weave** this textile?
	Production	• How long does it **take to complete** this Pua Kumbu?
		• Do you still use the traditional **technique** of producing the textile?
	Future Design	• If you continue with this profession, are there any other types of design motifs that you want to **propose** or articulate in its production?

The interview questions were constructed for the Malaysian academics in the textile and art culture fields for the second set. The questions were divided into two main categories; 1) design characteristics and 2) community acceptance and knowledge acquired. A total of ten questions were designed and characterised differently according to each dependent variable: the visual complexity and art knowledge, as shown in Table 3.10 (see page 111). Each question created was considered carefully for collecting and analysing the information from participants.

Table 3.10: Interview Questions for the Malaysian Academic in Textile and Art CultureFields

Dependent Variables	Categories	List of Questions
Visual Complexity	Design Characteristics	Do you understand the **pattern's regularity** of the design motifs applied?
		What do you think of the **compositions** of the design motif applied?
		What is your opinion on the **colour combination** applied to the Pua Kumbu textile?
		What do you think of the **size of the design motifs** applied to the Pua Kumbu textile?
Art Knowledge	Community Acceptance and Knowledge Acquired	Do you think the **audience understands** the design motifs applied to the textile?
		Do you think Pua Kumbu textile can be **sold internationally**?
		What is your recommendation for **preserving** Pua Kumbu textile and **future design development**?
		What are your opinions on using **artificial intelligence in a mobile application to safeguard** the Pua Kumbu textile?

The data was recorded and carefully analysed, expecting the outcomes to meet the study's objectives. By having the qualitative analysis, the repetition of keywords and words pronounced by participants are counted and analysed to identify the frequency of words used, repetitively of similar themes and words expressed by participants. The interview is beneficial and suits the present study because the knowledge gathered from the independent thoughts and the aesthetic perceptions contributes to more insights and bridging the research gap. Every question has been read and translated in an unstructured manner to understand the participants better. The interview protocol was conducted for about 40 - 60 minutes for every participant.

3.7 Validity and Reliability of the Instrument

Validity and reliability refer to the level of stability and consistency of the instrument set until the study sample can answer the items submitted. In a mixed-method study, survey protocols and interviews should be viewed to construct the validity and reliability of participants' answers. It can be reflected that the bias in the research study is reflected if the validity and reliability of the instrument are ignored. Thus, to ensure the instruments applied in the study are appropriate and fit to be used, the quantitatively and qualitatively reliability and validity were conducted systematically.

For the quantitative part, two types of validity and reliability measurement have been conducted, which are; 1) Pilot test and 2) Factor Analysis study. The following sub-section 3.7.1 displays how the measurements have been conducted. Meanwhile, member checking procedures have been utilised for the validity procedure of qualitative data research. The measurement procedures' details were elaborated in detail in section 3.7.2.1.

3.7.1 Quantitively Reliability and Validity

3.7.1.1 The Pilot Study of Art Reception Survey (ARS) Questionnaire

At the preliminary stage, the Art Reception Survey (ARS) was utilised in measuring the participants' aesthetic perception of Pua Kumbu textile. It measures various components of the aesthetic perception, including the participants' cognitive stimulation, expertise, self-reference, participants' judgment of the artistic quality and creativity and the affective assessment of positive and negative emotions (see Table 3.11, page 113).

The pilot study was carried out with the voluntary participation of visitors (N=30) who are the potential buyers of the Pua Kumbu textile in the commercial market and the visitors who visited the Waterfront Kuching, Tun Jugah Foundation and the Textile Museum

in Kuching, Sarawak. The acceptable sample size for preliminary research is suggested to be between 10 to 30 participants for the pilot study (Roscoe, 1975). Before the participants were given the questionnaire, they were briefly informed of its purpose and were prompted to comment on the questionnaire.

Upon answering the questionnaire, they were shown some available designs of Pua Kumbu textile printed in the A4 size paper to be familiar with questions afterwards. They were given approximately 10 minutes to observe the printed design of the Pua Kumbu textiles. Then, they responded to the questionnaire. The time taken to complete the questionnaire was recorded. The range time for the participants to complete the questionnaire was between 10 to 15 minutes. The results of the pilot study were discussed in Chapter 4.

Table 3.11: The Art Reception Survey (ARS) Questionnaire by Hager et al. (2012)

Factor	Items
Factor 1: Cognitive Stimulation	1) It is exciting to think about this Pua Kumbu textile. 2) I would like to learn more about the background of this Pua Kumbu. 3) It is fun to deal with this Pua Kumbu textile. 4) This Pua Kumbu textile. is thought-provoking. 5) This Pua Kumbu textile makes me curious.
Factor 2: Expertise	1) I can relate this textile to its art historical context. 2) I know this Pua Kumbu textile. 3) I have an idea what the weaver is trying to convey in this Pua Kumbu textile. 4) I can relate this Pua Kumbu textile to a particular weaver.
Factor 3: Self- Reference	1) This textile mirrors my own personal emotional state. 2) I can associate this textile with my own personal biography. 3) Personal memories of mine are linked to this textile. 4) This textile makes me think about my own life history.

Table 3.11 continued

Factor 4: Artistic Quality	1) The composition of the textile is of high quality. 2) This Pua Kumbu textile is very innovative. 3) This Pua Kumbu textile features a high level of creativity. 4) The weaver's manner in creating Pua Kumbu textile is fascinating.
Factor 5: Negative Emotions	1) This Pua Kumbu textile makes me feel troubled. 2) This Pua Kumbu textile makes me feel afraid. 3) This Pua Kumbu textile disgusts me. 4) This Pua Kumbu textile makes me sad. 5) This Pua Kumbu textile makes me feel lonesome.
Factor 6: Positive Attraction	1) This Pua Kumbu textile makes me feel lonesome. 2) This Pua Kumbu textile is beautiful. 3) This Pua Kumbu textile is pleasant to look. 4) This Pua Kumbu textile thrills me. 5) I feel inspired by textile this Pua Kumbu.

3.7.2 Qualitative Reliability and Validity

Qualitative data research's validity procedure is different from quantitative data research. The researcher is urged to utilise specific procedures in the qualitative validity to check on the accuracy of the findings. The approach performed by the researcher should be consistent with other researchers or other fields of study in measuring qualitative reliability (Gibbs, 2007). Moreover, Ying (2003) suggested the best way to ensure the reliability of the approaches is by documenting the steps of the procedures conducted. This can guide the researcher to conduct the qualitative study better.

The validity is the forte of the qualitative study related closely to the findings received from the participants (Creswell & Miller, 2000). Participant eligibility, such as trustworthiness, authenticity, and credibility (Creswell & Miller, 2000), contributes to research direction and data dependability. To check the accuracy of the findings, a member checking procedure was utilised in this research and incorporated with developing themes, case analysis, the cultural perspective and more.

3.7.2.1 Member Checking for Interview

This study involves nine (9) participants from multiple backgrounds and distinctive multi-site. The in-depth interview was conducted to obtain the participants' interpretation of the study context. The participant's name was not revealed but was coded systematically to maintain the participants' confidentiality. Every interview was conducted in different time frames based on the interviewer and interviewee's accessibility.

Some of the interviews were conducted virtually due to the accessibility of the interviewer and interviewee. The member checking was conducted after the sessions ended. It took approximately 4 – 6 weeks for the researcher to analyse the raw data of each participant and transcript it. Once the data has been successfully interpreted, the research will be emailed to the participants to allow them to check on the accuracy of the findings. Table 3.12 shows the schedule of member checking data for every participant.

Table 3.12: Member Checking and Date of Interviews Schedule

Participants	Date of Interview	Venue/ Platform	Date of Member checking
IN(W1)	5 November 2019	Belaga, Sarawak / Face to Face	10 November 2019
IN(W2)	27 November 2020	Song, Sarawak / Face to Face	27 December 2020
IN(W3)	28 November 2020	Kapit, Sarawak / Face to Face	27 December 2020
IN(W4)	28 November 2020	Kapit, Sarawak / Face to Face	27 December 2020
IN(W5)	28 November 2020	Kapit, Sarawak / Face to Face	27 December 2020
IN(A1)	2 November 2019	Betong, Sarawak / Face to Face	26 November 2019
~~**IN(A2)**~~	10 February 2020	SACC Mall, Shah Alam / Face to Face	25 March 2020
IN(A3)	9 June 2020	Kuching, Sarawak / Zoom	28 July 2020
IN(A4)	9 June 2020	Kuching, Sarawak / Zoom	30 July 2020

3.8 Data Collection

The present study utilized a mixed method approach that incorporated both qualitative and quantitative methods to collect and analyse data. In order to achieve this, a triangulation concurrent mixed-method design was employed during the fieldwork, involving the use of survey and interview research techniques. The survey was administered using the Art Reception Survey - Revised (ARS-Revised) questionnaire, which was developed by Hager et al. (2012), and distributed to a sample of 400 participants. The primary aim of the questionnaire was to elicit quantitative data pertaining to participants' perceptions and experiences of Pua Kumbu as an art form.

Apart from the survey, in-depth interviews were conducted with a purposive sample of nine participants who possessed a wealth of knowledge in the fields of Pua Kumbu weaving and Malaysian textile and art culture. The sample included five Pua Kumbu weavers and four Malaysian academics. The interviews were conducted in person, following a semi-structured format, and were aimed at eliciting qualitative data on participants' perceptions and experiences of Pua Kumbu, as well as gaining insights into the cultural and historical significance of the art form. Additional information regarding the survey and in-depth interview research can be found in the subsequent subsections.

3.8.1 Survey Research

3.8.1.1 Art Reception Survey- Revised (ARS-Revised) Questionnaire

This study was designed to investigate the aesthetic perception of visual complexity of the design motifs applied to Pua Kumbu textile among the targeted participants. Before completing the purpose of captivating, the findings, the accurate instrument measuring the aesthetic perception of the design motifs applied to the textile was discovered. The Art

Reception Survey-Revised instrument by Wahed et al. (2019) was utilised to measure the participants' aesthetic perception.

The 400 participants' (N=400) were selected randomly in the commercial market and the visitors. They visited the Waterfront Kuching, Tun Jugah Foundation, and the Sarawak Textile in Kuching, Sarawak. It took about four months to complete the survey with the limitations of getting the co-operations from the participants to participate besides the time constraints limiting the journey. The researcher only managed to distribute the questionnaires from Friday to Sunday and during schools' holiday and compiled the 400 data of the participants afterward.

3.8.2 Interview Process

As the study employed the triangulation concurrent mixed-method design, the interview was conducted concurrently towards reaching the aim(s) and the objectives. The one-on-one interviews were employed in the study, which emphasised in-depth interview sessions. The researcher prepared the interview questions using a guideline. The questions were treated accordingly to meet participants' conditions, emotions, and locations (Creswell, 2014). Thus, the participants can acquire freedom and flexibility and allow the researcher to change and add questions correspondingly.

A total of nine (9) participants were included in the present study, which consists of five (5) Pua Kumbu weavers and four (4) Malaysian academics in the textile and art culture fields. All these participants were experts in the fields and fulfilled the study's requirements. The researcher first created an interview schedule. Since this study was concerned and involved two different populations, the researcher created two sets of interview questions consisting of different themes.

The initial in-depth interviews were held with the Malaysian academics' (textile and art culture fields). Each participant received a questionnaire comprising two themes: 1) design characteristics and 2) community acceptance and knowledge acquired. A total of nine questions were designed and categorised differently according to their dependent variables. For category 1, design characteristics, the questions focus on answering the dependent variable of visual complexity: the design motifs pattern's regularity, compositions, the colour combination, and the object size.

Meanwhile, for category 2, community acceptance and knowledge acquired, the questions were constructed to seek the academics' perspective on the community's understanding of the design motifs, the buyers purchasing intention, the buyer's trend, the best way to preserve Pua Kumbu textile, future design and development, and academics' opinions on the use of the artificial intelligence of a mobile application in safeguarding the intangible cultural heritage (ICH) of design motifs applied to Pua Kumbu textile.

The in-depth interview with the Malaysian academics was conducted in different time frames and sites. For the IN(A1), the interview was conducted physically on 2nd November 2019 at Betong, Sarawak. Meanwhile, for IN(A2), the interview was conducted face-to-face at SACC Mall, Shah Alam, Selangor, on the 10th of February 2020. The other two interviews session with IN(A3) and IN(A4) were conducted virtually through the Zoom platform on 9th June 2020 (refer to Table 3.12, page 116). The in-depth interview was conducted virtually to meet the demands of the participants and the current pandemic situation.

The vital process of every interview session is to gather the evidence of the whole process, either from photo capturing, note-taking, video recording, or voice recording (Adams, 2015). By having permission from the interviewee, the active, engaging conversation session was obtained and was recorded until the end using the digital voice recorder.

The second set of in-depth interviews was conducted among the Pua Kumbu weavers. Appointments were set to meet with both interviewers and interviewee availability upon the interview. The interview was conducted at different times and at multiple sites: Kapit, Song, and Belaga, located in Sarawak. For the IN(W1), the in-depth interview was conducted at Belaga, Sarawak, on 5th November 2019. Meanwhile, the following interview session with Pua Kumbu weaver was conducted on 27th November 2020 with IN(W2) at Song, Sarawak. Finally, on the 28th of November 2020, an interview was conducted with the IN(W3), IN(W4), and IN(W5) at Kapit, Sarawak. All of these interviews were performed physically with all respective participants.

The in-depth interview with the Pua Kumbu weavers was conducted in a structured approach divided into four major themes; (1) design characteristics, (2) taboos or rituals, (3) production, and (4) future design. The image of Pua Kumbu design motifs printed in A4 size paper was disclosed to the Pua Kumbu weavers to enlighten the findings. It took about 60 minutes to complete the session for each weaver.

3.9 Data Analysis

3.9.1 Statistical Package for Social Science (SPSS) Application

The data collected from the close-ended questionnaire was subsequently analysed using the Statistical Package for Social Science (SPSS). The results were presented in frequencies and percentages, mean and standard deviation. Inferential statistics were also used to measure participants' aesthetic perception of the design motifs applied to the Pua Kumbu textile. The ARS-Revised instrument (Wahed et al., 2019) was then compared using an independent sample T-test (gender comparison), while a one-way analysis of variance (ANOVA) was used to compare between backgrounds. The T-Test and ANOVA were carried out to achieve objective 1 of the study.

3.9.2 MAXQDA Software Application

The qualitative information gathered from the interviews was analysed using the MAXQDA 2020 software application. Initially, the data gathered from the interview were transferred into the interview transcript before being analysed thematically and retrieved and coded using the MAXQDA application. MAXQDA is a high-performance program that enables researchers to conduct research using various methods, including Grounded Theory, qualitative content analysis, group discussions, discourse analysis, and case and field studies. MAXQDA is widely regarded as the best software for mixed methods research.

Researcher must click 'New Project', rename it, and save it to the preferred location in the first step. The interview transcript was uploaded and displayed in the document system on the upper left of the MAXQDA interface (see Figure 3.6). The new related code can be created from the interview transcript (see Figure 3.7). Colour can be added to the coding to enhance the visibility of every code created. Finally, by clicking the "creative coding" button,

the coding data is ready to be analysed. The results can be visualised creatively by adding colour and symbols (see Figure 3.8). The figures for all the steps applied using the MAXQDA application is enclosed on the following page.

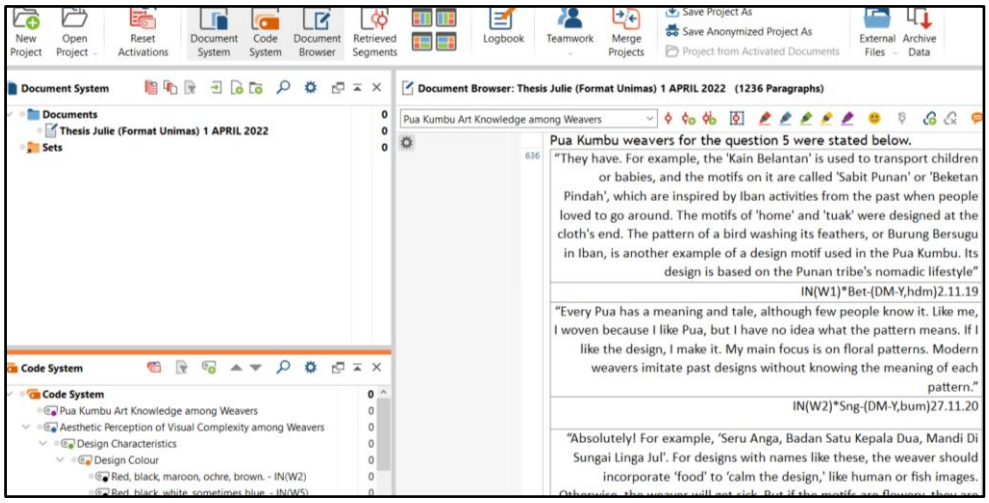


Figure 3.6: The 'Document System' of the MAXQDA Interface

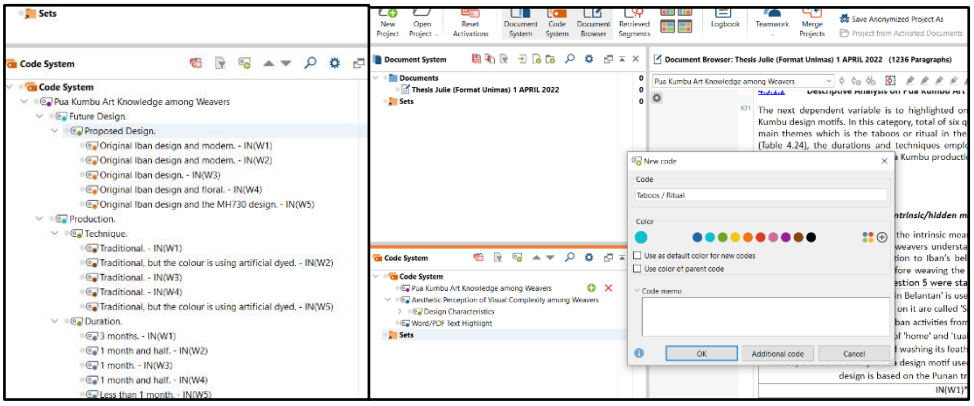


Figure 3.7: The 'Code System' of the MAXQDA Interface

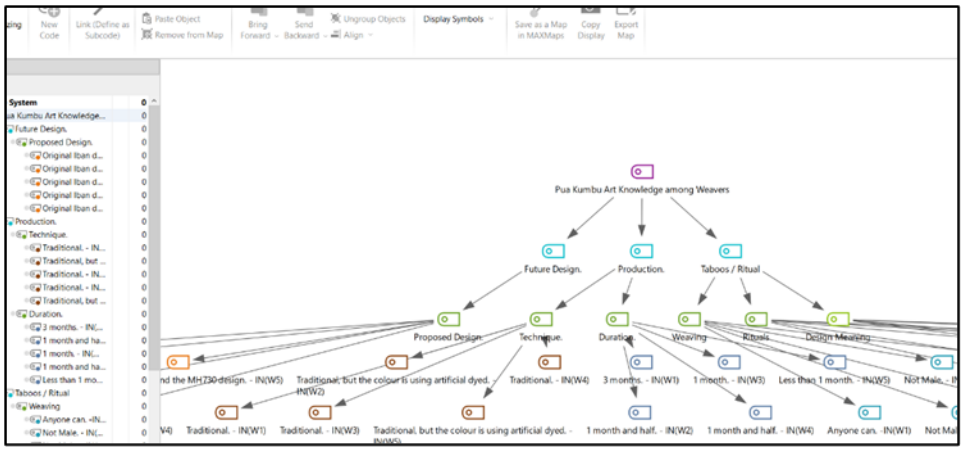


Figure 3.8: The Results Were Coded and Arranged

3.10 Summary of Chapter 3

As mentioned earlier, the evaluation of aesthetic perceptions is an effort to safeguard the ICH so it can be transmitted to future generations and preserve cultural diversity worldwide. In this chapter, the mixed-method approach was utilised. Therefore, for achieving objective 1 of the study, the quantitative approach was used. The ARS-Revised questionnaire (Wahed et al., 2019) was designed to measure the participants' aesthetic perception of the Pua Kumbu textile in the commercial market, the Waterfront Kuching, Tun Jugah Foundation, and the Sarawak Textile Museum (refer to Table 3.1, page 92).

Meanwhile, to achieve objectives 2 and 3, the in-depth interview questions were utilised among the experts. The study outlines different significant criteria for the participant to be interviewed, the Pua Kumbu weavers and Malaysian academics in the textile and art culture fields. To explore the experts' visual complexity and art knowledge of the textile, five Pua Kumbu textile Pua Kumbu weavers and four Malaysian academics were included (refer to Table 3.3, page 95). Finally, the results obtained from those findings led to the construction of a novelty framework for safeguarding the ICH of Pua Kumbu textile (refer to Chapter 5, Figure 5.18, page 222).

"Art is not what you see, but what you make others see."

- Edgar Degas

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

The intangible cultural heritage (ICH) of Pua Kumbu textile is the primary focus of this study. The aim is to resolve the knowledge barrier in transmitting the subject matter on the design motifs applied to the majestic textile to future generations and preserving cultural diversity worldwide. Therefore, the data were collected using the mixed-method design approach to achieve the study's aim.

Thus, this chapter details the result of quantitative and qualitative analysis focused on achieving the study objectives. Data extracted in this chapter were elaborated systematically, beginning at the first section on quantitative data aligned with the study's first objective; (1) measuring the aesthetic perception of the participants about the design motifs applied to the Pua Kumbu textile. Followed with the extracted data of qualitative, the objective (2); examine the aesthetic perception of visual complexity of the design motifs applied to Pua Kumbu textile among Pua Kumbu weavers and Malaysian academics in the textile and art culture fields, and the objective (3); investigate the art knowledge of the design motifs applied on Pua Kumbu textile among weavers and Malaysian academics were unravelled later to strengthen the study's findings (refer to Chapter 1, Section 1.4, page 20). Finally, having all the necessary data will guide the researcher to formulate a novel framework for safeguarding the ICH of design motifs applied to the Pua Kumbu textile.

4.2 Quantitative Interpretation of Results

4.2.1 Pilot Study

A reliability measure of internal consistency was assessed using Cronbach's alpha, which indicates the internal correlation of all items on a scale. A high coefficient suggests a more consistent scale, pointing to a more precise evaluation of a defined parameter through the items. An alpha value of 0.7 or higher indicates a good internal consistency (Perry Hinton et al., 2004).

N = 30 participants completed the questionnaire (see Table 4.1). Forty percent (n = 12) of the participants were male and 60% (n = 18) were female. Thirty percent of the participants were 18 to 25 years old (n = 9) and 31 to 35 years old (n = 9). The age groups of 26 to 30 years old and more than 41 years old were 23.3% and 16.7%, respectively. For the education level, SPM holders or an 'O' level in Malaysia and Diploma holders were 16.7% (n = 5) each. Sixty-six percent (n = 20) of the participants were Bachelor's Degree holders. Most of the participants were from Sarawak (53.3%, n = 16), followed by Peninsular Malaysia (36.7%, n = 11). The remaining were from Sabah (10%, n = 3).

Table 4.1: Characteristics of the Participants

Variables		N (%)
Gender	Male	12 (40)
	Female	18 (60)
Age groups (years)	18-25	9 (30)
	26-30	7 (23.3)
	31-35	9 (30)
	> 36	5 (16.7)
Education level	SPM (O level)	5 (16.7)
	Diploma	5 (16.7)
	Bachelor Degree	20 (66.7)
Background	Sarawak	16 (53.3)
	Sabah	3 (10)
	Peninsular Malaysia	11 (36.7)

To assess the reliability of continuous variables, the intraclass correlation coefficient (ICC) is presented (Table 4.2). The correlation coefficients of the instruments varied between 0.291 and 0.951. The Cronbach's alpha coefficients ranged from 0.672 to 0.987 (Table 4.3). All factors had values greater than 0.60, considered to have moderate to high internal consistency.

Table 4.2: Intraclass Correlation Coefficient

Scales	Intraclass Correlation Coefficient	p-value
Cognitive Stimulation	.899	.001
Negative Emotion	.463	.001
Expertise	.291	.001
Self-Reference	.895	.001
Artistic Quality	.951	.001
Positive Attraction	.431	.001

Table 4.3: Cronbach's Alpha for Scales of the Questionnaire

Scales	*n*	*α*	Lower	Upper
Cognitive Stimulation	**5**	**.978**	**.963**	**.988**
Negative Emotion	**5**	**.812**	**.680**	**.900**
Expertise	**5**	**.672**	**.441**	**.826**
Self-Reference	**4**	**.971**	**.950**	**.985**
Artistic Quality	**4**	**.987**	**.978**	**.993**
Positive Attraction	**5**	**.791**	**.644**	**.889**

The ARS was developed to measure the aesthetic perception towards artworks (Hager et al., 2012). The pilot study intended to measure the perceivers' aesthetic perception towards Pua Kumbu textile. The items in the assessment resulted in good internal

consistency as assessed with Cronbach's alpha (see Table 4.3, page 127). The ICC indicated sufficient reliability, except for Negative Emotion, Expertise, and Positive Attraction factors. Therefore, an item-scale analysis for each of the factors was conducted further to consider removing any of the items if necessary.

Tables 4.4 – 4.9 represent the item-scale analysis for each of the scales in the ARS. The range of item-scale correlation was .870 to .974 for Cognitive Stimulation (Table 4.4). For Negative Emotion, the range was .293 to .781, with the lowest correlation coefficient for item 1 (see Table 4.5, page 129). Negative Emotion measures the participant's negative emotion or the experience of negative emotions. If item 1 is deleted, the alpha value will increase to .883. Thus, this item was suggested to be removed.

Table 4.4: Item-Scale Analysis of Cognitive Stimulation

Items	Adjusted item-scale correlation	Cronbach Alpha, if the item is deleted
It is exciting to think about this textile.	.870	.977
I would like to learn more about the background of this Pua Kumbu textile.	.974	.961
It is fun to deal with this Pua Kumbu textile.	.974	.961
This Pua Kumbu textile is thought-provoking.	.941	.966
This Pua Kumbu textile makes me curious.	.882	.976
Internal consistency of Cognitive Stimulation	**α = .978**	**Standardized α = .979**

Table 4.5: Item-Scale Analysis of Negative Emotion

Items	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
This Pua Kumbu textile makes me feel troubled.	.293	.883
This Pua Kumbu textile makes me feel afraid.	.701	.742
This Pua Kumbu textile disgusts me.	.781	.747
This Pua Kumbu textile makes me sad.	.701	.742
This Pua Kumbu textile makes me feel lonesome.	.781	.747
Internal consistency of Negative Emotion	**α = .812**	**Standardized α = .852**

The Expertise factor measures the participant's having skill or knowledge in the particular field of Pua Kumbu textile. The expertise item-scale correlation ranged between -.310 and .700, with the lowest value for item 1 (see Table 4.6, page 130). If this item were deleted, the alpha value would increase to .812. Thus, this item was suggested to be removed. Self-Reference measures the participant's tendency to remember information when the Pua Kumbu textile information has been linked to them. The item-scale correlation ranged between .905 and .954 (see Table 4.7, page 130). Artistic Quality refers to the originality and technical skills in the process of making Pua Kumbu textile scored item-scale correlation ranging between .960 and .963 (see Table 4.8, page 131).

Table 4.6: Item-Scale Analysis of Expertise

Items	Adjusted item-scale correlation	Cronbach Alpha, if the item is deleted
With regard to its content, this Pua Kumbu textile remains inaccessible to me.	-.310	.812
I can relate this Pua Kumbu textile to its art-historical context.	.546	.586
I know this Pua Kumbu textile.	.700	.520
I have an idea of what the weaver is trying to convey with this Pua Kumbu textile.	.678	.531
I can relate this Pua Kumbu textile to a particular weaver.	.578	.559
Internal consistency of Expertise	**α = .672**	**Standardized α = .597**

Table 4.7: Item-Scale Analysis of Self-Reference

Items	Adjusted item-scale correlation	Cronbach Alpha, if the item is deleted
This Pua Kumbu textile mirrors my own personal emotional state.	.954	.949
I can associate this Pua Kumbu textile with my own personal biography.	.914	.962
Personal memories of mine are linked to this Pua Kumbu textile.	.917	.960
This Pua Kumbu textile makes me think about my own life history.	.905	.963
Internal consistency of Self-Reference	**α = .971**	**Standardized α = .972**

Table 4.8: Item-Scale Analysis of Artistic Quality

Items	Adjusted item-scale correlation	Cronbach Alpha, if the item is deleted
The composition of the Pua Kumbu textile is of high quality.	.960	.980
The Pua Kumbu textile is very innovative.	.960	.980
The Pua Kumbu textile features a high level of creativity.	.963	.980
The weaver's manner of creating Pua Kumbu textile is fascinating.	963	.980
Internal consistency of Artistic Quality	**α = .985**	**Standardized α = .985**

Positive Attraction measures the feeling that emerges related to the subjective success of the information processing and is often described as pleasure or happiness processing (see Table 4.9). Item 1 had the lowest item-scale correlation at .221. If this item were removed, the alpha value would increase to .923. Thus, this item was suggested to be removed.

Table 4.9: Item-Scale Analysis of Positive Attraction

Items	Adjusted item-scale correlation	Cronbach Alpha, if the item is deleted
I would consider spending money to buy this Pua Kumbu textile.	.221	.923
This Pua Kumbu textile is beautiful.	.758	.721
This Pua Kumbu textile is pleasant.	.760	.702

Table 4.9 continued

This Pua Kumbu textile thrills me.	.674	.721
I feel inspired by this Pua Kumbu textile.	.795	.678
Internal consistency of Positive Attraction	**α = .791**	**Standardized α = .885**

Based on the ICC, Negative Emotion, Expertise, and Positive Attraction had the lowest values. Analysed in detail, item 1 of these three factors was suggested to be removed to increase the alpha values. Regarding the scales, the participants were assumed to have no idea of expressing negative emotions or were less likely to have an experience of feeling negative towards the textile. They were unable to relate to the Pua Kumbu's textile meaning. Moreover, the lack of knowledge on Pua Kumbu textile could lead to the inconsistency of this item (item 1) of Expertise. In addition, the participants would not consider spending money to buy a Pua Kumbu textile. This result is an interesting finding. The participants visited the museum to enjoy the artwork but did not intend to buy the Pua Kumbu textile. This situation explains the internal inconsistency of this item (item 1) from the Positive Attraction factor.

Table 4.10 (see page 133) shows the mean score for each of the factors in the instrument. The mean score for Negative Emotion was 1.153 ± .271, which indicates that the participants strongly disagreed with having negative emotions towards the Pua Kumbu textile. Therefore, this factor can be considered unnecessary for measuring the aesthetic experience of the Pua Kumbu textile.

Table 4.10: Descriptive Statistics of Each ARS Scale

Scales	M±SD
1 Cognitive Stimulation	4.233 ± .826
2 Negative Emotion	**1.153 ± .271**
3 Expertise	3.207 ± .629
4 Self-Reference	2.133 ± 1.090
5 Artistic Quality	4.750 ± .431
6 Positive Attraction	4.507 ± .457

On the other hand, the mean scores of Expertise (3.207 ± .629) and Self Reference (2.133 ± 1.09) indicate a sufficient explanation that the participants were less likely to agree that they have expertise or knowledge of the Pua Kumbu textile and could not refer to information that linked them with the textile. This result is acceptable as the participants were visitors to that museum and could find the Pua Kumbu textile interesting and still have no knowledge. The study suggests removing item 1 of Expertise to increase the internal consistency. Positive Attraction had a high mean score (4.508 ± .457), which means that this factor was relevant to the participants. Still, item 1 was suggested to be removed to increase the internal consistency.

This pilot study found that Artistic Quality was of the highest concern for the participants, followed by Positive Attraction and Cognitive Stimulation. However, Expertise, Self-Reference, and Negative Emotion were lower in the participants' ratings. This is highly relevant to the aesthetic perceptions of the participants of Pua Kumbu textile. In addition, the lowest score of Negative Emotion indicates that participants had a positive perception of the Pua Kumbu textile. The findings suggest that the ARS is reliable in

measuring the aesthetic perception of Pua Kumbu textile when the factors of Negative Emotion, item 1 of Expertise, and item 1 of Positive Attraction are removed.

Therefore, the total number of remaining items for this instrument is 21. The total number of remaining factors is 5: Cognitive Stimulation, Expertise, Self-Reference, Artistic Quality, and Positive Attraction. The result revealed that only five factors remained for the actual data collection, removing the Negative Emotionality factor. This factor was not included in the study and analysis since it would reduce the reliability of the overall instrument. In addition, one item was removed, *'I would consider the amount of money to buy this piece of art'* from the Positive Attraction factor and item one of Expertise factor, *"With regards to its content, this Pua Kumbu textile remains inaccessible to me."*

It is concluded that the ARS-Revised questionnaire seems to be improved and reliable to examine the aesthetic perception of art forms in this study, the Pua Kumbu textile. Therefore, the ARS-Revised by Wahed et al. (2019) was implemented in this study and distributed to the 400 participants after the reliability and validity test of the instrument was conducted using the original version of the ARS questionnaire by Hager et al. (2012). Further details surrounding the actual data results are presented and discussed in the next sub-sections.

4.2.2 Data Screening

Before analysing the data, data screening and cleaning procedures for errors or outliers were conducted. Furthermore, both constructs and the items in the constructs need to be validated. To ensure the validity of the constructs, factor analysis was performed on the dependent variables' items. Data screening is described as ensuring no ambiguous data characteristics exist that could impact the findings. Other screenings were conducted to

remove any extreme values beyond the normal data range. None of the cases were eliminated in this study based on the screening. The final usable questionnaires were 400, representing 100% of the total number of questionnaires distributed.

4.2.3 Factor Analysis

Factor analysis is a technique whose primary purpose is to define the underlying structure data (Pallant & Manual, 2010). Factor analysis was conducted on high-performance culture dimensions to assess the validity of the content. To run factor analysis, there are some assumptions to be met. First, the sample size must be 150 and above. In this study, the sample size is N=400, which means the assumption is met. The second is the factorability of the correlation matrix. To be considered suitable for factor analysis, the correlation matrix should show at least some $r = 0.3$ or greater correlation. Barlett's test of sphericity should be statistically significant at $p < 0.05$, and the Kaiser-Meyer-Olkin (KMO) value should be 0.6 or above. The third assumption is the linearity between the variables, and the relationship between the variables must be linear. The fourth assumption is the outliers must be removed in the initial data screening process as factorial analysis is sensitive to outliers.

The ARS-Revised of 21-items (Wahed et al., 2019) was used in this study to meet objective 1 in measuring the aesthetic perception of the participants about the design motifs applied to the Pua Kumbu textile (see Table 3.8, page 108). The ARS-Revised was the revised version of the original version of the ARS of 28-item (Hager et al., 2012). The ARS's credibility in assessing the aesthetic studies is unquestionable in other aesthetic domains such as art writing (Quiroga, 2020), painting (Miller & Hübner, 2019; Pietras & Czernecka, 2018; Wang, 2018), film (Doicaru, 2016), figurative arts (Pietras & Czernecka, 2018) and abstract art in a museum (Pirgie, 2016).

However, no study has been conducted to assess aesthetic perception by using the ARS on textile art, except for a study by Wahed et al. (2019). Therefore, the ARS was revised to a shortened version from 28-item of six factors to 21-item of four factors. This shorter version was derived after removing the low item-scale correlation of two items from Positive Attraction and Expertise. One factor of five items, the Negative Emotion, was excluded after considering its content validity besides the low intraclass correlation. It strongly disagreed that the Pua Kumbu textile is linked to negative emotions. Therefore, this factor was unnecessary for measuring the aesthetic perceptions of the textile. The factor analysis was performed to further validate the ARS-Revised in assessing the aesthetic perception of the visual complexity of Pua Kumbu. Factor analysis is a technique for arranging, defining, and reducing large items from the questionnaire to other constructs under one dependent variable in a study sample (Chua, 2009).

One of the factor analysis techniques, the Exploratory factor analysis (EFA), was generated. The EFA tries to uncover complex patterns by exploring the dataset and testing predictions (Child, 2006). In this study, the items of ARS-Revised were explored to validate the inventory. The oblique rotation, Direct Oblimin, was performed to interpret better the factors retained in the EFA. A rotation method minimised the number of variables with high loadings on each factor (Yong & Pearce, 2013). Factor analysis was performed to evaluate the 21-item ARS-Revised factorial structure, construct validity, and reliability analysis in assessing the aesthetic perception of visual complexity of the design motifs applied to the Pua Kumbu textile among its potential buyers and perceivers.

4.2.3.1 Exploratory Factor Analysis

The sample data was tested for suitability for factor analysis. The Barlett Sphericity Test was significant ($\chi 2 = 6193.24$, $p < 0.05$), supporting the factorability of the correlation matrix. The Kaiser-Meyer-Olkin (KMO) sampling adequacy measure was .908, supported the matrix factorability (Izquierdo Alfaro et al., 2014). The PCA revealed four eigenvalues exceeding 1, explaining 41.23%, 16.17%, 7.34%, and 5% respectively (total 69.7%). The inspection of the scree plot also supported a four-factor solution (see Figure 4.1, page 139).

Table 4.11 (see page 138) illustrates the factor loading of the rotation component matrix by using Direct Oblimin rotation. The component matrix details the factor loading onto factors 1, 2, 3, and 4 before the rotation. Following the PCA with Direct Oblimin rotation, the items were loaded to different factors. Inspection of the pattern matrix showed a four-factor solution in contrast with Wahed et al. (2019), which suggested a five-factor. Factor 1 includes artistic quality items (AQ1, AQ2, and AQ3), positive attraction items: (P1 and P2), and one item of expertise, E1. Thus, this factor represents historical art knowledge of Pua Kumbu textile, the technical skills in the making, and its attraction. Factor 2 related to items from expertise (E2, E3, and E4) and self-reference (SR1, SR2, and SR3). These expertise and self-reference items loaded strongly to factor 2. Therefore, this factor represents knowledge and information one has when the art piece is linked to them.

Table 4.11: Pattern and structure matrix for PCA with Oblimin Rotation of four factors of ARS-Revised

	1		2		3		4		
Items	**P**	**S**	**P**	**S**	**P**	**S**	**P**	**S**	**Comm.**
CS1	-.100	.242	-.126	-.414	**-.838**	**-.840**	.013	-.292	.728
CS2	.058	.378	.109	-.203	**-.777**	**-.791**	-.079	-.389	.645
CS3	-.072	.255	-.139	-.427	**-.851**	**-.850**	.062	-.264	.748
CS4	.189	.473	-.067	-.334	**-.583**	**-.718**	-.094	-.425	.571
CS5	.160	.447	.020	-.257	**-.619**	**-.715**	-.105	-.419	.553
E1	**.697**	**.658**	-.304	-.381	.038	-.280	.167	-.209	.529
E2	-.002	.163	**-.735**	**-.805**	-.273	-.484	.153	-.099	.708
E3	-.003	.204	**-.812**	**-.873**	-.174	-.468	.011	-.217	.788
E4	-.038	.151	**-.823**	**-.854**	-.098	-.390	-.009	-.192	.736
SR1	.058	.273	**-.870**	**-.896**	.046	-.362	-.164	-.346	.835
SR2	.038	.252	**-.850**	**-.874**	.045	-.349	-.169	-.338	.793
SR3	.129	**.322**	**-.816**	**-.845**	.067	-.345	-.155	-.352	.762
SR4	**.771**	**.794**	-.044	-.211	-.115	-.406	.062	-.357	.647
AQ1	**.832**	**.872**	.119	-.072	-.085	-.388	-.059	-.463	.777
AQ2	**.838**	**.892**	.058	-.122	-.014	-.367	-.123	-.514	.809
AQ3	**.732**	**.837**	-.014	-.178	.044	-.344	-.254	-.585	.748
AQ4	.035	.365	-.139	-.265	.040	-.290	**-.687**	**-.707**	.517
P1	**.351**	**.623**	.150	-.085	-.227	-.482	**-.445**	**-.670**	.614
P2	**.408**	**.667**	.232	-.002	-.171	-.438	**-.494**	**-.708**	.697
P3	-.039	.387	-.283	-.456	-.109	-.474	**-.706**	**-.768**	.720
P4	-.004	.426	-.089	-.291	-.144	-.471	**-.756**	**-.828**	.719

P= Pattern, S= Structure, Comm. = Communality

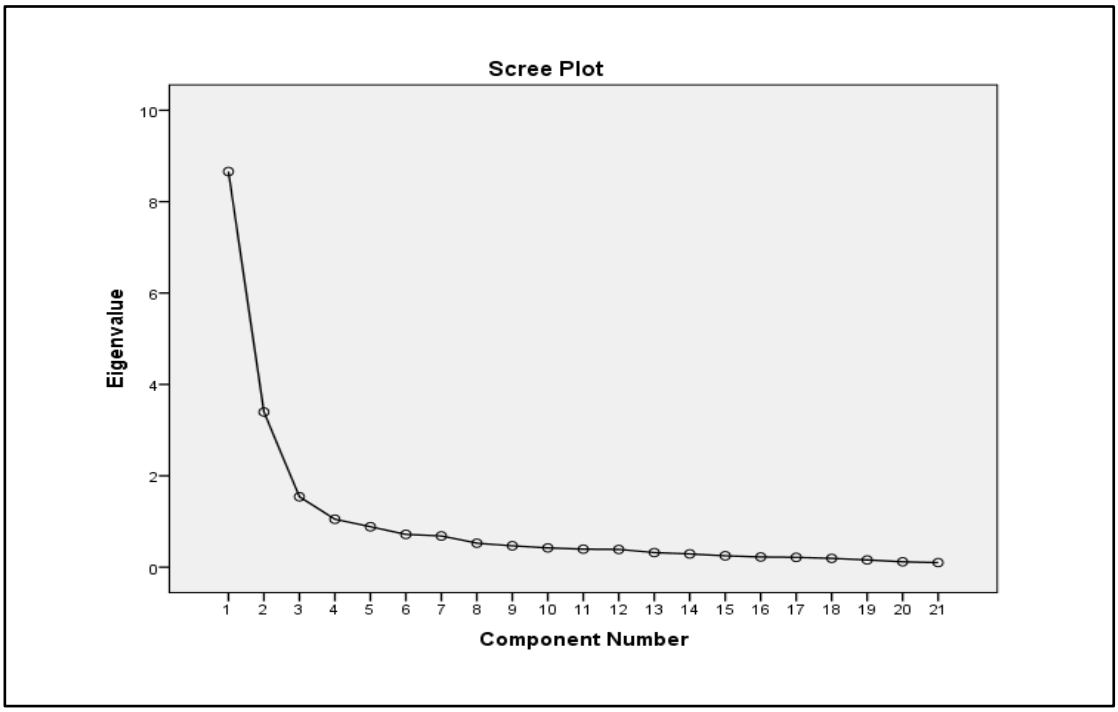


Figure 4.1: The Scree Plot for ARS-Revised 21-Items

Factor 3 relates to all items in cognitive stimulation, which means this factor represents the ability to process information depending on one's knowledge. Factor 4 relates to all items in positive attraction (P1, P2, P3, and P4) and one item of artistic quality, AQ4. P1 and P2 cross-load to factors 3 and 4 with strong loading; .351 and .408, respectively. However, the loadings were higher in factor 4. Therefore, factor 4 represents a positive attraction to Pua Kumbu textile. The analysis of the rotation component matrix indicated a strong loading of items into factors, including those that cross-loaded to another factor.

Based on the rotated component matrix results, Factor 1 is artistic quality in terms of technical skill with some knowledge of the historical art and feelings of admiring the beauty and look of the subject matter. Factor 2 relates to skill and knowledge with self-reference, Factor 3 maintains cognitive stimulation, and Factor 4 is a positive attraction and fascination with creating Pua Kumbu textile. Table 4.12 shows the new four-factor namely; (1)

Knowledge and information and the relation of one have to Pua Kumbu textile, (2) Historical art knowledge, the technical skills in the making and the attraction towards Pua Kumbu textile, (3) Ability to process information depending on one's knowledge (cognitive stimulation) and (4) Positive attraction towards Pua Kumbu textile.

Table 4.12: The New Four Factors of ARS-Revised

	F1	F2	F3	F4
F1	1			
F2	.332*	1		
F3	.504*	.494*	1	
F4	.423*	.646*	.586*	1
*Correlation is significant at .05. (F1=Factor 1, F2=Factor 2, F3=Factor 3, F4=Factor 4)				

Table 4.13 (see page 141) shows that the four factors of ARS-Revised revealed a substantial correlation between them. Factor 1 was positively correlated with Factor 2 (r = .332) and Factor 4 (r = .423) with low level, while moderate with Factor 3 (r = .504). Factor 4 was positive moderate correlated with Factor 2 (r = .646) and Factor 3 (r = .586). Moderate construct validity was revealed from these correlations results.

Table 4.13: Correlations between Four Factors of ARS-Revised

Five-Factor	α1	No of items	Four factors	α2	No of item
SR	.854	5	F1	.935	6
Exp	.835	4	F2	.860	5
CS	.855	5	F3	.855	5
AQ	.809	4	F4	.817	5
PA	.824	4			
Overall	**.925**	**21**			

CS=Cognitive stimulation, Exp=Expertise, SR=Self-reference, AQ=Artistic quality, PA=Positive attraction

This study used the ARS-Revised instrument of five-factor of 21-item, which was validated previously in assessing the aesthetic perception of Pua Kumbu textile design motifs (Wahed et al., 2019). Some items were omitted due to low internal consistency. Negative emotion was removed due to irrelevancy based on content validity. Therefore, a pool of 21 items entered the analysis. The EFA was performed to assess the validity and observed a significant finding. The original 21-item ARS-Revised remains; however, many factors were composed.

The PCA with Direct Oblimin rotation pointed to a four-factor solution, explaining almost 70% of the data's variance. The factor that explained most of the variance was Factor 1, with five items that describe the historical art knowledge and information on the originality and technical skills in making Pua Kumbu textile. One of the items expresses the relation of one's thoughts about their life history. Factor 2, loaded with six items, describes knowledge and information and the relation of one must Pua Kumbu. Individuals who scored

high in this factor know and have an idea of what the weaver tries to convey in the Pua Kumbu and could relate the Pua Kumbu textile to the weaver. They also tend to associate Pua Kumbu textile information with their personal emotional state, biography, and memories.

Factor 3 was cognitive stimulation which was loaded with five items. This factor remains the five items as in ARS-Revised. It describes the perceiver's intellectual devotion to Pua Kumbu textile. Individuals who score high on this factor are intellectually intrigued by the Pua Kumbu textile. They enjoy thinking about the Pua Kumbu textile and are curious to learn more about the weaver and textile background. The fourth factor, which was loaded with five items, pronounces the positive attraction towards Pua Kumbu textile and the fascination of the manner of the weaver in creating this masterpiece. It consists of items referring to beauty, pleasantness, and emotional engagement, such as being thrilled and inspired.

The reliability analysis of the ARS-Revised of five factors revealed a high internal consistency. However, with the new four factors, the internal consistency increased. This indicated that the items in each factor are more related as a set of groups. The overall internal consistency was very high, $\alpha = .925$. The four-factor obtained in this study contributes to the growing body of studies investigating the factor structure of the ARS-Revised. The original work by Hager et al. (2012) to Wahed et al. (2019), shown through this study, has shown the promise of this instrument to explore the aesthetic perception in artworks.

As the outcome from EFA with Direct Oblimin rotation, four factors of the ARS-Revised were suggested. Internal consistency was high, and construct validity presented a valid measure. In sum, the study managed to validate the function of ARS-Revised with

four-factor of 21-items with slight differences in assessing the aesthetic perception of visual complexity of the design motifs applied to the Pua Kumbu textile.

4.2.4 Actual study

4.2.4.1 Participants

There were initially 400 participants who were the visitors and tourists of the Waterfront Kuching, Tun Jugah Foundation, and the museum in Kuching, Sarawak. All of them (N=400) completed the questionnaire, and none of them were rejected in this study.

4.2.4.2 Gender

Most participants were female, 222 (55.5%), while male participants were 178 (44.5%) (see Table 4.14).

Table 4.14: Gender

	N	%
Male	178	44.5
Female	222	55.5
Total	400	100

4.2.4.3 Age

Table 4.15 (see page 144) represents the age distribution of participants. Most participants were 18 – 25 years old (31.1%) and more than 41 years old (22.8%). Some were 26 – 30 years old (19.8%) and 31 – 35 years old (14.0%), while the minority were 36 - 40 years old (12.3%).

Table 4.15: Age Group

Age group	N	%
18 – 25 years old	125	31.3
26 – 30 years old	79	19.8
31 – 35 years old	56	14.0
36 – 40 years old	49	12.3
More than 41 years old	91	22.8

4.2.4.4 Education level

Table 4.16 represents the education level of participants. Thirty-four and five per cent were SPM (O level) holders, while diploma holders were 23.8%. Bachelor's degree was 11.8%, Master's degree was 3.0%, and other education levels were 1.3% and 17.0%, respectively.

Table 4.16: Education Level

Level	N	%
SPM (O level)	138	34.5
Certificate	35	8.8
Diploma	95	23.8
Bachelor's degree	47	11.8
Master's degree	12	3.0
PhD degree	5	1.3
Other	68	17.0
Total	**400**	**100.0**

4.2.4.5 Monthly income

Table 4.17 shows the monthly income of the participants. Most of them earned RM1001-RM2000 (36.5%), while 25.5% earned below RM1000 monthly. Some of them earned RM2001- RM3000 (20.0%). While others earned RM3001-RM4000 (7.0%) and earned more than RM4001 monthly (11.0%).

Table 4.17: Monthly Income (RM)

Monthly income	N	%
< 1000	102	25.5
1001 – 2000	146	36.5
2001 – 3000	80	20.0
3001 – 4000	28	7.0
> 4001	44	11.0

4.2.5 Descriptive Analysis

Four factors have been analysed in the ARS-Revised questionnaire (see Table 4.18, page 146), and all factors demonstrate different results. The highest factor detected in the study is Factor 1: historical art knowledge, the technical skills in the making, and the attraction towards Pua Kumbu textile (4.22 ± 0.732), and the least was Factor 2: knowledge and information and relation of one has on Pua Kumbu textile, revealed as the lowest factor (3.001± 0.190). The second highest is Factor 4: positive attraction towards Pua Kumbu textile (4.19 ± 0.741). Factor 3 is the ability to process information based on knowledge (4.06 ± 0.751).

Table 4.18: Descriptive Data of All the Items in ARS-Revised

No	Items	Mean	±SD
Factor 1: Historical art knowledge, the technical skills in the making, and the attraction toward Pua Kumbu textile.		**4.22**	**.732**
1	I can relate this Pua Kumbu textile to its historical art context.	3.76	1.156
2	This Pua Kumbu textile makes me think about my own life history.	4.28	.865
3	The composition of the Pua Kumbu textile is of high quality.	4.34	.810
4	This Pua Kumbu textile is very innovative	4.39	.793
5	This Pua Kumbu textile features a high level of creativity.	4.35	.897
Factor 2: Knowledge and information and relation one has on Pua Kumbu textile.		**3.00**	**1.190**
1	I know this Pua Kumbu textile.	3.16	1.292
2	I have an idea of what the weaver is trying to convey in this Pua Kumbu textile.	3.07	1.353
3	I can relate this Pua Kumbu textile to a particular weaver.	3.05	1.368
4	This Pua Kumbu textile mirrors my own personal emotional state.	2.86	1.364
5	I can associate this Pua Kumbu textile with my own personal biography.	2.90	1.395
Factor 3: Ability to process information depending on one's knowledge.		**4.06**	**.751**
1	It is exciting to think about Pua Kumbu textile.	3.86	1.020
2	I would like to learn more about the background of this textile.	4.17	.888
3	It is fun to deal with this Pua Kumbu textile.	3.93	1.003
4	This Pua Kumbu textile is thought-provoking.	4.08	.930
5	This Pua Kumbu textile makes me curious.	4.25	.876

Table 4.18 continued

Factor 4: Positive attraction towards Pua Kumbu textile.		**4.19**	**.741**
1	The weaver's manner in creating Pua Kumbu textile is fascinating.	3.86	1.186
2	This Pua Kumbu textile is beautiful.	4.48	.697
3	This Pua Kumbu textile is pleasant to look at.	4.54	.704
4	This Pua Kumbu textile thrills me.	3.92	1.114
5	I feel inspired by this Pua Kumbu textile	4.14	1.064

Factor 1 consists of five items: historical art knowledge, technical skills in the making, and attraction towards Pua Kumbu textile. All five items revealed a high score (above 4), except for the item *"I can relate this Pua Kumbu textile to its historical art context"* (3.76±1.156). Factor 2 shows the knowledge and information and relation that one has on the textile. This factor displayed all six items have the lowest score (below 4). However, two items received a score below 3; *"This Pua Kumbu textile mirrors my own personal emotional state"* (2.86±1.364) and *"I can associate this Pua Kumbu textile with my own personal biography" (*2.90±1.395).

Factor 3 highlights the ability to process information of Pua Kumbu textile that depends on perceivers' knowledge. All five items indicated the highest score (above 3). Item number 5, *"This Pua Kumbu textile makes me curious,"* demonstrated the highest score in this group factor (4.25±0.876). The second highest item in factor 3 is item number 2, *"I would like to learn more about the background of this textile"* (4.17±0.888).

Finally, the last factor in the ARS-Revised is factor 4, which highlights the perceivers' positive attraction towards this majestic textile, Pua Kumbu. This factor consists of five factors that indicate all items have the highest score (above 4), except for one item, *"The weaver's manner in creating Pua Kumbu textile is fascinating,"* which scored 3.86±1.186. For item no 3, *"This Pua Kumbu textile is pleasant to look at,"* received the greatest score in factor 4 (4.54±0.704).

4.2.6 Differences of the Four Factors Between Demographic

Table 4.19 presents the ARS-Revised four factors by participants' gender. There were no significant differences in all factors between gender except Factor 2; male = 2.87± 1.151, female = 3.13± 1.210, p = .025 (p < .05).

Table 4.19: Comparison between Gender in ARS-Revised Four Factors

Variables	Gender	Mean	±SD	T	P value
Factor 1	Male	4.18	.697	-.991	.323
	Female	4.25	.758		
Factor 2	Male	2.87	1.151	-2.247	.025*
	Female	3.13	1.210		
Factor 3	Male	3.99	.791	-1.701	.090
	Female	4.11	.715		
Factor 4	Male	4.09	.749	-2.416	.016
	Female	4.27	.726		

Factor 1-Historical art knowledge, the technical skills in the making and the attraction towards Pua Kumbu textile, Factor 2- Knowledge and information and relation of one has of Pua Kumbu textile, Factor 3- Ability to process information depending on one's knowledge, Factor 4- Positive attraction towards Pua Kumbu textile.

Table 4.20 presents the ARS-Revised four factors by participants' backgrounds. There were no significant differences in all factors between background ($p > .05$) except Factor 2 and Factor 3. For all background, Factor 2 shows that Sarawak = 3.23± 1.129, Sabah = 2.51± .995, Peninsular Malaysia = 1.79± .799 and Others = 2.93± 1.258, $p = .001$ ($p < .05$). Meanwhile, for Factor 3, all background scores are Sarawak = 4.12± .726, Sabah = 3.42± .816, Peninsular Malaysia = 3.96± .608 and Others = 3.78± 1.073, $p = .001$ ($p < .05$).

Table 4.20: Comparison between Background in ARS-Revised Four Factors

Variables	Background	Mean	±SD	F	P-value
Factor 1	Sarawak	4.25	.716	1.281	.280
	Sabah	4.00	.748		
	P. Malaysia	4.20	.673		
	Others	4.01	1.059		
Factor 2	Sarawak	3.23	1.129	25.178	.001*
	Sabah	2.51	.995		
	P. Malaysia	1.79	.799		
	Others	2.93	1.258		
Factor 3	Sarawak	4.12	.726	6.760	.001*
	Sabah	3.42	.816		
	P. Malaysia	3.96	.608		
	Others	3.78	1.073		
Factor 4	Sarawak	4.22	.725	1.266	.286
	Sabah	4.09	.697		
	P. Malaysia	4.06	.672		
	Others	3.99	1.139		

Factor 1-Historical art knowledge, the technical skills in the making and the attraction towards Pua Kumbu, Factor 2- Knowledge and information and relation of one has of Pua Kumbu textile, Factor 3- Ability to process information depending on one's knowledge, Factor 4- Positive attraction towards Pua Kumbu textile

4.2.7 Summary of Quantitative Results

The revised four factors of ARS revealed that Factor 1 scored the highest mean (4.22 ± 0.732), and the lowest was Factor 2 factor (3.001± 0.190). In comparing between gender and background of participants, few differences were revealed. Females were significantly higher than males in Factor 2 (male = 2.87± 1.151, female = 3.13± 1.210, $p = .025$ ($p < .05$). Meanwhile, the Factor 2 and Factor 3 has significant differences between backgrounds.

In Factor 2, it is scored; Sarawak = 3.23± 1.129, Sabah = 2.51± .995, Peninsular Malaysia = 1.79± .799 and Others = 2.93± 1.258, $p = .001$ ($p < .05$). Subsequently, for the Factor 3 all of the background scores as: Sarawak = 4.12± .726, Sabah = 3.42± .816, Peninsular Malaysia = 3.96± .608 and Others = 3.78± 1.073, $p = .001$ ($p < .05$).

4.3 Qualitative Interpretation of Results

To supplement the results and fill the gaps left in the study, the qualitative approach was used to reveal detailed information and achieve a clearer insight of the problem under review in a more complex way than the generalised way based on the outcome of questionnaires. The non-probability sampling technique was used in this study. The sampling was based on specific criteria (i.e., the Pua Kumbu weavers, and Malaysian academics, specifically in the textile and art culture fields). The more valuable insight capsuled and presented in this chapter by having the right participants. In the study, the qualitative data was divided into two phases. Phase 1 would interview the Pua Kumbu weavers, and Phase 2 would interview the Malaysian academics. All data were transcribed and analysed using the MAXQDA software application. The data were recorded and encoded carefully for further discussion in the next sub-section.

4.3.1 Phase 1: Interviewing the Pua Kumbu Weavers

This section reflects on the in-depth interviews and focus groups conducted with interviewees. It presents the analysis of their verbal responses during the interviews and discussions. A total of five weavers from different places around Sarawak were interviewed using structured interview questions that were delivered differently to the targeted participant. The interview questions are divided into four categories based on the dependent variables; visual complexity and art knowledge. For the visual complexity, the questions were constructed based on four themes: design characteristics, taboos/rituals, production, and Pua Kumbu future design motifs development. The details of the transcription are included in the following sub-section.

4.3.1.1 Descriptive Analysis of Pua Kumbu Visual Complexity among Weavers

To understand the aesthetic perception of visual complexity among Pua Kumbu weavers, the in-depth interview findings were analysed and coded systematically using the MAXQDA software application. In Figure 4.2 (see page 152), the themes for every transcripted interview with the Pua Kumbu weavers are disclosed. Initially, when it came to designing elements, it was found that the Pua Kumbu weavers liked to use the *'Buah Gelung'* and the *'Ara'* design motifs the best. Meanwhile, for the shape origins category, the majority of the Pua Kumbu weavers agreed that the dreams, fauna, flora, nature, surroundings, imitation of earlier design motifs, inherited from ancestors, and modification of the design motifs to the current design became the shape origins. In addition, the colours red, black, maroon, white, and ochre are popular, and sometimes, blue and purple were applied to the

Pua Kumbu textile. Finally, the design inspiration theme shows that nature, the Iban culture, the surroundings, design from ancestors, and the imitations of early design have emerged as categories. The details of the interview transcripts are enclosed in the next sub-section.

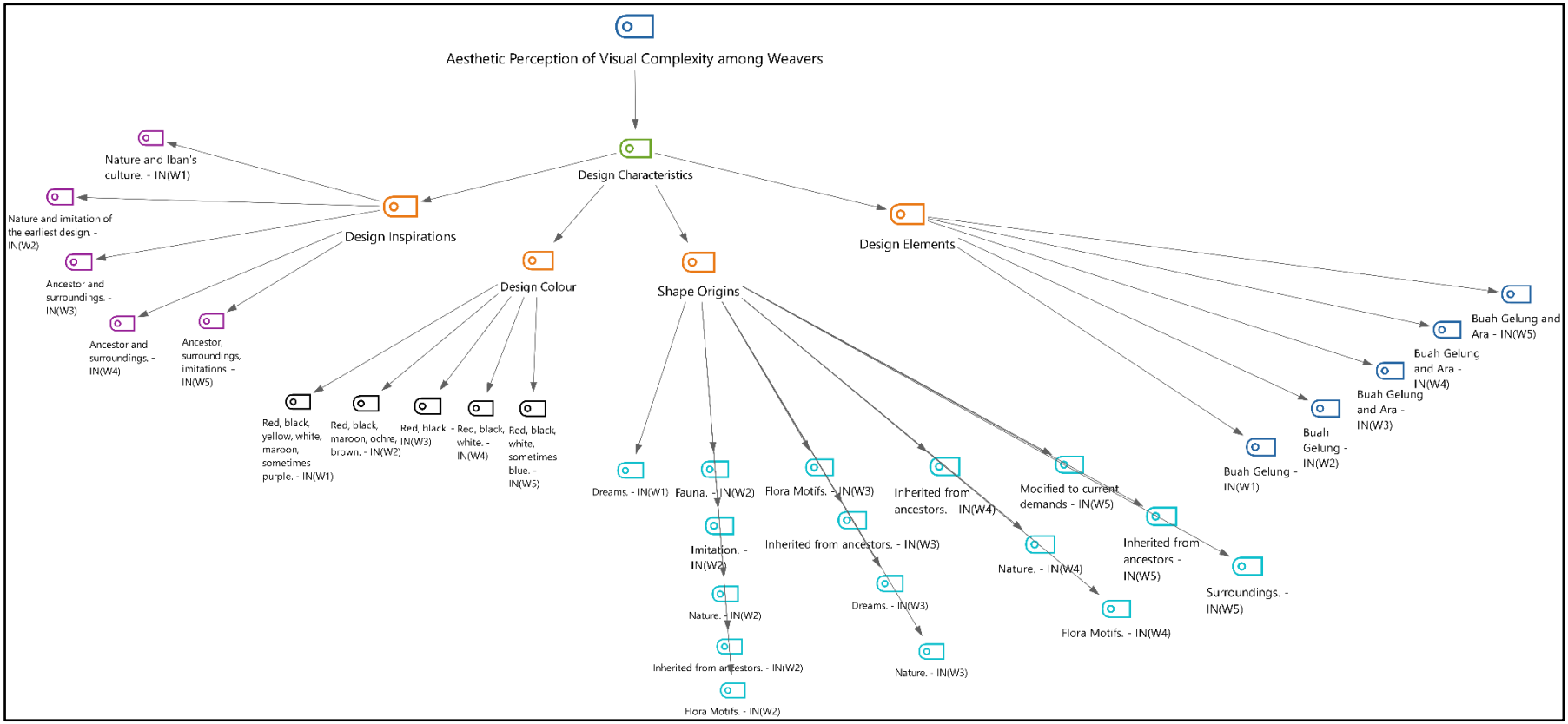


Figure 4.2: The MAXQDA Coding of the Visual Complexity Among Pua Kumbu Weavers

Design Characteristics

For the initial category, which is the design characteristics, four questions were developed to understand the Pua Kumbu weaver's aesthetic perceptions of the design motifs, exclusively on the choices of the element of the design motifs applied, the object shape origins, the colour preferences, and motifs inspirations among the experts. The first question to the participants during the first interview question is stated below:

Question 1:

*What are the **main elements** applied as the design motifs of the Pua Kumbu textile?*

*"**Buah Gelung**."*
IN(W1)*Bel-(DE-buge)2.11.19

*"**Buah Gelung** is the main elements for every Pua. It can be either 'Buah Gelung 8', Buah Gelung 5' or else. The choice is depending to 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** was the common motifs to be design by the weavers. Most of the Buah Gelung intentionally designed by the weavers is to beautify the Pua and to complete the design"*
IN(W4)*Kap-(DE-buge&ar)28.11.20

*"**Buah Gelung** which are inspired from Paku-pakis, bamboo shoots and **Ara**"*
IN(W5)*Kap-(DE-buge&ar)28.11.20

The transcript above shows that all Pua Kumbu weavers agreed that the major elements applied to the Pua Kumbu design motifs are *'Buah Gelung'* and *'Ara' design*. The visual complexity of the *'Buah Gelung'* design motifs can be found in the application of the

geometrical shape, based on the size of the textile and the interpretation of the Pua Kumbu weaver. The description of every coding of the interview is displayed in Table 4.21.

Table 4.21: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in the Theme; Design Elements

Theme	Categories	Code
Design Elements	Buah Gelung	In(W1)*Bel-(DE-buge)2.11.19
	Buah Gelung	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	In(W4)*Kap-(DE-buge&ar)28.11.20
	Buah Gelung and Ara	In(W5)*Kap-(DE-buge&ar)28.11.20

The code index description for Table 4.21:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
DE	:	Refers to question in theme: Design Elements.
Buge	:	Refers to *Buah Gelung*.
Buge&ar	:	Refers to *Buah Gelung* and *Ara*.
28.11.20	:	Refers to the date the interview was held.

Question 2:

*Can you describe the **origins of the shapes** of the Pua Kumbu design motifs?*

In the field trip conducted in five different places in Sarawak, most Pua Kumbu weavers have a mutual understanding of the design origins, dreams, Iban folklore, nature, flora, and fauna. Furthermore, the Pua Kumbu weavers' inspirations are from Iban culture, nature, and surroundings. Some weavers gathered inspiration from the earlier designs of their ancestors (refer to Table 4.22, page 156). The transcripts of interviews of the five Pua Kumbu weavers are described below:

> *"Usually, if you follow what inherited from your grandparents, folk tales, weavers, either traditional or modern, the motifs inspired from **dreams**, which were from the Iban goddess and goddess- Kumang. From it, the weavers get the inspiration to take it as a Pua Kumbu design motifs"*
> IN(W1)*Bel-(DO-dre,fol)2.11.19

> *"The design of Pua Kumbu motif is mostly from **nature**, from **flora** and **fauna**. which was **passed down from previous generations** to now. The motifs made now are mostly **imitated** from previous Pua fabrics, or imitated from pictures"*
> IN(W2)*Sng-(DO-nat,flofa,an)27.11.20

> *"Usually, the design motifs were from the **ancestors** and were **inherited** to the female members in the family. I loved to weave the beautiful things, or when I get the inspirations from my **dream**s, then I weave. Mostly are the **floral** motifs"*
> IN(W3)*Kap-(DO-an,dre,nat,flo)28.11.20

> *"That most of the design motifs that we are weaving is from the collection of our **ancestors** as well as from the **nature**. The **plant** is become the major inspirations to the motifs"*
> IN(W4)*Kap-(DO-an,nat,flo)28.11.20

> *"Most of the motif's design that I weaved is from my **ancestor**, and some I **modified to meet with the current demand,** and some were inspired from the **surroundings**. I never had the inspiration from dreams"*
> IN(W5)*Kap-(DO-an)28.11.20

Table 4.22: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme: Shape Origins

Theme	Categories	Code
Shape Origins	Dreams.	IN(W1)*Bel-(DO-dre,fol)2.11.19
	Nature, flora, and fauna, inherited from ancestors, imitation.	IN(W2)*Sng-(DO-nat,flofa,an)27.11.20
	Inherited from ancestors, dreams, nature, flora motifs.	IN(W3)*Kap-(DO-an,dre,nat,flo)28.11.20
	Inherited from ancestors, nature, flora motifs.	IN(W4)*Kap-(DO-an,nat,flo)28.11.20
	Inherited from ancestors. Modified to current demands, surroundings.	IN(W5)*Kap-(DO-an)28.11.20

The code index description for Table 4.22:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
DO	:	Refers to question in theme: Shape Origins.
Dre, fol	:	Refers to dreams, folklores.
Nat, flofa, an	:	Refers to nature, flora, and fauna, inherited from ancestors.
An, dre, nat, flo	:	Refers to Inherited from ancestors, dreams, nature, flora motifs.
An, nat, flo	:	Refers to Inherited from ancestors, nature, flora motifs.
An	:	Refers to Inherited from ancestors.
28.11.20	:	Refers to the date the interview was held.

Question 3:

*What **colours** can be applied to the Pua Kumbu textile?*

In terms of colour preferences, most weavers agreed on earth tones and the colours of the Sarawak flag: red, black, white, and maroon. Participant IN(W1) informed that different dye colours, such as blue and purple, are incorporated to fulfil current market demand. Pua Kumbu weavers retain the traditional tradition and historical notion of designing the art pieces, but with minor adjustments in terms of colour and design motif selection (see Table 4.23, page 158). The transcripts of the five Pua Kumbu weavers' interviews are described below.

*"Basically, following the colour of the **Sarawak flag**, such as **red, black, yellow, white, dark maroon and sometimes purple**"*
IN(W1)*Bel-(DC-re,bl,yel,whi,mar,somPur)2.11.19

*"The base should be **red or maroon**. Pua Kumbu looks fantastic in red. Back then, the earth colours like **red, ochre, brown, and black** were derived from natural sources"*
IN(W2)*Sng-(DC-re,bl,mar,och,brw)27.11.20

*"The most privileged colours to be used on the Pua Kumbu are **red and black**.I utilised natural dyes. I grew the plant to provide the red colour then processed it with Ghai. I utilised natural coloured from Engkudu fruits for the black"*
IN(W3)*Kap-(DC-re,bl)28.11.20

*"**Red, white and black** is the most colours to be applied"*
IN(W4)*Kap-(DC-re,bl,whi)28.11.20

*"It's mostly **red, black, white, and blue**. But contemporary weavers might utilise different colours which not represent Iban culture"*
IN(W5)*Kap-(DC-re,bl,whi,somBlu)28.11.20

The coding of transcripts is included in the following Table 4.23.

Table 4.23: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in the Theme; Design Colour

Theme	Categories	Code
Design Colour	Red, black, yellow, white, maroon sometimes purple.	IN(W1)*Bel-(DC-re,bl,yel,whi,mar,somPur)2.11.19
	Red, black, maroon, ochre, brown.	IN(W2)*Sng-(DC-re,bl,mar,och,brw)27.11.20
	Red, black.	IN(W3)*Kap-(DC-re,bl)28.11.20
	Red, black, white.	IN(W4)*Kap-(DC-re,bl,whi)28.11.20
	Red, black, white, sometimes blue.	IN(W5)*Kap-(DC-re,bl,whi,somBlu)28.11.20

The code index description for Table 4.23:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
DC	:	Refers to question in theme: design colours.
re, bl, yel, whi, mar, somPur	:	Refers to Red, black, yellow, white, maroon sometimes purple.
Re, bl, mar, och, brow	:	Refers to Red, black, maroon, ochre, brown.
Re, bl	:	Refers to Red, black.
Re, bl, wh	:	Refers to Red, black, white.
Re, bl, whi, somBlu	:	Refers to Red, black, white, sometimes blue.
28.11.20	:	Refers to the date the interview was held.

Question 4:

*What is the **inspiration** for these design motifs?*

The fourth questions in the design characteristics theme are to understand the inspiration of the Pua Kumbu design motifs. Most Pua Kumbu weavers agreed that nature, Iban's culture, the ancestors, and surroundings become their inspirations in making the design motifs. In addition, participant IN(W5) stated the inspiration depends on the weaver desired (see Table 4.24, page 160). The transcripted interview can be seen in the following paragraph.

*"The **nature and life** of the Iban community"*
IN(W1)*Bel-(DI-nat,ic)2.11.19

*"The **nature** become the inspirations, besides by **mimicking the existent** design in the market"*
IN(W2)*Sng-(DI-nat, imed)27.11.20

*"Most of the design motifs that I created is from my **ancestors, which are inherited from one generation to another**. Which are mostly is plants like Pucuk-paku and Rebung"*
IN(W3)*Kap-(DI-an,sur)28.11.20

*"I just follow the design from my **ancestor and the surroundings**"*
IN(W4)*Kap-(DI-an,sur)28.11.20

*The **surroundings, flora and fauna** inspire me. For example, if I encountered lizards in my long house, I employ them as motifs. Similar to other motifs like crab and Iban people (mainly male). My ancestor's design will also be my Pua's main design. Sometimes I changed it to suit my preferences"*
IN(W5)*Kap-(DI-an,sur,imit)28.11.20

Table 4.24: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in the Theme. Design Inspirations

Theme	Categories	Code
Design Inspirations	Nature and Iban's culture.	IN(W1)*Bel-(DI-nat,ic)2.11.19
	Nature and imitation of the earliest design.	IN(W2)*Sng-(DI-nat, imed)27.11.20
	Ancestor and surroundings.	IN(W3)*Kap-(DI-an,sur)28.11.20
	Ancestor and surroundings.	IN(W4)*Kap-(DI-an,sur)28.11.20
	Ancestor, surroundings, imitations.	IN(W5)*Kap-(DI-an,sur,imit)28.11.20

The code index description for Table 4.24:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
DI	:	Refers to question in theme: design inspirations.
Nat, ic	:	Refers to nature and Iban's culture.
Nat, imed	:	Refers to Nature and imitation of the earliest design.
An, sur		Refers to ancestor and surroundings.
An, sur, imit		Refers to ancestor, surroundings, imitations.
28.11.20	:	Refers to the date the interview was held.

4.3.1.2 Descriptive Analysis of Pua Kumbu Art Knowledge among Weavers

The next dependent variable is to highlight the weaver's art knowledge of the Pua Kumbu design motifs. In this category, a total of six questions were constructed based on three main themes; (1) the taboos or rituals in the making of the Pua Kumbu design motifs, (2) the durations and techniques employed, and finally, (3) the future design to be articulated in the Pua Kumbu production.

The MAXQDA software application was used to analyse and code the interview transcript of the Pua Kumbu textile art knowledge among Pua Kumbu weavers. It was revealed that for the "design meaning" theme, all Pua Kumbu weavers agreed that humanoid design motifs have a specific meaning, and only one of them had uncertainty about the design meaning. Meanwhile, three participants only perform "miring" rituals for the humanoid design motifs. The other two participants do not perform any rituals (see Figure 4.3, page 162).

In addition, for the "weaving" theme, it was disclosed that participants agreed that anyone could do the Pua Kumbu textile weaving. Still, three of them added that a male could not weave the Pua Kumbu textile. Regarding the "duration" theme, the process of completing the Pua Kumbu is between one and three months. However, for the participant IN(W5), the duration is less than a month. Finally, in terms of the technique applied, all participants agreed to continue doing the textile in a traditional manner, but two agreed to use artificial colours. The details of the interview transcript are displayed in the following sub-sections.

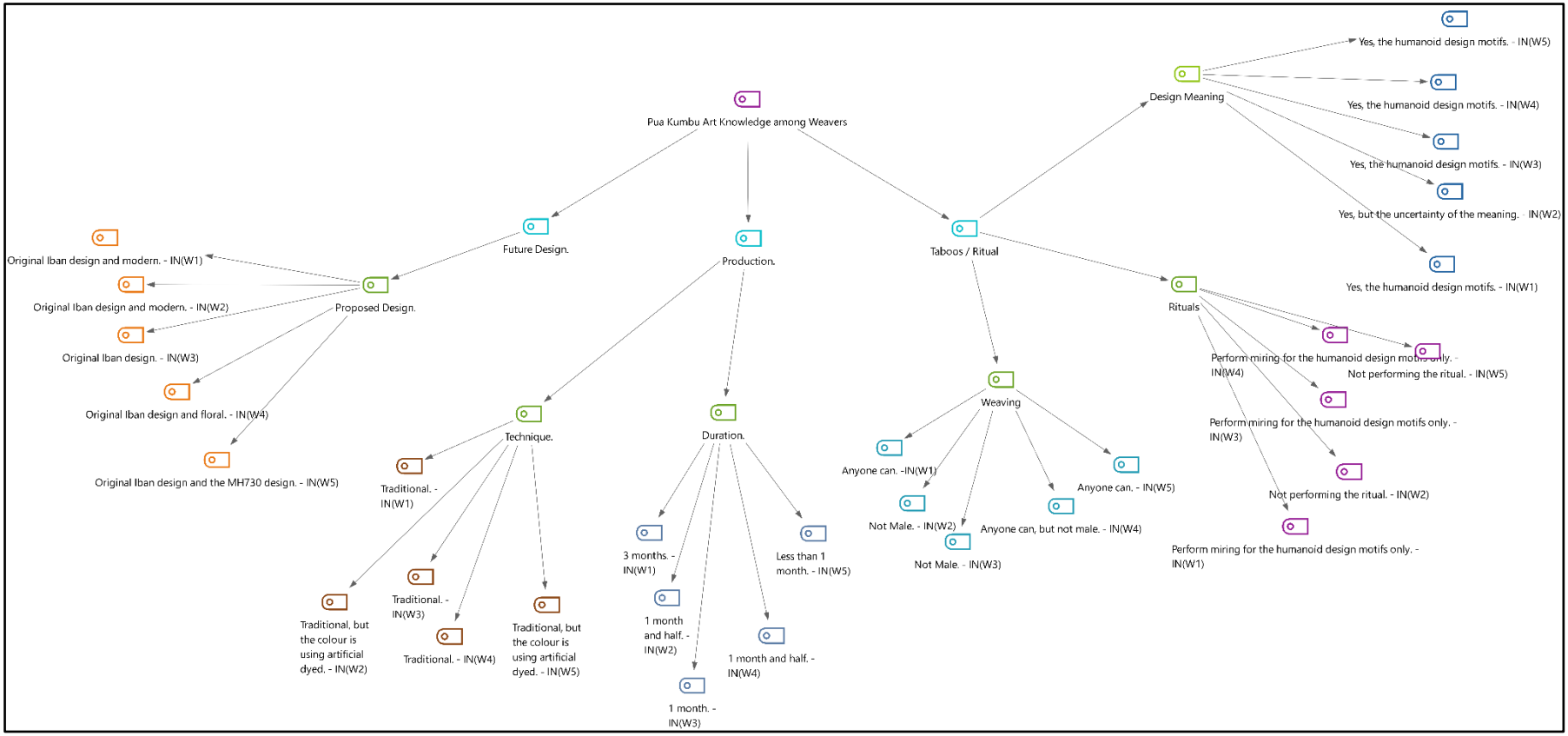


Figure 4.3: The MAXQDA Coding for the Pua Kumbu Art Knowledge Among Weavers

Taboos / Rituals

Question 5:

Do the Pua Kumbu design motifs possess any ***intrinsic/hidden meaning?***

The next question unveils the intrinsic meaning of every design motif applied to the Pua Kumbu textile. Most Pua Kumbu weavers understand the meaning of the humanoid design motifs only, which relate to Iban's belief and some predatory motifs, and urged some rituals to be performed before weaving the motifs. The transcript of the Pua Kumbu weavers for the following question is stated below. The transcripts coding is included in the following Table 4.25 (see page 164).

> *"**They have**. For example, the 'Kain Belantan' is used to transport children or babies, and the motifs on it are called '**Sabit Punan' or 'Beketan Pindah**', which are inspired by Iban activities from the past when people loved to go around. The motifs of '**home' and 'tuak**' were designed at the cloth's end. The pattern of a bird washing its feathers, or Burung Bersugu in Iban, is another example of a design motif used in the Pua Kumbu. Its design is based on the Punan tribe's nomadic lifestyle"*
>
> IN(W1)*Bel-(DM-Y,hdm)2.11.19

> *"**Every Pua has a meaning and tale**, although few people know it. Like me, I woven because I like Pua, but **I have no idea what the pattern means.** If I like the design, I make it. My main focus is on floral patterns. Modern weavers imitate past designs without knowing the meaning of each pattern.*"
>
> IN(W2)*Sng-(DM-Y,bum)27.11.20

> *"Absolutely! For example**, 'Seru Anga, Badan Satu Kepala Dua, Mandi Di Sungai Linga Jul'.** For designs with names like these, the weaver should incorporate 'food' to 'calm the design,' like human or fish images. Otherwise, the weaver will get sick. But if the motifs are flowery, they are simple and have no hidden meaning."*
>
> IN(W3)*Kap-(DM-Y,hdm)28.11.20

*"In my opinion, **certainly.** Not all can weave motifs like 'Petara' or goddess. Experienced weavers can weave these designs. "The inexperienced weaver can weave floral or plant motifs."*
IN(W4)*Kap-(DM-Y,hdm)28.11.20

*"**Yes, it has meaning**. For example, the 'Antu' motif cannot be created without knowledge. Only the wise elderly folks could weave such designs. Otherwise, the weaver will get sick."*
IN(W5)*Kap-(DM-Y,hdm)28.11.20

Table 4.25: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Design Meaning

Theme	Categories	Code
Design Meaning	Yes, the humanoid design motifs	IN(W1)*Bel-(DM-Y,hdm)2.11.19
	Yes, but the uncertainty of the meaning	IN(W2)*Sng-(DM-Y,bum)27.11.20
	Yes, the humanoid design motifs	IN(W3)*Kap-(DM-Y,hdm)28.11.20
	Yes, the humanoid design motifs	IN(W4)*Kap-(DM-Y,hdm)28.11.20
	Yes, the humanoid design motifs	IN(W5)*Kap-(DM-Y,hdm)28.11.20

The code index description for Table 4.25:

IN(W1 -5) : Refers to the participants one to five.

*Bel, *Sng, *Kap : Refers to where the interview was held.

DM : Refers to question in theme: Design Meaning.

Y, hdm : Refers to Yes, humanoid design motifs.

Y,bum	:	Refers to Yes, but the uncertainty of the meanings.
28.11.20	:	Refers to the date the interview was held.

Question 6:

*Does the weaver perform any **ritual** before weaving the Pua Kumbu textile?*

Based on the interviews conducted, the Pua Kumbu weavers IN(W1), IN(W3), and IN(W4) mutually agreed that the 'miring' ritual should be performed for 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 (see Table 4.26, page 166). However, participants IN(W2) and IN(W5) do not practice the 'miring' ritual anymore. The transcripted and coded result of theme 3 (design taboos/rituals) are as follows.

*"Will be perform **simple ritual like 'miring' for the humanoid design motifs**, like biting the charcoal or in Iban is called 'berketuk besi' activity"*
IN(W1)*Bel-(RIT-Per,HumdOn)2.11.19

*"I learnt to weave from my mother and grandmother when I was a teenager. They didn't teach me any Pua weaving rituals. thus, when I do the Pua, I do it **without ceremonial**"*
IN(W2)*Sng-(RIT-Xper)27.11.20

*"If the motifs are sacred and have the **god images, I will perform the Miring** in order to get the blessing"*
IN(W3)*Kap-(RIT-Per,HumdOn)28.11.20

*"The design with high-ranking motifs, such as **humanoid design, will do the Miring,** while the design with basic motifs, such as flora, will not execute the rituals."*

IN(W4)*Kap-(RIT-Per,HumdOn)28.11.20

*"I am **not performing any ritual like 'miring'** or else because my grandmother also did not apply 'miring' ritual too"*
IN(W5)*Kap-(RIT-Xper)28.11.20

The coding of transcripts is included in the following Table 4.26.

Table 4.26: Coding of Interview Data Through 'Code-and-Retrieve' for The Interview Question in the Theme; Rituals

Theme	Categories	Code
Rituals	Perform miring for the humanoid design motifs only.	IN(W1)*Bel-(RIT-Per,HumdOn)2.11.19
	Not performing the ritual.	IN(W2)*Sng-(RIT-Xper)27.11.20
	Perform miring for the humanoid design motifs only.	IN(W3)*Kap-(RIT-Per,HumdOn)28.11.20
	Perform miring for the humanoid design motifs only.	IN(W4)*Kap-(RIT-Per,HumdOn)28.11.20
	Not performing the ritual.	IN(W5)*Kap-(RIT-Xper)28.11.20

The code index description for Table 4.26:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
RIT	:	Refers to question theme: Rituals.
Per, HumdOn	:	Refers to performing *miring* ritual for the humanoid design motifs.
Xper	:	Refers to not performing any ritual.
28.11.20	:	Refers to the date the interview was held.

Question 7:

*Can **anyone weave** this Pua Kumbu textile?*

Some intriguing discoveries were made when participants IN(W1) and IN(W5) agreed that the Pua Kumbu textiles could be woven by anybody, regardless of gender (see Table 4.27, page 168). The other two participants, on the other hand, have differing viewpoints.

*"**Anyone can, regardless of gender**. Traditionally, weaving was a woman's responsibility. But once the Pua Kumbu was commercialised, the man was encouraged to weave."*

IN(W1)*Bel-(WEA-Any1)2.11.19

*"**Everyone can, but not male.** Any religious or ethnic can do the weave, besides male"*

IN(W2)*Sng-(WEA-Xmle)27.11.20

*"**Anyone can, but not male**"*

IN(W3)*Kap-WEA-Xmle)28.11.20

*"**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"*

IN(W4)*Kap-(WEA-Any1,Xmle)28.11.20

*"**Anyone can**, including the opposite gender, as long as they are interested in doing the weaving activity"*

IN(W5)*Kap-(WEA-Any1)28.11.20

The coding of transcripts is included in the following Table 4.27.

Table 4.27: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question n Theme; Weaving

Theme	Categories	Code
Weaving	Anyone can	IN(W1)*Bel-(WEA-Any1)2.11.19
	Not Male	IN(W2)*Sng-(WEA-Xmle)27.11.20
	Not Male	IN(W3)*-Kap-(WEA-Xmle)28.11.20
	Anyone can, but not male	IN(W4)*Kap-(WEA-Any1,Xmle)28.11.20
	Anyone can	IN(W5)*Kap-(WEA-Any1)28.11.20

The code index description for Table 4.27:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
WEA	:	Refers to question in theme: Weaving.
Any1	:	Refers to anyone can weave.
Any1, Xmle	:	Refers to anyone can weave but not male.
28.11.20	:	Refers to the date the interview was held.

Pua Kumbu Textile Production

In this subsection, the question focuses on the Pua Kumbu textile production. Most Pua Kumbu weavers agreed that completing one Pua Kumbu textile took about one month and a half (see Table 4.28, page 170). However, IN(W1) revealed that the process takes a longer time, about three months, to complete a Pua Kumbu textile. The transcripted answer of the Pua Kumbu weavers for question 8 were displayed below.

Question 8:

*How long does it take to **complete** this Pua Kumbu textile?*

*"An expert weaver may finish Pua in **3 months** due to its small size and simple design motif. A larger, more intricate design might take up to a year"*
IN(W1)*Bel-(DUR-3m)2.11.19

*"It took about **a month to set the design and around two weeks** to create the 2X4' size of Pua." The hassle is on the first stage, which is the manual setting of the desired design."*
IN(W2)*Sng-(DUR-1m1/2)27.11.20

*"**A month** to finish one Pua, including to set the design"*
IN(W3)*Kap-(DUR-1m)28.11.20

*"It all depends on the size." However, **the setup of the design motifs takes a month, but the weaving activity takes only two weeks**."*
IN(W4)*Kap-(DUR-1m1/2)28.11.20

*"It took about **2 weeks** to set and complete one Pua Kumbu for the size of 2 x 6 feet"*
IN(W5)*Kap-(DUR-LT1m)28.11.20

Table 4.28: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Durations

Theme	Categories	Code
Durations	3 months.	IN(W1)*Bel-(DUR-3m)2.11.19
	1 month and half.	IN(W2)*Sng-(DUR-1m1/2)27.11.20
	1 month.	IN(W3)*Kap-(DUR-1m)28.11.20
	1 month and half.	IN(W4)*Kap-(DUR-1m1/2)28.11.20
	Less than 1 month.	IN(W5)*Kap-(DUR-LT1m)28.11.20

The code index description for Table 4.28:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
DUR	:	Refers to question in theme: Durations.
3m	:	Refers to the duration of 3 months.
1m1/2	:	Refers to the duration that took only 1 months and half.
1m	:	Refers to the duration that took only 1 month.
LT1m		Refer to the duration that less than 1 month.
28.11.20	:	Refers to the date the interview was held.

Question 9:

*Do you still use the traditional **technique** of producing the textile?*

The transcript below shows that all Pua Kumbu weavers agreed to continue with the traditional technique. However, participant IN(W2) and IN(W5) discontinued the use of the original dye, and the coding of interview data was displayed in Table 4.29 (see page 172).

*"The Pua Kumbu value is far more essential to folks like me who like the old approach, even if it is pricey." And I tend to apply the **traditional way** since it is also in line with Iban cultural values."*

IN(W1)*Bel-(TECH-trad)2.11.19

*"I still practice the **traditional way**, but the colour is no longer natural coloured, **but artificial**."*

IN(W2)*Sng-(TECH-trad,colArtDy)27.11.20

"Still, yes. The weaving machine is still an older model, and the colour comes from natural dyeing."

IN(W3)*Kap-(TECH- trad)28.11.20

*"Yes, **traditional way**, still until now"*

IN(W4)*Kap-(TECH-trad)28.11.20

*"**Yes, traditional**. 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!"*

IN(W5)*Kap-(TECH-trad,colArtDy)28.11.20

Table 4.29: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Techniques

Theme	Categories	Code
Techniques	Traditional.	IN(W1)*Bel-(TECH-trad)2.11.19
	Traditional, but used artificial dyed colours.	IN(W2)*Sng-(TECH-trad,colArtDy)27.11.20
	Traditional.	IN(W3)*Kap-(TECH- trad)28.11.20
	Traditional.	IN(W4)*Kap-(TECH-trad)28.11.20
	Traditional, but used artificial dyed colours.	IN(W5)*Kap-(TECH-trad,colArtDy) 28.11.20

The code index description for Table 4.29:

IN(W1 -5)	:	Refers to the participants one to five.
*Bel, *Sng, *Kap	:	Refers to where the interview was held.
TECH	:	Refers to question in theme: Techniques.
Trad	:	Refers to the traditional technique.
trad, colArtDy	:	Refers to the traditional technique with the artificial dyed.
28.11.20	:	Refers to the date the interview was held.

Pua Kumbu Future Design Motifs

To conclude the interview with the Pua Kumbu weavers, the participants were asked whether the weavers wanted to propose any other design motifs besides the original Iban design motifs. The participant IN(W5) reflected with an interesting answer by interestingly stating the desire to add the motif of MH370 - the missing aeroplane, in the Pua Kumbu textile. The question and transcripts were recorded in the following section. The coding of interview data can be found in Table 4.30 (see page 174).

Question 10:

If you continue with this profession, are there any ***other types of design motifs*** *that you want to propose or articulate in production?*

"I intend to employ both ***modern and traditional design motifs.****" However, the design cannot be combined in order to preserve the Iban culture."*

IN(W1)*Bel-(PRODES-OrIB & mod)2.11.19

"I will continue to use the ***original design motifs****, but if* ***alternative types of design motifs*** *are preferred or recommended in the future, I would be delighted to use them."*

IN(W2)*Sng-(PRODES- OrIB & mOD)27.11.20

"Anything that is ***appropriate for Iban culture,*** *and I will continue to use* ***design elements from my ancestors****."*

IN(W3)*Kap-(PRODES-OrIB)28.11.20

"Any design from my ***ancestors and from floral design motifs****"*

IN(W4)*Kap-(PRODES-OrIBflor)28.11.20

"I'd want to incorporate the ***modern design motif*** *of MH370, - the missing aeroplane, which has a significant tale behind it."*

IN(W5)*Kap-(PRODES-OrIB & MH) 28.11.20

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 statement suggested that the Pua Kumbu weavers are open to new changes and not bounded by the design motifs of Iban culture.

Table 4.30: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Proposed Designs

Theme	Categories	Code
Proposed Designs	Original Iban design and modern.	IN(W1)*Bel-(PRODES-OrIB & mod)2.11.19
	Original Iban design and modern.	IN(W2)*Sng-(PRODES- OrIB & mod)27.11.20
	Original Iban design.	IN(W3)*Kap-(PRODES-OrIB)28.11.20
	Original Iban design and floral.	IN(W4)*Kap-(PRODES-OrIBflor)28.11.20
	Original Iban design and the MH370 design.	IN(W5)*Kap-(PRODES-OrIB & MH) 28.11.20

The code index description for Table 4.30:

IN(W1 -5) : Refers to the participants one to five.

*Bel, *Sng, *Kap : Refers to where the interview was held.

PRODES	:	Refers to question in theme: Proposed design.
OrIB & mod	:	Refers to original Iban design and the modern design.
OrIB	:	Refers to original Iban design.
OrIB & MH	:	Refers to original Iban design and the MH370 design motif.
28.11.20	:	Refers to the date the interview was held.

4.3.2 Phase 2: Interviewing the Malaysian Academics

This section reflects on the results of the interviews with the focus group, the Malaysian academics in the textile and art cultural fields. It presents the analysis of their verbal responses during the interviews and focuses on the targeted group. A total of four individuals from different fields were interviewed using the structured interview questions and delivered differently to the targeted participants. The interview questions were established to obtain information on two dependent variables: the visual complexity of the Pua Kumbu design motifs and the art knowledge embedded in the art piece based on the experts' point of view.

The researcher has constructed the interview questions based on the two categories; (1) design characteristics and (2) community acceptance and knowledge acquired (see Table 3.10, page 111), which are required in the current study. The in-depth interview protocol was provided for 30 – 40 minutes for each participant. Each question raised by the researcher was listened to and translated individually to facilitate the participant's understanding of the content of each question. The details of the transcription are included in the following sub-section.

The MAXQDA data analysis effectively recovered and classified the interview into four (4) primary themes: pattern regularity, design compositions, colour combinations, and object size (see Figure 4.4, page 177). Most of the participants grasp the design meaning and technique for the pattern's regularity, except participant IN(A2), who only understands the Pua Kumbu textile technique but not the design motifs' meaning. Meanwhile, for the theme of the design composition, participants IN(A1), IN(A2), and IN(A3) remarked that the Pua Kumbu design motifs are complicated. IN(A3) noted that the visual complexity of the design motifs is based on the difficulties of the patterns and, according to IN(A2), their embedded stories. According to participant IN(A4), the composition of Pua Kumbu design motifs is subjective and related to traditional intellectual property rights associated with taboos.

In terms of colour combinations, all the participants agree on natural colours. Finally, participant IN(A1) remarked that the Pua Kumbu design motifs mix large and small designs regarding the object size theme. Participants IN(2) and IN(A3) indicated that small, intricate patterns generate the finest designs of Pua Kumbu design motifs. However, for participant IN(A4), the design motifs did not matter if they carried meaning. The details of the transcripted interview have been included in the following sub-sections.

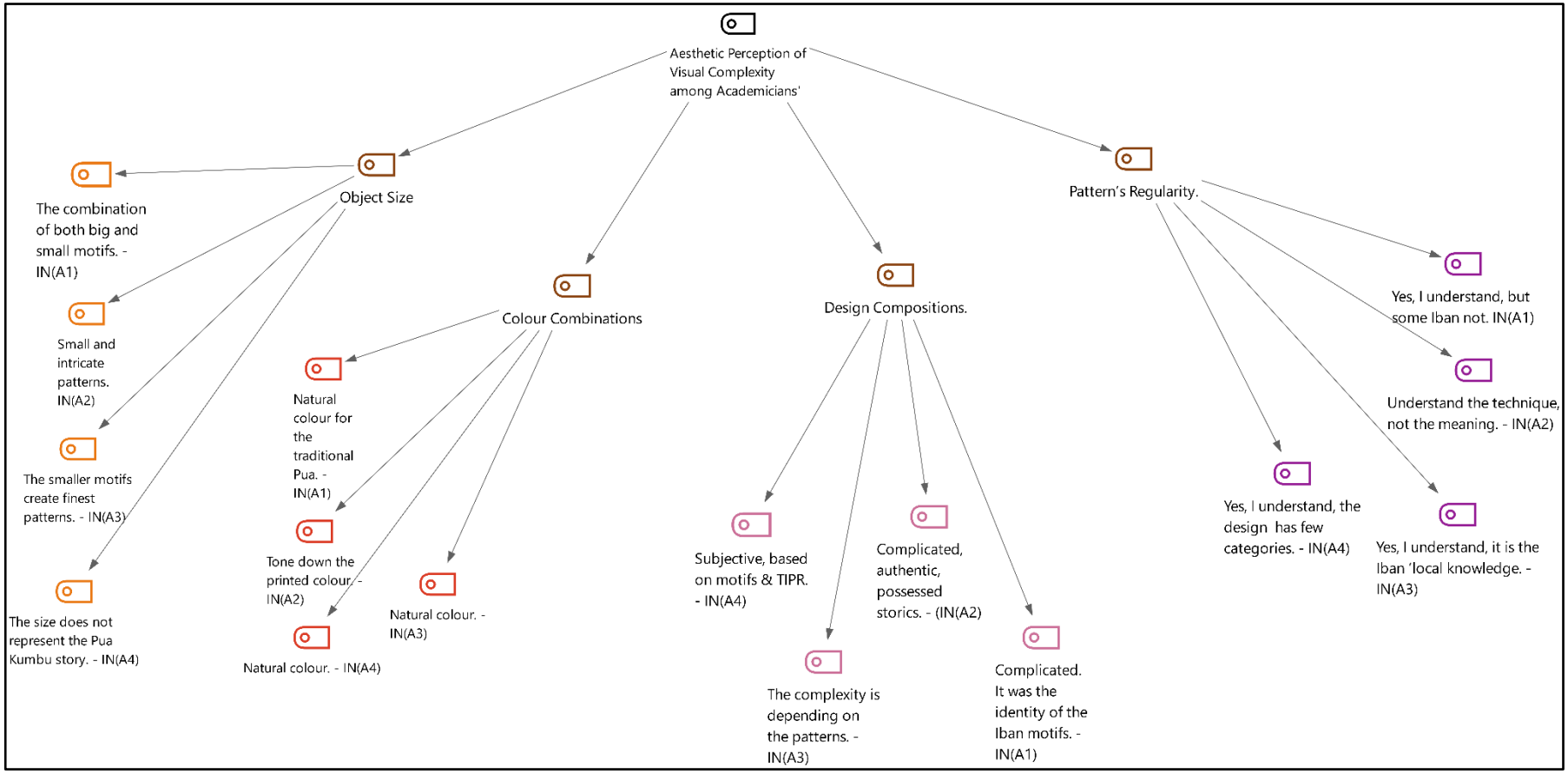


Figure 4.4: The MAXQDA Coding of the Visual Complexity Among Malaysian Academics

4.3.2.1 Descriptive Analysis of the Visual Complexity among Malaysian Academics

The questions were divided into two dependent variables. Variable 1 is on the visual complexity – to gather the information on the Pua Kumbu's design motifs characteristics. Variable 2 is the expert's point of view of the community acceptance and knowledge acquired towards Pua Kumbu textile. In the context of the design characteristics, four interview questions were prepared and categorised into four main themes: patterns regularity, compositions, colour combinations, and object size. The responses of each participant are disclosed and coded in the following sections.

The Complexity of the Pattern's Regularity

Question 1:

*Do you understand the **pattern regularity** of the Pua Kumbu design motifs?*

Most of the participants understand and are familiar with the patterns of the Pua Kumbu design motifs (only one does not understand its meaning). Pua Kumbu textile is a known textile to them. However, the understanding of the design motifs applied and the narratives behind each art piece require to be discussed further in the next chapter. Participants from the state of Sarawak and exposed to the Iban culture have a better understanding. However, participants who were not from the state of Sarawak could not understand the design motifs further but were only able to discuss the technique applied.

> *"Based on my experience working with Malaysia Handicraft for 14 years, actually, for Pua Kumbu, I do not understand the motifs, but I understand the method."*
>
> IN(A2)*Sa-(PATREG- Untnd,btechX)25.03.20

The expert was exposed to the textile, art, culture, and heritage environment. Yet, there is a need to have better local knowledge of the Ibans. Participant IN(A3) reflected in the interview that no design motifs were applied in the early stage of the textile creation. But with the assimilations of nature and the Iban surroundings, it becomes the inspirations to be applied to the textile as the design motifs;

> *"Pua began as a plain blanket with no patterns. They used natural motifs like leaves and crawling plants. A crocodile motif followed, then fish and fish bones. The art was inspired by a daily meal and fish design. We call Pua weaving 'local knowledge' since it reflects Iban philosophy and thinking.*"
>
> IN(A3)*KchZ-(PATREG-Y(u)IBlocknw)28.07.20

The participant IN(A4) defined that the Pua Kumbu design motifs are categorised into a few groups which have a relation with the Iban folklores and cosmology:

> *"The design has few classifications since it combines a varied group of motifs, such as humanoid, abstract design of animals, plants, flowers, mountains, trees, rivers, etcetera. The other is a beast design. The monster is a devilish form that is not seen but appears in Iban legend. To grasp Iban motifs, one must first understand Iban folklore and cosmology."*
>
> IN(A4)*KchZ-(PATREG-Y(u)catmot)30.07.20

However, based on participant IN(A1), some of the Iban people also do not understand the terms of Pua Kumbu textile itself, which then confuses others too;

> *"First, most people misunderstand the term 'Pua Kumbu', which includes both Ibans and outsiders. Pua Kumbu textile is solely used for ceremonies. However, the wiki and the internet always refer to Iban weaving as Pua Kumbu. That is*

incorrect. The word Pua Kumbu has been debated by various researchers. Then I must explain based on my knowledge. However, referring to the Pua Kumbu design motif is permissible, but not the Pua Kumbu itself. Remember that not all Iban weaving is Pua Kumbu. Iban Textile's table runner is not Pua Kumbu. In our longhouse, Pua Kumbu was utilized to elevate the dead. That is Pua Kumbu."

IN(A1)*Bet-(PATREG-Y(u),bsIBx)2.11.19

The misinterpretation of the terms also led to confusion in acts and justifications, which must be overcome and controlled. Following is the interview coding and theme for question one (Table 4.31).

Table 4.31: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in the Category; Pattern's Regularity

Theme	Categories	Code
Pattern's Regularity	Yes, I understand, but some Iban does not understand.	IN(A1)*Bet-(PATREG-Y(u),bsIBx)2.11.19
	Understand the technique, not the meaning.	IN(A2)*Sa-(PATREG-Untnd,btechX)25.03.20
	Yes, I understand the Pua weaving is the Iban 'local knowledge'.	IN(A3)*KchZ-(PATREG-Y(u)IBlocknw) 28.07.20
	Yes, I understand that the design has few categories from diverse group motifs.	IN(A4)*KchZ-(PATREG-Y(u)catmot)30.07.20

The code index description for Table 4.31:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet, *Sa, *KchZ	:	Refers to where the interview was held.
PATREG	:	Refers to theme: pattern's regularity.
Y(u),bsIBx	:	Refers to that some Iban not understand.
Y(u)IBlocknw	:	Refers to the Pua weaving is the Iban 'local knowledge'.
Y(u)catmot	:	Refers to the design has categories from diverse of group motifs.
30.07.20	:	Refers to the date the interview was held.

The Complexity of the Compositions

Question 2:

*What do you think of the **compositions** of the Pua Kumbu design motif?*

Notably, based on the participant's perspective, the design motifs are complex and lacking. Regarding the composition of the Pua Kumbu design motifs, the participants mutually agreed the composition is complicated. The complexity of every design motif applied is reflected in the Iban identity.

> *"It was great. 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 was **characterised by its intricacy in design.** Excellent. That is how I feel about the Iban's identity: complicated."*
>
> IN(A1)*Bet-(CMPLX-Com.idIB)2.11.19

*“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 the religious practice is also undertaken when making this textile. “*

IN(A2)*Sa-(CMPLX-Com.autPosSTO)25.03.20

Notably, based on the perspective of the participant, the visual complexity of the Pua Kumbu design motifs and lack of local knowledge of the Iban culture was a setback in deeper understanding of the design;

*"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

Meanwhile, participant IN(A4) mentioned the following taboos, and traditional intellectual property right issue protected the Pua Kumbu design motifs' complexity;

*"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 taboo." Each family may possess several sorts of design that cannot be replicated to design motifs held by others. They were convinced that if they wove the design of another family without permission, they would become ill and finally die."*

IN(A4)*KchZ-(CMPLX-Subj.TICPtabs)30.07.20

Table 4.32: Coding of Interview Data Through 'Code-aAnd-Retrieve' for the Interview Question in Theme; the Complexity of the Compositions

Theme	Categories	Code
The complexity of the compositions	Complicated. It was the identity of the Iban motifs.	IN(A1)*Bet-(CMPLX-Com.idIB)2.11.19
	Complicated, authentic, possessed storics.	IN(A2)*Sa-(CMPLX-Com.autPosSTO)25.03.20
	The complexity depends on the patterns and should have a complete set of every design.	IN(A3)*KchZ-(CMPLX-Pat.cmplSet)28.07.20
	Subjective, based on the difficulties of the motifs and the traditional intellectual property rights issue and taboos.	IN(A4)*KchZ-(CMPLX-Subj.TICPtabs)30.07.20

The code index description for Table 4.32:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet,*Sa, *KchZ	:	Refers to where the interview was held.
CMPLX	:	Refers to theme: complexity of the compositions.
Com.idIB	:	Refers to complicated was the identity of the Iban motifs.
Com.autPosSTO	:	Refers to complicated, authentic, possessed stories.
Pat.cmplSet	:	Refers to the complexity is depending on the patterns and with complete set of every design.
Subj.TICPtabs		Refers to the difficulties of the motifs based on the traditional intellectual property right issue and taboos.
30.07.20	:	Refers to the date the interview was held.

The Complexity of the Colour Combinations

Question 3:

*What is your opinion on the **colour combination** applied on the Pua Kumbu textile?*

It is reported that all participants agreed that the Pua Kumbu textile has a great outlook in natural colours such as maroon, red, dark blue, and black (see Table 4.33, page 185).

*"**Natural** earthen colours"*
IN(A4)*KchZ-(COLCOM-Natcol)30.07.20

According to participant IN(A1), some of the Pua Kumbu weavers also used more contemporary colours, such as blue and green, to complement the modern design motif of Pua Kumbu textile to a certain extent.

*"I don't mind if they chose any colour for the contemporary design, as long as you don't even claim it's Pua Kumbu." Our **original colour is usually maroon.** The blue and green, on the other hand, are too contemporary."*
IN(A1)*Bet-(COLCOM-Nat.b&gctmpry)2.11.19

Although not required, participant IN(A3) stated that using an opposing and brilliant colour is desirable as long it portrays the Iban culture and is not distracting.

*"I don't mind if the weavers use colours other than Iban colours as long as they are **still connected to the Iban culture**." "The colours green, yellow, and orange are not culturally significant."*
IN(A3)*KchZ-(COLCOM-Nat.GYOxIB)28.07.20

According to participant IN(A2), the colours utilised in the market today are more brilliant and are mainly for commercial goals, as opposed to the original traditional Iban colours.

> *"This is not customary, but recently the coloration of Pua Kumbu has become more striking. To my knowledge, they didn't tie and dye the yarn; they printed it. Due to the lack of colour in traditional Pua, this version is intended for visitors. Most Pua are now printed, with brighter, longer-lasting colours. The colour is too intense and has to be diluted."*
>
> *IN(A2)*Sa-(COLCOM-TonDwn)25.03.20*

Table 4.33: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Colour Combination

Theme	Categories	Code
Colour Combination	The natural colour for the traditional Pua - and blue and green is more contemporary.	IN(A1)*Bet-(COLCOM-Nat.b&gctmpry)2.11.19
	The printed colour needs to tone down the colour because the colour is too bright.	IN(A2)*Sa-(COLCOM-TonDwn)25.03.20
	Natural colour. Green, yellow, orange is not relevant to Iban.	IN(A3)*KchZ-(COLCOM-Nat.GYOxIB)28.07.20
	Natural colour.	IN(A4)*KchZ-(COLCOM-Natcol)30.07.20

The code index description for Table 4.33:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet, *Sa, *KchZ	:	Refers to where the interview was held.
COLCOM	:	Refers to theme: colour combination.
Nat.b&gctmpry	:	Refers to natural colour for the traditional Pua - and the blue and green is more contemporary.
TonDwn)	:	Refers to the printed colour needs to tone down the colour because the colour is too bright.
Nat.GYOxIB	:	Refers to the natural colour, Meanwhile, the green, yellow, orange is not relevant to Iban.
Natcol		Refers to the natural colour.
30.07.20	:	Refers to the date the interview was held.

The Complexity of the Object Size

Question 4:

What do you think of the size of the design motifs applied on Pua Kumbu textile?

The size of the design motifs applied to the Pua Kumbu textile was discussed with the participants. The justification by academicians of the design motifs' visual complexity would contribute to a better understanding of the Pua Kumbu patterns (see Table 4.34, page 188). The participant, IN(A1), agreed that the design motifs used were a combination of multiple sizes that indicated:

> *"The Iban motif is **a mixture of small size motifs** that combine to form one design that conceals the Iban value, culture, and belief."*
>
> IN(A1)*Bet-(OBJSZE-b&s,cmpltPAT)2.11.19

According to both IN(A2) and IN(A3) participants, the smaller pattern sizes of the design motif, on the other hand, contribute to a more elaborate and exquisite design. But it is the weaver's imagination and 'local knowledge' that determines the whole designs of Pua Kumbu textile, not any mathematical formula:

> *"The **weavers do it their way.** The **weaver determines the size.** So, we, the customers, got Pua Kumbu as is. We don't have the capacity to choose between receiving intricate and small patterns or enormous patterns. Unless they produce crocodile patterns in large images, but repetitively."*
>
> IN(A2)*Sa-(OBJSZE-s&iPrfer.Brpet)25.03.20

> *"The **finer pattern** is 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

Nonetheless, the Pua Kumbu weavers are the masterminds behind this amazing creation, deciding to make and create every form of the design motifs depending on the complexity of the patterns as interpreted by the weaver.

> *"The **magnitude of the design elements is never questioned** since they symbolise 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

Table 4.34: Coding of Interview Data Through 'Code-and-Retrieve' for the Question in the Theme; Object Size

Theme	Categories	Code
Object Size	Combining both big and small motifs in making one complete pattern.	IN(A1)*Bet-(OBJSZE-b&s,cmpltPAT)2.11.19
	Small and intricate patterns are preferable. But if the size of the image is big, make it repetitive.	IN(A2)*Sa-(OBJSZE-s&iPrfer.Brpet)25.03.20
	The smaller motifs create the finest pattern, but the big size motif is better for some.	IN(A3)*KchZ-(OBJSZE-sfin/bgszebet)28.07.20
	The design motifs size does not represent the Pua Kumbu story.	IN(A4)*KchZ-(OBJSZE-szeXimprtn)30.07.20

The code index description for Table 4.34:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet,*Sa, *KchZ	:	Refers to where the interview was held.
OBJSZE	:	Refers to theme: object size.
b&s,cmpltPAT	:	Refers combination of big and small motifs in one complete pattern.
s&iPrfer.Brpet	:	Refers to the small and intricate patterns. But if size of the image is big, make it repetitive.
sfin/bgszebet	:	Refers to the smaller motifs create finest pattern, but to some, the big size motif is better.
szeXimprtn		Refers to the design motifs size does not represent the textile story.
30.07.20	:	Refers to the date the interview was held.

4.3.2.2 Descriptive Analysis of the Art Knowledge among the Malaysian Academics

In this part, the researcher purposely designed questions to understand the community acceptance and knowledge acquired of the design motifs applied on the Pua Kumbu from the experts' point of view. The participants answered four in-depth interview questions carefully, which were then coded and displayed narratively. Each participant's responses are disclosed in themes and coded using the MAXQDA software application (see Figure 4.5, page 190).

The themes have been divided into four (4); community understanding, Pua Kumbu's potential market, Pua Kumbu's preservation, and the integration of artificial intelligence into a mobile application. According to all participants IN(A1-4), the community did not understand the Pua Kumbu design motifs. This phenomenon was caused by the lack of knowledge among the community about textiles. However, for the potential market theme, all participants mutually agree that this majestic textile has the ability and uniqueness to be marketed internationally.

Following the next theme, participants give various answers on the design motifs' preservation, such as competitions, applying the design motifs to products and textiles, early education, documentaries, and seminars. However, participant IN(A4) stated that the design motifs could not be integrated into any product and urged the weavers to continue weaving for the sake of preservation. Finally, all participants agreed that integrating artificial intelligence in safeguarding the Pua Kumbu design motifs can widen the public acceptance and enhance the users' experience. The details of the transcripted interview were added in the following sub-sections.

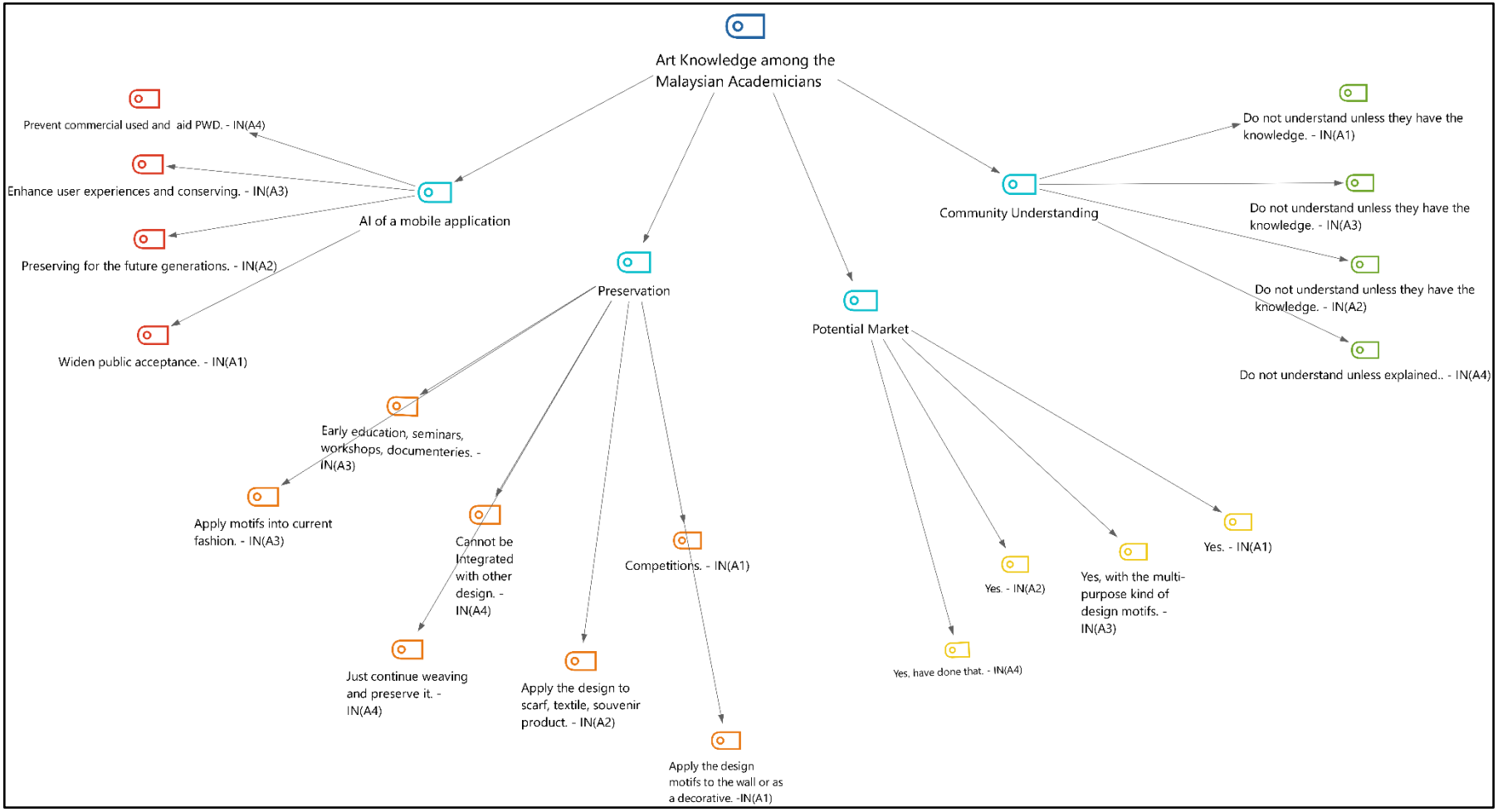


Figure 4.5: The MAXQDA Coding of the Art Knowledge Among Malaysian Academics

The Community understanding

Question 1:

*Do you think the **audience understands** the design motifs applied to the Pua Kumbu textile?*

Most of the participants agreed that the community lacks awareness of the design motifs utilised on textiles, particularly among younger generations of the population (see Table 4.35, page 193).

> *"I believe the **younger generations are unaware.** They must study for the sake of the future. Even our own people are puzzled since Iban textile is still called Pua Kumbu."*
> *IN(A1)*Bet-(CMUNDS-Xunds/hvknwld)2.11.19*

Participant IN(A4) added that in a series of exhibitions that have been held, most of the audience does not understand the textile unless it is explained to them;

> *"**No, because if I don't explain** the Pua to the public in the series of exhibitions that I conducted, **they never know about it**."*
> *IN(A4)*KchZ-(CMUNDS-Xunds/expl)30.07.20*

Pua Kumbu textile, on the other hand, is better understood by Ibans who still live in Iban longhouses, as opposed to people who do not practice Iban culture and do not know about it.

> *"**Not everyone understands the design motifs**. Some Iban who grew up in the culture and longhouse may understand. The modern Iban, on the other hand, misses the point. They merely know how to utilise and wear the clothing without knowing its meaning."*
> *IN(A3)*KchZ-(CMUNDS-Xunds/hvknwld)28.07.20*

Meanwhile, participant IN(A1) revealed that the community lacked an understanding of the Pua Kumbu textile, which resulted in the mistreatment of this magnificent piece.

> *"**Certain people don't comprehend the design;** they took a sacred ceremonial pattern and put it on a table runner, which enrages some Iban." "In the most recent R&D competition, one person developed a pant out of real Pua Kumbu, which is not acceptable."*
> *IN(A1)*Bet-(CMUNDS-Xunds/hvknwld)2.11.19*

Participant IN(A3) recounted a similar case concerning the misuse of the Pua Kumbu textile. Some people who do not comprehend the design motifs have abused the textile by using it on a whim and disregarding the Iban customs depicted on it.

> *"In one case, a '**Baju Burung**' is made by a tailor with the motifs sewed upside-down, which is wrong and is worn by a Sarawak VIP during a Dayak conference. This has become a huge issue as a result of the inconsiderate deed."*
> *IN(A3)*KchZ-(CMUNDS-Xunds/hvknwld)28.07.20*

Participant IN(A2) proposed a seller partnership to promote this textile in the market to instil awareness of the Pua Kumbu intangible cultural heritage in the community.

> *"I think that the **seller should explain the design motifs** to the buyers so that they can understand what they are. The seller must first know what Pua" is about."*
> IN(A2)*Sa-(CMUNDS-Xunds/hvknwld)25.03.20

Table 4.35: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme: Community Understanding

Theme	Categories	Code
Community Understanding	Do not understand unless they have the knowledge.	IN(A1)*Bet-(CMUNDS-Xunds/hvknwld)2.11.19
	Do not understand unless they have the knowledge.	IN(A2)*Sa-(CMUNDS-Xunds/hvknwld)25.03.20
	Do not understand unless they have the knowledge.	IN(A3)*KchZ-(CMUNDS-Xunds/hvknwld)28.07.20
	Do not understand, unless explained.	IN(A4)*KchZ-(CMUNDS-Xunds/expl)30.07.20

The code index description for Table 4.35:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet,*Sa, *KchZ	:	Refers to where the interview was held.
CMUNDS	:	Refers to theme: community understanding.
Nat.b&gctmpry	:	Refers to the community does not understand the design motifs unless they have the knowledge.
Xunds/expl	:	Refers to the community does not understand the design motifs unless explained.
30.07.20	:	Refers to the date the interview was held.

Potential Market for Pua Kumbu Textile

Question 2:

Do you think Pua Kumbu textile can be ***sold internationally?***

All participants agreed that the Pua Kumbu textile could be sold internationally and have the potential in the outside markets (see Table 4.36, page 195). Participant IN(A4) mentioned that the textile had been sold to the international market for years.

"That one I don't mind."

IN(A1)*Bet-(POTMARK-Y)2.11.19

"I am sure ***they can****. Because people now going everywhere around the world, looking through internet and they read."*

IN(A2)*Sa-(POTMARK-Y)25.03.20

*"****Absolutely, Pua Kumbu is an art.*** *If the weaver is skilled, she should develop Pua motifs that are universal, such as the plant, fish bone, and geometric designs.*"

IN(A3)*KchZ-(POTMARK-m/pDes)28.07.20

*"****Yes, we have already done*** *that for many years."*

IN(A4)*KchZ-(POTMARK-Done)30.07.20

Table 4.36: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme: Potential Market

Theme	Categories	Code
Potential Market	Yes	IN(A1)*Bet-(POTMARK-Y)2.11.19
	Yes	IN(A2)*Sa-(POTMARK-Y)25.03.20
	Yes, with the multi-purpose kind of design motifs.	IN(A3)*KchZ-(POTMARK-m/pDes)28.07.20
	Yes, have done that.	IN(A4)*KchZ-(POTMARK-Done)30.07.20

The code index description for Table 4.36:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet,*Sa, *KchZ	:	Refers to where the interview was held.
POTMARK	:	Refers to theme: potential market.
m/pDes	:	Refers to the textile can be sold internationally with the integration of multi-purpose kind of design motifs.
Done	:	Refers to the textile has already been sold internationally.
30.07.20	:	Refers to the date the interview was held.

Preservation and Future Design Development

Question 3:

What is your recommendation for preserving ***Pua Kumbu textile and future design development?***

The participants' opinions on the best approach to ensure the survival and preservation of Pua Kumbu textile can be undertaken through early education exposure such as competitions, seminars, workshops, book publications, and films.

> *"We must too. Because Pua Kumbu design motifs are rare and hard to come by. I am considering teaching the younger generation since there are* ***competitions like Pua Kumbu Tenunan and even mat, or e-tenun, as well as compiling and publishing****."*
> *IN(A1)*Bet-(PRSRVE-cmptions)2.11.19*

> *"Must* ***educate*** *the Iban community and the public through* ***seminars, workshops, conferences, and documentaries****."*
> *IN(A3)*KchZ-(PRSRVE-ered/exp/sem/doc)28.07.20*

Most of the participants stated that integrating and incorporating Pua Kumbu design motifs textile on other surfaces such as products, fashion, furniture, and textiles can enhance community acceptance and Pua Kumbu development by extending other motifs besides the simple type of plant motifs only.

> *"Apply Pua Kumbu design elements on* ***walls or as décor****. Put a basic design* ***motif on a cup****, for example."*
> *IN(A1)*Bet-(PRVEFUTDEV-intgrtion)2.11.19*

*"You could use Pua motif on **chairs and tables** but not on motifs infused with animal, humanoid, or ceremonial meaning."*

*IN(A2)*Sa-(PRSRVE-intgrtion)25.03.20*

Moreover, participant IN(A2) suggested implementing the Pua Kumbu design motifs in the current textiles, fashion, and souvenir products:

*"So, you may offer Pua motifs on **scarves but not animal motifs** for Muslims, for example. Always be in style and in **product; souvenirs.** Infuse it with all Pua design motifs."*

*IN(A2)*Sa-(PRSRVE-intgrtion)25.03.20*

According to participant IN(A3), fashion designers should be encouraged to incorporate traditional design motifs of Pua Kumbu into modern fashion while keeping a nod to the previous design.

*"I think future fashion designers should combine Pua Kumbu motifs into **contemporary fashion,** but they need first comprehend the original design before designing the new one."*

*IN(A3)*KchZ-(PRVEFUTDEV-implemntPST)28.07.20*

Most of the design motifs applied to the Pua Kumbu textile were strongly tied to Iban culture, with contained Iban customs, beliefs, taboos, the natural surroundings, and a tale that cannot be simply created without comprehending it. Each design motif reflected a separate tale and was sacred to the Iban people. Participant IN(A4) stated that the designs motifs of Pua Kumbu could not be combined and incorporated onto other surfaces because it would affect the story the weaver wanted to convey.

*"Due to their different qualities, the Pua Kumbu design motifs **cannot be merged into other designs.** The motifs are communal in nature, with each design element tied to and representing a tale."*

*IN(A4)*KchZ-(PRVEFUTDEV-Xintgrated)30.07.20*

Based on the information gathered, participant IN(A4) stated that the tangible heritage of the Pua Kumbu textile could be preserved by weaving the textile continuously.

*"The only way to conserve is to **keep weaving and preserving it.** You cannot establish a deep interaction with the design if you merely print it on paper or canvas."*

*IN(A4)*KchZ-(PRSRVE-cntne)30.07.20*

All participants agreed or strongly agreed that Pua Kumbu textile perceivers' lack of knowledge of the design motifs had resulted in the maltreatment and misinterpretation of this physical masterpiece in general. Furthermore, because of the traditional values that have been implanted in the art, Pua Kumbu textile is thought to have exceptional potential to be brought to attention (see Table 4.37).

Table 4.37: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Preservation & Future Design Development

Theme	Categories	Code
Preservation and future design development	Competitions.	IN(A1)*Bet-(PRVEFUTDEV-cmptions)2.11.19
	Apply the design to scarf, textile, and souvenir products.	IN(A2)*Sa-(PRVEFUTDEV-intgrtion)25.03.20
	Apply the Pua Kumbu design motifs to the wall or for decorative purposes.	IN(A1)*Bet-(PRVEFUTDEV-intgrtion)2.11.19

Table 4.37 continued

	Designers are encouraged to implement the traditional motifs into current fashion, but concerning the past design.	IN(A3)*KchZ-(PRVEFUTDEV-implemntPST)28.07.20
	Early education and exposure, seminars, workshops, conferences, documentaries.	IN(A3)*KchZ-(PRVEFUTDEV-ered/exp/sem/doc)28.07.20
	Cannot be Integrated with other design.	IN(A4)*KchZ-(PRVEFUTDEVXintgrated)30.07.20
	Just continue weaving and preserve it.	IN(A4)*KchZ-(PRVEFUTDEVcntne)30.07.20

The code index description for Table 4.37:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet, *Sa, *KchZ	:	Refers to where the interview was held.
PRSRVE	:	Refers to theme: preservation and future design development.
Cmptions	:	Refers to the competitions as one the way to preserve the textile.
Intgrtion	:	Refers to the activity of integration of other surfaces as preservation act.
implemntPST		Refers to the activity of encouraging designers in referring to past design and integrating with current design.
ered/exp/sem/doc	:	Refers to the activity of early education and exposure, seminars, workshops, conferences, documentaries as preservation acts.
Xintgrated		Refers to the design motifs cannot be Integrated with other design.
Cntn	:	Refers to the activity of weaving as the act of preserving the textile.
30.07.20	:	Refers to the date the interview was held.

Integration of artificial intelligence in a mobile application

Question 4:

*What are your opinions on using **artificial intelligence in a mobile application to safeguard** the Pua Kumbu textile?*

All participants agreed that incorporating artificial intelligence into a mobile application can improve public acceptance and knowledge of the Pua Kumbu textile. Simultaneously, this innovative approach can help to preserve the cultural heritage art piece for future generations (refer Table 4.38, page 201).

*"Wonderful move. We must advance and utilise the available technology. A **wider public** will be reached by **combining technology and culture. "***

IN(A1)*Bet-(Ai-widPub/tech+cult)2.11.19

*I think employing AI instead of authentic cultural products is a **fantastic strategy to maintain Pua Kumbu for future generations**."*

*IN(A2)*Sa-(Ai-FantStr2maintain)25.03.20*

*I think it's a great concept to utilize AI in a mobile app to protect Pua Kumbu textile. With today's age always on the phone, Pua Kumbu will not be forgotten if this is done. This will **enhance the user experience** and **help conserve our local treasure**, Pua Kumbu."*

IN(A3)*KchZ-(Ai-enHnceUserExp+coserve)28.07.20

*"Definitely. As a result, Ai can **prevent commercial use** of the Pua Kumbu design motif, **as well as its copying and alteration**. So, the designer knows how to commercialise the Pua Kumbu design."*

IN(A4)*KchZ-(Ai-prevntCOMrcialUse)30.07.20

Additionally, participant IN(A4) mentioned that including technology as a supporting element for the cultural heritage product could aid people with disabilities (PWD) receive the information linked to the Pua Kumbu textile.

*"**AI can aid the blind.** And it will indirectly assist disabled people in receiving Pua Kumbu textile knowledge."*

IN(A4)*KchZ-(Ai-aid/PWD)30.07.20

Table 4.38: Coding of Interview Data Through 'Code-and-Retrieve' for the Interview Question in Theme; Artificial Intelligence of A Mobile Application

Theme	Categories	Code
Artificial intelligence of a mobile application	Widen public acceptance.	IN(A1)*Bet-(Ai-widPub/tech+cult) 2.11.19
	Preserving for the future generations.	IN(A2)*Sa-(Ai-FantStr2maintain) 25.03.20.
	Enhance user experiences and conservation.	IN(A3)*KchZ-(Ai-enHnceUserExp+coserve)28.07.20
	Prevent commercial use and aid PWD.	IN(A4)*KchZ-(Ai-prevntCOMrcialUse&aidPWD)30.07.20.

The code index description for Table 4.38:

IN(A1 -4)	:	Refers to the participants one to four.
*Bet, *Sa, *KchZ	:	Refers to where the interview was held.
Ai	:	Refers to theme: Artificial intelligence.
widPub/tech+cult	:	Refers to the widening public acceptance with the integration of technology and culture.
FantStr2maintain	:	Refers to the fantastic strategy to maintain the cultural heritage.

enHnceUserExp+coserve		Refers to enhancing the user experience and conserving the textile.
prevntCOMrcialUse&aidPWD	:	Refers to preventing commercial use of Pua Kumbu design motifs and aiding the PWD.

4.4 Summary of Chapter 4

This chapter encapsulated the data from the ARS-Revised questionnaire (Wahed et al., 2019) and two sets of interview questions conducted among the targeted participants to achieve the study's objectives. Both quantitative and qualitative data findings were able to enrich the data needed and contribute to the novelty of the present study.

For the quantitative approach, 400 participants were involved in this study by responding to the Art Reception Survey-Revised (ARS-Revised) questionnaire. The feedback gathered from the questionnaire was systematically arranged with the participants' demographic is presenting earliest in this chapter. The T-test analysis between gender and participants' background was analysed using ANOVA to measure the participants' aesthetic perception of the visual complexity and art knowledge of the design motifs applied to the Pua Kumbu textile.

For the qualitative approach, two phases of interviews have been conducted among the five Pua Kumbu weavers and four Malaysian academics in the textile and art culture fields. The interview questions were constructed and presented narratively. The data presented in this chapter was coded and recorded carefully for further discussion in the next chapter. By having the quantitative and qualitative data gathered, objectives 1, 2, and 3 were answered and led to formulating a novel framework for safeguarding the ICH of Pua Kumbu textile. The findings and discussion will be elaborated on in the following chapter.

"The arts have long been an integral and vibrant part of our nation's cultural heritage. In its many forms, art enables us to gain a deeper understanding of ourselves and of our society. Providing us with a unique way to learn about people of other cultures, it allows us to discover all that we have in common. At its best, art can beautify our cities, encourage economic development and social change, and profoundly affect the ways we live our lives."

- William J. Clinton

CHAPTER 5

FINDINGS AND DISCUSSIONS

5.1 Introduction

Pua Kumbu textiles were studied with the goal of preserving their intangible cultural heritage (ICH) (refer to Chapter 1, Section 1.8, page 25). Numerous methods were carried out to guarantee that the data acquired contained the research purpose, provided answers to the research questions, and formulated a novel framework for the study. Aesthetic perception, visual complexity, and art knowledge are three crucial foregrounds in this enormous investigation (see Chapter 2, Figure 2.1, page 39). These are what guided the research in the right direction. As a result, in this study, a triangulation concurrent mixed method design, which included both quantitative and qualitative data gathering, was used to collect information (refer to Chapter 3, Section 3.3, page 93).

The researcher effectively used both quantitative and qualitative methodologies to enhance the study's data and to accomplish the study's purpose. The Art Reception Survey-Revised (ARS-Revised) has been successfully created for the quantitative technique (Wahed et al., 2019), which was originally derived from the Art Reception Survey (ARS) (Hager et al., 2012). The original ARS has six factors and twenty-eight items (refer to Chapter 3, Table 3.11, page 113). However, to enhance the questionnaire and remove superfluous questions, the questionnaire's reliability and validity were determined via a pilot study and factor analysis (refer to Chapter 3, Section 3.7.1, page 111). The pilot research included thirty people, whereas the factor analysis recruited 400.

The result of the Pilot study demonstrated the total number of remaining items for this instrument is 21, and the total number of remaining factors is 5. These include Cognitive Stimulation, Expertise, Self-Reference, Artistic Quality, and Positive Attraction (refer to Chapter 4, Section 4.2.1, page 126). The results indicated that just five factors remained for actual data collection, excluding the Negative Emotion factor. This factor was not included in the study or analysis since it would impair the overall reliability of the instrument. Furthermore, one item was removed: *"I would consider the amount of money to buy this piece of art"* from the Positive Attraction factor and item one of the Expertise factors, *"With regard to its content, this Pua Kumbu textile remains inaccessible to me."*

Meanwhile, the Exploratory Factor Analysis (EFA) was applied to uncover complex patterns by exploring the dataset and testing predictions in the factor analysis. In this study, the items of ARS-Revised were explored to validate the inventory. The oblique rotation, Direct Oblimin, was performed to interpret better the factors retained in the EFA (refer to Chapter 4, Table 4.11, page 138). The date screening revealed that the original 21-items of the ARS-Revised remained with the number of factors was composed including:

Factor 1: Historical art knowledge, the technical skills in the making, and the attraction towards Pua Kumbu textile.

Factor 2: Knowledge and information and relation one has on Pua Kumbu textile.

Factor 3: Ability to process information depending on one’s knowledge.

Factor 4: Positive attraction towards Pua Kumbu textile.

On the other hand, the qualitative data approach was used to acquire an expert's opinion on the aesthetic perception of visual complexity and art knowledge of the Pua Kumbu textile (refer to Chapter 4, Section 4.3, page 150). Two sets of interview questions were designed for two distinct samples: Pua Kumbu weavers and Malaysian academics in the textile and art history fields. The study included five Pua Kumbu weavers (refer to Chapter 3, Table 3.6, page 105). Ten questions were developed based on four categories: (1) design characteristics, (2) taboos/rituals, (3) production, and (4) future design (refer to Chapter 3, Table 3.9, page 110). Furthermore, seven academics took part in the study, which included seven questions from two categories: (1) design characteristics; and (2) community acceptance and knowledge acquired, which were distributed to them (refer to Chapter 3, Table 3.10, page 111). Both sets of interview questions were subjected to the member checking process to ensure that the results were accurate (refer to Chapter 3, Table 3.12, page 116).

Notably, the perspectives of each population: 1) the laypeople (ARS-Revised participants) and 2) the expert (Pua Kumbu weavers and Malaysian academics of textile and art culture fields) convey a broad range of understanding of human aesthetic perception and the path to proposing a novel framework for protecting the Pua Kumbu intangible cultural heritage (ICH). Paradoxically, the wealth of Iban local knowledge contained in every piece of Pua Kumbu design motifs was found to be complex to some, making comprehending the design motifs more difficult for younger generations (Magiman et al., 2018), tourists, and other races in Sarawak (Wahed et al., 2020b). The knowledge gaps have resulted in individuals mistreating and exploiting this tangible masterpiece (refer to Chapter 1, Section 1.3, page 12).

Significantly, the knowledge barriers encountered by most perceivers when dealing with this magnificent Pua Kumbu textile should be managed using the appropriate methods to guarantee that the unsolved hurdles may be eradicated. The richness of the information pool can be increased (refer to Chapter 1, Section 1.8, page 25). As a result, the present chapter examines the findings in further detail. The findings of the study goals and the interpretation of the data, which is based on the quantitative and qualitative interpretation of results in Chapter 4, are presented in the following sections.

5.2 Finding of Objective 1: The Participants' Aesthetic Perception of the Design Motifs Applied to the Pua Kumbu Textile

The research was guided by a theoretical framework developed from previous psychological studies, the Unifying Model of Visual Aesthetic Experience (Redies, 2015) (Chapter 1, Section 1.6, page 21), which identified visual art as an external element that stimulates the visual formalistic and content of the perceivers' cognitive and perceptual sensory systems and, ultimately, activates the perceivers' emotions through either positive or negative aesthetic perception. The curiosity of the perceivers in the visual complexity of the formalistic applied and the adaptation of the environment they lived in sparked their aesthetic perception. Understanding the cultural values embodied in Pua Kumbu design motifs provided a more accurate assessment of aesthetic perception.

Aesthetic perception of the participants was measured to investigate the source of discrepancy using the Art Reception Survey-Revised (ARS-Revised) (see Chapter 3, Table 3.8, page 108), an improved version of the Art Reception Survey questionnaire by Hager and colleagues (2012) (see Chapter 3, Table 3.11, page 113). The ARS-Revised questionnaire has 21 items, measuring four factors of Pua Kumbu textile. The items were rated using a five-point Likert scale ranging from 1 to 5 (Strongly Disagree–Strongly Agree).

The internal consistency of this questionnaire's Cronbach's alpha value was reported to be high (=.925).

The ARS-Revised questionnaire was delivered to 400 participants who were prospective buyers of Pua Kumbu textile in the commercial market and tourists who visited Sarawak attractions such as Waterfront Kuching, Tun Jugah Foundation, and Sarawak Textile Museum (see Chapter 3, Table 3.1, page 99). Every visitor who visited these locations had an equal chance of being a participant. As a result, the simple random technique was used, and 400 people participated. The selection of participants was based on two basic criteria: they had to be above the age of 18 and could comprehend either Malay or English language. These criteria were established to guarantee those survey participants could correctly answer and respond to the questionnaire. Participants were asked to rate their degree of agreement with the statements in the instrument, and their participation was completely voluntary. For the second section of the ARS-Revised questionnaire, four factors in the questions were highlighted to seek the participants' responses to their aesthetic perceptions based on participants' gender and background. Findings revealed 178 male participants and 222 female participants were included in the study.

According to the results of the ARS-Revised instrument, the participants perceived the highest score in Factor 1, indicating that the Pua Kumbu textile captivates an audience (see Figure 5.1, page 209). The distinctive design motifs of this cultural, artistic work, which was displayed or marketed in the targeted places, makes this a reasonable judgement. The great level of originality shown by the Pua Kumbu craftmanship was able to arouse the participants' aesthetic perception, causing them to have a favourable reaction to the textile.

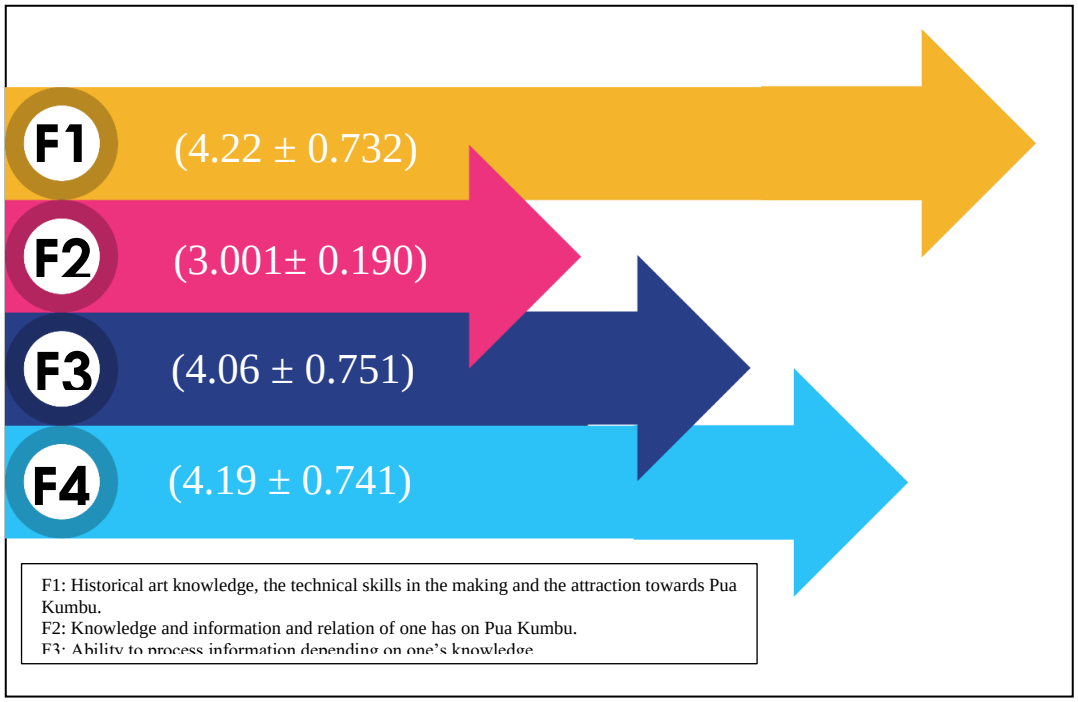


Figure 5.1: The Four Factors Evaluated in the ARS-Revised Among 400 Participants

One open-ended question was included in the ARS-Revised instrument to see participants' emotions about the visual complexity of the Pua Kumbu design motifs, and the participants' responses were mixed. The following question was posed:

"What do you feel about the Pua Kumbu design motifs?"

In the ARS-Revised study, most participants agreed that the Pua Kumbu textile was attractive and captivating and conveyed cultural values and traditions. The design motifs used on the textile effectively represented the cultural qualities of the people who made it yet also impeded the interpretation of the textile's significance. Several of them found this textile attractive and lovely, praising it for its colour and the distinctiveness of the design motifs used in its creation. Furthermore, they delight in acquiring Pua Kumbu textile (see Table 5.1, page 210).

Table 5.1: The ARS-Revised Open-Ended Answers and the Coded Indexed

Coded-Indexed	*Open-ended Answers*
Beautiful, mesmerizing	*"This textile is **beautiful**. I have bought one" (*P012-OE>Btful)
	*"Pua Kumbu is **beautiful**. I have one". (*P051OE> Btful)
	*"Stay as it is. The textile is **beautiful** enough" (*P081OE> Btful)
	*"For me, the textile is **beautiful** and **mesmerizing**" (*P153OE> Btful&MeSMrz)
Beautiful but scary	*"It is **beautiful**, but does it haunt? I feel a bit **scary** when look to some of the design" (*P006-OE> Btful&Scry)
	*"**Beautiful**, but sometimes I feel this design is **scary**. Even though I don't know the meaning" (*P084-OE> Btful&Scry)
	*"I have a **mixed feeling**. I loved the textile, but somehow, I feels the design applied is a bit **scary**" (*P019OE>MxdFelng, LveBtScry)
Beautiful but complicated design. Love them	*"The design motifs are **complex** and for me, it's **beautiful**"* (P275OE> Cmplx&Btful)
	*"**Complex** design. But then again, the textile is **beautiful**" (* P317-OE> Cmplx& Btful)
	*"The design somehow very **complicated**, with so many shapes and lines, but I **love** it" (*P216OE> Cmplx&Lve)
	*"**Love** the textile and the design" (*P333OE>Lve)
Beautiful, complicated, and wants to understand the design	*"For me, the design is **beautiful**, **complicated** and I wish I know the 'story' of it" (*P079OE>Btful. Cmplx&Wnt2Undrstd)
	*"I'm sure the **seller can explain more** thoroughly." Pua Kumbu's design motifs are beautiful." (*P170OE> Btful& Wnt2Undrstd)
	*"I **love** it. But I **don't understand the meaning** of the design. It's **complicated but I want to know**" (* P098OE>Lve, Wnt2Undrstd&Cmplx)
	*"This textile was an **Iban identity**. Wish can know more about the meaning of the design" (*P219OE>IBidentty& Wnt2Undrstd)
Beautiful and culturally relevant.	*"I'm from Kalimantan, Indonesia. The Pua Kumbu textile looks like ours. Beautiful and reminds me of home".* (P043OE> Btful&REmnd2ownCult)

Table 5.1 continued

	*"I feel this textile itself represents Sarawak. Pua Kumbu has its own **uniqueness, very cultural** and I **love** it". (*P318OE>UniQ, Cultrl & Lve)
	*"I like the colour; the design looks **very cultural** and I **love** them"* (P371-OE>Cultrl&Lve)
	*"I love it. The **design motifs, colours, and cultural elements** shown in the textile are superb!" (*P042OE> Btful&Cultrl)
	*"I like the **earthen colour** of Pua Kumbu rather than the other bright and striking colours" (*P0397OE>LveEArthenCOL)
Prefer to the less complicated design.	*"The textile is **okay**. But I prefer to buy something that is **less complicated**" (*P071OE>OK&LesCmplx)

For various reasons, some participants were reluctant to touch the textile. They thought the design elements used in the material were scary and uncomfortable because of the textile's visual complexity (see Table 5.1, page 210). Even though the participants were drawn to the Pua Kumbu textile, they made personal judgments about it, which might have led them to believe that it is a spiritual material (Magiman et al., 2018). The following open-ended response clearly revealed what was on their minds:

> *"It is **beautiful**, but does it haunt? I feel a bit **scary** when look to some of the design."*
>
> (P006-OE> Btful&Scry)
>
> *"**Beautiful**, but sometimes I feel this design is **scary**. Even though I don't know the meaning."*
>
> (P084-OE> Btful&Scry)
>
> *"I have a **mixed feeling**. I loved the textile, but somehow, I feels the design applied is a bit **scary.**"*
>
> *(*P019OE>MxdFelng, LveBtScry)

Relatively, the perceivers' fluency in aesthetic perception was contributed by many factors such as the visual complexity (King & Wertheimer, 2005; Mitchell, 2009; Standish, 2008; Sun et al., 2014) of the design motifs, the perceivers' prior experience (Redies, 2015; Smith & Smith, 2006) and, the art knowledge (Bourdieu & Darbel, 1991; Cazeaux, 2019; Hager et al., 2012; Kant, 1987) which are related to the familiarity (Yang et al., 2019) of the iconographical elements of the design motifs.

Human feelings are subjective to personal feelings towards the object, including their prior experience (Smith & Smith, 2006) and knowledge acquisition. The cognitive dynamic of human beings is generated by seeing beautiful and valuable objects capable of implanting aesthetic values. Beauty is not from the property of an object but is gathered from the feelings created by multiple cognitive areas known as 'imagination and reason' (Kant, 1987). The pleasant or unpleasant feeling produced relies on how the sensory processes the information (Kant, 2000).

Following that, Factor 4 (4.19 0.741) receives the second-highest score, which is related to the positive attraction experienced by the participants when they are in contact with the Pua Kumbu textile (see Figure 5.1, page 209). The participants all agreed that working with Pua Kumbu textile brings pleasant feelings and good emotional valences such as thrills, inspiration, and enthusiasm. Most participants have a favourable association with this textile because of the creative qualities encoded in this tangible cultural heritage, which has influenced their perception of it. This is supported by the open-ended response provided by the participants in the following section:

*"For me, the textile is **beautiful** and **mesmerizing.**"*

*(*P153OE> Btful&MeSMrz)

*"I'm from Kalimantan, Indonesia. The Pua Kumbu textile looks like ours. **Beautiful and reminds** me of home."*

(P043OE> Btful&REmnd2ownCult)

*"I like the colour; the design looks **very cultural** and I **love** them."*

(P371-OE>Cultrl&Lve)

*"I feel this textile itself represents Sarawak. Pua Kumbu has its own **uniqueness, very cultural** and I **love** it."*

*(*P318OE>UniQ, Cultrl & Lve)

*"I love it. The **design motifs, colours, and cultural elements** shown in the textile are superb!"*

*(*P042OE> Btful&Cultrl)

*"I like the **earthen colour** of Pua Kumbu rather than the other bright and striking colours."*

*(*P0397OE>LveEArthOL)

According to Leontiev (2000), the perception of beauty is not limited to the formalistic part of visual art but is a compilation of comprehension and integration of art's meaning and function (Leontiev, 2000). Factor 4 demonstrates that, although the participants are unfamiliar with Iban culture, they appreciate the beauty of this tapestry and are intrigued about how the weavers created it. In the open-ended question, the participants stated:

*"For me, the design is **beautiful, complicated** and I wish I **know the 'story'** of it."*

P079OE>Btful. Cmplx&Wnt2Undrstd)

*"I'm sure the seller can **explain more**.Pua Kumbu's design motifs are **beautiful**."*

(P170OE> Btful& Wnt2Undrstd)

*"This textile was an Iban identity. Wish can **know more** about the meaning of the design."*

(P219OE>IBidentty& Wnt2Undrstd)

*"I love it. But I don't understand the meaning of the design. It's complicated but I want to **know more**."*

(P098OE>Lve, Wnt2Undrstd&Cmplx)

Among the ARS-Revised participants, the least amount of agreement was indicated in Factor 3 (see Figure 5.1, page 209). This factor is connected to the participants' lack of knowledge, especially regarding the weaving process, technique, and history of the Pua Kumbu textile. This is supported by research on painting art (Pietras & Czernecka, 2018), which discovered that those who had previously viewed art had a different perspective on it. Aesthetic perception is a function of the perceiver's processing dynamics: the more fluent the perceiver processes an image, the more positive their aesthetic response will be (Sun et al., 2014). Therefore, it can be expected that the fluency of the perceivers (participants) in processing the information regarding the Pua Kumbu textile depends on the perceivers' art knowledge (Hager et al., 2012). The interrelation between knowledge and perception significantly impacts the perceiver's aesthetic interest in a way that could either develop a positive or negative aesthetic perception.

In comparing the participants' gender and background, it was discovered that Factor 2 contributes a comparable score for both categories. It was found that the females were significantly higher than males in Factor 2 (see Chapter 4, Table 4.19, page 148). The female participants exhibited a higher knowledge of Pua Kumbu textile than the male participants. Gender does influence the aesthetic perception of skill or knowledge in Pua Kumbu textile.

The present finding of this study was supported by Bloomfield (2015), who stipulated that gender plays a critical role in aesthetic perception (Bloomfield, 2015). Female participants were more likely to have art knowledge or possess handcraft, sewing, or weaving skills. Thus, they have more detailed perceptions of the art of the design motifs on Pua Kumbu textile than their male counterparts. Furthermore, female participants who possess knowledge of the Pua Kumbu textile are presumably interested in the details of the textile production, situating the socio-cultural context of their interpretation (Housen, 2001).

The perspective of Pua Kumbu textile is highly influenced by gender roles, which play a vital part in its aesthetic perception. Females have the most in-depth understanding of weaving, and as a result, they can make the textile's most effective and in-depth judgments. Based on Brown (2019), there are more textile works by women than male artists in the contemporary art market. Men are not unskilled or incapable of weaving. Still, one need not point to biology to explain why it is more common to see women producing textiles. In more explicitly sexist eras of art history, the textile arts were a medium that women were permitted and encouraged to adopt (Brown, 2019).

The background of the participants had influenced their knowledge and information regarding the Pua Kumbu textile. Those from Sarawak perceived higher in Factors 2 and 3 in the ARS-Revised instrument, indicating that they were more likely to have art knowledge and could link information about Pua Kumbu textile to their personal experience (refer to Chapter 4, Table 4.20, page 149). This is relevant since the Sarawakians are the ones who have produced this textile, and the textile is highly significant to them. The Pua Kumbu textile is symbolised one of the Iban cultures and much more appreciated by the Sarawak people than the non-Sarawakian.

Previous studies have supported that for those with art knowledge, their aesthetic perception is related to knowledgeable connoisseurship (Meecham & Sheldon, 2005; Scruton, 2011), although beauty appraisal is not solely about beauty. Nevertheless, for other scholars, beauty is described as understanding the 'underlying process' of aesthetic perception (Kirk et al., 2009; Leder & Nadal, 2014). The underlying process of aesthetic perception is related to science, where the process is defined as 'neuroaesthetics' (Cela-Conde et al., 2011; Chatterjee, 2003, 2014; Cupchik et al., 2009; Leder et al., 2004; Skov et al., 2018).

On the other hand, participants from Sabah had the lowest impression in both Factor 2 and Factor 3 in the ARS-Revised study. This is a fascinating discovery since Sabah is in the same area in Borneo as Sarawak. The participants demonstrated that they lacked enough art understanding or ability in the realm of Pua Kumbu design motifs. In the same vein, some Sarawak participants cannot comprehend the Pua Kumbu intangible cultural heritage (ICH) due to the complex design that has been implemented.

Even though the Pua Kumbu textile originates from the Iban tribe, some Ibans do not understand the meaning of the design motifs and mistreat this masterpiece. This is shown in their misleading acts, which result from the absence of Iban cultural knowledge. This is supported by the data received while interviewing the academician IN(A1), which suggested that some people get confused with the Pua Kumbu terms.

> *"First and foremost, most individuals are mistaken with Pua Kumbu. Sometimes the Iban people are perplexed about it, which causes outsiders to be perplexed as well. Pua Kumbu is only used for ritual purposes. However, if you go to the wiki or the internet, you will notice that they constantly refer to Iban weaving as Pua Kumbu, which is incorrect. I*

occasionally disagree with other experts over the fabric's name. Then, depending on my understanding, I must explain. The design motif of Pua Kumbu, on the other hand, is acceptable, but the Pua Kumbu itself is not. But keep in mind that not all Iban weaving is Pua Kumbu."

IN(A1)*Bet-(PATREG-Y(u),bsIBx)2.11.19

As per the survey, the design motifs of Pua Kumbu textile were "not well" grasped by the younger Iban population (Magiman, 2012; Magiman et al., 2018). In response to an open-ended question on their degree of knowledge of the Pua Kumbu textile, several Sarawak participants said they agreed (see Table 5.2). They reflected on the notion that:

Table 5.2: The ARS-Revised Open-Ended Responses on the Level of Understanding of the Pua Kumbu Design Motifs Among the Sarawak People

Coded Index	Open-Ended Answer
Barely know. Not understanding the meaning of design patterns and motifs	*"I know Pua Kumbu, but I* ***do not understand about the design patterns*** *and what is the weaver try to deliver"* **(P307OE2)**
	"I sell many designs of Pua at the Waterfront, but I ***do not know the meaning*** *of every design motif applied to the textile"* **(P025OE2)**
	"I ***barely know*** *about this textile, but I willing to know and understand the design and the meaning of it"* **(P170OE2)**
Looks similar to Malay Batik's design.	*"The Pua Kumbu* ***design looks similar to Malay Batik's*** *design"* **(P063OE2)**
Most of the Pua Kumbu design motifs look similar but differ in colour.	*"All Pua Kumbu design motifs* ***looks exactly the same,*** *only* ***different in colour****"* **(P211OE2)**

As a result, it is understandable if the Sabah participants were unfamiliar with the Pua Kumbu textile, particularly the design motifs. Naive perceivers would focus on what is shown rather than how the design motif on the Pua Kumbu textile was done; it is no wonder that they were drawn to this textile. Leder et al. (2016) discovered that persons with no art knowledge would enjoy abstract art if information about the piece were provided to guide their interpretation (Pearce et al., 2016).

Meanwhile, the Peninsular Malaysian participants scored the lowest in Factor 2 (1.79.799) and the highest in Factor 3 (3.96.608), indicating that they were interested in learning more about the textile despite their lack of understanding of the ICH of Pua Kumbu textile (refer to Chapter 4, Table 4.20, page 149). In this research, these individuals were less inclined to identify with the Pua Kumbu design motifs. Still, they were interested in learning more about them. This is because Peninsular Malaysia is in a different area of Malaysia. They also have distinct cultures from those from Sabah and Sarawak, which explains why they know so little about the design motifs of Pua Kumbu textile. Some Peninsular Malaysians, however, believe that the design motifs should remain. Still, the colours should be tailored to accommodate the demands of a diverse spectrum of people.

Additional input obtained from Peninsular Malaysia participants is summarised in Table 5.2 (see page 217), which states that the textile should be conserved owing to the uniqueness of the visual complexity of the design motifs and that it should be actively marketed around the globe. According to additional feedback obtained from the ARS-Revised questionnaire participants, textile sellers of Pua Kumbu textiles should thoroughly understand design motifs to encourage the widespread dissemination of knowledge about the Pua Kumbu Intangible Cultural Heritage (ICH).

A mutual agreement was also received from the participant IN(A2), which supports that the seller should know the Pua Kumbu design motifs to further assist the buyers in understanding the design motifs. At the same time, this will help spread knowledge that cannot be seen or touched, and it will also help the Iban and Sarawak states be better known.

> *"I think that the seller should explain the design motifs to the buyers so that they can understand what they are. The seller must first know what Pua" is about."*
>
> IN(A2)*Sa-(CMUNDS-Xunds/hvknwld)25.03.20

Meanwhile, the participants classified as "others" were from various nations, the majority of whom were from European countries and Australia, Canada, New Zealand, and Indonesia (see Chapter 4, Table 4.20, page 149). The abilities or information they had were much higher than those of those from Peninsular Malaysia when the two groups were compared. Travelers visiting Kuching, Sarawak were provided with some knowledge or information about the state's tangible and intangible cultures while they were in the city. They expressed themselves as follows:

> *"I'm **aware** that Pua Kumbu textiles are associated with the Iban ethnicity. All designs are **sacred and have distinct meanings**."*
>
> P181OE3Aus

> *"I am **familiar** with the rainforest, and some knowledge about the Iban people. I bought plenty of Pua Kumbu textile as **souvenirs** for my relatives in Poland."*
>
> P020OE3Pol

> *"Sarawak attracted me due of its **cultural charms.**"*
>
> P008OE3Can

*"Pua Kumbu textile is beautiful and very **cultural look**. The mystery design motifs of this textile remind me to our New Zealand textile, the Mauri."*

P218OE3NZ

*"It is **beautiful and I like the complexity** of the design motifs. **Looks mystery.**"*

P341OE3UK

*"I come here because of the **culture, the food and this Pua Kumbu**. Beautiful!"*

P343OE3UK

They travelled to the state because of the culture and prior knowledge of the state's noteworthy features, which included culture and history. As a result, they were more likely to have a greater knowledge of Pua Kumbu textiles. The careful management of intangible assets may contribute to the long-term viability of intangible assets in a globalised environment (Du Cros & Salazar, 2012). It is thus necessary to realise the ambitions of maintaining ICH across the world via a meaningful partnership between communities, tourism, and the heritage sector.

In the tourism industry, cultural tourism refers to a form of activity in which the primary objective of the visitor is to learn about, explore, experience, and consume the physical or intangible cultural attractions and goods available in a tourist destination. They are associated with a set of material, intellectual, spiritual, and emotional characteristics that distinguish a civilization from others in the same field. Among the many aspects of living cultures are art and architecture as well as historical and cultural history, culinary heritage, literature, music, and the creative industries. Tourism has a good impact since it has provided opportunities for people from various cultures to interact and learn from one another. As a

result, local communities have gained a greater awareness of the issue and have been more actively involved in maintaining their traditions.

Finally, the individual's cultural background had a role in the Pua Kumbu textile's successful aesthetic perception. The Pua Kumbu textile belongs to the Iban people. Compared to other groups, they would better understand the design motifs applied to the Pua Kumbu textile. This, however, only applies to Iban individuals who are directly engaged in the production of Pua Kumbu textiles and not to Iban people who are not present in the environment. This statement is supported by participant IN(A3), who indicated that understanding the Pua Kumbu design motifs is better among Iban who stayed in the longhouse than those who did not stay in the longhouse where knowledge learned is limited. The transcript is as follows:

> *"Not everyone understands the design motifs. Some Iban who grew up in the culture and longhouse may understand. The modern Iban, on the other hand, misses the point. They merely know how to utilise and wear the clothing without knowing its meaning."*
> IN(A3)*KchZ-(CMUNDS-Xunds/hvknwld)28.07.20.

In conclusion, research question 1 was answered exclusively based on the results and findings of the study. The aesthetic perceptions were received similarly based on gender, except for factor 2, which is related to skill or knowledge of the subject matter. Females, who exhibited more interest in creative art, observed a greater aesthetic perception of the Pua Kumbu design motifs. The male aggressiveness and the female femininity in nature (Bloomfield, 2015) influenced this finding. In other words, the judgments, and views of the aesthetic lie in the eyes of the beholder. It is suggested that male and female participants

were affirmatively dissimilar in those skills or knowledge. On the other hand, those from Sarawak revealed the highest scores in factors 2 and 3.

In summary, the findings for objective 1 demonstrated that the participants' aesthetic perception was objectively subjective and that it was influenced by their art knowledge, gender, and cultural background (see Figure 5.2). Participants who relied exclusively on the visual complexity of the design motifs without a thorough understanding of the Pua Kumbu textile could not create favourable opinions. Educating the public about the Pua Kumbu design motifs is the most effective method of achieving the largest comprehension while also resulting in a positive aesthetic perception.

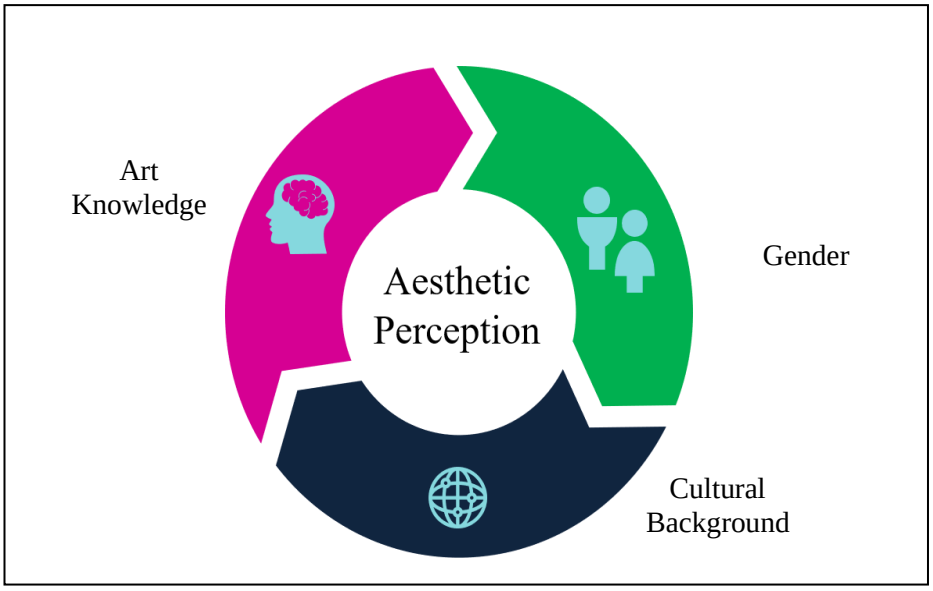


Figure 5.2: The Three Factors Contribute to the Greatest Aesthetic Perceptions Among Participants; - Art Knowledge, Gender, and Background

Experiencing art is a difficult phenomenon to grasp. The difficulty in comprehending the Pua Kumbu textile is related to several factors that influence participants' aesthetic perception and related to factors such as art knowledge, gender, and cultural background.

Individuals with all these factors can better comprehend the art piece's values. According to Pietras and Czernecka (2018), people with art knowledge and a formal art education background have greater opportunities to build complex, sophisticated aesthetic judgment and interpretation strategies than people who do not have an art education and training (Pietras & Czernecka, 2018).

In the next section, the finding of objective two is disclosed and further elaborated. The Pua Kumbu weavers and academics were asked qualitatively to extend their understanding of the visual complexity of the design motifs applied to the Pua Kumbu textile.

5.3 Finding of Objective 2: Weavers' and Academics' Aesthetic Perception of Visual Complexity

The study paved the way for preserving the intangible cultural heritage (ICH) of Pua Kumbu textile based on research objectives presented in Chapter 1 (refer to Chapter 1, Section 1.4, page 20). To ensure the validity of the research findings, interviews were conducted with the help of experts who have a wealth of knowledge and experience in creating and analysing traditional textiles. These interviews were conducted at different time frames and multiple sites, including online and face-to-face sessions.

The researcher selected a total of 35 Pua Kumbu textiles from various districts in Sarawak, such as Kapit, Betong, Kuching, and Song, to study thoroughly. These textiles were collected from artisans and collectors, who were eager to share their knowledge and insights on the artistry of the Pua Kumbu. During the study, the researcher analysed the Pua Kumbu textiles in great detail, focusing on their design motifs, colour schemes, and weaving techniques. The textiles were also discussed with the participants to gain a better understanding of their cultural significance and historical context.

The findings revealed that the triangulation data of the experts enriched the findings of the study (see Chapter 3, Figure 3.3, page 95). Thus, to revelled the findings of objective 2, five Pua Kumbu weavers and four Malaysian academics in textile and art culture were included in the study. Table 5.3 (see page 225) identified the findings of research objective 2, which disclosed the aesthetic perception of Pua Kumbu textile visual complexity among the Pua Kumbu weavers and Malaysian academics in the textile and art culture fields.

The visual complexity of the Pua Kumbu textile is recognised as sophisticated owing to the size and arrangement of design motifs in the textile patterns, which incorporate stories and are not only for decoration. The complicated design motifs were emphasised as the Iban identity concealed in the Pua Kumbu textile. Most of the design is based on Iban beliefs and taboos, reflected in the layout patterns and the Pua Kumbu visual complexity (refer to Chapter 4, Table 4.24, page 160). The interpretation of the weavers is elaborated and formed as a single complete design with meanings and stories.

The findings of research objective two focus on the experts' point of view on the Pua Kumbu's visual complexity, including the design elements, shape origins, design themes, regularity of the patterns, compositions, and colours (see Section 4.3.2.1, page 178). The "outer look" and the concept of the design motifs applied to the textile were identified and justified by the experts to obtain the art knowledge 'hidden' perfectly in every design motif. The discussion of these findings was then elaborated in detail in this section.

It was interesting to see how different weavers and academics expressed their aesthetic perceptions of the visual complexity of the Pua Kumbu design motifs and how they were connected. Their agreement says that the visual complexity of every design motif on the Pua Kumbu textile is derived from a confluence of Iban cultural traditions, the

surrounding environment, and the unique aesthetic sensibilities of the weavers themselves, as detailed in Table 5.3 on page 225. The intricate and exquisite design motifs that adorn the Pua Kumbu textile reflect the profound local knowledge and exceptional skills of the weavers who created them. Drawing inspiration from various sources, including dreams, Iban folklore, natural surroundings, and taboos, these master artisans expertly translated their inspirations into captivating and diverse design motifs.

The weavers, as the masterminds behind these magnificent pieces, meticulously crafted and designed each shape and pattern, considering the complexity and aesthetic appeal of each motif. The resulting visual complexity of the designs is a testament to the weavers' creative prowess and unparalleled expertise, demonstrating the intricate interplay between tradition and innovation that characterizes this venerable form of Iban artistry.

Table 5.3: The Findings of Research Objective 2

Research objective 2	Participants'			
	Pua Kumbu weavers		**Malaysian academics**	
Aesthetic perception of Pua Kumbu visual complexity `	**Design elements**	The motifs 'Buah Gelung' and the 'Ara' design are the most prominent **elements** used on the textile (refer Table 4.21).	**Composition**	The design elements' **composition** reflects the Iban identity, which is subjective, hampered by traditional intellectual property rights issues, and taboos (refer Table 4.42).
	Shape origins	The visual complexity of design motifs **shape origins** and is influenced by Iban cultures, dreams, Iban folklore, natural surroundings, ancestors' heritage, flora, and fauna (refer Table 4.23).	**Size**	The design motifs were a combination of different **sizes** and were dependent entirely on the interpretation and creativity of the weavers (Refer Table 4.44)

Table 5.3 Continued

	Colour preference	Most weavers decided on **earth tones and Sarawak flag colours**, as well as incorporating blue and purple colours to fulfil current needs (refer Table 4.25).	**Pattern**	Academic from Sarawak understand the significance of the **regularity of the patterns** used on the textile, although non-Sarawakians do not (refer Table 4.41).
	Design theme	Nature, Iban culture, ancestors, and surroundings influence the **design themes** (refer Table 4.27).	**Colour combination**	The most appealing **colour combinations** are those with natural tones (refer Table 4.43).

The essence of designing this art piece was based on the local knowledge gathered by the Pua Kumbu weavers, directed by Iban culture, dreams, Iban folklore, natural surroundings, and taboos. The participant IN(A4) stated unequivocally that taboos are traditional intellectual property that secures their weavers' rights in constructing the art piece. Furthermore, distinctive design motifs owned by Iban families are frequently restricted from being designed and duplicated without authorisation by other weavers. According to IN(A4), if any weavers broke the taboos, they would suffer misfortune, such as illness or death. Normally, only the highest-ranked design motif, such as the *'Petara'* design, retains this traditional intellectual property notion, which is guided by beliefs and taboos (refer to Chapter 4, transcript: *IN(A4)*KchZ-(CMPLX-Subj.TICPtabs)30.07.20*, page 179).

> *"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 taboo." Each family may possess several sorts of design that cannot be replicated to design motifs held by others. They were convinced that if they wove the design of another family without permission, they would become ill and finally die."*
>
> IN(A4)*KchZ-(CMPLX-Subj.TICPtabs)30.07.20

The design motifs applied to Pua Kumbu textile were constructed using the geometrical shape decorated based on the weaver's creativity, imitation of nature, mimicking the existent design, the ancestors' inheritance, and weavers' interpretation (refer to Chapter 4, Table 4.24, page 161). Even the design motifs were still maintaining the traditional way of producing it. However, the consumers' demands and the availability of natural material sources were still considered. The need to preserve the art piece in this era and preserve the cultural identity is still practised by the weavers.

Relatively, Pua Kumbu weavers are the definite experts in making 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 flora, fauna, humanoid figures, abstract or contemporary. In other words, it depends 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 (refer to Chapter 4, transcript: *IN(A4)*KchZ-(OBJSZE-szeXimprtn)30.07.20.* page 187).

> *"The magnitude of the design elements is never questioned since they symbolise 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

The magnitude of the design motifs used on Pua Kumbu textile was thoroughly discussed with the participants (refer to Chapter 4, Table 4.34, page 188). The academic's justification of the Pua Kumbu visual complexity contributes substantially to a better understanding of the Pua Kumbu patterns. IN(A1) agreed that the design motifs employed were a blend of multiple sizes that obscured Iban values, culture, and beliefs.

The concept of producing the design motifs of Pua Kumbu was based on the weaver's interpretations, some weavers favour the bigger and huge shape of the design motifs, and some prefer the small sizes of design motifs which contributes to the greater visual complexity of the perceivers (refer to Chapter 4, transcript: *IN(A2)*Sa-(OBJSZE-s&iPrfer.Brpet)25.03.20* and *IN(A3)*KchZ-(OBJSZE-sfin/bgszebet)28.07.20*, page 185).

According to participants IN(A2) and IN(A3), the smaller pattern sizes contribute to more intricate and fine designs. The design motif sizes had no significant meaning, nor did they affect the weavers' interpretation, if the central design motifs of the textile were designed in the complete set.

> *"The weavers do it their way. The weaver determines the size. So, we, the customers, got Pua Kumbu as is. We don't have the capacity to choose between receiving intricate and small patterns or enormous patterns. Unless they produce crocodile patterns in large images, but repetitively."*
>
> IN(A2)*Sa-(OBJSZE-s&iPrfer.Brpet)25.03.20

> *"The finer pattern is 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

Nonetheless, the weavers are the masterminds of this magnificent piece, deciding to make and design every shape of the design motifs based on the complexity of the patterns as interpreted by the weaver. Apparently, the sizes of the design motifs do not affect the intrinsic meaning of the design motifs if the central design motifs were designed in the complete set, with the design motifs of house and food. Most of the weavers stated that the

visual complexity of the floral design motifs was used to make the Pua Kumbu textile more beautiful and connect it to its natural surroundings without having any real meaning.

> *"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

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 meet the current demands. Most of the colours applied to the art piece using the earthen colour and the Sarawak's flag colours such as red, black, white, and maroon (refer to Chapter 4, Table 4.23, page 150). According to participant IN(A2), the use of dissimilar code of earthen colours has been widely used, such as blue, purple, and green allowing wider market demand from various populations (refer to Chapter 4, transcript: *IN(A2)*Sa-(COLCOM-TonDwn)25.03.20,* page 185). The design motifs also are improvised with the everyday activities or national issues became the central idea of the design motif for the Pua Kumbu textile.

On top of that, the visual complexity of the Pua Kumbu design motifs is highly subjective, which hinges on the shape, line, form, size, colour, and so forth and relies on the stories that weavers try to portray in the textile. Every design motif applied in the Pua Kumbu is connected, and the weaver's interpretation can be translated within the combination. Only a person with the Pua Kumbu art knowledge can successfully "read" it (refer to Chapter 4, transcript: *IN(A3)*KchZ-(CMPLX-Pat.cmplSet)28.07.20,* page 182). The academics

positively stated that the visual complexity of the Pua Kumbu lies within the weavers, as they are the master of this creation.

In conclusion, research objective 2 revealed the visual complexity of the Pua Kumbu textile design motifs from an expert's perspective. The art of creating this magnificent textile lies in the weaver's hand since they are the art piece's storyteller. Every design motif was infused with Iban knowledge; thus, the laypeople had to learn and master Pua Kumbu art skills to "read" the message. In following section revealed the finding of objective 3, which encompasses on experts' perspective on the Pua Kumbu art knowledge.

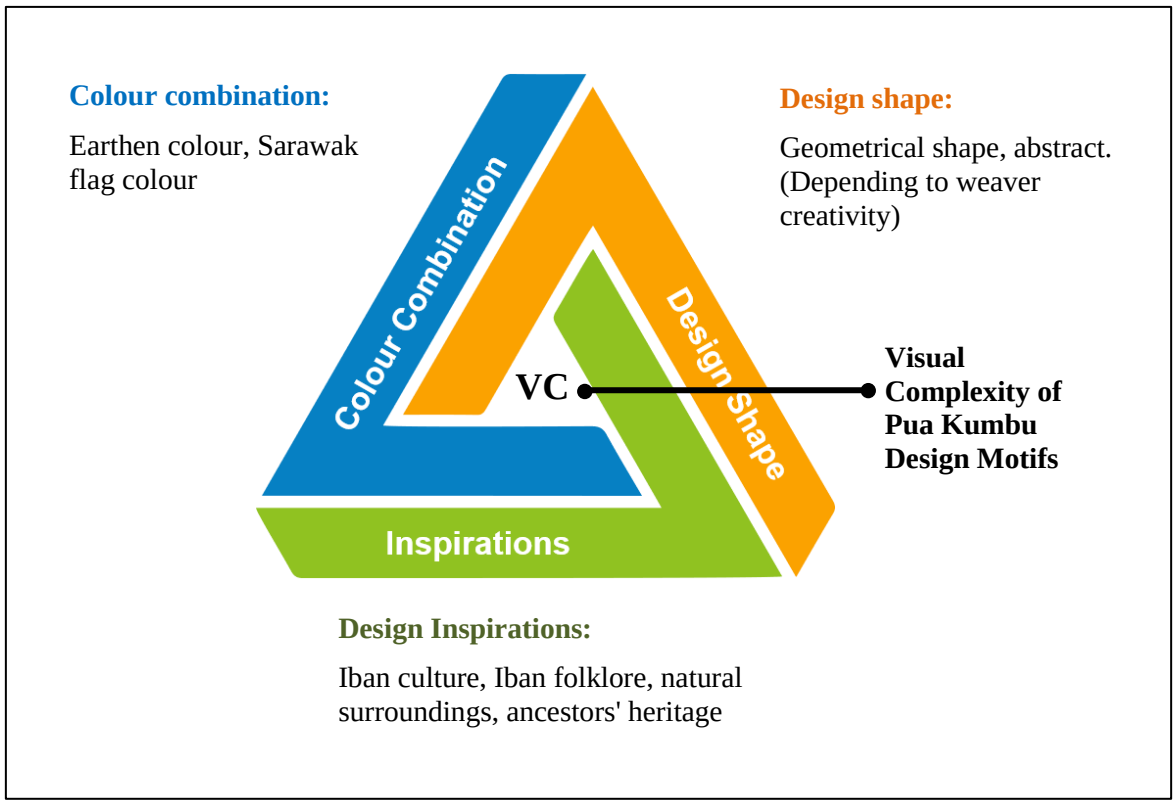


Figure 5.3: The Finding of Objective Two on the Aesthetic Perception of the Visual Complexity of Pua Kumbu Design Motifs Among Experts

5.4 Finding of Objective 3: The Art Knowledge of the Pua Kumbu Textile based on the Weavers' and Academics' Perspective

To gain insights into the art knowledge encapsulated within the design motifs of Pua Kumbu textiles, both weavers and academics were interviewed. In this section, the disclosed data from participants is presented and classified into two sub-sections: (1) Weavers' art knowledge of Pua Kumbu, and (2) Community acceptance and knowledge acquisition. These sub-sections provide a comprehensive overview of the remarkable discoveries uncovered in this study.

5.4.1 Weavers' Art Knowledge of Pua Kumbu

This study has identified five (5) different categories of design motifs that are widely applied to the Pua Kumbu textiles. These categories are segregated based on the choice of the designs applied, namely: (1) Flora, (2) Fauna, (3) Humanoid, (4) Abstract, and (5) Contemporary (refer to Figure 5.4, page 232). Although no written evidence exists on the categorization of Pua Kumbu textiles, the Iban local knowledge of weaving the design motifs is solely based on the weaver's interpretation of their local knowledge and surroundings.

The differences in aesthetic perception between the weaver and non-weaver communities may contribute to a varying level of understanding and appreciation of the intricate design motifs found in the Pua Kumbu textiles. For the weavers, their cultural upbringing and knowledge of the art form allow them to interpret and appreciate the motifs' subtle nuances and meanings. Conversely, non-weaver communities may lack this cultural background and knowledge, leading to limited understanding and appreciation of the design motifs. Furthermore, the incorporation of diverse motifs, including flora, fauna, humanoid, abstract, and contemporary, may further complicate the understanding of the textile's

intricate design for non-weaver communities, ultimately making it more challenging for them to comprehend its deeper meanings.

The following sections discuss each category of the Pua Kumbu design motifs in more detail. These intricate designs reflect the skilled weavers' creativity and expertise, inspired by Iban cultural traditions and local knowledge, resulting in a unique and diverse range of design motifs.

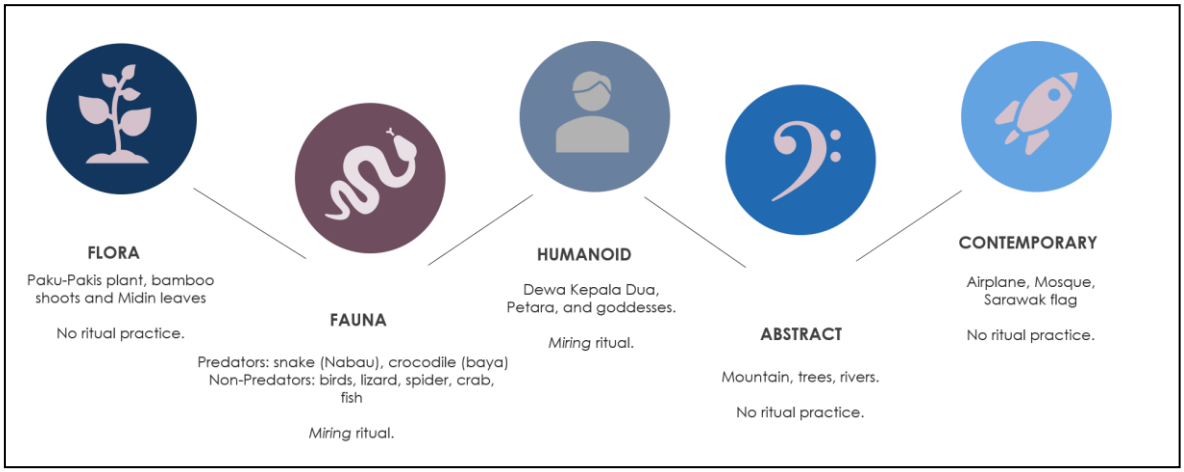


Figure 5.4: Pua Kumbu Design Motifs Categories

I. Flora

Many flora 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. Anyone can design most floral motifs as it does not embody any rituals or taboos such as miring (refer to Figure 5.4). They are 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 is decorated at the centre of the Pua textile, accompanied by the branches of floral elements scattering around it (refer to Chapter 4, transcript: *IN(W4)*Kap-(DE-buge&ar)28.11.20*, page 153).

However, the visual complexity of the design motifs can be found in the application of geometrical shapes, which are based on the size of the textile and the weaver's interpretation. Figure 5.5 displays the *'Buah Gelung'* motifs design inspired by the *Paku-pakis* plant shape. This motif can be either named *Buah Gelung* 5 or *Buah Gelung* 8, which depend on the numbers of the curve made by the weaver (refer to Chapter 4, transcript: IN(W2)*Sng-(DE-buge)27.11.20, page 153).



Figure 5.5: The Pua Kumbu textile with the motif of *'Buah Gelung'* inspired from the shape of *Paku-Pakis's plant* (Picture taken by the researcher during the field trip)

Meanwhile, the Ara design was decorated at the beginning and bottom of the textile with the repetition of colourful lines that do not possess any hidden meaning and only acted as a border to beautify the textile (see Figure 5.6, page 234). Most of the 'story' delivered by the weavers were decorated in the centre of the Pua, accompanied by the branches of flora

elements scattered around it (refer to Chapter 4, transcript: *IN(W4)*Kap-(DE-buge&ar)28.11.20*, page 153).



Figure 5.6: The Pua Kumbu textile with the motif of *'Ara'* design (Picture taken by the researcher during the field trip)

II. Fauna

The fauna design motifs were generally inspired by Iban myths and legends, encompassing several animals, such as snakes *(Nabau)*, crocodiles *(baya)*, birds, lizards, spiders, crabs, fish, and others. According to participant IN(A3), the design of the animate motifs could not simply be arranged within the textile. Still, it should consider designing in 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 (Figure 5.7, page 235). Iban people perceived the animated design motifs as sacred and having souls, thus, they could not be

designed unelaborately without proper understanding (refer to Chapter 4, transcript: *IN(A3)*KchZ-(CMPLX-Pat.cmplSet)28.07.20*, page 182).

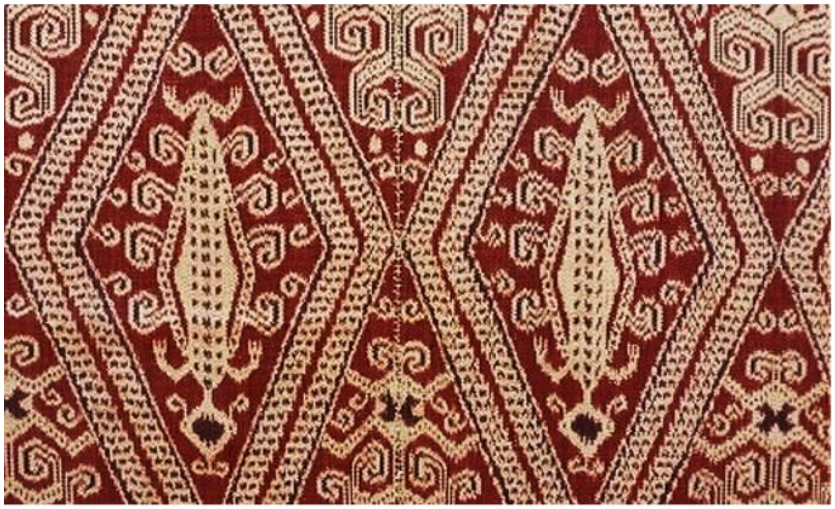


Figure 5.7: Pua Kumbu with the '*Baya'* (Crocodile) motif. Taken from: https://www.pinterest.com/pin/552253973042232797/ on 6th June, 2020

The Pua Kumbu with *'Burung Bersugu'* design motifs is one of the most prominent motifs to be spun by the weavers (refer to Chapter 4, transcript: *IN(W1)*Bel-(DM-Y,hdm)2.11.19*, page 154). The theme of bird activity in the cleaning position is considered attractive since it reveals the bird movement from the weaver's perspective. The basic shape of a bird has been effectively converted to textile in geometrical and abstract shapes. The 'must have' form of this theme was disclosed in Figure 5.8. The 'head,' which was fashioned in an oval or circular shape, was placed on top and connected to the 'neck,' a thick line below it. The triangular form or 'body' component is followed by the 'wings' on both sides. The top 'wings' may be seen close to the head, which has the shape of a bird with its hands aloft. Weaver added colourful lines on both sides of the bird to indicate the 'bird cage' (see Figure 5.8, page 236).



Figure 5.8: The Pua Kumbu textile with the motif of *'Burung Bersugu'* (Image taken during the interview session at Song, Sarawak)

To 'read' the motifs, one needs to have the art knowledge of the Pua Kumbu design motifs to interpret them successfully. In the field trip conducted at one of the symposiums at Betong, Sarawak, one VIP was spotted wearing the cloth with the motif of *'Burung Bersugu'* in the upside-down position. The VIP was not aware of the design motifs' incorrect position and wore it publicly. The awareness and art knowledge of the Pua Kumbu should be delivered successfully to ensure this kind of act would not happen in the future.

> *"In one case, a 'Baju Burung' is made by a tailor with the motifs sewed upside-down, which is wrong and is worn by a Sarawak VIP during a Dayak conference. This has become a huge issue as a result of the inconsiderate deed."*
>
> IN(A3)*KchZ-(CMUNDS-Xunds/hvknwld)28.07.20

Figure 5.9 disclosed the design motifs of a predatory type of animal; - the snake or *'Nabau'* is decorated and arranged systematically in the textile. This kind of motif was identified as one of the high-ranking motifs among the Iban community. These prominent

design motifs could only be weaved if the weavers were granted permission from the Iban goddesses by dreams. According to IN(W3), the food like a human will be decorated at the bottom to calm the spirit of *'Nabau'* (refer to Chapter 4, transcript: *IN(W3)*Kap-(DM-Y,hdm)28.11.20*, page 163).



Figure 5.9: The Pua Kumbu textile with the motif of *'Nabau'* (image taken during the interview session at Ulu Yong, Kapit, Sarawak)

III. Humanoid

The design motifs with humanoid figures like the *'Seru Anga, Badan Satu Kepala Dua, Mandi Di Sungai Linga Jul' and Petara* were deemed magical and powerful. They were highly ranked motifs in 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. It ought to be preceded with the conduct of the miring ritual to avoid bad omens. Most highly ranked, the eldest weavers with extensive experience could only weave design motifs.

Meanwhile, for the design motifs that incorporated names, the weavers operated on the belief that the weavers should present a complete set of designs. The perceptible of the complete set included the 'house' – in the form of square shape, and the 'food'-which is always designed at the bottom of the textile (see Figure 5.10). Participant IN(W3) stated clearly that weaver should follow the informal rules provided to avoid bad omen.

> *"Absolutely! For example, for designs with names like these, the weaver should incorporate 'food' to 'calm the design,' like human or fish images. Otherwise, the weaver will get sick. But if the motifs are flowery, they are simple and have no hidden meaning."*
>
> IN(W3)*Kap-(DM-Y,hdm)28.11.20

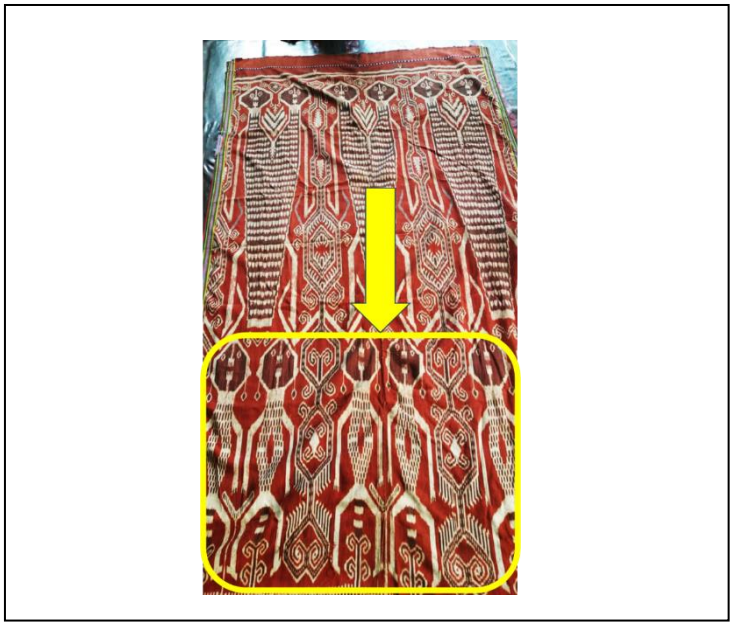


Figure 5.10: The Pua Kumbu textile with a motif of *'Seru Anga, Badan Satu Kepala Dua, Mandi Di Sungai Linga Jul'* (Image taken: Pua Kumbu weaver from Kapit, Sarawak)

The Iban people perceived the animated design motifs as sacred and having souls. Thus, they could not be designed elaborately without proper understanding. In one of the interviews conducted in Kapit, Sarawak, the participant IN(W3), revealed that one of the

taboos still practised today is that the weaving activity cannot be designed halfway. The weaver must stay put or not go if the motif, such as the humanoid figure, is not completed.

For the Iban community, the *'Petara'* or God was a high-ranking motif that could not be easily weaved and generally completed with the 'miring' ceremony. These major design elements, according to participants IN(W1), IN(W3), and IN(W4), could only be woven by the experienced weavers and after being granted permission by the Iban goddesses through dreams (refer to Chapter 4, Table 4.26, page 167). The participant IN(W1) stated the simple 'miring' ritual like biting the charcoal or in Iban is called *'berketuk besi'* activity is performed before weaving.

"Will be perform ***simple ritual like 'miring' for the humanoid design motifs****, like biting the charcoal or in Iban is called 'berketuk besi' activity."*

IN(W1)*Bel-(RIT-Per,HumdOn)2.11.19



Figure 5.11: The Pua Kumbu textile with a motif of *'Petara'* or God (Image taken during the field trip)

However, participants IN(W2) and IN(W5), on the other hand, stated they do not perform any *'miring'* rituals before commencing the weaving process (refer to Chapter 4, Table 4.26, page 167). Based on the interview and observation, the researcher discovered that a limited number of weavers are still doing the *'miring'* ritual, which is dependent on their beliefs and local knowledge. Most humanoids' design elements are often transferred into the shape of a masculine figure (see Figure 5.11).

Weaving has always been associated with women. However, times have changed, and male weavers may now be seen actively weaving. During the field trip in Betong, Sarawak, one man weaver is actively weaving and has been doing so for the past ten years. One of the intriguing design elements is the movement of people or nomadic activities, often known as *'Beketan Pindah'* (see Figure 5.12, page 241). The outline of masculine figures in the sitting position was shown, and the 'home' and *'tuak'* (rice wine) were elegantly positioned next to them (refer to Chapter 4, *transcript: IN(W1)*Bet-(DM-Y,hdm)2.11.19, page 163).*

> *"The motifs on it are called 'Sabit Punan' or 'Beketan Pindah', which are inspired by Iban activities from the past when people loved to go around. The motifs of 'home' and 'tuak' were designed at the cloth's end."*
>
> IN(W1)*Bel-(DM-Y,hdm)2.11.19



Figure 5.12: The Pua Kumbu textile with a motif of *'Beketan Pindah'* (Image taken during the field trip in Belaga, Sarawak)

IV. Abstract

The Pua Kumbu textile with an abstract motif was not considered a distinct ritual or *'miring'* since the design motifs in this category were purposely adorned based on the weaver's interpretation of their surroundings. The random motifs used in this category included the Sarawak layers cake, *Terabai* (the Iban shield) (refer to Figure 5.13, page 242), mountains, and rivers. The Pua Kumbu textile showed the pattern of *'Terabai'* or the Iban shield, which was formerly frequently utilised as a shield during battle. The abstract design motifs were mostly created in more vibrant and modern colours.

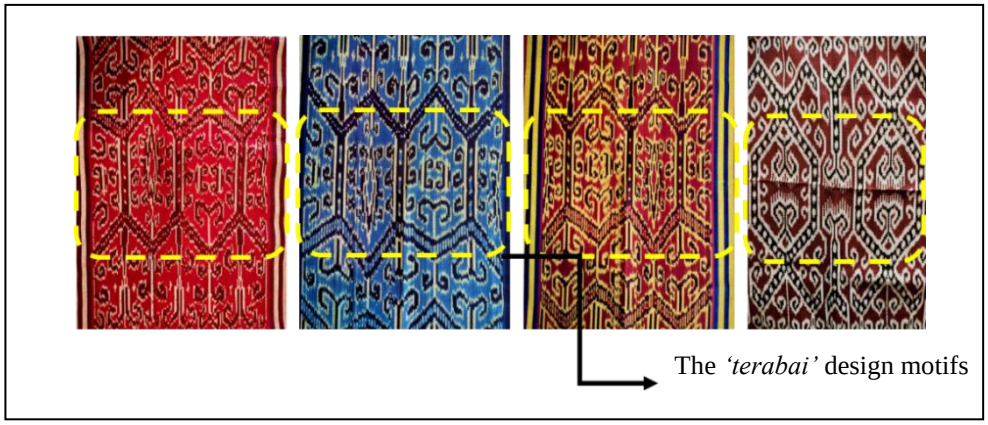


Figure 5.13: The Pua Kumbu textile with a design motif of *'Terabai'* (Image taken during the field trip)

Figure 5.14 (see page 243) depicts the Sarawak Layers Cake, a popular local delicacy, as a prominent design motif in Pua Kumbu textile. This creative expression is a departure from traditional Pua Kumbu designs, which are typically steeped in Iban myths and traditional ideas. The incorporation of the Sarawak Layers Cake motif highlights the weavers' willingness to incorporate contemporary themes and motifs into their work while staying true to their cultural roots. By incorporating local imagery, the weavers celebrate and preserve the unique culture and traditions of Sarawak.

This innovative approach broadens the horizons of Pua Kumbu as an art form, demonstrating the weavers' ability to adapt and evolve with the times. The Sarawak Layers Cake motif serves as a testament to the weavers' creative prowess and their capacity to incorporate new and diverse ideas into their designs. Ultimately, this fusion of tradition and innovation elevates Pua Kumbu to new heights and further cements its status as a treasured art form in Sarawak.



Figure 5.14: The Pua Kumbu textile with a design motif of the Sarawak Layer Cake (Image taken during the field trip)

V. Contemporary

Throughout the study, various Pua Kumbu weavers were observed to approach the design motifs of this sacred textile from unique angles and themes, creating a contemporary twist on this revered art form. One particularly noteworthy example is the work of a 76-year-old weaver who depicted humanoid images of Muslims in the act of praying. The design features a mosque at the middle bottom and flags adorning both sides. Surprisingly, this depiction diverges from the traditional look of Pua Kumbu textiles, which are typically antique, mysterious, and heavily influenced by natural imagery (refer to Figure 5.15, page 244).

This innovative interpretation of Pua Kumbu design motifs exemplifies the weavers' willingness to explore new artistic horizons while still honouring the traditions of this sacred craft. By incorporating contemporary themes and concepts, the weavers are breathing new life into Pua Kumbu, ensuring that it remains relevant and captivating for generations to come. Moreover, this approach reflects the dynamic and evolving nature of Sarawak's rich cultural heritage, as well as the weavers' ability to adapt to changing times.

Notably, the weaver's representation of Muslims in the act of praying is a testament to the multicultural and religious diversity of Sarawak. Through this art piece, the weaver celebrates and pays tribute to the Muslim community in the region, highlighting the inclusive nature of Pua Kumbu as a cultural artifact. This depiction also underscores the importance of preserving and promoting the diverse cultural traditions of Sarawak, fostering unity and mutual respect among different ethnic and religious groups. The weaver's creative expression of Muslim prayer imagery in Pua Kumbu design motifs represents a significant departure from conventional interpretations of this revered art form. By incorporating contemporary themes and concepts, the weaver has expanded the boundaries of Pua Kumbu as an art form, enriching its meaning and relevance for present and future generations.

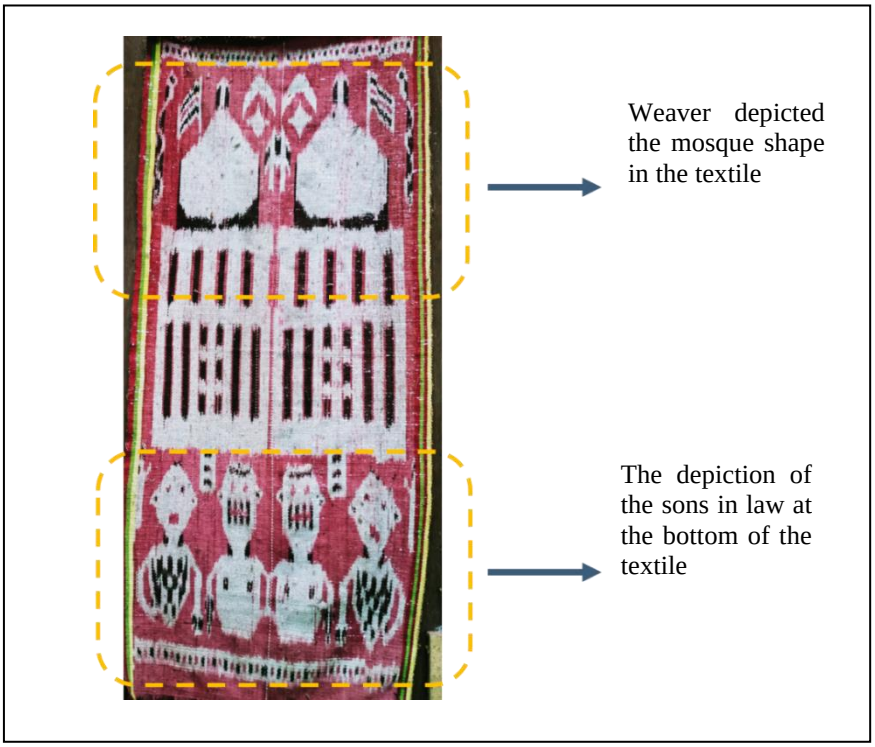


Figure 5.15: The Pua Kumbu textile with a design motif of the mosque (Image taken during the field trip in Ulu Yong, Kapit, Sarawak)

Upon closer observation and extensive interviews, it was discovered that the weaver responsible for the striking design motif depicted in Figure 5.15 (see page 244) had three Muslim sons-in-law, which had exposed her to Islamic culture from an early age. Despite the cultural differences, the weaver was able to assimilate and incorporate contemporary design elements into her Pua Kumbu textile, as exemplified by the inclusion of a mosque in her art. This act of integration and assimilation of diverse cultural elements reflects the weaver's open-mindedness towards new ideas and her willingness to embrace change in the traditional art form.

Through her design, the weaver aimed to showcase her appreciation for her family and surroundings, infusing her personal experiences and stories into her textile. By incorporating a mosque and flags in her design, the weaver illustrated the cultural diversity of Sarawak, emphasizing the importance of embracing and celebrating cultural differences. The unique incorporation of contemporary elements into her design reflects the changing cultural landscape of Sarawak and demonstrates the resilience of cultural heritage in the face of modernization. This example illustrates the potential for Pua Kumbu weavers to embrace contemporary design motifs and evolve their craft, while still maintaining the essence of the traditional art form. It highlights the importance of cultural diversity and the significance of preserving cultural heritage through the integration and assimilation of diverse cultural elements. By embracing change and modernity, Pua Kumbu weavers can keep their art relevant and continue to showcase the unique cultural identity of Sarawak.

*"I'd want to incorporate the **modern design motif** of MH370, - the missing aeroplanes, which has a significant tale behind it."*

IN(W5)*Kap-(PRODES-OrIB & MH) 28.11.20

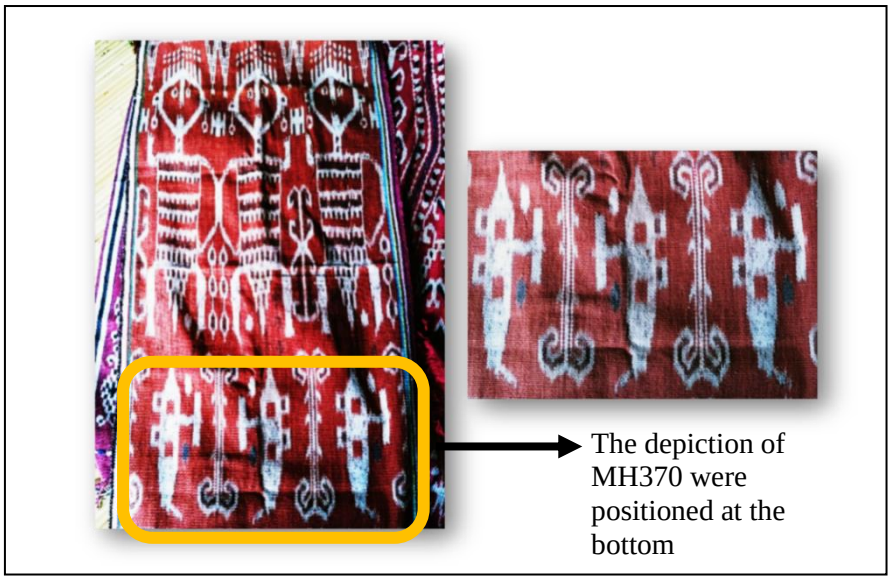


Figure 5.16: The interpretation of MH370 was depicted in the textile (Image taken during the field trip)

The masterful Pua Kumbu weaver of 76 years of age has left her indelible mark on the fabric of traditional weaving by infusing her art with contemporary elements. The question of whether these new design elements align with Iban cultural values may be a matter of debate, but the need to add and modify specific design elements is essential to the preservation of tangible culture. Though some may resist such changes, it may be a necessary step toward making the art more accessible and relevant to contemporary audiences.

Indeed, the Pua Kumbu textile possesses a unique pattern that communicates a "story" to the beholder, one that has a multitude of interpretations. The weaver's vision for depicting these design motifs is heavily rooted in Iban culture, tradition, beliefs, and the surrounding environment. However, the appreciation of the Pua Kumbu intangible cultural heritage (ICH) may not come naturally to those unfamiliar with it. Therefore, the research has categorized the design motifs into five distinct categories: flora, fauna, humanoid,

abstract, and contemporary. Each category has its unique characteristics that are deeply rooted in the surroundings, legends, and Iban myths.

At the core of this magnificent textile is the weaver's artistry, which serves as the storyteller of each design motif. Every element woven into the fabric is infused with Iban knowledge, making it a precious part of the community's cultural heritage. However, to "read" the message of each art piece, laypeople must learn and master the art of Pua Kumbu weaving. Thus, the weaver's commitment to incorporating contemporary design motifs helps to ensure the preservation of this invaluable cultural treasure.

5.4.2 Community Acceptance and Knowledge Acquisition

In this section, academics were asked about the community's acceptance of Pua Kumbu textiles and their knowledge of each piece. The community's understanding was critical in preserving this art piece for the long term. All the participants IN(A1-4) agreed that there is a lack of knowledge among the community regarding the design motifs applied to the textiles, particularly among younger generations. In addition, even the Iban people and the weaver alone are perplexed by the design motifs themselves (refer to Chapter 4, transcript: *IN(W2)*Sng-(DM-Y,bum)27.11.20.* page 163).

Moreover, the participant IN(A4) added that in a series of exhibitions that have been held, most of the audience does not understand the textile unless it is explained to them, which showed that Pua Kumbu textile still lacks recognition worldwide (refer to Chapter 4, transcript: *IN(A4)*KchZ-(CMUNDS-Xunds/expl)30.07.20*, page 191).

During the interview, participant IN(A1) expressed concern that the Iban community has limited understanding of the Pua Kumbu textile, leading to instances of mistreatment of this remarkable cultural treasure. According to IN(A1), one such instance occurred during an R&D competition, where a participant designed a pair of pants using real Pua Kumbu textile, which is considered unacceptable due to the sacred and cultural significance of the textile.

Moreover, IN(A1) reported additional instances where the intricate and meaningful design motifs of the Pua Kumbu were reduced to mere table runners, which some members of the Iban community found to be a disrespectful appropriation of their intangible cultural heritage. This observation was detailed in the study transcript (refer to Chapter 4, transcript: IN(A1)*Bet-(CMUNDS-Xunds/hvknwld)2.11.19, page 192).

The lack of understanding of the ICH status and significance of the Pua Kumbu textile by some members of the Iban community raises the need for greater awareness and education about the value and importance of preserving cultural heritage. It also underscores the need for more efforts to be made in promoting and safeguarding the intangible cultural heritage of Sarawak, particularly among the younger generation who may not be familiar with the cultural traditions and practices of their ancestors.

> *"Certain people don't comprehend the design; they took a sacred ceremonial pattern and put it on a table runner, which enrages some Iban.In the most recent R&D competition, one person developed a pant out of real Pua Kumbu, which is not acceptable."*
>
> *IN(A1)*Bet-(CMUNDS-Xunds/hvknwld)2.11.19*

Participant IN(A3) also mentioned a similar situation involving the mistreatment of the Pua Kumbu textile. In one instance, a 'Baju Burung' was sent to a tailor with the motifs sewn upside-down, which is incorrect. Surprisingly, this cloth was worn by one of the VIPs and has become a major issue among the Iban community (refer to Chapter 4, transcript: *IN(A3)*KchZ-(CMUNDS-Xunds/hvknwld)28.07.20*, page 192). The *'Baju Burung'* is one of the Iban traditional men's clothing usually worn during the festival, event, or performing the traditional Iban dance; *"Ngajat."*

The art knowledge of the design motifs applied to Pua Kumbu textile needs to be transferred to the perceivers to correct the perceivers' aesthetic perceptions and safeguard this tangible cultural heritage. Participant IN(A2) suggested a collective collaboration from the seller to promote this textile in the market to instil an understanding of the Pua Kumbu ICH in the community. The seller should first comprehend the content of Pua to describe the design motifs and promote the textile.

All participants agreed or strongly agreed that the Pua Kumbu perceivers' lack of knowledge of the design motifs resulted in mistreatment and misinterpretation of this tangible art (refer to Chapter 4, Table 4.35, page 194). The preservation of this majestic art piece should be done at an early stage. Furthermore, Pua Kumbu textile is considered to have a remarkable potential to be highlighted due to the cultural values instilled in the art piece.

Thus, academics opine that this authentic textile should receive better recognition based on the credibility of the Pua Kumbu design motifs and the originality of the intangible features, which are the emblematic of the Iban community and Malaysia in general. Integrating the Pua Kumbu design motifs to other product surfaces can enrich community

acceptance and enhance the perceivers' aesthetic perception and safeguard the art piece from being inexistent (refer to Chapter 4, Table 4.37, page 199).

Based on the data obtained, it was indicated that this tangible heritage of the Pua Kumbu textile could be safeguarded by continuously weaving the textile. Most of the participants mentioned that integrating and incorporating the Pua Kumbu design motifs on other surfaces such as products, fashion, furniture, and textiles can enrich community acceptance and Pua Kumbu design motifs development by extending the use of other motifs besides the simple type of plant motifs only.

In the study conducted by Mathew (2018), the use of African and Ghana Adinkra design motifs by adapting them into different mediums was deemed a way to safeguard the knowledge of its design motifs. Mathew (2018) revealed that the adaptation of Adinkra design motifs in silk linen sarees, a traditional Indian costume, can increase the value of aesthetic appearance by the embodiment of two different cultural values in one medium (Mathew, 2018).

Integrating traditional or heritage knowledge into contemporary practice can enhance acceptance within the community, especially among young generations. Findings in Tresnadi and Sachari's (2015) study suggested integrating the Indonesian batik ornaments as part of the content in the interactive game, Nitiki's digital interface (Tresnadi & Sachari, 2015). Thus, to safeguard the intangible forms of cultural heritage, the knowledge barrier between perceivers should first be eliminated to ensure that they can effectively attain the values and principles of their cultural heritage.

Academics universally agreed that using artificial intelligence technology to conserve the Pua Kumbu textiles is the most sophisticated method (refer to Figure 5.17, page 241). This technique will improve the user experience, notably in safeguarding Pua Kumbu's valuable local artefacts (refer to Chapter 4, Table 4.38, page 201). In this way, the ICH of the local culture will be successfully imparted, and community acceptance will be enriched and spread.

In addition, competitions, seminars, workshops, conferences, documentaries, and books will initiate the community's interest and further preserve the heritage. Various promotional approaches, such as exhibitions, workshops, social media, knowledge sharing, and tourism education, will foster knowledge and safeguard the cultural heritage for future generations (refer to Table 4.37, page 198).

Ultimately, the community's acceptance of the textile was based on the people's acquisition of local art knowledge of Iban culture, linked to the design motifs used on the Pua Kumbu textile. The perceiver requires access to the intangible cultural heritage (ICH) knowledge to interpret the discovered art knowledge hidden in every design motif used. Figure 5.17 (see page 252) displays the roles of Pua Kumbu textile design motifs in the foreground and as the foundation for the textile's long-term sustainability.

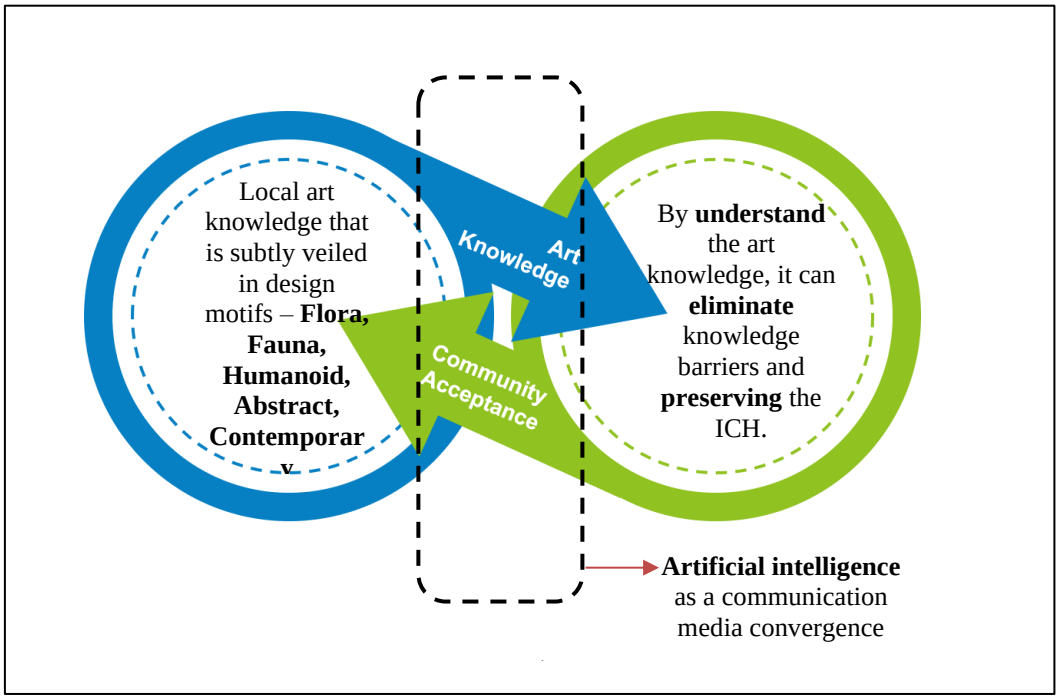


Figure 5.17: The Finding of Objective Three on the Art Knowledge of the Pua Kumbu Textile based on the Academics' and Weavers' Perspective

Numerous ways have been utilised and proposed to improve community acceptance and propagate Iban local knowledge. The absence of Pua Kumbu art knowledge has resulted in maltreatment and misinterpretation of the textile (Wahed et al., 2020b; Wahed et al., 2021) and a lack of interest in learning more about it. Furthermore, the weavers' translations of their surroundings and ingenuity lay in the fundamental "ingredient" of the ICH of the Pua Kumbu design motifs, and it must be successfully transmitted to people for them to comprehend this magnificent work of art better.

In Malaysia, intangible cultural heritage (ICH) became extinct owing to two key factors: a shift in traditional values and a move to modern times (Mustafa & Saleh, 2017). Surprisingly, Malaysia's intangible cultural heritage is multicultural in nature. On the other

hand, the ICH has suffered loss and extinction as a result of shifting circumstances and diminishing community interest (Yusoff, 2018).

The tangible cultural heritage of the Iban people is sacredly guarded and continues to exist to this day. Customs and beliefs bind the Iban intangible cultural heritage of 'local knowledge. It is beautifully crafted in Pua Kumbu design motifs (Wahed et al., 2020). A video of a social media influencer publicly mocking the *'Ngepan Iban,'* the traditional Iban costume, was recently shared on social media platforms (Emma, 2021). This discourteous behaviour resulted from a lack of exposure, ignorance, and knowledge barriers. Thus, the proper way of channelling the ICH input can help the Pua Kumbu survive in the long run.

Moving forward to the Industrial Revolution 4.0 (IR4.0), incorporating artificial intelligence into local products will aid in reaching a wider population while also educating them. The ICH of Pua Kumbu textile needs immediate attention. The community must be equipped with Pua Kumbu knowledge and work together to protect the ICH Pua Kumbu textile. The following section proposes a novel framework for protecting the ICH of Pua Kumbu textile.

5.5 Finding of Objective 4: A Novel Framework for Safeguarding the ICH of Pua Kumbu Textile

The triangulation of quantitative and qualitative data has revealed fascinating insights that help fill the gaps in this study and achieve its aim of resolving the knowledge barriers surrounding the intangible cultural heritage (ICH) of the design motifs applied to Pua Kumbu textile and preserving cultural diversity. Despite the importance of the ICH of Pua Kumbu textile, it is conceivable that some people may overlook it due to other captivating factors. The intricate designs and vibrant colours of the textile may be the primary visual stimuli that

draw observers' attention, while the softness and exceptional quality of the cotton and richness of the dyes used may captivate those with an appreciation for textiles. Additionally, the historical and cultural significance of the textile as a symbol of identity and tradition within the local community may pique further interest, as might its commercial value as a souvenir or collectible item for tourists and visitors to the region, or its potential use in contemporary design and fashion. Nonetheless, it is crucial to acknowledge and appreciate the ICH of Pua Kumbu textile to ensure its preservation for future generations.

As outlined in Chapter 2, Section 2.5.7 (refer to page 56), the Redies model (Redies, 2015) serves as a crucial catalyst in directing this study towards its intended path. According to Redies, aesthetic perception is initiated through two channels: formalistic and contextual. The formalistic aspect of Pua Kumbu textile can be observed through the visual complexity of the geometric design motifs present on the textile. On the other hand, the contextual perception is influenced by the artistic knowledge of each design motif used in the textile. In order to ensure a seamless and successful aesthetic perception experience, it is imperative for perceivers to have a comprehensive understanding of both the formalistic and contextual aspects of Pua Kumbu design motifs. This understanding will allow them to make well-informed and measured interpretations, leading to an enhanced appreciation of the aesthetic value of the textile.

Therefore, the triangulation data (see Chapter 3, Figure 3.3, page 95), which are selected from the ARS-Revised participants, Pua Kumbu weavers, and Malaysian academics in the textile, and art culture fields were selected as the participants in the study. The knowledge and visual complexity of the Pua Kumbu textile were noticeable as the intangible cultural heritage (ICH) factors that contribute to perceivers' positive aesthetic perceptions.

The study's data, obtained from both quantitative and qualitative research, led to the proposal and formulation of a novelty framework for safeguarding the textile's ICH. The AKVC Aesthetic Perception framework (Figure 5.18, page 257) was introduced to evaluate and analyse Pua Kumbu design motifs, leading to the textile's long-term preservation.

5.6 Triangulation of Data Findings

5.6.1 The AKVC Aesthetic Perception Framework

Figure 5.18, presented on page 258, highlights the novel and significant AKVC Aesthetic Perception framework proposed in this research. The framework is based on the understanding that the intangible cultural heritage (ICH) factors of art knowledge and visual complexity are essential in comprehending the intricate Pua Kumbu design motifs. The study revealed that the Pua Kumbu textile does not receive adequate recognition from the community due to a lack of awareness and understanding, leading to misconceptions and misuse of the textile. This phenomenon is consistent with a previous study on painting artwork (Pietras & Czernecka, 2018), where prior knowledge of the artwork had a significant influence on the aesthetic perception.

Aesthetic perception is influenced by the perceiver's processing dynamics, with the degree of fluency in processing an image affecting the aesthetic response positive (Sun et al., 2014). Thus, the fluency of processing information regarding Pua Kumbu textile depends on the perceiver's art knowledge, as demonstrated in Hager et al.'s (2012) research. This interrelation between knowledge and perception has a significant impact on the aesthetic interest of the perceiver, either positively or negatively. Therefore, to safeguard this valuable art piece, it is crucial to develop a positive aesthetic perception of the Pua Kumbu textile.

To this end, the AKVC Aesthetic Perception Framework proposed in this research is a crucial tool for evaluating and analysing the Pua Kumbu design motifs, leading to the development of positive aesthetic perceptions and ultimately safeguarding the Pua Kumbu ICH. The framework includes the essential components of visual complexity and art knowledge of the five design motif categories - humanoids, fauna, flora, abstract, and contemporary - and incorporates artificial intelligence features to enhance communication media convergence for perceivers (refer to Figure 5.18, page 258).

In the final stage of the AKVC Aesthetic Perception Framework, the formalistic and contextual analysis of the design motifs gathered from the data is transformed into positive aesthetic perceptions of the perceivers, thus resulting in the safeguarding of the Pua Kumbu ICH. The significance of this framework cannot be overstated as it provides a valuable tool for evaluating and safeguarding the Pua Kumbu textile's aesthetic value and cultural heritage.

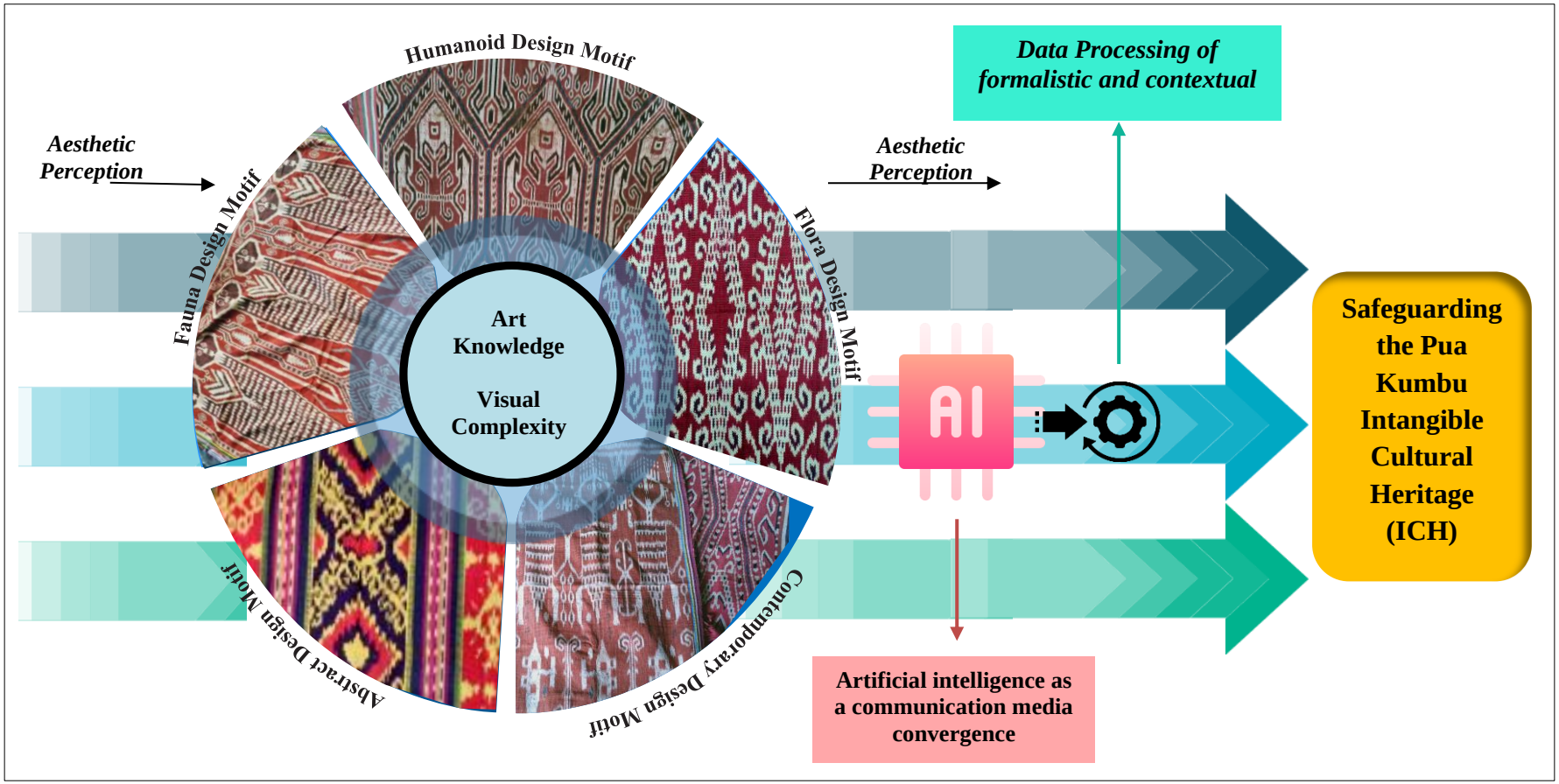


Figure 5.18: The Proposed AKVC Aesthetic Perception Framework Illustrates the Aesthetic Perception Process Via Artificial Intelligence to Safeguard the Pua Kumbu ICH

Significantly, visual complexity and art knowledge are the foundations of perceivers' positive aesthetic perception and the study's novelty (see Figure 5.18, page 258). Having these two components will aid in the right evaluation of the Pua Kumbu design motifs while also preserving the textile. Implementing artificial intelligence (AI) to facilitate the aesthetic perception process enriches the perceivers' experience and ensures the ICH's sustainability. The following section details the features included in the AKVC Aesthetic Perception framework.

5.6.1.1 The AKVC Visual Complexity

The visual complexity of the Pua Kumbu textile design motifs was established based on the weaver's interpretation; - the stories that the Pua Kumbu weaver wants to 'express.' The Pua Kumbu textile anecdotes are recognised as art knowledge that should be disseminated to enhance the perceiver aesthetic perception. Embarking on the journey to the proposed framework of the study, visual complexity is a formalistic component of the AKVC Aesthetic Perception framework that hampered the elements of art and design principles in producing the art piece. Every design element applied is constructed not only for the beauty of the mind but also for the Iban knowledge.

The study has found that Pua Kumbu textile visual complexity consists of five different themes based on the characteristics of the design motifs applied. The design motif themes were constructed based on the research findings gathered: humanoids, flora, fauna, abstract and contemporary (see Figure 5.19, page 262). Each theme had unique qualities and storylines, yet they were all designed in a geometrical shape. However, the core design that each theme adheres to includes an *'Ara'* design or border at the top and bottom of the textile. The *'Ara'* comprises many vertical-coloured lines that the weaver chooses.

The flora design motif is the most common and most accessible design in the market. The flora design motifs are inspired by the surrounding and Sarawak local plants. Plants such as *'Midin'* and *'Paku-Pakis'* are always Pua Kumbu weaver favourites. The design motifs were applied in a variety of colours to the textile. In contrast to the other two design motifs category, fauna and humanoid design motifs, Pua Kumbu textile with the flora theme does not require any special ritual before beginning the weaving activity. A significant proportion of the design motifs in this category are often used for decoration and thus do not include specific meaning or taboos.

The design motifs for the fauna and humanoid themes are more intricate, with intrinsic meaning and narrative. The Pua Kumbu weavers will artistically communicate her perspective of her environment, legends, and myths into the design motif applied to the Pua Kumbu textile. The design motifs were created as a complete set. The main subject was dedicated in the mid of the textile, 'secured' in the 'home' design motif, and designed in an oval or square form.

According to the Pua Kumbu weavers, the' home' design motif is intended to soothe the spirit of the central motif. The central design motif was the inspirations by humanoid, plant, and predatory animals (fauna theme). Furthermore, the design motifs of *'food'* are placed at the bottom of the Pua Kumbu textile, taking the form of humans or non-predatory types of animals. Finally, the flora motifs were elegantly designed as adornment, placed around the central motifs, and are used to fill in the available voids.

The Pua Kumbu textile design motifs conveyed different messages for the abstract theme category. The Sarawak locals' objects, such as Sarawak Layer Cake, Iban shield, -*'Terabai,'* mountains, and rivers, were chosen as central motifs. This theme's key elements

were sometimes designed in repetitive form or as a single shape. The colour combination is more vivid and does not reflect the natural colour of the Pua Kumbu textile. Colours such as green and blue may be readily observed in this category. In addition, the Pua Kumbu in the abstract theme does not uphold any *'miring*' rituals or taboos.

The interpretation of the Pua Kumbu weavers for the design motifs in the contemporary theme category is not bound to the conventional look. Still, it is a more up-to-date and current design. The contemporary issues are more intriguing to transfer into the Pua Kumbu textile. The flora design motif, such as *'Paku-pakis'*, was identified when accompanied by a geometrical shape, such as a triangle or square shape. Like the Pua Kumbu design motif in the abstract theme category, the Sarawak local products, food and weaponries are becoming the favourite inspirations for the Pua Kumbu weaver.



Figure 5.19: The Pua Kumbu Design Motifs Categories

5.6.1.2 The AKVC Art Knowledge

The AKVC Aesthetic Perception Framework has identified art knowledge as the most important factor in improving the Pua Kumbu textile perceiver's understanding. The study discovered that the intangible cultural heritage (ICH) of Pua Kumbu textile is originally from the Iban's local knowledge, which is motivated by the surroundings, Iban culture, taboos, and contemporary issues. The Pua Kumbu weaver's concept of organising and selecting the ideal geometrical shape was based on the original shape of the subject matter. The shapes were ingeniously arranged depending on the weaver's interpretation and creativity.

The qualities of the subject matter are highlighted by taking the outline of the original form and translating it to the Pua Kumbu textile. The design motifs depicting humans are considered sacred, representing the Iban God, *'Petara.'* In some other situations, Pua Kumbu weavers love to add the design motifs with the elaboration of predatory animals in the textile. The design motifs in the categories of humanoid and fauna (but only on the predatory type) were connected to mystical elements. They can only be made by the eldest weavers and with God's permission. Some Pua Kumbu weavers still practise this belief. However, based on data gathered, both Pua Kumbu weavers and academics agreed that the high-ranking design motifs (the humanoid and predatory type animal) should be respected and honoured. Thus, any misbehaviour, such as placing the high-ranking design motifs of Pua Kumbu textiles in random order composition, dishonoured the Iban's way of life and beliefs.

Every design motif applied to the textile shapes a story. These stories are the collection of a Pua Kumbu weaver's memory, aesthetic perception of their surroundings, culture, life, myths, love, and beliefs. The design motifs applied are not added without the

weaver's understanding of their local knowledge. It lies systematically in the arrangement of the geometrical design weaved beautifully into the Pua Kumbu textile.

5.6.1.3 The Integration of Artificial Intelligent in the AKVC Aesthetic Perception Framework

The use of digital technology has exponentially increased in recent years and has invaded every aspect of life. Thus, it has often affected how developing societies experience heritage, be it their own or others. Cultural heritage has always been relevant, but the general awareness of, and disposition towards, these subject forms our sense of placing it. It also shapes our understanding, especially in the increasingly globalised world (Economou, 2015). Due to their inherent nature, the elements of intangible cultural heritage (ICH) are constantly evolving. They combine with their surroundings and sometimes disappear without enjoying an appropriate level of recognition and appreciation (Smeets, 2004).

Digital technology took another huge leap in visual culture with the new programming paradigm of Machine Learning (ML). Computer vision built on ML has enabled autonomous image acquisition, features extraction, and new insights attainment at a speed that far surpasses previous Industrial Revolutions. Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) have enabled immersive human interaction with one another and with the world in the virtual space. Studies such as Li (2020) and Merchán et al. (2021) showed VR and AR technologies would be able to achieve sustainable ICH protection and dissemination.

Relatively, embracing mobile technology in promoting the Pua Kumbu textile is one of the best solutions. This study aimed to address this gap by safeguarding and promoting the Pua Kumbu textile ICH by using a mobile learning solution for the perceivers of Pua

Kumbu textile. Mobile technology is an extremely fast-growing sector that is inextricably linked with our work and daily life. Every day, new advancements are added to its expansion, with developing new patterns of usage, which have both good and bad repercussions.

With the dawn of Artificial Intelligence (AI), intelligent mobile applications that recognise many objects are becoming commonly available on mobile application platforms. By harnessing the capabilities of Machine Learning (ML) to learn from the sample of data, this study proposes the development and deployment of an intelligent mobile application capable of recognising different Pua Kumbu design motifs commonly found in the Sarawak marketplace. The cultural background related to the design motifs would be shown to the users to enrich their appreciation of the local culture related to Pua Kumbu textile.

5.7 The Novelty of the AKVC Aesthetic Perception Framework

The misleading information connected to the Pua Kumbu textile needs to be corrected to safeguard its existence. It is revealed that those with exposure to the art would have a greater aesthetic perception of Pua Kumbu textile. The knowledge of Pua Kumbu textile should be shared with the younger generations so that the appreciation of this textile would not disappear with time. It is found that exposing the visual complexity and the art knowledge of the Pua Kumbu textile design motifs could blur the knowledge gap among the perceivers.

Thus, the advantages of science and technology are mapping the way to preserve the Pua Kumbu ICH with the integration of Artificial Intelligence (AI), leading to global preservation and protecting the intellectual property rights of communities concerning the Pua Kumbu textile intangible cultural heritage (ICH).

A popular modern belief is that digital technology is the easiest way of transferring knowledge and delivering information to people (Sedera et al., 2016). According to Adendorff et al. (2018), the 21st century has been marked by expanding information and knowledge-based economies. Therefore, implementing Cultural and Creative Industries (CCIs) in IR 4.0 can decrease the skills gap while promoting social inclusion, cultural diversity, and human development (Adendorff, 2018).

The novel AKVC Aesthetic Perception Framework was aligned with the National Heritage Act (2005) and highly focused on conserving and preserving the national tangible and intangible cultural heritage (National Heritage Act 2005, preamble & s.125(1). The preservation of the ICH refers to any form of expression that may have existed or exist concerning the heritage of Malaysia or any part of Malaysia or concerning the heritage of a Malaysian community.

This AKVC Aesthetic Perception framework aligns with the Malaysia Arts Cultural Practitioners Association (MACPA), whose major objective is to preserve ICH elements to provide and share cultural knowledge. Nonetheless, MACPA's goal is to construct critical network building and raise community awareness about the importance of the ICH. MACPA has carried out several activities, one of which was to digitalise the ICH data for future reference. This is comparable with the study's objectives. Hence the AKVC Aesthetic Perception Framework is relevant to the MACPA mission and goal.

Significantly, safeguarding tangible and intangible cultural heritage is not one person's mission but includes collaboration with multiple organisations, stakeholders, and governments (Mawuli, 2019; Sardjono et al., 2015; Siamwalla, 2019; Sugiarti et al., 2019; Untari et al., 2020; Yang et al., 2018). The thoughtful management of ICH can assist the

sustainability of intangible assets globally (Du Cros & Salazar, 2012). Therefore, genuine collaboration between communities, tourism, and the heritage sector is needed to achieve the aspirations of preserving ICH globally. Hence, the correct aesthetic perception of ICH Pua Kumbu textile among tourists can also empower the tourism industry ecosystem and cultural inclusiveness through cultural tourism activity. The Malaysian Ministry of Tourism, Arts, and Culture blueprint emphasises promoting the distinctiveness of Malaysian arts, culture, and heritage, including tourism products, as the primary catalyst for the country's tourism and culture industry growth.

5.8 The Expert Validation of the AKVC Aesthetic Perception Framework

The AKVC Aesthetic Perception Framework was validated to get insight from the experts. Six (6) experts from various disciplines (textile/weaving design, textile academic and fashion designer) were interviewed virtually in different time frames using the Google Form prepared by the researcher. The experts were selected based on the criteria selected by the researcher: those with a minimum of 10 years or more of experience in their field and familiar with the Pua Kumbu textile. Table 5.4 (see page 267) shows the expert's name, gender, occupation, education background, and years of experience.

Table 5.4: The Expert(s) Profile

Participants	Field of expertise	Gender	Education	Year(s) of experience
Expert 1	Textile and weaving design	Female	Master Degree	12
Expert 2	Textile academic/ Fashion Designer	Male	Master Degree	10
Expert 3	Textile academic/ Fashion Designer	Male	Master Degree	11
Expert 4	Fashion designer	Female	Ph.D.	15
Expert 5	Textile academic / Fashion Designer	Male	Master Degree	15
Expert 6	Textile academic	Female	Ph.D.	20

5.8.1 The Procedure and Data Analysis

The discussion took place in multiple (Zoom) interviews with the participants. The AKVC Aesthetic Perception Framework (see Figure 5.19, page 261) was shown to the participants and followed by the set of questions in the Google Form. The questions were structured with six closed-ended questions and one open-ended question. The experts were advised to use the Likert scale 1-5 to respond to the closed-ended questions (strongly disagree to strongly agree). The list of closed-ended questions is enclosed in the next page.

1. This framework is easy to understand.
2. The organisation of steps and processes in this framework is easy to understand.
3. Art Knowledge is valuable in establishing perceivers' positive aesthetic perceptions.
4. Visual Complexity is valuable in establishing perceivers' positive aesthetic perceptions.
5. The integration of artificial intelligence as a communication media convergence provides the capability to protect the Pua Kumbu ICH.
6. This framework provides the capability to protect the Pua Kumbu ICH.

In addition, the participants need to add their opinions on the AKVC Aesthetic Perception Framework in an open-ended manner curated at the end of the question. Upon being granted permission to be included as the expert validation participants, time was set, and discussion was conducted. The discussion was held in a different time frame and took about 30 minutes to complete. It was interesting to receive different feedback from experts from different fields. Their insight would help to enrich the AKVC Aesthetic Perception framework. Table 5.5 (see page 269) reveals the answer given by the experts.

Table 5.5: Experts' Validation Feedback on the AKVC Aesthetic Perception Framework

Items	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6
This framework is easy to understand.	Agree	Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree
The organisation of steps and processes in this framework is easy to understand.	Strongly Agree	Strongly Agree	Agree	Agree	Agree	Strongly Agree
Art Knowledge is valuable in establishing perceivers' positive aesthetic perceptions.	Agree	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree
Visual Complexity is valuable in establishing perceivers' positive aesthetic perceptions.	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
The integration of artificial intelligence as a communication media convergence provides the capability to protect the Pua Kumbu ICH.	Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree
This framework provides the capability to protect the Pua Kumbu ICH.	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

5.8.2 The Expert Validation Feedback

The AKVC Aesthetic Perception framework (see Figure 5.18, page 257) was revealed to experts to obtain professional feedback related to their field of expertise. Interestingly, six (6) experts received a positive answer when responding to the framework. For items 1, 2, 3, and 5, all experts agreed and strongly agreed that the AKVC Aesthetic Perception framework is easy to understand, including the organisation of steps and processes in the framework. The experts found the arrangement of the processes from the beginning towards the end well-presented, interesting, understandable and friendly-manner.

" Purposely of this framework easy to understand with visualize the main subject (Pua Kumbu)."

EX(3)*KLTN – 20022022

" It is a straight forward framework which clearly incorporated the elements of aesthetic & nothing too complicated, which made this framework interesting and, in a reader, -friendly manner. "

EX(4)*KCH – 08032022

" This framework is well presented. A clearer framework to provide the aesthetical value of the textile focusing on the design motif and the technical process of Pua Kumbu textile."

EX(1)*KLTN – 15022022

" It is easy to understand and well presented".

EX(5)*KCH – 08032022

"I think all people need this framework in order to understand the Pua Kumbu further. It is clear and understandable."

EX(6)*KCH – 016032022

According to the experts, the art knowledge and visual complexity factors are valuable in establishing perceivers' positive aesthetic perception of the Pua Kumbu textile. This can assist in enhancing their understanding and giving the right knowledge of Pua Kumbu textile to the perceivers. In the study by Bimler et al. (2019), the perceivers with art knowledge rated artwork as more interesting, beautiful, informative, and sophisticated than those who do not possess art knowledge (Bimler et al., 2019). The appreciation of art by the perceiver with art knowledge is more complex, with more sophisticated strategies for analysing collative properties and semantics of artwork while parsing 'visual rightness' to unfold its visual complexity meaning.

Silvia et al. (2021) discovered that low-level stimulus features greatly impact art's novice (symmetry, complexity, prototypicality, colour, and curvature). Perceivers who have art knowledge, on the other hand, are more sensitive to formal, conceptual, and historical aspects (Silvia et al., 2021).

The experts mutually agree that integrating artificial intelligence as a communication media convergence provides the capability to protect the Pua Kumbu ICH. Based on Egarter Vigl et al. (2021), the proliferation of new data sources, such as social media data, and recent advances in technology have opened promising alternatives to traditional, resource-intensive methods, making it easier to understand the many connections between people and nature (Egarter Vigl et al., 2021). Like this study, having artificial intelligence as a medium to communicate to the perceivers will help enrich perceivers' understanding and contribute to the perceiver knowledge pool effectively and smartly.

Finally, all experts strongly agreed that the AKVC Aesthetic Perception framework provides the capability to protect the Pua Kumbu ICH in the long run. It was found that having this framework can become a guideline for future researchers and the community to extend their awareness of the Pua Kumbu textile aesthetic awareness.

" It is to help the community understand all the knowledge of the fabric. The framework also supports the development plan of art field and local crafts in the Sustainable Development Goals and preserved all the identity of this fabric. This is important to maintain the identity of local fabric."

EX(1)*KLN – 15022022

" This framework suitable to use as a guideline to other researches or public to gain aesthetic value of Pua Kumbu textile."

EX(2)*KLTN – 202022

" Very useful framework for the preservation of the aesthetic Pua Kumbu textile."

EX(3)*KL – 03032022

In conclusion, the AKVC Aesthetic Perception framework was successfully validated by six (6) experts in different fields of expertise. Their feedback was interesting and assisted the researcher in achieving the study's aim; to explore the participants' aesthetic perception of the design motifs applied to the Pua Kumbu textile and preserve the textile ICH.

5.8.3 The AKVC Aesthetic Perception Framework Testing

Based on the groundbreaking AKVC Aesthetic Perception Framework, an exceptionally forward-thinking and technologically advanced mobile application, aptly named "Borneo Indigenous Treasures" (BiTs), has been meticulously developed. This remarkable application represents a transformative leap in mobile technology, ingeniously designed to facilitate an extensive and immersive exploration into the captivating world of visual complexity and profound artistic insight inherent in the revered Pua Kumbu textile. By harnessing the remarkable capabilities of artificial intelligence as a dynamic and versatile medium of communication, BiTs emerges as a trailblazing exemplar of ingenuity, skilfully unravelling the intricate textile's designs and intricacies, all while unveiling the rich cultural narrative interwoven within this remarkable piece of heritage.

Within the framework of BiTs, the dynamic interplay of artificial intelligence serves as an innovative conduit through which the textile's intricate patterns and cultural significance are conveyed with an unparalleled level of depth and clarity. Far beyond the confines of mere presentation, this ingenious application enhances the cognitive faculties of its users, nurturing a profound understanding and an enriched appreciation for the resplendent beauty that radiates from the Pua Kumbu. In essence, BiTs ascends to the role of a custodian, diligently fostering the preservation of the intangible cultural legacy that the Pua Kumbu encapsulates.

The seamless integration of cutting-edge AI technology within the BiTs ecosystem yields a groundbreaking and tailor-made user experience, meticulously crafted to harmonize seamlessly with the distinctive aesthetic sensibilities and diverse learning styles of each individual user. Through its interactive and immersive interface, this application adeptly

unveils a vibrant panorama of the textile's five distinctive design motif categories, each narrative thread artfully unravelling the intricate weave of humanoids, fauna, flora, abstract forms, and even contemporary expressions. Collectively, these multifaceted dimensions coalesce into a symphony of exploration and engagement, thereby redefining the very paradigm of acquainting oneself with the mesmerizing textile of the Pua Kumbu.

In a comprehensive synthesis, BiTs emerges as a veritable embodiment of enlightening education and captivating engagement, a digital gateway through which the Pua Kumbu textile unfurls its captivating and multilayered saga. This interactive platform not only imparts knowledge but also serves as a wellspring of inspiration, steadfastly reinforcing the commitment to the preservation and celebration of a cultural heritage that remains a testament to human creativity and ingenuity, an unparalleled legacy deserving of perpetual safeguarding.

5.8.4 Operational Mechanisms of 'Borneo Indigenous Treasures' (BiTs) Application

This section delves into the intricate operational mechanisms that underpin the functionality of the 'Borneo Indigenous Treasures' (BiTs) application. The interactive exploration and user engagement facilitated by BiTs are achieved through a meticulously orchestrated interplay of artificial intelligence (AI) algorithms, user interface design, and personalized interaction.

User Interface and Navigation

At the core of BiTs is its intuitive and user-centric interface. Figure 5.20 (see page 275) illustrates the BiTs interface: the left side showcases the front-page interface, while the right side presents the layout of the second page, seamlessly guiding users to navigate and interact with the application's content.

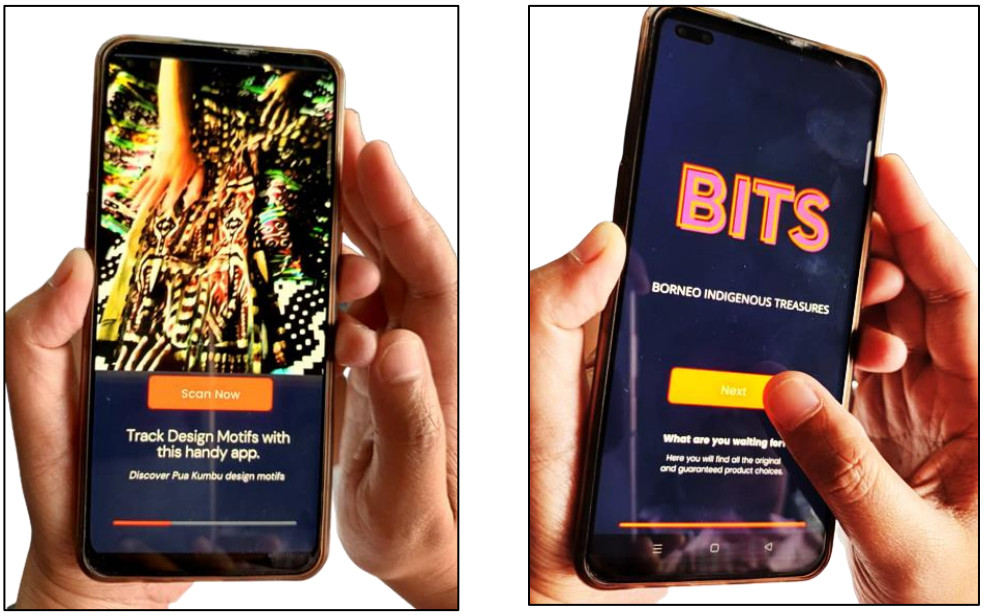


Figure 5.20: The BiTs interface – Left: Front page view, Right: Layout of the second page guiding the user to the next content

AI-Powered Visual Recognition and Analysis

A central aspect of BiTs' functionality is its utilization of AI-driven visual recognition technology. This advanced algorithmic approach enables BiTs to analyse and decode the intricate design motifs within the Pua Kumbu textile. By identifying elements such as humanoids, fauna, flora, abstract forms, and contemporary expressions, BiTs fosters a profound understanding of the textile's artistic intricacies (see Figure 5.21, page 276).

Cultural Contextualization and Enrichment

BiTs surpasses mere pattern recognition by offering rich contextual information regarding the cultural significance and historical context of each design motif. This contextualization empowers users to appreciate the profound narratives and traditional

significance embedded within the textile, creating a holistic and immersive learning experience (see Figure 5.22, page 277).

Personalized Engagement and Interactive Learning

Incorporating AI allows BiTs to tailor the user experience to individual preferences and learning styles. Through interactive features, users can zoom in, pan, and explore the textile's intricate details, accessing detailed descriptions, stories, and insights related to each design element. Gamified quizzes, challenges, and interactive games further enhance engagement, making the learning process captivating and rewarding.



Figure 5.21: User engage in visual recognition by scanning design motifs

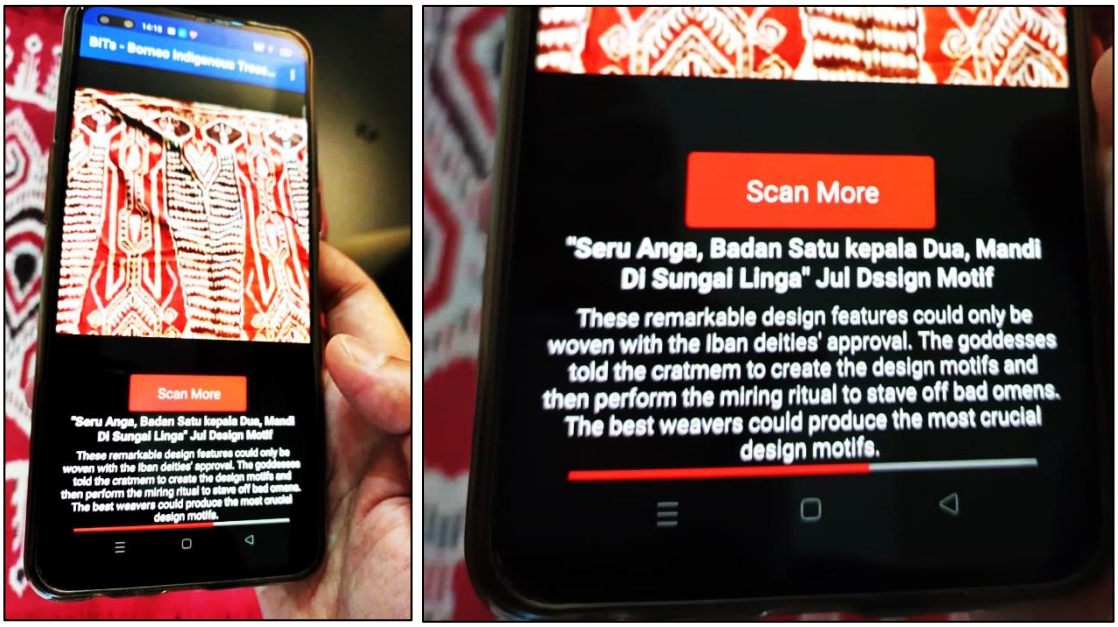


Figure 5.22: Effortless Recognition of Design Motif Knowledge through BiTs

Community Sharing and Amplification

BiTs encourages community engagement by enabling users to share their discoveries, insights, and experiences through social media integration. This feature fosters a sense of connection and amplifies appreciation for the cultural heritage encapsulated within the Pua Kumbu.

To summarize, the operational mechanisms of the 'Borneo Indigenous Treasures' (BiTs) application seamlessly merge cutting-edge AI technology with user-cantered design principles. The result is an immersive, engaging, and personalized exploration of the Pua Kumbu textile, facilitating a profound connection with its intricate designs and cultural significance.

5.8.4.1 Testing Process

To evaluate the effectiveness of the Borneo Indigenous Treasures (BiTs) mobile application, a survey was conducted among 10 respondents. As this testing is considered a usability study, 10 respondents were sufficient to obtain a desirable outcome (Faulkner, 2003). The respondents were selected from two prominent places where the textile was sold for commercial purposes: Kuching Waterfront Bazaar and Tun Jugah Museum, where the textile was displayed and exhibited for tourism purposes.

The survey questionnaire was divided into several sections, including demographic information, prior knowledge of Pua Kumbu textile, and evaluation of the BiTs application. Visual representations of the five design motifs categories classified in the AKVC Aesthetic Perception Framework were provided, namely humanoids, fauna, flora, abstract, and contemporary, to assess respondents' aesthetic perception using a Likert scale of 1 to 5 (strongly disagree to strongly agree). This approach allowed for a comprehensive understanding of the BiTs application's usability and effectiveness in enhancing users' knowledge and appreciation of Pua Kumbu textile through the integration of artificial intelligence technology. Table 5.6 shows the results of the survey.

Table 5.6: The respondents' feedback on the BiTs mobile application (N= 10)

Questions	*M (SD)*	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		%				
The BiTs mobile application is easy to use.	4.25 (0.73)	0	2.5	12.5	72.5	12.5
The BiTs mobile application effectively enhances my knowledge of Pua Kumbu textile.	4.60 (0.50)	0	0	5	60	35
The BiTs mobile application effectively enhances my knowledge of Pua Kumbu textile.	4.5 (0.51)	0	0	5	70	25
The use of artificial intelligence technology in the BiTs mobile application enhances my learning experience of Pua Kumbu textile.	4.4 (0.60)	0	0	10	70	20
Overall, I believe the BiTs mobile application is an effective way to safeguard the intangible cultural heritage of Pua Kumbu textile.	4.65 (0.48)	0	0	5	55	40

Based on the results, it can be concluded that overall, the BiTs were very effective in conveying information on the Pua Kumbu design motif. The mean scores for all questions were above 4, indicating a positive response to the application. Moreover, the standard deviations were relatively low, suggesting that the responses were consistent among the participants, further supporting the effectiveness of the application.

5.9 The Summary of Chapter 5

The study successfully met its objectives, and the findings from both quantitative and qualitative data led to the development of the AKVC Aesthetic Perception Framework. Objective one revealed that positive aesthetic perception of the Pua Kumbu textile was influenced by gender, background, and art knowledge. Perceivers with art knowledge could better appreciate and understand the textile's beauty.

Objective two showed that the visual complexity of design motifs in the Pua Kumbu textile is in the hands of the weavers. The weavers are the storytellers, and every design motif is infused with Iban knowledge. Laypeople need to learn and master the art skills to understand the message in the textile. Objective three demonstrated that the Pua Kumbu textile has five distinct themes: flora, fauna, humanoid, abstract, and contemporary. The weavers' creativity in arranging the design motifs determines each theme category's particular features. The weavers' "message" is encrypted in the textile, inspired by their surroundings, folklore, taboos, and contemporary issues.

Experts agree that the Pua Kumbu textile does not receive proper community recognition, and more attention is needed to educate the public with Iban local knowledge to preserve this historic textile. The AKVC Aesthetic Perception Framework was developed to eliminate the knowledge barrier and integrate with Artificial Intelligent (AI) to protect the Pua Kumbu textile ICH. Six experts validated the framework, showing its suitability for the study and contribution to the greatest aesthetic perception among Pua Kumbu textile perceivers.

The BiTs mobile application survey results indicated that most respondents found the app effective in enhancing their knowledge and appreciation of Pua Kumbu textile. The study's conclusion suggests that publicizing the Pua Kumbu textile ICH and adopting digital technology can increase community acceptance, eliminate knowledge barriers, and contribute to the global preservation of the 'unspoken' knowledge. The next chapter will discuss the conclusion and recommendations for future research.

"Preserving the heritage, promoting the future."

- Bccky Williamson Martin

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This research has reached its conclusion, and the objectives have been met. Notably, the study aiming at safeguarding the intangible cultural heritage (ICH) of Pua Kumbu textile yielded intriguing findings. Pua Kumbu textile is regarded as a cultural product of the Iban community in Sarawak and serves an essential purpose by encapsulating Iban stories from the Pua Kumbu weaver's point of view. The beauty of the Pua Kumbu textile relies on the visual complexity of the design motifs and the value of the art knowledge embedded in it.

The intricate design motifs of the Pua Kumbu textile have captured the attention of many art enthusiasts. However, despite its undeniable beauty, the cultural significance of this traditional art form remains largely unappreciated. It is unfortunate that many individuals, despite their exposure to the Pua Kumbu textile, are unable to grasp its true essence due to their lack of knowledge in this art form. This, in turn, has resulted in knowledge barriers, leading to misunderstandings, mistreatment, and insensitive behaviour towards other cultures. It is imperative that the preservation of the cultural heritage values and traditions of the Pua Kumbu textile be given immediate attention. Failure to do so will result in the loss of this invaluable cultural treasure for future generations.

Thus, the Redies psychological model was used as the theoretical framework to comprehend better the perceiver's aesthetic perception, which supported two primary elements: form and content (see Figure 1.1, page 23). However, to achieve the study's goal, the supplementary elements of Pua Kumbu textile visual complexity and art knowledge were

introduced as a conceptual change strategy in achieving the study's aim. The data from all participants, including ARS-Revised participants, Pua Kumbu weavers, and Malaysian academics in textile and art culture fields, supplemented the present study's findings.

The findings of objective one revealed that the positive aesthetic perception of the Pua Kumbu textile is based not only on the visual complexity of the art piece but also on the participants' background, gender, and art knowledge. The findings of objective two disclosed the visual complexity of the Pua Kumbu design motifs depends on the arrangement of the geometrical shapes, object sizes, colour preferences, composition, and taboos. It was found that the composition of the Pua Kumbu visual complexity is based on the local knowledge encrypted in it.

In addition, the discovery of objective three revealed the five distinct themes of Pua Kumbu art knowledge, which are (1) flora, (2) fauna), (3) humanoid, (4) abstract, and (5) contemporary, which led to the community's acceptance of the textile and was founded on the people's acquisition of local art knowledge. Art knowledge establishes itself as the foreground and the foundation for the textile's long-term sustainability. Many approaches have been used and proposed to enrich community art knowledge and spread Iban local knowledge. Moving forward to the Industrial Revolution 4.0 (IR4.0), the incorporation of artificial intelligence into local products will aid in reaching a wider population while also educating them. The ICH of Pua Kumbu textile needs immediate attention. The community must be equipped with Pua Kumbu knowledge and work together to protect the ICH Pua Kumbu textile. As a result, the AKVC Aesthetic Perception Framework was proposed in the study. In conclusion, information, and communication technology (ICT) and visual culture are two essential elements of modern life that affect and mould professional and personal

identity (Bajardi et al., 2015), making old obsolete devices and traditional electronic equipment such as recorders and projectors. Therefore, the medium used to deliver the knowledge applied to a cultural heritage object was transmitted using the digital technology approach, in line with the Sarawak digital economic strategy actions.

6.2 Recommendation

This study has completed its final chapter, achieving its objectives and answering all of the research questions. The researcher has emphasised the significance of this study in preventing the Pua Kumbu textile intangible cultural heritage (ICH) from being forgotten and removing perceivers' knowledge barriers associated with the visual complexity and art knowledge of this textile. Apparently, by investigating the subject matter using both quantitative and qualitative approaches, the researcher solved the "mystery," which will be useful to the body of knowledge, Sarawak state, industry players, academics, and the Malaysian community.

6.2.1 Body of Knowledge

This study identified the essence of the making of Pua Kumbu textiles lies in the hands and minds of the weavers. The Pua Kumbu ICH is associated closely with the Iban local knowledge, which is inspired by nature, Iban culture, and folklore (see Chapter 4, Table 4.21, page 155). The Pua Kumbu weavers work closely on this masterpiece, and their stories are crafted creatively in the textile. Evidently, the weaver's "stories" are the art knowledge hidden in every piece of the textile that formed the Pua Kumbu textile's extrinsic values: visual complexity.

Pua Kumbu design motifs are divided into five (5) themes: (1) Flora, (2) Fauna, (3) Humanoid, (4) Abstract, and (5) Contemporary (see Chapter 5, Figure 5.3, page 231). Each design motif theme has a particular form and has a different meaning. The findings indicated that the perceiver's aesthetic perception could be positively aroused if the Pua Kumbu ICH knowledge is transferred correctly. As a result of the findings, this study proposed using artificial intelligence as a communication media convergence in channelling the Pua Kumbu textile ICH. Finally, having a proper way to disseminate the Pua Kumbu textile ICH will safeguard this textile and maintain its relevancy in the modern world.

6.2.2 The State of Sarawak of Malaysia

Due to their fundamental nature, the elements of ICH are always developing, which is interesting. They blend in with their surroundings and might fade without being properly recognised and appreciated (Smeets, 2004). As a result of technological progress, the cultural-tourism industry today has access to new sources of cultural dynamism and the knowledge it needs to protect our intangible cultural heritage. Malaysia's tourism industry contributes 5.9 per cent of the country's GDP, employing over a quarter of the country's workforce (Statisca.com, 2021), with 4.33 million tourists in 2020 (Statisca.com, 2021) and 26.10 million tourists in 2019 spending RM86.1 billion (MyTourismData, 2021). In 2019, Sarawak welcomed 4.6 million tourists. However, that number fell to 1.19 million in 2020 as a result of the COVID-19 pandemic. In addition, achieving sustainable cultural heritage tourism development requires maintaining and conserving the cultural heritage that provides tourists with a quality experience.

6.2.3 Industry

Interestingly, this study paved the way for future collaboration between the fashion industry and Pua Kumbu weavers, who would collaborate closely in promoting and selling the Pua Kumbu textile around the world. Transferring and preserving the Pua Kumbu ICH knowledge is possible by collaborating with the appropriate individuals and organisations. This move will open up more opportunities for future stakeholders to assist in the preservation of this magnificent work of art, which will benefit all parties involved.

It is recommended that the textile industry should strive to deliver the Pua Kumbu textile art knowledge on the design motif, apart from producing Pua Kumbu textile. Its hidden meaning should be disclosed and shared, and this art piece would be more appreciated, especially among non-Sarawakians.

6.2.4 Academia

Academia will benefit from this study by allowing the research to disseminate new knowledge regarding the Pua Kumbu textile. At the same time, the study's findings will also contribute to the large body of research in general. The AKVC Aesthetic Perception Framework will help future researchers better understand the aesthetic perception process and the different Pua Kumbu textile design motifs.

Furthermore, since this study is only focused on the aesthetic perception of Pua Kumbu textile visual complexity and art knowledge from the perspective of laypeople, Pua Kumbu weavers, and Malaysian academics in art culture and textile fields, it is recommended for future researchers to measure the aesthetic perception among policymakers, stakeholders, and industry players. This effort would further contribute to the sustainability of the Pua Kumbu ICH, which is an important highlight of this study.

In conclusion, this study appears to corroborate the government's efforts to secure the continuation of the original traditions. Few government policies, such as the National Heritage Act (2005), the Sarawak Cultural Heritage Ordinance (1993), the National Cultural Policy (1971), and the government's Sustainable Development Goal (SDG), are cogently associated with the current field of study. Furthermore, Target 11.4 of SDG 11 aims to increase efforts to maintain and safeguard the world's cultural and natural assets for future benefits, which is comparable to the study's goal.

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Wahed, W. J. E., Yusoff, S. B. H. M., & Saad, N. (2019). Reliability and Validity of Questionnaire on Assessing the Aesthetic Perception of Design Motif Applied on Sarawak Pua Kumbu Cloth Using the Art Reception Survey (ARS). *Journal of Visual Art and Design*, *11*(2), 135-145.

Wahed, W. J. E., Yusoff, S. B. H. M., Saad, N., & Pitil, P. P. (2021). One Size Doesn't Fit All: Using Factor Analysis to Gather Validity Evidence When Using Art Reception Survey–Revised (Ars-Revised) On Sarawak Iban Pua Kumbu.

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APPENDICES

Appendix A: Journal Publications

1. **Wahed, W. J. E.,** Yusoff, S. B, & Saad, N., (2023). "Do we think alike?" The experts' aesthetic perception of Pua Kumbu design motifs' visual complexity. *Journal of Visual Art and Design*.

   Indexed: WOS

2. **Wahed, W. J. E.,** Saad, N., & Yusoff, S. B., (2022). Academics' perspectives of the visual complexity and community acceptance of Pua Kumbu textile. International *Journal of Academic Research in Business and Social Sciences*.

   Indexed: ERA

3. **Wahed, W. J. E.,** Yusoff, S. B., & Saad, N. (2022). What're Experts Say?" Visual Complexity and Community Acceptance of Pua Kumbu. Art and Expression (Vol. 2), UiTM Perak Press. EISSN No: 2805-5071

   Chapter in Book

4. **Wahed, W. J. E.,** Saad, N., Yusoff, S. B., & Pitil, P. P. (2022). Weavers' Aesthetic Perception on the Visual Complexity of Pua Kumbu Design Motifs: An Exploratory Study. Design Decoded 2021.

   Indexed: Scopus

5. **Wahed, W. J. E.,** Saad, N., Yusoff, S. B., & Pitil, P. P. (2021). " Please Stay, Don't Leave!": A Systematic Literature Review of Safeguarding Intangible Cultural Heritage in the Fourth Industrial Revolution. *Pertanika Journal of Social Sciences & Humanities, 29*(3).

   Indexed: Scopus

6. **Wahed, W. J. E.,** Yusoff, S. B., Saad, N., & Pitil, P. P. (2021). Systematic Literature Review of Art Reception Survey (ARS) on Aesthetic Perception Studies and Future Research Directions. *International Journal of Academic Research in Business and Social Sciences, 11*(3), 997-1008.

   Indexed: ERA

7. **Wahed, W. J. E.,** Yusoff, S. B., Saad, N., & Pitil, P. P. (2021). One Size Doesn't Fit All: Using Factor Analysis to Gather Validity Evidence When Using Art Reception Survey–Revised (Ars-Revised) On Sarawak Iban Pua Kumbu.

   Indexed: ERA

8. **Wahed, W. J. E.,** Saad, N., & Yusoff, S. B. (2020). Sarawak Pua Kumbu: Aesthetics Lies in the Eye of the Beholder. *Asian Journal of University Education, 16*(3), 183-192.

   Indexed: Scopus

9. **Wahed, W. J. E.,** Yusoff, S. B., & Saad, N. (2019). Reliability and validity of a questionnaire on assessing the aesthetic perception of design motif applied on

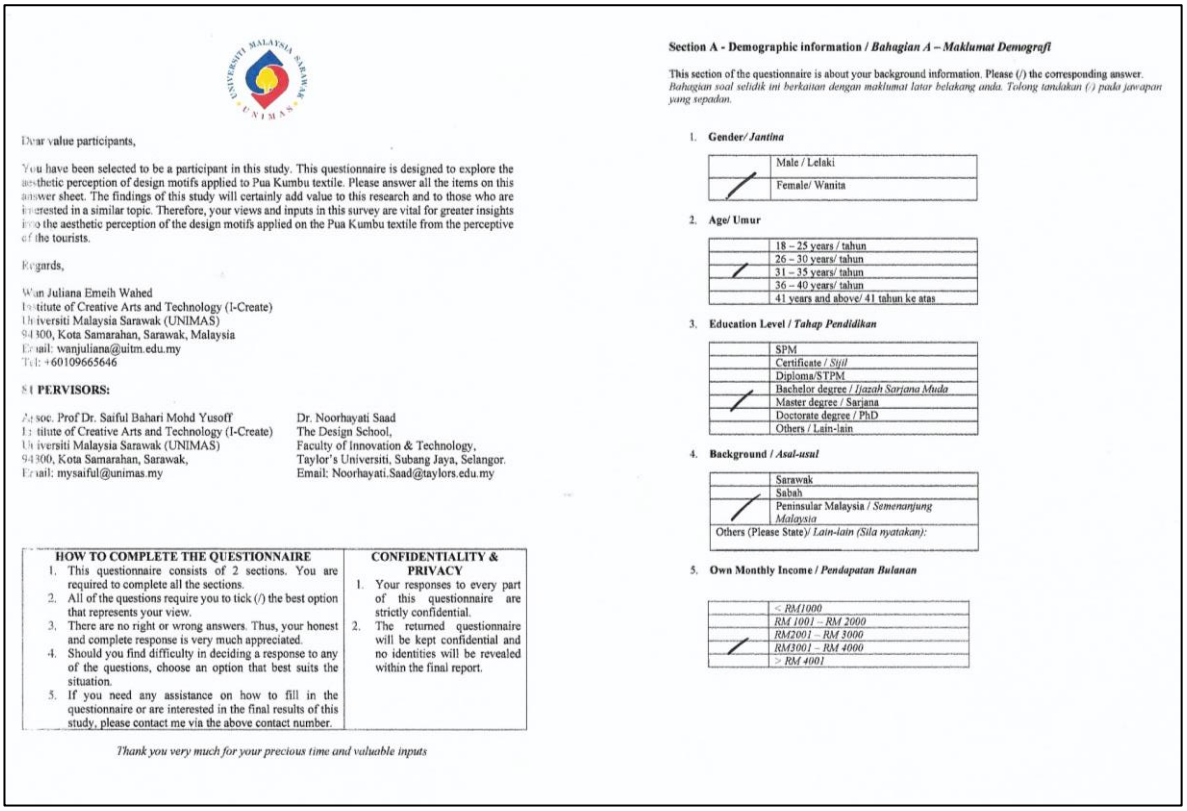
Sarawak Pua Kumbu cloth using the Art Reception Survey (ARS). *Journal of Visual Art and Design, 11*(2), 135-145.

Indexed: WOS

10. **Wahed, W. J. E.,** & Pitil, P. P. (2018). Ngepan Indu Iban: The Aesthetic Features of Female Iban Costume in Sarawak. In 2nd Asia International Conference of Arts & Design, Langkawi, Malaysia.

    Indexed: Google Scholar

Appendix B: Sample of the Art Reception Survey-Revised (ARS-Revised) Participant Feedback



Dear value participants,

You have been selected to be a participant in this study. This questionnaire is designed to explore the aesthetic perception of design motifs applied to Pua Kumbu textile. Please answer all the items on this answer sheet. The findings of this study will certainly add value to this research and to those who are interested in a similar topic. Therefore, your views and inputs in this survey are vital for greater insights into the aesthetic perception of the design motifs applied on the Pua Kumbu textile from the perceptive of the tourists.

Regards,

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HOW TO COMPLETE THE QUESTIONNAIRE

1. This questionnaire consists of 2 sections. You are required to complete all the sections.
2. All of the questions require you to tick (/) the best option that represents your view.
3. There are no right or wrong answers. Thus, your honest and complete response is very much appreciated.
4. Should you find difficulty in deciding a response to any of the questions, choose an option that best suits the situation.
5. If you need any assistance on how to fill in the questionnaire or are interested in the final results of this study, please contact me via the above contact number.

CONFIDENTIALITY & PRIVACY

1. Your responses to every part of this questionnaire are strictly confidential.
2. The returned questionnaire will be kept confidential and no identities will be revealed within the final report.

Thank you very much for your precious time and valuable inputs

Section A - Demographic information / *Bahagian A – Maklumat Demografi*

This section of the questionnaire is about your background information. Please (/) the corresponding answer.
Bahagian soal selidik ini berkaitan dengan maklumat latar belakang anda. Tolong tandakan (/) pada jawapan yang sepadan.

1. **Gender/ *Jantina***

	Male / Lelaki
/	Female/ Wanita

2. **Age/ Umur**

	18 – 25 years / tahun
/	26 – 30 years/ tahun
	31 – 35 years/ tahun
	36 – 40 years/ tahun
	41 years and above/ 41 tahun ke atas

3. **Education Level / *Tahap Pendidikan***

	SPM
	Certificate / *Sijil*
	Diploma/STPM
/	Bachelor degree / *Ijazah Sarjana Muda*
	Master degree / Sarjana
	Doctorate degree / PhD
	Others / Lain-lain

4. **Background / *Asal-usul***

	Sarawak
	Sabah
/	Peninsular Malaysia / *Semenanjung Malaysia*
Others (Please State)/ *Lain-lain (Sila nyatakan):*	

5. **Own Monthly Income / *Pendapatan Bulanan***

	< RM1000
	RM 1001 – RM 2000
/	*RM2001 – RM 3000*
	RM3001 – RM 4000
	> RM 4001

Section B - Measuring the receptive of art / *Mengukur penerimaan terhadap seni*

If you have understood the instructions, you can begin the test.
Sekiranya anda memahami arahan, anda boleh memulakan ujian.

1 = Strongly disagree *Sangat tidak bersetuju*, 2 = Disagree *Tidak bersetuju*,
3 = Neutral, 4 = Agree *Setuju*, 5 = Strongly agree *Sangat bersetuju*

Factor 1: Historical art knowledge, technical skills in the making, and the attraction towards Pua Kumbu textile.

Faktor 1: Pengetahuan seni sejarah, kemahiran teknikal dalam pembuatan, dan tarikan terhadap tekstil Pua Kumbu.

No	Items	1	2	3	4	5
1	I can relate this Pua Kumbu textile to its historical art context. *Saya boleh mengaitkan tekstil Pua Kumbu dengan aspek sejarah seni.*	/				
2	This Pua Kumbu makes me think about my own life history *Pua Kumbu ini membuatkan saya berfikir tentang sejarah hidup saya sendiri.*	/				
3	The composition of the Pua Kumbu is of high quality. *Komposisi Pua Kumbu adalah berkualiti tinggi*					/
4	This Pua Kumbu is very innovative *Pua Kumbu ini tinggi nilai inovasi.*					/
5	This Pua Kumbu features a high level of creativity *Pua Kumbu ini mempamerkan nilai kreativiti yang tinggi.*					/

Factor 2: Knowledge and information and relation of one have on Pua Kumbu textile.

Faktor 2: Pengetahuan dan maklumat serta kaitan seseorang terhadap tekstil Pua Kumbu.

No	Items	1	2	3	4	5
1	I know this Pua Kumbu. *Saya amat mengenali kain Pua Kumbu ini.*				/	
2	I have an idea on what the weaver is trying to convey in this Pua Kumbu *Saya mengetahui idea yang disampaikan oleh penenun Pua Kumbu ini melalui corak kain tersebut.*	/				
3	I can relate this Pua Kumbu to a particular weaver. *Saya boleh menghubung-kait Pua Kumbu ini dengan penenun yang tertentu.*	/				
4	This Pua Kumbu mirrors my own personal emotional state. *Pua Kumbu ini mencerminkan emosi peribadi saya sendiri.*		/			
5	I can associate this Pua Kumbu with my own personal biography *Saya boleh mengaitkan Pua Kumbu ini dengan biografi peribadi saya sendiri.*	/				
6	This Pua Kumbu makes me think about my own life. *Pua Kumbu ini membuatkan saya berfikir tentang kehidupan saya sendiri.*	/				

Factor 3: Ability to process information depending on one's knowledge.

Faktor 3: Keupayaan memproses maklumat bergantung kepada pengetahuan seseorang.

No	Items	1	2	3	4	5
1	It is exciting to think about Pua Kumbu. *Memikirkan tentang Pua Kumbu amat menggembirakan.*				/	
2	I would like to learn more about the background of this textile. *Saya ingin mendalami pengetahuan saya mengenai tekstil ini.*					/
3	It is fun to deal with this Pua Kumbu. *Berurusan dengan Pua Kumbu ini adalah menyeronokkan.*				/	
4	This Pua Kumbu is thought - provoking. *Pua Kumbu ini membuat kita berfikir lebih mendalam*		/			
5	This Pua Kumbu makes me curious. *Pua Kumbu ini membuat saya ingin tahu.*					/

Factor 4: Positive attraction towards Pua Kumbu textile.

Faktor 4: Tarikan positif terhadap tekstil Pua Kumbu.

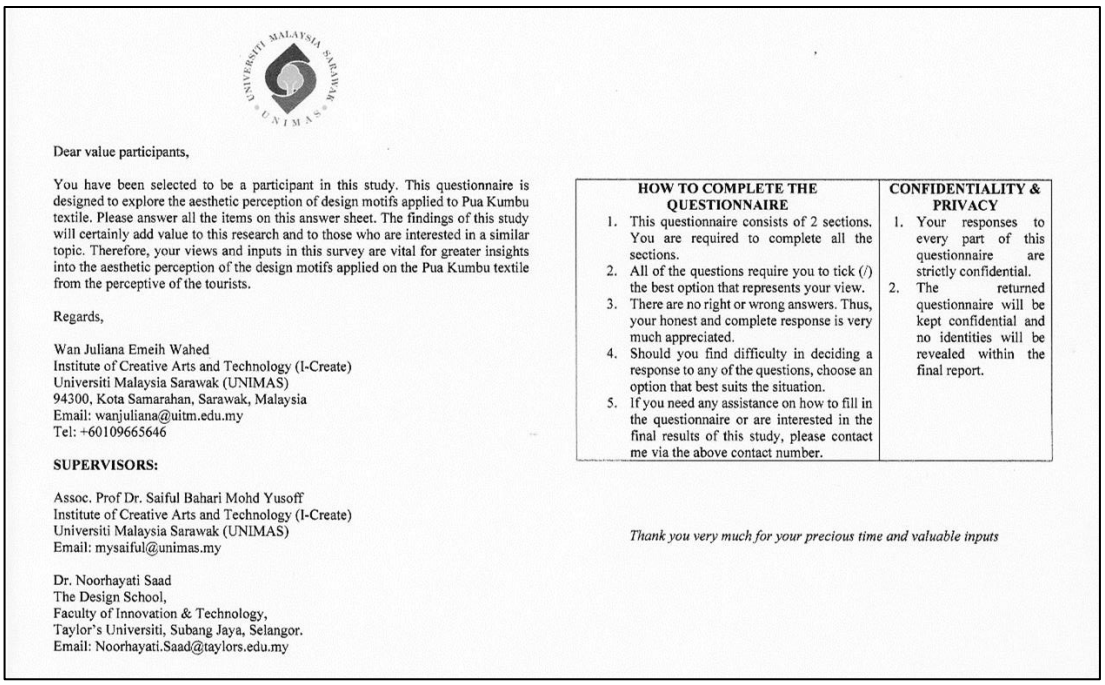
No	Items	1	2	3	4	5
1	The weaver's manner in creating Pua Kumbu is fascinating. *Cara penenun dalam pembuatan Pua Kumbu ini amat menarik.*					/
2	This Pua Kumbu is beautiful. *Pua Kumbu ini amat cantik*					/
3	This Pua Kumbu is pleasant to look. *Pua Kumbu ini indah dipandang.*					/
4	This Pua Kumbu thrills me. *Pua Kumbu ini menggembirakan saya.*				/	
5.	I feel inspired by this Pua Kumbu. Pua Kumbu ini memberi inspirasi kepada saya.					/

I like the colour. design was very cultural... I like Pua Kumbu

Thank you for your cooperation

Terima kasih di atas kerjasama anda

Appendix C: Sample of the Art Reception Survey (ARS) Participant Feedback



Dear value participants,

You have been selected to be a participant in this study. This questionnaire is designed to explore the aesthetic perception of design motifs applied to Pua Kumbu textile. Please answer all the items on this answer sheet. The findings of this study will certainly add value to this research and to those who are interested in a similar topic. Therefore, your views and inputs in this survey are vital for greater insights into the aesthetic perception of the design motifs applied on the Pua Kumbu textile from the perceptive of the tourists.

Regards,

Wan Juliana Emeih Wahed
Institute of Creative Arts and Technology (I-Create)
Universiti Malaysia Sarawak (UNIMAS)
94300, Kota Samarahan, Sarawak, Malaysia
Email: wanjuliana@uitm.edu.my
Tel: +60109665646

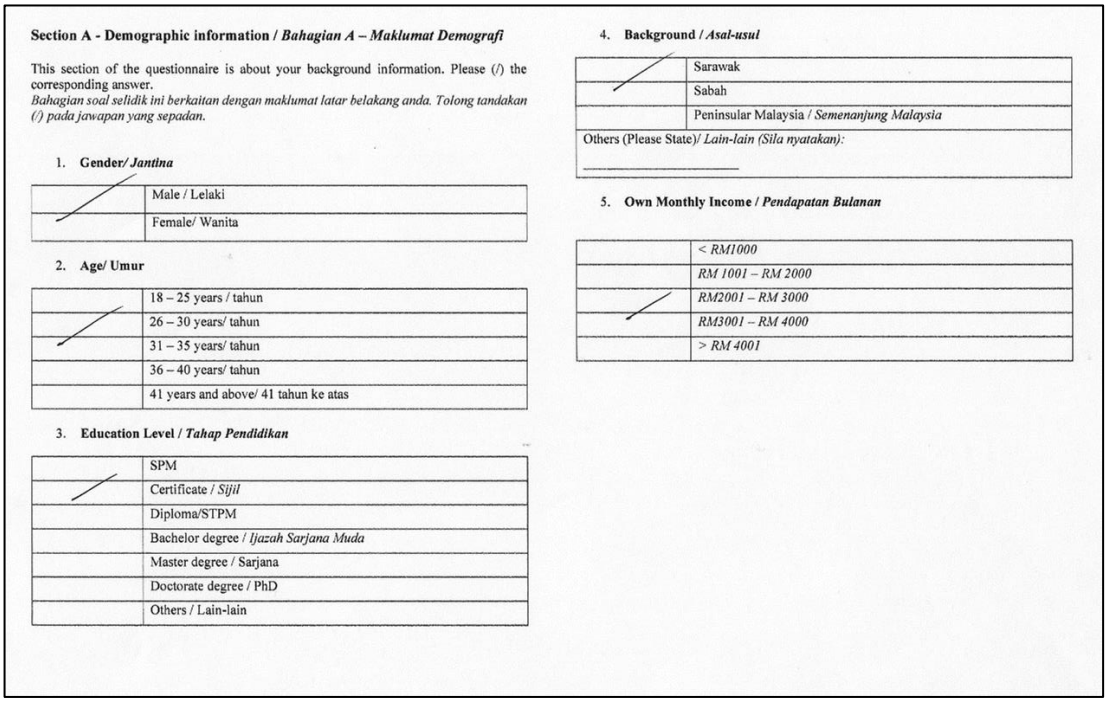
SUPERVISORS:

Assoc. Prof Dr. Saiful Bahari Mohd Yusoff
Institute of Creative Arts and Technology (I-Create)
Universiti Malaysia Sarawak (UNIMAS)
Email: mysaiful@unimas.my

Dr. Noorhayati Saad
The Design School,
Faculty of Innovation & Technology,
Taylor's Universiti, Subang Jaya, Selangor.
Email: Noorhayati.Saad@taylors.edu.my

HOW TO COMPLETE THE QUESTIONNAIRE	CONFIDENTIALITY & PRIVACY
1. This questionnaire consists of 2 sections. You are required to complete all the sections. 2. All of the questions require you to tick (/) the best option that represents your view. 3. There are no right or wrong answers. Thus, your honest and complete response is very much appreciated. 4. Should you find difficulty in deciding a response to any of the questions, choose an option that best suits the situation. 5. If you need any assistance on how to fill in the questionnaire or are interested in the final results of this study, please contact me via the above contact number.	1. Your responses to every part of this questionnaire are strictly confidential. 2. The returned questionnaire will be kept confidential and no identities will be revealed within the final report.

Thank you very much for your precious time and valuable inputs



Section A - Demographic information / *Bahagian A – Maklumat Demografi*

This section of the questionnaire is about your background information. Please (/) the corresponding answer.
Bahagian soal selidik ini berkaitan dengan maklumat latar belakang anda. Tolong tandakan (/) pada jawapan yang sepadan.

1. **Gender/ *Jantina***

	Male / Lelaki
	Female/ Wanita

2. **Age/ Umur**

	18 – 25 years / tahun
	26 – 30 years/ tahun
	31 – 35 years/ tahun
	36 – 40 years/ tahun
	41 years and above/ 41 tahun ke atas

3. **Education Level / *Tahap Pendidikan***

	SPM
	Certificate / *Sijil*
	Diploma/STPM
	Bachelor degree / *Ijazah Sarjana Muda*
	Master degree / Sarjana
	Doctorate degree / PhD
	Others / Lain-lain

4. **Background / *Asal-usul***

	Sarawak
	Sabah
	Peninsular Malaysia / *Semenanjung Malaysia*
Others (Please State)/ *Lain-lain (Sila nyatakan):* _____	

5. **Own Monthly Income / *Pendapatan Bulanan***

	< RM1000
	RM 1001 – RM 2000
	RM2001 – RM 3000
	RM3001 – RM 4000
	> RM 4001

Section B - Measuring the receptive of art / *Mengukur penerimaan terhadap seni*

If you have understood the instructions, you can begin the test.
Sekiranya anda memahami arahan, anda boleh memulakan ujian.

1 = Strongly disagree *Sangat tidak bersetuju*, 2 = Disagree *Tidak bersetuju*,
3 = Neutral, 4 = Agree *Setuju*, 5 = Strongly agree *Sangat bersetuju*

1. Cognitive Stimulation / Stimulasi kognitif

The ability to process the cognitive mastering which depends on a person's knowledge
Keupayaan untuk memproses penguasaan kognitif yang bergantung kepada pengetahuan seseorang.

No	Items	1	2	3	4	5
1	It is exciting to think about Pua Kumbu. *Memikirkan tentang Pua Kumbu amat menggembirakan.*					✓
2	I would like to learn more about the background of this cloth. *Saya ingin mendalami pengetahuan saya mengenai kain ini.*					✓
3	It is fun to deal with this Pua Kumbu. *Berurusan dengan Pua Kumbu ini adalah menyeronokkan.*				✓	
4	This Pua Kumbu is thought - provoking. *Pua Kumbu ini membuat kita berfikir lebih mendalam*				✓	
5	This Pua Kumbu makes me curious. *Pua Kumbu ini membuat saya ingin tahu.*					

2. Expertise / Kepakaran

Expertise relates to having great skill or knowledge in a particular field of Pua Kumbu.
Kepakaran berhubung dengan kemahiran atau pengetahuan yang hebat di dalam aspek Pua Kumbu.

No	Items	1	2	3	4	5
1	I can relate this Pua Kumbu to its historical art context. *Saya boleh mengaitkan kain Pua Kumbu dengan aspek sejarah seni.*				✓	
2	I know this Pua Kumbu. *Saya amat mengenali kain Pua Kumbu ini.*					✓
3	I have an idea on what the weaver is trying to convey in this Pua Kumbu *Saya mengetahui idea yang disampaikan oleh penenun Pua Kumbu ini melalui corak kain tersebut.*				✓	
	I can relate this Pua Kumbu to a particular weaver. *Saya boleh menghubung-kait Pua Kumbu ini dengan penenun yang tertentu.*	✓				

3

elf-Reference / *Rujukan kendiri*

The self-reference refers to an individual tendency to remember information when the Pua Kumbu information has been linked to him / her.
Rujukan kendiri ini merujuk kepada kecenderungan seseorang individu untuk mengingati maklumat apabila maklumat Pua Kumbu dimaklumkan kepadanya.

No	Items	1	2	3	4	5
1	This Pua Kumbu mirrors my own personal emotional state. *Pua Kumbu ini mencerminkan emosi peribadi saya sendiri.*				✓	
2	I can associate this Pua Kumbu with my own personal biography *Saya boleh mengaitkan Pua Kumbu ini dengan biografi peribadi saya sendiri.*		✓			
3	Personal memories of mine are linked to this Pua Kumbu. *Kenangan peribadi saya dapat dikaitkan dengan Pua Kumbu ini.*				✓	
4	This Pua Kumbu makes me think about my own life history *Pua Kumbu ini membuatkan saya berfikir tentang sejarah hidup saya sendiri.*				✓	

4. Artistic Quality / Kualiti Artistik

This refers to the originality and technical skills in the process of making Pua Kumbu.
Ini merujuk kepada keaslian dan kemahiran teknikal dalam proses pembuatan Pua Kumbu.

No	Items	1	2	3	4	5
1	The composition of the Pua Kumbu is of high quality. *Komposisi Pua Kumbu adalah berkualiti tinggi*					✓
2	This Pua Kumbu is very innovative *Pua Kumbu ini tinggi nilai inovasi.*					✓
3	This Pua Kumbu features a high level of creativity *Pua Kumbu ini mempamerkan nilai kreativiti yang tinggi.*					✓
4	The weaver's manner in creating Pua Kumbu is fascinating. *Cara penenun dalam pembuatan Pua Kumbu ini amat menarik.*					✓

Kain Pua ini Kain sejarah masyarakat Iban. Banyak cerita dalam kain Pua. Sangat menarik.

Appendix D: Sample of the In-Depth Interview Invitation (Malaysian Academic)

PERMOHONAN UNTUK MENGADAKAN TEMU BUAL BERSAMA PAKAR BAGI TUJUAN PENGUMPULAN DATA KAJIAN Inbox ×

JuliaNNA W. <juliewahed@gmail.com> Fri, Jun 5, 2020, 3:46 PM

to [redacted]

Selamat Sejahtera [redacted]

Sukacita dimaklumkan kepada Dr, bahawa saya, Wan Juliana Emeih Wahed, merupakan pelajar tahun dua, program Doktor Falsafah di bawah Institut Seni Kreatif dan Teknologi, UNIMAS, dibawah penyeliaan utama, Prof Madya Dr. Saiful Bahari bin Mohd Yusoff dan penyelia kedua; Dr Noorhayati Saad daripada Taylor Universiti, Subang Jaya ingin mengadakan temu bual secara atas talian bersama Dr mengikut kepada fleksibiliti masa Dr.

Disertakan disini, 'cover letter' bagi tujuan makluman Dr.

Diharap permohonan ini mendapat perhatian dan pertimbangan pihak Dr.

Terima Kasih.

Yang Benar,
(WAN JULIANA EMEIH WAHED)
Penyelidik / Calon PhD
Program Doktor Falsafah
Institut Seni Kreatif dan Teknologi,UNIMAS, Sarawak.

Salam Julianna,
Thanks for the email. We can do it on Monday at 10am?

Thanks,
[redacted]
Center for Malaysian Indigenous Studies (CMIS)
No.11, Jalan 16/4, Section 16
59100 Kuala Lumpur
Website: https://cmis.um.edu.my/

Appendix E: Sample of the Cover Letter (Malaysian Academic)

Wan Juliana Emeih Wahed,
Penyelidik / Calon PhD
Program Doktor Falsafah
Institut Seni Kreatif dan Teknologi,
UNIMAS, Sarawak.

[redacted]
Jabatan Antropologi dan Sosiologi
Fakulti Sastera dan Sains Sosial
University of Malaya, Kuala Lumpur
[redacted]

5 Mei 2020

Dr,

PERMOHONAN UNTUK MENGADAKAN TEMU BUAL BERSAMA PAKAR BAGI TUJUAN PENGUMPULAN DATA KAJIAN

Dengan segala hormatnya perkara di atas adalah dirujuk.

2. Sukacita dimaklumkan kepada Dr, bahawa saya merupakan pelajar tahun dua, program Doktor Falsafah di bawah Institut Seni Kreatif dan Teknologi dibawah penyeliaan utama, Prof Madya Dr. Saiful Bahari bin Mohd Yusoff dan penyelia kedua; Dr Noorhayati Saad daripada Taylor Universiti, Subang Jaya.

3. Untuk makluman, tajuk penyelidikan saya adalah, *"Aesthetic Perception: Visual Complexity And Art Knowledge of Design Motifs Applied on Sarawak Iban Pua Kumbu"* yang bertujuan untuk mengkaji persepsi estetik mengenai kerumitan visual motif reka bentuk yang diterapkan pada Pua Kumbu Sarawak Iban di kalangan penenun, kurator muzium, ahli akademik tekstil, dan pereka fesyen Sarawak. Dengan memiliki semua data yang diperlukan, satu cadangan model persepsi estetik berdasarkan kerumitan visual motif reka bentuk pada Sarawak Iban Pua Kumbu dapat dihasilkan.

4. Oleh yang demikian, saya ingin membuat temu bual secara atas talian bersama Dr mengikut kelapangan masa Dr dan temujanji akan dilakukan. Diharap permohonan ini mendapat pertimbangan sewajarnya demi kelestarian dunia pendidikan seni di Malaysia. Sekiranya ada sebarang persoalan, dialukan untuk menghubungi saya di no 010-9665646.

Segala perhatian dan keprihatinan Dr dalam hal ini didahului dengan ucapan ribuan terima kasih.

Yang benar,



(WAN JULIANA EMEIH WAHED)
Penyelidik / Calon PhD
Program Doktor Falsafah
Institut Seni Kreatif dan Teknologi,UNIMAS, Sarawak.

Appendix F: Sample of the In-Depth Interview Questions (Malaysian Academic)

Thesis Title: Aesthetic Perception: Visual Complexity and Art Knowledge of Design Motifs Applied on Pua Kumbu Textile

Informant Name:	
Job Description:	
Expertise:	
Date of interview:	
Location of interview:	
Duration of interview:	

**Malaysian academic*

Section A: Visual Complexity

Design Characteristics	**Patterns regularity & compositions**	Do you understand the **pattern's regularity** of the design motifs applied?
		What do you think of the **compositions** of the design motif applied?
	Colour Combination	What is your opinion on the **colour combination** applied on Pua Kumbu textile?
	Object Size	What do you think of the **size of the design motifs** applied on Pua Kumbu textile?

Section B: Art Knowledge

Community Acceptance and Knowledge Acquired	Do you think the audience **understands** the design motifs applied to the textile?
	Do you think Pua Kumbu textile can be **sold internationally**?
	What is your recommendation for the **preservation** of Pua Kumbu textile and future design development?
	What are your opinions on using **artificial intelligence of a mobile application** to safeguard the Pua Kumbu textile?

Wahed. WJE/ UNIMAS / 2019

Appendix G: Sample of the In-Depth Interview Question (Pua Kumbu Weavers)

Thesis Title: Aesthetic Perception: Visual Complexity and Art Knowledge of Design Motifs Applied on Pua Kumbu Textile

Informant Name:	
Years of experience:	
Date of interview:	
Location of interview:	
Duration of interview:	

**Pua Kumbu weavers*

Section A: Visual Complexity

Design Characteristics	What are the **main elements** applied as the design motifs of the Pua Kumbu textile?
	Can you describe the **origins of the shapes** of the design motifs?
	What **colours** can be applied to the textile?
	What is the **inspiration** for this design motifs?

Section B: Art Knowledge

Taboos / Ritual	Do the design motifs possess any **intrinsic/hidden meaning**?
	Does the weaver perform any **ritual** before weaving the textile?
	Can **anyone weave** this textile?
Production	How long does it **take to complete** this Pua Kumbu?
	Do you still use the traditional **technique** of producing the textile?
Future Design	If you continue with this profession, are there any other type of design motifs that you want to **propose** or articulate into its production?

Wahed. WJE/ UNIMAS / 2019

Appendix H: Interviewers Guide: In-Depth Interview (Malaysian academic)

interviewers Guide: In-Depth Interview (Malaysian academic)

(Greetings) I am Wan Juliana Emeih Wahed, a Ph.D. candidate at the Institute of Creative Arts and Technology, UNIMAS, and I am now studying the Pua Kumbu textile design motifs to better understand aesthetic perception, particularly visual complexity and art knowledge. I'm particularly interested in knowing more about the intangible cultural heritage (ICH) embedded in Pua Kumbu design motifs. In general, the interview will be divided into three sections: the first will be general questions to better understand your experience, and the second and third will be closely relevant to the study's main topic. I believe that your experience in the field will provide me with unique insights into the subject that I am studying. ***(Selamat pagi/ petang) Saya Wan Juliana Emeih Wahed, pelajar calon Ph.D. daripada Institut Seni Kreatif dan Teknologi, UNIMAS. Untuk makluman, kini saya sedang membuat kajian berkenaan motif rekaan yang terdapat pada tekstil Pua Kumbu, bagi memahami dengan lebih baik persepsi estetik, khususnya kerumitan visual dan pengetahuan seni. Secara khususnya, saya berminat untuk mengetahui dengan lebih lanjut tentang Warisan Budaya Tidak Ketara (WBTK) yang terdapat pada setiap rekaan motif di Pua Kumbu. Secara amnya, sesi temu bual ini terbahag kepada tiga seksyen utama: seksyen yang pertama adalah soalan umum bagi memahami pengalaman encik/puan di dalam bidang ini, dan bagi seksyen yang kedua dan ketiga adalah berkait rapat dengan topik utama kajian. Saya percaya bahawa pengalaman encik/puan di dalam bidang ini akan memberikan suatu gambaran unik dan penting untuk topik kajian ini.***	
PART A: BACKGROUND *Job Description, Expertise, years of experience.*	
I'd like to know more about your background, job description, expertise, and years of experience. ***Saya ingin mengetahui dengan lebih lanjut tentang latar belakang anda, huraian kerja, kepakaran dan pengalaman tuan/puan di dalam bidang ini.***	
Q 1.1	Can you introduce yourself, years of working experience in the design field ***Boleh Encik/Puan perkenalkan diri dan pengalaman bekerja di dalam industri ini.***

PART B: VISUAL COMPLEXITY *Design characteristics - Patterns regularity & compositions, Colour Combination, Object Size*	
There are 4 questions in this section that focus on the visual complexity found in Pua Kumbu design motifs. ***Terdapat 4 soalan di dalam sesksyen ini dimana menfokuskan kepada kerumitan visual yang terdapat pada rekaan motif di Pua Kumbu.***	
Q2.1	Do you understand the **pattern's regularity** of the design motifs applied? ***Adakah anda memahami keteraturan corak motif rekaan yang digunakan?***
Q2.2	What do you think of the **compositions** of the design motif applied? ***Apakah pendapat anda tentang gubahan motif reka bentuk yang diletakkan?***
Q2.3	What is your opinion on the **colour combination** applied on Pua Kumbu textile? ***Apakah pendapat anda tentang kombinasi warna yang digunakan pada tekstil Pua Kumbu?***
Q2.4	What do you think of the size of the design motifs applied on Pua Kumbu textile? ***Apakah pendapat anda tentang saiz motif reka bentuk yang diterapkan pada tekstil Pua Kumbu?***
PART C: ART KNOWLEDGE *Community acceptance and knowledge acquired*	
All right, now we're going to move on to section three. In this section, you are asked to give your views on the community's acceptance of Pua Kumbu textiles and also the knowledge acquired. ***Baiklah, kini kita akan beralih ke seksyen ke tiga. Di bahagian ini, tuan/puan diminta memberi pandangan berkaitan penerimaan komuniti terhadap tekstil Pua Kumbu dan juga pengetahuan yang diperoleh.***	
Q3.1	Do you think the community **understands** the design motifs applied to the textile? ***Adakah anda fikir komuniti memahami rekaan motif yang digunakan pada tekstil?***
Q3.2	Do you think Pua Kumbu textile can be **sold internationally**? ***Adakah anda rasa tekstil Pua Kumbu boleh dijual di peringkat antarabangsa?***
Q3.3	What is your recommendation for the **preservation** of Pua Kumbu textile and future design development?

	Apakah cadangan anda untuk pemeliharaan tekstil Pua Kumbu dan pembangunan rekaannya di masa hadapan?
Q3.4	What are your opinions on using **artificial intelligence in a mobile application** to safeguard the Pua Kumbu textile? ***Apakah pendapat anda tentang penggunaan aplikasi artificial intelligence (AI) di peranti mudah alih bagi tujuan melindungi tekstil Pua Kumbu?***

CLOSING:

Thank you once again for your kind participation as an interview respondent in this study. For the purpose of the validation, I would conduct a 'member checking' and send the document to you via email.

Sekali lagi, terima kasih kerana sudi ditemuramah untuk kajian ini. Untuk tujuan pengesahan data, saya akan menjalankan 'member checking' dan menghantar dokumen kepada anda melalui e-mel.

Appendix I: Interviewers Guide: In-Depth Interview (Pua Kumbu weavers)

(Greetings) I am Wan Juliana Emeih Wahed, a Ph.D. candidate at the Institute of Creative Arts and Technology, UNIMAS, and I am now studying the Pua Kumbu textile design motifs to better understand aesthetic perception, particularly visual complexity and art knowledge. I'm particularly interested in knowing more about the intangible cultural heritage (ICH) embedded in Pua Kumbu design motifs. In general, the interview will be divided into three sections: the first will be general questions to better understand your experience, and the second and third will be closely relevant to the study's main topic. I believe that your experience in the field will provide me with unique insights into the subject that I am studying. ***(Selamat pagi/ petang) Saya Wan Juliana Emeih Wahed, pelajar calon Ph.D. daripada Institut Seni Kreatif dan Teknologi, UNIMAS. Untuk makluman, kini saya sedang membuat kajian berkenaan motif rekaan yang terdapat pada tekstil Pua Kumbu, bagi memahami dengan lebih baik persepsi estetik, khususnya kerumitan visual dan pengetahuan seni. Secara khususnya, saya berminat untuk mengetahui dengan lebih lanjut tentang Warisan Budaya Tidak Ketara (WBTK) yang terdapat pada setiap rekaan motif di Pua Kumbu. Secara amnya, sesi temu bual ini terbahag kepada tiga seksyen utama: seksyen yang pertama adalah soalan umum bagi memahami pengalaman encik/puan di dalam bidang ini, dan bagi seksyen yang kedua dan ketiga adalah berkait rapat dengan topik utama kajian. Saya percaya bahawa pengalaman encik/puan di dalam bidang ini akan memberikan suatu gambaran unik dan penting untuk topik kajian ini.***	
PART A: BACKGROUND *Age and years of experience.*	
I'd like to know more about your background, age, and years of experience. ***Saya ingin mengetahui dengan lebih lanjut tentang latar belakang anda, umur dan pengalaman tuan/puan di dalam bidang ini.***	
Q 1.1	Can you introduce yourself, age, and years of experience in the design field ***Boleh Encik/Puan perkenalkan diri, umur dan pengalaman di dalam industri ini.***
PART B: VISUAL COMPLEXITY *Design characteristics – design elements, design origins, shape, colour and inspirations.*	
There are 4 questions in this section that focus on the visual complexity found in Pua Kumbu design motifs. ***Terdapat 4 soalan di dalam sesksyen ini dimana menfokuskan kepada kerumitan visual yang terdapat pada rekaan motif di Pua Kumbu.***	
Q2.1	What are the main **elements** applied as the design motifs of the Pua Kumbu textile? ***Apakah elemen utama yang diterapkan sebagai motif reka bentuk tekstil Pua Kumbu?***
Q2.2	Can you describe the **origins** of the shapes of the design motifs?

	Bolehkah anda menerangkan asal-usul rekaan motif ini?
Q2.3	What colours can be applied to the textile? ***Apakah warna yang boleh digunakan pada tekstil ini?***
Q2.4	What is the **inspiration** for these design motifs? ***Apakah inspirasi untuk motif rekaan ini?***
PART C: ART KNOWLEDGE *Taboos / Ritual, Production and Future Design*	
All right, now we're going to move on to section three. In this section, you are asked to give your views on the taboos/ rituals, production, and the recommendation of future Pua Kumbu design motifs. ***Baiklah, kini kita akan beralih ke seksyen ke tiga. Di bahagian ini, tuan/puan diminta memberi pandangan berkaitan pantang larang/ritual, penghasilan dan cadangan motif rekaan Pua Kumbu pada masa hadapan.***	
Q3.1	Do the design motifs possess any **intrinsic/hidden** meaning? ***Adakah rekaan motif ini mempunyai sebarang makna intrinsik/tersembunyi?***
Q3.2	Does the weaver perform any **ritual** before weaving the textile? ***Adakah penenun melakukan sebarang ritual sebelum memulakan proses anyaman tekstil?***
Q3.3	Can **anyone weave** this textile? ***Bolehkah sesiapa menenun tekstil ini?***
Q3.4	How long does it take to complete this Pua Kumbu? ***Berapa lamakah masa yang diambil untuk menyiapkan Pua Kumbu ini?***
Q3.5	Do you still use the traditional **technique** of producing the textile? ***Adakah anda masih menggunakan teknik tradisional di dalam menghasilkan tekstil ini?***
Q3.6	If you continue with this profession, are there any other types of design motifs that you want to **propose** or articulate in its production? ***Jika anda meneruskan profesion ini, adakah terdapat jenis motif reka bentuk lain yang ingin anda cadangkan atau nyatakan dalam penghasilannya?***
CLOSING: Thank you once again for your kind participation as an interview respondent in this study. For the purpose of the validation, I would conduct a 'member checking' and send the document to you via email or WhatsApp. ***Sekali lagi, terima kasih kerana sudi ditemuramah untuk kajian ini. Untuk tujuan pengesahan data, saya akan menjalankan 'member checking' dan menghantar dokumen kepada anda melalui e-mel ataupun WhatsApp.***	

Appendix J: Sample of the Expert Validation Invitation

Dear [redacted]

I would like to invite you to participate in this expert validation study as an expert in your field. The purpose of this study is to solicit expert opinions and feedback on the AKVC Aesthetic Perception framework for Pua Kumbu textile based on personal experience and professional background.

For your information, Pua Kumbu textiles are made primarily of cotton using a woven weaving technique. It is adorned with a variety of sacred design motifs for the Iban people of Sarawak, Malaysia.

This validation process will be conducted in a single round through the use of Google Form. This process will entail the experts' responding to the feedback and comments via six closed-ended and one open-ended question.

In my opinion, your expertise would be extremely beneficial in developing a credible framework. As such, I would be extremely appreciative if you would consider taking part in this expert validation study. If you wish to contribute, please contact me via email and I will send you instructions on how to complete the expert validation process.

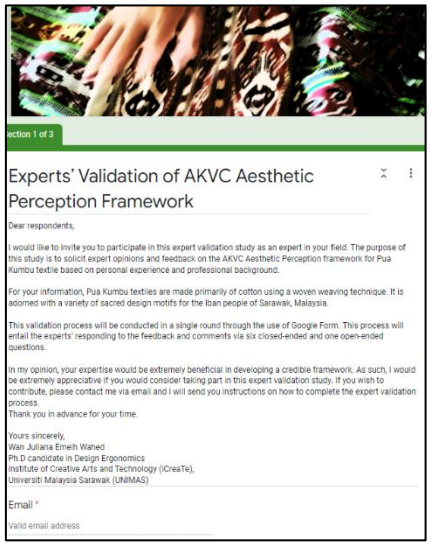
Thank you in advance for your time.

Yours sincerely,

Wan Juliana Emeih Wahed

Ph.D candidate in Design Ergonomics
Institute of Creative Arts and Technology (iCreaTe),
Universiti Malaysia Sarawak (UNIMAS)

Appendix K: Sample of the Expert Validation Questionnaire



ection 1 of 3

Experts' Validation of AKVC Aesthetic Perception Framework

Dear respondents,

I would like to invite you to participate in this expert validation study as an expert in your field. The purpose of this study is to solicit expert opinions and feedback on the AKVC Aesthetic Perception framework for Pua Kumbu textile based on personal experience and professional background.

For your information, Pua Kumbu textiles are made primarily of cotton using a woven weaving technique. It is adorned with a variety of sacred design motifs for the Iban people of Sarawak, Malaysia.

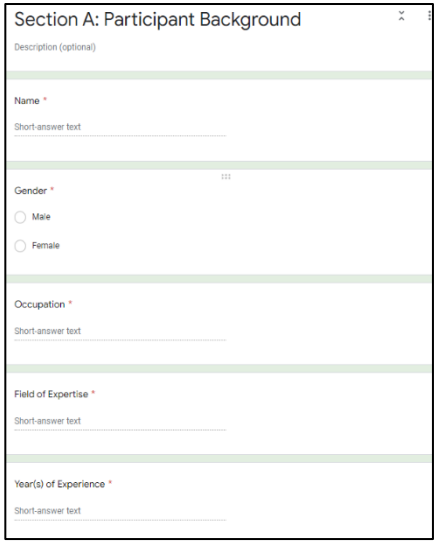
This validation process will be conducted in a single round through the use of Google Form. This process will entail the experts' responding to the feedback and comments via six closed-ended and one open-ended questions.

In my opinion, your expertise would be extremely beneficial in developing a credible framework. As such, I would be extremely appreciative if you would consider taking part in this expert validation study. If you wish to contribute, please contact me via email and I will send you instructions on how to complete the expert validation process.
Thank you in advance for your time.

Yours sincerely,
Wan Juliana Emeih Wahed
Ph.D candidate in Design Ergonomics
Institute of Creative Arts and Technology (ICreaTe),
Universiti Malaysia Sarawak (UNIMAS)

Email *

Valid email address



Section A: Participant Background

Description (optional)

Name *

Short-answer text

Gender *

Male

Female

Occupation *

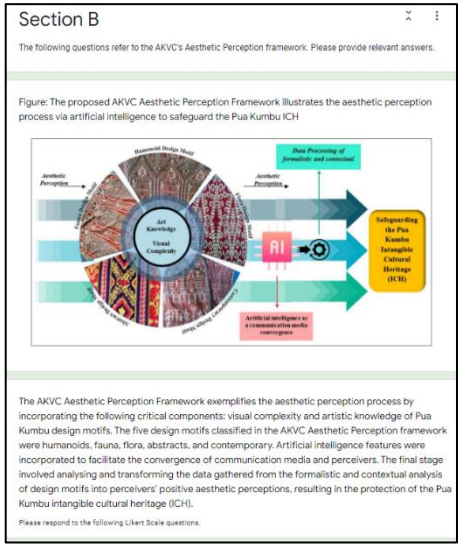
Short-answer text

Field of Expertise *

Short-answer text

Year(s) of Experience *

Short-answer text



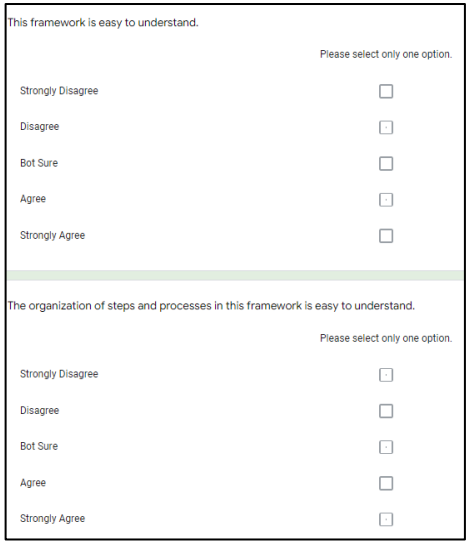
Section B

The following questions refer to the AKVC's Aesthetic Perception framework. Please provide relevant answers.

Figure: The proposed AKVC Aesthetic Perception Framework illustrates the aesthetic perception process via artificial intelligence to safeguard the Pua Kumbu ICH

The AKVC Aesthetic Perception Framework exemplifies the aesthetic perception process by incorporating the following critical components: visual complexity and artistic knowledge of Pua Kumbu design motifs. The five design motifs classified in the AKVC Aesthetic Perception framework were humanoids, fauna, flora, abstracts, and contemporary. Artificial intelligence features were incorporated to facilitate the convergence of communication media and perceivers. The final stage involved analysing and transforming the data gathered from the formalistic and contextual analysis of design motifs into perceivers' positive aesthetic perceptions, resulting in the protection of the Pua Kumbu intangible cultural heritage (ICH).

Please respond to the following Likert Scale questions.



This framework is easy to understand.

Please select only one option.

Strongly Disagree

Disagree

Bot Sure

Agree

Strongly Agree

The organization of steps and processes in this framework is easy to understand.

Please select only one option.

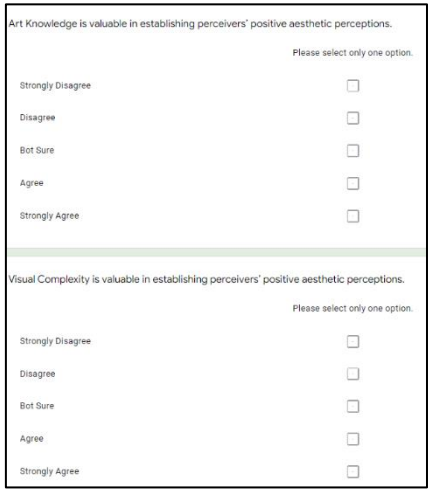
Strongly Disagree

Disagree

Bot Sure

Agree

Strongly Agree



Art Knowledge is valuable in establishing perceivers' positive aesthetic perceptions.

Please select only one option.

Strongly Disagree

Disagree

Bot Sure

Agree

Strongly Agree

Visual Complexity is valuable in establishing perceivers' positive aesthetic perceptions.

Please select only one option.

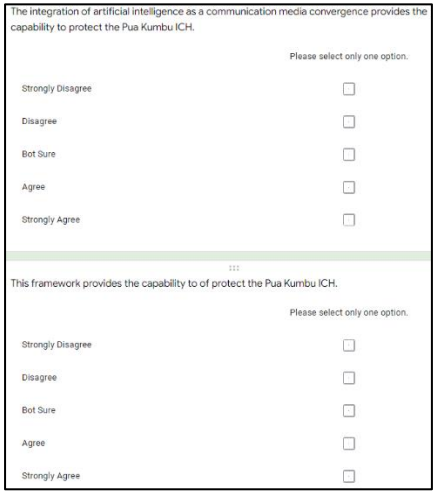
Strongly Disagree

Disagree

Bot Sure

Agree

Strongly Agree



The integration of artificial intelligence as a communication media convergence provides the capability to protect the Pua Kumbu ICH.

Please select only one option.

Strongly Disagree

Disagree

Bot Sure

Agree

Strongly Agree

This framework provides the capability to of protect the Pua Kumbu ICH.

Please select only one option.

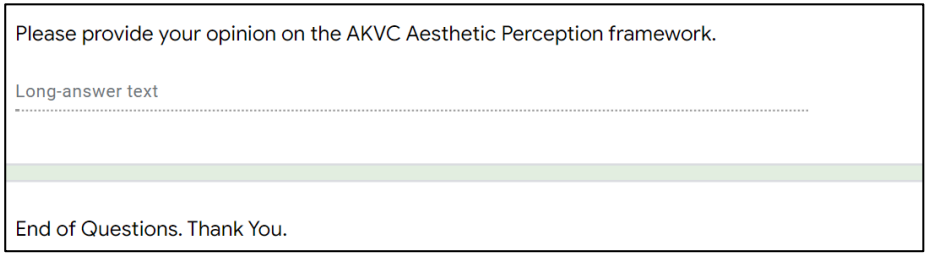
Strongly Disagree

Disagree

Bot Sure

Agree

Strongly Agree



Please provide your opinion on the AKVC Aesthetic Perception framework.

Long-answer text

End of Questions. Thank You.

Appendix L: Sample of pictures during the distributions of the ART-Revised Questionnaire



Appendix M: Sample of pictures during the ‘one-on-one Interview session with Pua Kumbu Weavers



Appendix N: Awards and Publications



CERTIFICATE
OF ACHIEVEMENT

VIRTUAL Asia INNOVATION SHOW

VIRTUAL ASIA INNOVATION SHOW 2022

THIS IS TO CERTIFY THAT

WAN JULIANA EMEIH WAHED, YII MING LEONG, ZALINA IBRAHIM, SAIFUL BAHARI MOHD YUSOFF, NOORHAYATI SAAD

HAVE BEEN AWARDED

SILVER MEDAL

IN RECOGNITION OF CREATIVE EFFORT TO INVENT

BORNEO INDIGENOUS TREASURES (BiTs) MOBILE APPLICATION

ON THE OCCASION OF
VIRTUAL ASIA INNOVATION SHOW 2022
5th - 6th MARCH 2022

YB DATO' MANSOR BIN OTHMAN
DEPUTY MINISTER OF ENVIRONMENT AND WATER MALAYSIA
PATRON
VIRTUAL ASIA INNOVATION SHOW 2022



CERTIFICATE
OF APPRECIATION

VIRTUAL Asia INNOVATION SHOW

VIRTUAL ASIA INNOVATION SHOW 2022

THIS IS TO CERTIFY THAT

WAN JULIANA EMEIH WAHED, YII MING LEONG, ZALINA IBRAHIM, SAIFUL BAHARI MOHD YUSOFF, NOORHAYATI SAAD

HAVE PARTICIPATED AS

PARTICIPANTS

IN RECOGNITION OF CREATIVE EFFORT TO INVENT

BORNEO INDIGENOUS TREASURES (BiTs) MOBILE APPLICATION

ON THE OCCASION OF
VIRTUAL ASIA INNOVATION SHOW 2022
5th - 6th MARCH 2022

YB DATO' MANSOR BIN OTHMAN
DEPUTY MINISTER OF ENVIRONMENT AND WATER MALAYSIA
PATRON
VIRTUAL ASIA INNOVATION SHOW 2022


UNIMAS
UNIVERSITI MALAYSIA SARAWAK
APPLIED AND CREATIVE ARTS
ICACA 2021
CERTIFICATE
OF APPRECIATION
AS A PRESENTER IN THE
6TH INTERNATIONAL CONFERENCE OF APPLIED AND CREATIVE ARTS (ICACA)
Wan Juliana Emeih Wahed
FOR THE PHENOMENAL AND WORTHY PRESENTATION IN THE
6TH INTERNATIONAL CONFERENCE OF APPLIED AND CREATIVE ARTS (ICACA)
ORGANISED BY THE FACULTY OF APPLIED AND CREATIVE ARTS (FACA),
UNIVERSITI MALAYSIA SARAWAK (UNIMAS).
23 AUGUST 2021
DATE
Dr Abdul Riezal Dim
Chairman
ICACA 2021


The 2nd International Conference on
Design Industries & Creative Culture
DESIGN DECODED
Decrypt your visual creativity
CERTIFICATE
OF PARTICIPATION
PROF DR MOHAMAD ABDULLAH HEMDI
Rector
Universiti Teknologi MARA Kedah Branch
Malaysia
This certificate is presented to
WAN JULIANA EMEIH WAHED
Noorhayati Saad, Saiful Bahari Mohd Yusoff,
Patricia Pawa Pitil
Title
Weavers' Aesthetic Perception on the Visual Complexity of
Pua Kumbu Design Motifs: An Exploratory Study
in recognition and appreciation of your contribution as
PARTICIPANT
in The 2nd International Conference on
Design Industries & Creative Culture
DESIGN DECODED
held on
August - 24 & 25 - 2021
Organizec by:
Faculty of Art & Design UiTM Kedah Branch
Galeri Seni Merbok, UiTM Kedah Branch
Jabatan Muzium Negeri Kedah
UNIVERSITI TEKNOLOGI MARA
Cawangan Kedah
Kampus Sungai Petani
Strategic Partners:


3-Minute Research & Innovation Video Competition
UNIVERSITI SULTAN ZAINAL ABIDIN
Congratulations
3-MINUTE RESEARCH & INNOVATION VIDEO COMPETITION (3-MRI)
1st PRIZE
This certificate is presented to
WAN JULIANA EMEIH WAHED
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NORHAYATI SAAD
PATRICIA PAWA PITIL
For Category
3-Minute Research Video for Postgraduate
(Social Science)
Title
SARAWAK PUA KUA KUMBU: "YOU LOVE ME, YOU LOVE ME NOT?" (AESTHETIC LIES IN THE EYE OF THE BEHOLDER)"
PROF. DATO' DR. HASSAN BASRI AWANG MAT DAHAN


3-Minute Research & Innovation Video Competition
UNIVERSITI SULTAN ZAINAL ABIDIN
Certificate of Participation
3-MINUTE RESEARCH & INNOVATION VIDEO COMPETITION (3-MRI)
This certificate is presented to
WAN JULIANA EMEIH WAHED
SAIFUL BAHRI MOHD YUSOFF
NORHAYATI SAAD
PATRICIA PAWA PITIL
For Category
3-Minute Research Video for Postgraduate
(Social Science)
Title
SARAWAK PUA KUA KUMBU: "YOU LOVE ME, YOU LOVE ME NOT?" (AESTHETIC LIES IN THE EYE OF THE BEHOLDER)"


INSTITUT SENI KREATIF DAN TEKNOLOGI, UNIMAS
MENGUCAPKAN
TAHNIAH
Cik Wan Juliana Emeih Wahed
Calon Doktor Falsafah, Institut Seni Kreatif dan Teknologi, UNIMAS
TEMPAT PERTAMA
"Three Minute of Research Innovation Competition (3-MRI)"
Kategori Sains Sosial
Tajuk: Sarawak Pua Kumbu: 'You Love Me, You Love Me Not'
(Aesthetic Lies in the Eye of the Beholder)
anjuran Universiti Sultan Zainal Abidin (UNISZA), Terengganu

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PERTANIKA JOURNALS

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Review Article

"Please Stay, Don't Leave!": A Systematic Literature Review of Safeguarding Intangible Cultural Heritage in the Fourth Industrial Revolution

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ABSTRACT

Intangible cultural heritage (ICH) has been recognised as an indicator of the tangible heritage's cultural diversity, which contains inherent characteristics of the community's knowledge, practices, expressions and skills. Thus, various actions of support and collaboration to safeguard the global cultural diversity were conducted, preventing the deterioration and destruction of intangible heritage, which paved the way for the Fourth Industrial Revolution (IR 4.0). This study aimed to examine the safeguarding of ICH relating to a range of heritage objects, including textiles, design motifs, and crafts. Nine papers on ICH published between 2014 and 2020 were collected from several reputable databases. These articles were taken from Scopus (3 articles), Google Scholar (5 articles) and Dimensions (1 article) databases in various subject areas of social sciences using the Preferred Reporting Items Systematic reviews and Meta-Analysis (PRISMA) method. Currently, the most sophisticated means of safeguarding ICH comprised eliminating knowledge barriers, incorporating diverse cultures and technology, collaborations between organisations, eco-friendly materials and versatility in promotional strategies. The findings will contribute to the Malaysian Sustainable Development Goals (SDG 4) by providing high-quality education on intangible knowledge to industry players, tourists, and local communities. Moreover, the integration of art, knowledge, and technology have enabled deeper perception among the varied audience, providing a fundamental understanding of intangible knowledge. Lastly, this idea will enhance the sustainability of traditional human values, hoping that cultural heritage will survive and remain long-term.

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Keywords: Fourth industrial revolution, intangible cultural heritage, safeguard, systematic literature

INTRODUCTION

An intangible cultural heritage (ICH) is recognised as the primary source of cultural diversity, aiming to safeguard cultural diversity worldwide (Aikawa, 2005). Various debates revolve around who creates and preserves the intangible culture (Laleye, 2005). The questions include whether it is the influence of governments or the people of parties that determine how a community is founded. Governments and non-governmental organisations have made a variety of attempts to address the issue of culture and heritage. For instance, the convention on the World Cultural and Natural Heritage protection was organised in 1972. A few decades later, the 2003 United Nations Educational, Scientific, and Cultural Organisation (UNESCO) Convention for the Safeguarding of ICH was introduced to ensure cultural sustainability.

Accordingly, UNESCO defined ICH as the collective definition of knowledge, practices, expressions, and skills carried by communities that recognise these features as part of their cultural heritage. Also called living cultural heritage, it is usually expressed in one of several forms. These forms include oral traditions, performing arts, social practices, rituals, and festive events. Furthermore, this idea can be extended to the knowledge and practices that concern nature, the universe and traditional craftsmanship (D'Orville, 2005).

Several innovations and systematic methods were implemented under the convention and the Agreement (1972), including a reasonable basis for preserving the various cultural heritage components. Notably, the extinction of any aspect of ICH may affect the growth of the global cultural plurality. Therefore, it is imperative to have more dialogue, collective understanding, and unity on the particular matter (D'orville, 2005). Nevertheless, ICH continues to be at risk and is gradually disappearing due to the lack of protection, dysfunctional government (D'orville, 2005), and accelerated globalisation (Arai, 2005). In Tokyo's International Conference on Globalisation and ICH, Arai revealed that the Japanese government made efforts

to safeguard ICH. Unfortunately, due to globalisation's rapid progress, he claimed that they had lost the 'fight' for maintaining their intangible cultural identity (Arai, 2005).

The latest developments indicate that a new form of media transition occurs through incorporating arts into education, especially into subjects such as Science, Technology, Engineering and Maths (STEM; Bandelli, 2018). Currently, the curricula are becoming increasingly creative in an integrated learning atmosphere (Ho, 2020). According to Adendorff and colleagues (2018), the growth of communication and knowledge-based societies characterises the 21st century. Moreover, the incorporation of Cultural and Creative Industries (CCIs) into the Fourth Industrial Revolution (IR 4.0) has minimised the skill deficit, which encouraged social integration, cultural diversity and human growth (Adendorff et al., 2018). Lastly, digital art designs enable science and art to be integrated, communicated, and complemented. Notably, the possession of digital art, information technology, and art revealed a connection to the expressive arts (Ye, 2016).

The impact of globalisation on the extinction of ICH can now be seen worldwide, especially in developing countries in Asia, Africa, and the Middle East (Arai, 2005). However, globalisation helps culture to develop more effectively in some countries like Korea. In this context, the Koreans have accommodated globalisation by merging digital tools and global networks into their ICH. This initiative reflects a change in attitudes and lifestyles from the conventional to the new (Choe, 2005) by introducing cultural diversity.

According to the 2004 United Nations Development Programme (UNDP; 2004) in Human Development Report, "cultural diversity has its importance because it stimulates customer preference and improves mutual understanding" (p. 147). This topic exposed a fascinating discovery that runs right through human progress into a modernised environment. Our origins in ICH are what finally bring us together. Thus, it is essential to safeguard ICH because of the distinct existence of its equivalents. The critical difference with ICH is its temporary character, implying its loose existence. Instead, ICH is exclusively handed down or represented, which depends heavily on individuals and communities. Nevertheless, this group provides the intangible knowledge and aptitudes to be acquired that are continuously incorporated and disseminated (Smeets, 2005).

Numerous communities and countries have sought other approaches to preserve their intangible heritage, including integrating a digital technology platform. For example, the European Union (EU) has funded research networks with built-in technology of a multimedia environment. This idea enhances music education and promotes a new music training method, which provided essential knowledge to the younger generation (Alivizatou-Barakou et al., 2017). On the same note, the Oral Traditions Project of the Vanuatu Cultural Centre has brilliantly innovated with the

'heritage for development' project for indigenous groups and tribal communities using technologies (Huffman, 1996). This collaborative project is aimed to invent a 'memory bank' of the traditional culture and cultural expressions with various representatives of different communities. Moreover, this project is beneficial to various entities, including the museum and students, offering quality educational programmes for schools and future community development.

In China, motion capture technology was applied to protect China's national dances (Shen et al., 2011), similar to Jamaican dances (Brown et al., 2005). In addition, a study collected 183 Jamaican dancers to evaluate their phenotypical quality, albeit not for ICH preservation purposes. In another study by Dobrian and Bevilacqua (2003), it was found that ICH could be transmitted successfully via game-like applications. In this context, the intangible culture can effectively promote and empower user experiences of culture with a consolidated trend in the technology-enhanced learning field (Dobrian & Bevilacqua, 2003). Given these points, numerous games were created to appeal to the younger generation, such as (i) Icura, a 3D realistic game about Japanese culture and etiquette (Stone, 1990); (ii) Discover Babylon, which highlighted the contributions of cultures from the ancient Mesopotamians to the modern-day (Engwall, 2004); and (iii) Papakwaqa, a game paying tribute to the Atayal minority in Taiwan (Troup et al., 2006).

Various studies and projects have utilised the advantages of digital technology to sustain the ICH in IR 4.0. Thus, this study aimed to review the approaches in various studies examining the safeguarding of ICH in IR 4.0. This idea aligned with the research question, "How can we safeguard ICH in the Fourth Industrial Revolution (IR 4.0)?". Accordingly, the directions for future studies are outlined at the end of this review paper.

METHODOLOGY

This section outlines the method used to retrieve articles related to safeguarding ICH in IR 4.0 from relevant studies. The reviewers utilised the Preferred Reporting Items Systematic reviews and Meta-Analysis (PRISMA) method from three databases (Scopus, Google Scholar, and Dimensions). This method was used to run the systematic reviews, eligibility and exclusion criteria, review process steps (identification, screening, and eligibility), and data abstraction and analysis.

PRISMA

The review was guided by the PRISMA Statement (Moher et al., 2009), which offers exclusive advantages. These advantages include 1) defining specific research questions that allow for systematic investigation and 2) specifies the criteria for inclusion and exclusion. Lastly, 3) the method attempts to look at a massive database of scientific literature in a certain amount of time (Sierra-Correa & Kintz, 2015). This approach allows for a rigorous search of terms related to safeguarding ICH from different perspectives. Lastly, the method can monitor global practice from

various countries in preserving the ICH in IR 4.0.

Resources

This review relied on Scopus, Google Scholar, and Dimensions as the primary journal databases. In this study, the data was extracted using the keywords, covering over one thousand peer-reviewed literature items. Finally, each database consists of varied subject areas, such as social sciences, art, culture, and humanities.

Eligibility and Exclusion Criteria

The justifications for implementing the eligibility and exclusions criteria includes achieving the core values of a comprehensive literature review and removing unnecessary criteria. Firstly, the early stage of this systematic review comprised the selection of relevant literature, namely, articles published in journals, lectures, and published theses. However, the selection excluded review articles, book series, and book chapters. Secondly, articles exclusively published in English were selected, and those in other languages were excluded. The reason was to avoid difficulties in understanding and the need to translate the writings. Thirdly, a period of seven years, specifically between 2014 and 2020, was chosen to track the production of research and publications. Finally, since the analysis phase relies on safeguarding intangibles, articles indexed in social sciences that centre on traditional textiles or clothes were selected to align with the objective of this work (Table 1).

Systematic Review Process

The systemic review process involved three primary phases, namely, identification, screening, and eligibility procedures. In May 2020, the search process was conducted with keyword identification in the first phase. Previous studies developed a search string based on keywords close to 'safeguarding', such as 'preserving', 'conserving' and 'protecting'. These items were syndicated

Table 1

Inclusion and exclusion criteria

Database		Inclusion	Exclusion
Scopus, Google Scholar, Dimensions	Year	2020 – 2014	Before 2014
	Language	English	Non-English
	Article type	Article journal, conference proceeding and published thesis	Review article, book series, book and chapter in book, monograph
	Subject area	Social Sciences	Hard Science, Engineering Mathematics

with the terms' ICH' and 'visual art', culminated in 479 published documents from Scopus and 1,100 documents from Google Scholar in 0.08 seconds. The same search terms were used with the Dimensions database, identifying 89 papers (Table 2).

Table 2

The search string

Database	Keywords used	Findings
Scopus	(("safeguarding" OR "preserving" OR "conserving") AND ("intangible cultural heritage") AND ("textile" OR "cloth"))	479 results
Google Scholar	"safeguarding" OR "preserving" OR "conserving" AND "intangible cultural heritage" AND "textile" OR "cloth"	1,100 results
Dimensions	(("safeguarding" OR "preserving" OR "conserving") AND ("intangible cultural heritage") AND ("textile" OR "cloth"))	89 results

The second phase established the screening procedure to narrow the search string and concentrate on the study's aim. Therefore, keywords similar to 'safeguarding' were removed. At this stage, a total of 36 documents were eligible to be reviewed, with nine documents (Scopus), 12 documents (Google Scholar), and fifteen documents (Dimensions) from the three databases. The screening involved selecting papers published in English from published journals vis-à-vis social sciences, anthropology, arts, culture, and heritage. However, only research journals, conference proceedings, and published theses were selected, excluding review journal articles (Table 3).

Table 3

The search string for screening

Database	Keywords used	Findings
Scopus	(("safeguarding") AND ("intangible cultural heritage") AND ("textile" OR "cloth"))	9 results
Google Scholar	"safeguarding" AND "intangible cultural heritage" AND "textile" OR "cloth"	12 results
Dimensions	(("safeguarding") AND ("intangible cultural heritage") AND ("textile") OR ("cloth"))	15 results

The eligibility of the documents was thoroughly evaluated. In this approach, three articles from Scopus, five from Google Scholar and one from the Dimensions database were examined. The eligibility process found twenty duplicate documents from repositories of Scopus, Google Scholar, and Dimensions. Meanwhile, seven articles were detected in all databases using different eligibility criteria. Thus, these articles were excluded considering that these articles are books, chapters in books, reviews, not in English, restricted access, or covered unnecessary topics. Figure 1 presents a flow diagram of the systematic paper selection under review.

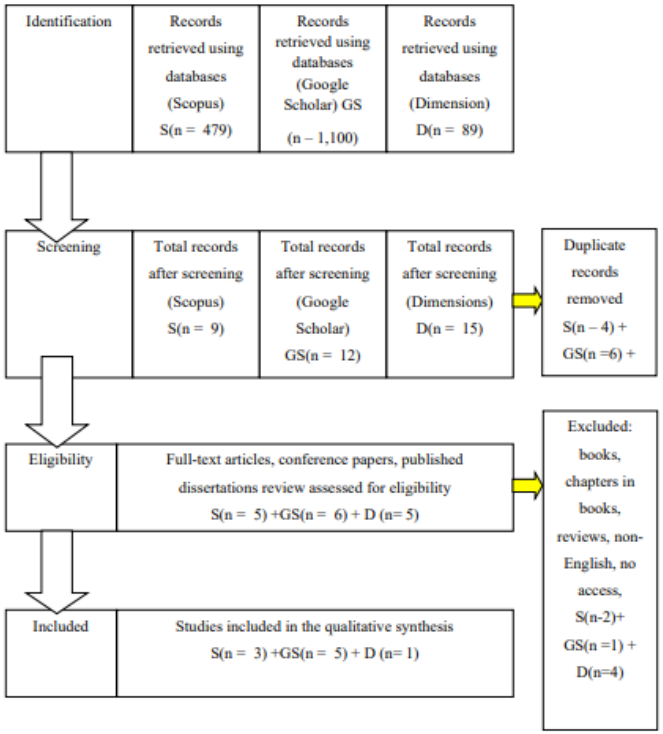


Figure 1. The flow diagram of the systematic review

RESULTS

There are certain similarities and differences in the nine studies. These similarities and differences were divided into five outcome sections: subjects, categories, and locations; identification of the issues and study objective; methods; research findings; and gaps between all studies.

Subjects, Categories, and Locations

The meta-analysis of the nine articles identified that the subject is divided into two categories, namely, textiles and craft. For textiles, a range of types has been identified in the studies, which include Sumba weaving (Untari et al., 2020), Indian sarees (Mathew, 2018), design motifs (Mawuli, 2019), and batik (Hidayat & Fatmahwaty, 2014; Sardjono et al., 2015; Tresnadi & Sachari, 2015). Meanwhile, the craft product was categorised as leathercraft (Sugiarti et al., 2019) or anonymous handicraft (Y. Yang et al., 2018). These research projects examining cultural heritage originate from different nations, including Indonesia (Hidayat & Fatmahwaty, 2014; Sardjono et al., 2015; Sugiarti et al., 2019; Tresnadi & Sachari, 2015; Untari et al., 2020); Jordan (Siamwalla, 2019), Ghana (Mawuli, 2019), Pakistan (Y. Yang et al., 2018), and India (Mathew, 2018).

In Mathew (2018) and Mawuli's (2019) study, the use of African and Ghana Adinkra design motifs were discussed to safeguard the knowledge of its design motifs by adapting them into different mediums. Furthermore, 700 Adinkra symbols were identified, enriched by a complex set of narratives based on ritual, tradition, and belief. Additionally, a similar study on safeguarding design motifs reported integrating Indonesian batik ornaments as part of the content in the interactive game, Nitiki (Tresnadi & Sachari, 2015). These studies highlighted the importance of assessing design motifs accurately by correcting aesthetic perceptions and instilling proper knowledge.

Identification of the Issues and Study Objective

Overall, in the Table 4, the nine studies identified several critical issues related to heritage, which were the primary reasons for conducting the studies. One of these issues is the knowledge barrier that exists between ICH and the perceivers. In addition, according to Mawuli (2019), the younger generations' growing usage of Adinkra design motifs disconnected them from their roots, contributing to the misuse of the motifs. Therefore, the study was performed to correct an aesthetic perception so that ICH could be retained.

The second study highlighted the knowledge barrier as a similar issue associated with the Indonesian batik ornaments (Tresnadi & Sachari, 2015). Therefore, public appreciation of batik's ICH was required to understand the interpretation, beliefs, and symbols transmitted through the ornaments. Specifically, this appreciation is vital to disseminate specific values to the millennial generation. Hence, the adaptation of batik ornaments as visual content in the online game Nikiti was studied.

A study by Y. Yang et al. (2018) discovered that handicraft heritage is gradually losing its existence. Hence, urgent attention is needed to preserve its cultural heritage and transfer its art knowledge to the next generation (T. Yang et al., 2019). Next, Siamwalla (2019) revealed a knowledge barrier in the products' development by established companies without the help of craftsmen. Therefore, the study was carried out to build a collaborative design that unites the manufacturing skills of craftsmen, the Jordan River Foundation (JRF), and renowned companies such as IKEA (Siamwalla, 2019).

The EU market has rejected imported Indonesian batik seeing that they were an environmentally unfriendly product made from artificial dyes. As a result, a study examined the making of an ecologically friendly batik, ensuring that the problem was resolved (Hidayat & Fatmahwaty, 2014). Meanwhile, Mathew (2018) found that the handloom sector in India faced high competition from the advancement of electronic looms. In this context, it was suggested that the Adinkra African design motif is to be revived by applying them to the traditional Indian saree. Therefore, such efforts would perceivably enable the commercialisation of the Adinkra design motifs and stimulate the aesthetic values of the Indian saree.

A lack of marketing strategy has become an issue in safeguarding ICH. One such case was exposed in Kampung Batik Laweyan, Solo, Indonesia, where most batik artisans did not establish their collective trademarks. These trademarks are critical as a strategy to compete with imported printed batik and preserve its traditional batik cultural heritage (Sardjono et al., 2015). Similarly, in Magetan, east of Java, Indonesia, the leather industry's tourism development and stakeholders did not take advantage of the opportunity to establish craft tourism. This approach includes tourists searching for leathercraft in educational tourism (Sugiarti et al., 2019).

Another study has highlighted a further issue, namely, the gender disparity in the Indonesian Sumba weaving production. Women have long been identified as the primary gender that continues their societies' traditional knowledge and development skills. Contrastingly, the men's capacity to lead local entrepreneurship, economic growth, and preserve intangible heritage was not recognised. Hence, the modern forces of globalisation on local gender norms are viewed as a complex relationship that empowers women. Finally, Untari et al. (2020) reported that while females are recognised locally for their expertise and experience, it is crucial to examine the integration and effect of Sumbanes cloth makers in world markets and gender roles in various societies.

Method

All nine studies used a qualitative approach, three of them conducted fieldwork (Mawuli, 2019; Untari et al., 2020), and two studies were descriptive (Sugiarti et al., 2019; Tresnadi & Sachari, 2015). Meanwhile, another two utilised case studies (Hidayat & Fatmahwaty, 2014; Sardjono et al., 2015), one being experimental (Mathew, 2018) and another with a narrative approach (Siamwalla, 2019).

For data collection, all the studies used an observational approach. Furthermore, five studies employed interviews (Hidayat & Fatmahwaty, 2014; Siamwalla, 2019; Sugiarti et al., 2019; Tresnadi & Sachari, 2015; Untari et al., 2020; Y. Yang et al., 2018), and one used a survey (Sardjono et al., 2015). Additionally, three studies conducted focus group discussions (Mawuli, 2019; Siamwalla, 2019; Sugiarti et al., 2019), while two studies referred to documents as secondary data collection (Sugiarti et al., 2019; Y. Yang et al., 2018).

Research Findings

Untari et al. (2020) identified a change from domestic to small-scale weaving, which required a move from consumption value to global market value. Nevertheless, the differences in gender concerning cloth production have led to possible shifts in cultural expectations vis-à-vis gender roles and processes. For example, even though women were locally respected and honoured for their expertise and knowledge, they were not appreciated as men in leading and managing businesses and organisations. Moreover, cell phone usage and social networking by young women and men can help raise global awareness of cultural heritage products (Untari et al., 2020).

In addition, Siamwalla's (2019) study highlighted the knowledge of collaborative design development in textile crafts, linking multiple new spaces in textile management and transforming knowledge of specific skills into a competitive advantage for the organisations involved. Findings also determined that tangible and intangible qualities can be enhanced through collective research in the production of textile crafts (Siamwalla, 2019).

The results of the Mawuli's (2019) study found that more effective ways to protect the intangible cultural heritage of Adinkra motifs were needed, in collaboration with the Adinkra fabric manufacturers and academics, such as organising exhibitions and workshops to foster knowledge and raise awareness among audiences. However, it was noted that more funding from the government and stakeholders was needed to ensure that the intangible cultural heritage of Ghana could be preserved in perpetuity (Mawuli, 2019). Another study by Mathew (2018) revealed the adaptation of Adinkra design motifs in silk linen sarees, a traditional Indian costume. It was suggested that the values of aesthetic appearance had been increased by the embodiment of two different cultural values in one medium. This idea, it was suggested, became an innovative, handcrafted, eco-friendly traditional attire that matched every mood, occasion and budget (Mathew, 2018).

Moreover, Siamwalla's (2019) study highlighted the knowledge of collaborative design development in textile crafts, linking multiple new spaces in textile management. This idea transformed the understanding of specific skills into a competitive advantage for the organisations involved. Additionally,

the findings determined that the tangible and intangible qualities can be enhanced through collaborative research in the production of textile crafts (Siamwalla, 2019).

Another study suggested that more effective ways to protect ICH of Adinkra motifs were needed (Mawuli 2019). One approach can be achieved by collaborating with the Adinkra fabric manufacturers and academics, such as organising exhibitions and workshops to raise awareness among audiences. However, more funding from the government and stakeholders was needed to ensure the perpetual preservation of Ghana's ICH (Mawuli, 2019). Similarly, Mathew (2018) revealed the adaptation of Adinkra design motifs in silk linen sarees, a traditional Indian costume. It was suggested that the values of aesthetic appearance were increased by the embodiment of two different cultural values in one medium. This idea became an innovative, handcrafted, eco-friendly traditional attire that matched every mood, occasion, and budget (Mathew, 2018).

Sugiarti et al. (2019) found that local government, craftsmen, and entrepreneurs supported tourists who bought leather goods. However, no recent leathercraft design has met market trends and high-quality demand. Even though locals can serve as entrepreneurs by establishing leather home industries that manufacture souvenirs for tourists and improve the local economy. Therefore, it was suggested to involve stakeholders by including tourists seeking local leather goods in educational tourism, which would later lead to the remarkable preservation of tangible cultures globally (Sugiarti et al., 2019).

The findings of T. Yang et al. (2019) found a way to protect cultural heritage by having specific policies that can promote, develop, and maintain traditional heritage skills and practices. Moreover, these policies may benefit artists by reviving their businesses, generating sustainable income and employment opportunities. Furthermore, a study revealed that tourists who bought leather goods supported the local government, craftsmen, and entrepreneurs (Sugiarti et al., 2019). The locals can potentially serve as entrepreneurs by establishing leather home industries that manufacture souvenirs for tourists and improve the local economy. However, no recent leathercraft design has met market trends and high-quality demand. Therefore, the stakeholder's engagement in this process is suggested. This idea may increase tourists seeking local leather goods in educational tourism, subsequently preserving tangible cultures globally (Sugiarti et al., 2019).

Next, Tresnadi and Sachari (2015) suggested two key findings to preserve the batik ornaments' ICH. This idea can be achieved by integrating traditional or heritage content into the online game, Nitiki's digital interface. The findings can be summed up as (i) the principles of the batik ornaments in the game that demonstrate the survival of traditional batik heritage in Indonesian society. Furthermore, the game features the versatility of batik in the digital environment. The preservation method is extended (ii) by incorporating cultural ideals

into the game features such as identity, life, and social integrity (Tresnadi & Sachari, 2015).

In a study by Sardjono et al. (2015), it was suggested that a collective trademark for the batik makers should be established. This approach could then protect and strengthen the local batik industry while competing with imported batik goods. Moreover, the trademark would indicate the batik's origins, allowing consumers to fully appreciate its cultural values (Sardjono et al., 2015). Finally, Hidayat and Fatmahwaty (2014) showed that while UNESCO recognised Indonesian batik as a form of national ICH, its export to the European market was rejected due to the ecologically unfriendly use of artificial dyes. Consequently, the harmful batik waste substances from chemical colourings were removed and substituted with naturally derived dyes. For instance, the Kanawida batik (Green batik) was named after the invention of natural batik dyes. Moreover, the street children were taught how to turn Kanawida batik into an environmentally friendly means of gaining awareness and knowledge of their cultural heritage (Hidayat & Fatmahwaty, 2014). In essence, this method is idealised to ensure that the understanding of Kanawida batik can last for the next generations.

The Gaps Between the Studies

After reviewing the papers, five significant correlations were discovered between those and previous studies, which are shown as follows:

i. The knowledge barrier between perceivers should first be eliminated to preserve intangible forms of cultural heritage and to ensure that the perceivers can effectively reach the values and principles of their cultural heritage (Siamwalla, 2019; Sugiarti et al., 2019; Tresnadi & Sachari, 2015; Y. Yang et al., 2018).

ii. Another alternative for supporting the ICH's sustainability was introducing different motifs from other cultures and integrating them with the digital technological approach (Mathew, 2018; Tresnadi & Sachari, 2015).

iii. Safeguarding tangible and ICH is not one person's mission but includes collaboration with multiple organisations, stakeholders and governments (Mawuli, 2019; Sardjono et al., 2015; Siamwalla, 2019; Sugiarti et al., 2019; Untari et al., 2020; Y. Yang et al., 2018).

iv. The sustainability of cultural heritage products should be based on environmentally friendly materials (Hidayat & Fatmahwaty, 2014; Mathew, 2018).

v. The versatility of promotional approaches, such as exhibitions, workshops, social media, knowledge sharing, and tourism education, will foster knowledge and safeguard the cultural heritage for future generations (Mawuli, 2019; Sugiarti et al., 2019; Untari et al., 2020; Y. Yang et al., 2018).

The gaps in these nine studies highlighted the growth of the ICH's dissolution in every piece of art. Initially, policymakers, industry players, and communities can minimise knowledge barriers, encourage social

integration and cultural diversity, and enrich tourists' experiences with the government's support. This idea can be achieved through cultural tourism with a proper promotional approach. As a result, tourism has positively affected cultural exchange, improving the levels of understanding and direct participation of local communities in safeguarding their traditional values. These positive impacts will gradually lead to their global preservation and the protection of the intellectual property rights of communities concerning ICH.

Table 4

Data extraction table referring to included studies

Author	Issue and Objective	Method	Findings
Untari et al., 2020	***Issue:*** Women are not chosen to lead and manage businesses, although they are known locally for their skills and experience. ***Objective:*** Examine the integration and impact of Sumbanese cloth makers in world markets and gender roles in the community.	***Study Design***: Qualitative, fieldwork. ***Data collection:*** Observation, interview. ***Subject:*** Sumba weaving. ***Location***: Indonesia.	1.Changes in the context of gender in cloth production led to possible shifts in cultural expectations about gender roles and processes. 2. The use of cell phones and social networking by a variety of young women and men.
Siamwalla, 2019	***Issue:*** Lack of knowledge of what form of collaborative design to use in the development of goods. ***Objective:*** Investigate and recognise the collaborative production of craft makers, the Jordan River Foundation (JRF) and IKEA.	***Study Design***: Qualitative and narrative. ***Data collection:*** Observation, interview and focus group. ***Subject:*** Textiles. ***Location***: Jordan.	1.The collaborative design in textile crafts connects multiple new spaces in management and transforms skills knowledge into a competitive advantage for the organisations involved.

Table 4 *(Continued)*

Author	Issue and Objective	Method	Findings
Mawuli, 2019	***Issue:*** Knowledge barrier to the usage of Adinkra symbols among the young generations. ***Objective:*** To investigate the Adinkra symbols in modern Ghana and their usage and to safeguard the knowledge of Adinkra.	***Study Design***: Qualitative, fieldworks. ***Data collection:*** Participants' observation, Group discussion. ***Subject:*** Design motif. ***Location***: Ntansa and Asante, Ghana.	1. Adinkra fabric manufacturers and academics may organise exhibitions to foster knowledge of the Adinkra symbol. 2. Organised workshops to increase awareness. 3. Further funds are required.
Sugiarti et al., 2019	***Issue:*** Stakeholders did not use the opportunity to establish craft tourism by including tourists seeking leathercraft goods in educational tourism. ***Objective:*** To examine how the leathercraft industry contributes to tourism development in Magetan, East Java, Indonesia.	***Study Design***: Qualitative, descriptive. ***Data collection:*** Site observation, interview, document review, focus group discussion. ***Subject:*** Leathercraft industry. ***Location***: Magetan East Java Indonesia.	1.Tourists support the industry by purchasing the products. 2. No latest design that meets the market trend and the quality demand. 3. Locals can serve as entrepreneurs by establishing leather home industries that manufacture tourist souvenirs.
Y. Yang et al., 2018	***Issue:*** Handicraft heritage is gradually losing its existence and needs urgent attention. ***Objective:*** Explore traditional craft in developing countries so that traditional craft traditions and knowledge can be transferred.	***Study Design***: Qualitative, fieldwork. ***Data collection:*** document review, observation. ***Subject:*** Pakistani handicraft. ***Location***: Pakistan.	They suggest policies to promote, develop and maintain traditional heritage skills and practices, as well as helping artisans revive their businesses and generate sustainable income and employment opportunities.

Table 4 *(Continued)*

Author	Issue and Objective	Method	Findings
Mathew, 2018	***Issue:*** The handloom sector confronts intense competition from the electronic loom, which means handloom weavers need to introduce innovative and attractive patterns. ***Objective:*** To revive the African and Indian traditional wear while popularising the African motifs and aesthetical values in the Indian saree.	***Study Design***: Experimental. ***Data collection:*** Ten Adinkra motifs and five saree layouts were developed with different placement of motifs. ***Subject:*** Indian saree. ***Location***: India.	1. Embodied cultural values in silk linen sarees through the adaptation of Adinkra motifs. 2.Incorporated aesthetic innovation based on the traditional with additions from other traditions. 3. The saree became a handcrafted, eco-friendly traditional form of attire to match every occasion and budget.
Tresnadi & Sachari, 2015	***Issue:*** Knowledge barrier among the public, especially in appreciation. ***Objective:*** Identify the values found in Indonesian batik ornaments adapted to the Nitiki game as visual content.	***Study Design***: Qualitative descriptive. ***Data collection:*** Observation, interview. ***Subject:*** Indonesian batik ornaments. ***Location***: Indonesia.	1. The integration of batik ornaments in the Nitiki game demonstrates versatility in the digital world. 2. Incorporating cultural ideals into the game symbolises the ideological concept of contemporary tradition.
Sardjono et al., 2015	***Issue:*** Prior research has shown that the respective trademark was not used efficiently to support Small Medium Enterprises (SMEs) batik in Java. ***Objective:*** Establish collective trademarks as a strategy to compete with imported printed batik and preserve local products.	***Study Design***: Qualitative, Case study. ***Data collection:*** Survey. ***Subject:*** Batik. ***Location***: Kampung Batik Laweyan, Solo, Indonesia.	1. The mutual trademark system has benefits at the lowest expense of registration and promotion. 2. By having a collective trademark, local batiks can use an indicator of their origins and also be protected and strengthened while competing with imported batik.

Table 4 *(Continued)*

Author	Issue and Objective	Method	Findings
Hidayat & Fatmahwaty, 2014	***Issue:*** The European Union market has rejected importing Indonesian batik due to the environmentally unfriendly way the product is made. ***Objective:*** To make an ecologically friendly batik.	***Study Design***: A case study. ***Data collection:*** In-depth interview. ***Subject:*** Kanawida batik (Green batik). ***Location***: Banten & Jakarta, Indonesia.	1. Toxic batik waste production had been eliminated and replaced with natural dyes. 2. Street children were taught to turn Kanawida batik into an environmentally friendly way to gain knowledge of their heritage.

DISCUSSION

This review identified a growing body of literature engaged in various types of research into safeguarding the intangible and, to a lesser extent, tangible cultural heritage. The studies on ICH require a different approach than the studies on the tangible method. Various issues were established concerning the findings of this study, signifying the practical strategies to match any ICH object at its finest. Scholars have touched on this issue, albeit there remains a lack of research to investigate the safeguarding of intangible heritage. Hence, to bridge this gap, this paper offers two sophisticated approaches to safeguard Malaysia's ICH, in line with those suggested in this review by several scholars.

Art Knowledge Contributes to a Greater Aesthetic Perception

Most barriers occur due to the lack of art knowledge, misleading the aesthetic perception of heritage objects. In this sense, any misconception about ICH objects would have a long-term beneficial or detrimental impact on future generations. In the challenging and advancing era, so-called "good taste" is considered a combination of the intellectual and personal taste of the beholder (Myszkowski et al., 2018).

Grüner and colleagues (2019) stated that the perceivers' art knowledge possessed is treated as a foundation to help them form a better understanding of art. Those without basic art knowledge require extra effort to comprehend the visual art displayed to them (Grüner et al., 2019). Furthermore, in any culture, a passionate feeling for art combines a person's knowledge and appreciation for art (Bourdieu et al., 1991). Therefore, the earlier a person's exposed to arts, the more dynamic relationships can be built, resulting in better constructions of aesthetic perception.

The analysis of a cultural heritage object through observation and to achieve some form of understanding, which can be inherently understood. The aesthetic expression of human feelings is related to

the mechanism of perception (Ellsworth & Scherer, 2003). When the sensation is evaluated as something that can be grasped, it forms a point of human interest (Silvia, 2005). Notably, human understanding and sensitivity led to positive perceptions (Fayn et al., 2015). By having the appropriate knowledge of a particular subject, one's interest and curiosity can be explored. Additionally, those with exposure to art possess a greater degree of aesthetic perception. The knowledge of cultural heritage objects should be shared with the younger generations so their appreciation does not disappear with time.

ICH on Digital Platform

In recent years, digital technology has exponentially increased and has invaded every aspect of life. Thus, it has often affected how developing societies experience heritage, be it their own or others. Moreover, cultural heritage has always been a relevant subject. However, the general awareness of and disposition towards this subject form our sense of placing it. It also shapes our understanding, especially in the increasingly globalised world (Economou, 2015). Due to their inherent nature, the elements of ICH are constantly evolving. They combine with their surroundings and sometimes disappear without enjoying an appropriate level of recognition and appreciation (Smeets, 2005).

People experience sites and monuments gradually and learn about the past through digital media in the context of visual reconstructions, digital artefact documentation, online images (Economou, 2015), higher education (Kong, 2020), and many more. This idea is consistent with the IR 4.0 theory, which explains developments such as artificial intelligence, quantum physics, 3D printing, and the internet (Schulze, 2019), especially younger generations. In tandem with the creative innovation or 'creativity capital' of 2020, this idea will become the third significant capability required to thrive and prosper in the IR 4.0 (Adendorff et al., 2018).

In a 2012 survey conducted by the Pew Research Centre into the Internet and American life, it was suggested that technology would efficiently enhance people's lives, boosting engagement among perceivers. For example, in art, technology could attract larger audiences to appreciate drawings, paintings, and sculptures while simultaneously diversifying its audiences. It is understood that the internet plays a significant contribution in breaking the barriers that once blocked art from numerous people's views (Thomson et al., 2013).

Information and communication technology (ICT) and visual culture are two essential elements of modern life that affect and mould professional and personal identity (Bajardi et al., 2015). Therefore, the medium used to deliver knowledge on the cultural heritage object was transmitted using a digital technology approach, in line with IR 4.0. A popular modern belief is that digital technology is the easiest way of transferring knowledge and delivering information to people (Sedera et al., 2016). According to Adendorff et al. (2018), the 21st century has

been marked by expanding information and knowledge-based economies. Therefore, implementing Cultural and Creative Industries (CCIs) in IR 4.0 can decrease the skill gap while promoting social inclusion, cultural diversity, and human development (Adendorff et al., 2018).

Many factors cause the knowledge gap faced by most perceivers when dealing with ICH art pieces. The correct method of managing this gap will contribute to the richness of the knowledge pool, eliminate unresolved barriers, and contribute to positive aesthetic perceptions. Moreover, ICH is closely related to every culture, as it encapsulates customs, origins, thinking, taboos and legends. Nevertheless, these elements are slowly being forgotten by many due to the lack of understanding, knowledge, and exposure. Therefore, positive aesthetic perceptions form the foundation of an effective way of preserving ICH, using digital technology as the medium to channel information. With the help of the cultural tourism sector, the ICH of all communities can be preserved.

CONCLUSION

This concept paper outlined the pattern of recent studies on safeguarding multiple forms of ICH from various global angles and significant cultural heritage objects. Researchers have attempted to find the optimal and most effective formula to implement the approach. Moreover, this safeguard method can ultimately maximise the benefit for future generations. However, the most critical issue is the correct aesthetic perceptions that must be transferred to the perceivers to ensure that ICH endures long-term. Hence, the authentication of ICH would bridge the gaps in perceivers' art knowledge, safeguarding this form of intangible heritage in the IR 4.0 and contribute to the existing knowledge pool. Furthermore, it is believed that the justification of every perception varies, and it is either a pleasant or unpleasant feeling depending on the perceiver's art knowledge. Therefore, possessing accurate ICH knowledge can eliminate the knowledge gap concerning the art piece. In other words, everyone will perceivably have the same thoughts, opinions and aesthetic perceptions when assessing a tangible cultural heritage product.

Safeguarding the tangible and ICH is not one person's mission but must involve collaboration between multiple organisations, stakeholders, and governments. Therefore, cooperation between communities and the tourism and heritage sectors is required to preserve ICH worldwide. Moreover, science and technology mapped the way to keep 'unspoken' knowledge using blockchain certificates for copyright protection, preventing the piracy of digital media content. These methods will lead to the global preservation of 'unspoken' knowledge and the intellectual property rights of communities over their cultural heritage. Finally, this issue should be dealt with immediately for the sustainability of traditional human values, ensuring the critical conservation of the various forms of ICH.

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Sarawak Pua Kumbu: Aesthetics Lies in The Eye of The Beholder

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Abstract: The beauty of Pua Kumbu is not merely a cultural expression but it also represents the wealth of information to pass from one generation to another. The art of creating Pua Kumbu design motifs is based on the body of knowledge gathered through collective memory, and the conservation of Pua Kumbu's knowledge and history. The aesthetic perception stimuli from the audiences are complicated cognitive processes. Hence, this study aims to measure the aesthetic perception of 400 participants on design motifs applied on the cloth according to their gender and background using ARS-Revised questionnaire. The findings revealed that female participants exhibited a greater knowledge of Pua Kumbu compared to their male counterparts. Participants from Sarawak perceived higher in cognitive stimulation, knowledge, and self-reference which indicated that they were more likely to be knowledgeable about Pua Kumbu. Participants from Sabah demonstrated the lowest in both cognitive stimulation and expertise despite Sabah being situated in the same region as Sarawak in Borneo. Gender and background of the participants are concluded to exert significant influence on the knowledge in Pua Kumbu design motifs. Knowledge of Pua Kumbu is crucial for the appreciation of aesthetics in preserving the culture and heritage of Sarawak, Malaysia at its best. The findings of this study may interest scholars and researchers in the unique Malaysian heritage.

Keywords: Aesthetic Perception, ARS instrument, Culture, Iban, Pua Kumbu. Survey

1. Introduction

There is a growing body of literature that suggests people are interrelated to owned customs and beliefs, which is compatible with Pua Kumbu and the Iban community. This textile is made by employing the woven weaving technique which uses cotton as the main component. In the past, the weavers were solely women. Thus, the design motifs selection was inspired by women and this made the design motifs sacred due to the fact that the weavers were seen as the chosen one, talented and gifted. It is believed that the humanoid figures or anthropomorphic *(engkaramba)* motifs could be merely weaved by chiefs' wives and daughters. In general work to date, the figure of *engkaramba* is the representation of deities of the Iban animistic belief. It also serves as a talisman to protect the wearer from danger as well as to ensure a bountiful harvest for the season. Besides the anthropomorphic motifs, some other motifs encompassed are the representations of animals, plants and Iban daily activities,

which are either complicated or simplified design motifs. The intangible cultural knowledge of Pua Kumbu is essential, not only for the Iban community but also to others, although it seems difficult to understand the hidden meaning without having the art knowledge on the particular subject.

We present an overview of literature related to the present work. The literature focused on the aesthetic or beauty, which is known as a part of the process of aesthetic perception. The word 'beauty' is defined and perceived differently, which was reported by a German psychologist; Delle Donne, that the perceptions gathered by perceivers can create a distinguished version of aesthetic perception. The existence of beauty does not 'just happen' as there is a cause behind it, which is not merely perceived. The education and culture where we grew up and the changing of time, also contribute to the way we observe beauty; - physical human beauty, or other traits, such as tanned skin or body weight. The beauty of a poem, a song or a painting is influenced by other elements of aesthetic in the objects and how the audience perceives and processes the data (Delle Donne, 2010).

Even though beauty is like an 'everyday' phenomenon to everyone, it is still difficult to define it. However, according to Haubrich, it is possible to explain the definition of beauty if we use a psychological theory. The concept of beauty is deliberately wide and extensive; it covers the sensational feeling of what we like, what we find fascinating, interesting, great, funny or inspiring (Haubrich, 1998). The pleasure feeling, either more or less intense, depends on how we perceive which is aroused by beautiful things around us (Delle Donne, 2010).

There is a relatively recent work in this direction by Schopenhauer, who described empirical perception as 'individual will' which can only be perceived within the inner sensations of the body, which are depending on the tangible or intangible forms, aims, or motives that one wants to achieve and, by having the correct perception, it can accomplish the mission (Vandenabeele, 2007). Schopenhauer's statement can be related to the claim that one's ultimate determination can change everything. It is the power of mind over body (Bibel, 2016). The feeling that arouses from inside is known as reception which is essentially a complicated cognitive process. Verbovsek and colleagues mentioned that the process of perception includes communication processes connecting the arts' consumers, creativity, artists, their artworks and more (Verbovsek, 2015). The aesthetic perception process involves many other essential factors such as cognitive stimulation, negative emotion, expertise, self-reference, artistic quality and positive attraction (Hager et al., 2012).

Aesthetic perception includes the values of the feeling of any visual arts (Bundgaard et al., 2017), which prompts interest when dealing with the arts either the feeling yields beauty, aesthetic interest, pleasure or any sort. The channel of feeling produced by the perception process can also be translated as appreciative judgment, appraisal, or numerous evaluations and are the basis for the beauty of the art appreciation process. An aesthetic perception arises in response to works of art or other visual arts (Hager et al., 2012). Experiences received from the surrounding and the environment could be pleasant or unpleasant, depending on the perceiver's perception. Moreover, a perceiver's perception can change based on the situation that he or she faces at that particular moment.

Before we proceed, it is crucial to briefly review the problems related to Pua Kumbu. The beauty of the intangible cultural heritage of Pua Kumbu is not merely a cultural expression but it represents the wealth of information and abilities to pass this information from one generation to another. Arai stated that the responsibility for protecting and transmitting the values and traditions of all cultures for the sake of future generations is not only one person's task, but it is a universal responsibility (Arai, 2004).

According to Jehom, most of researches related to Pua Kumbu were written in either personal or public blogs, and were seldom written and researched academically. This may be problematic and can cause difficulty in transmitting the art knowledge of Pua Kumbu because it is a tacit, verbally communicated knowledge that can only be learned by observation and demonstration (Jehom, 2015). In addition, the main concern is when the production of the Pua Kumbu design motifs were only based on the body of knowledge gathered through collective memory, the conservation of Pua Kumbu's knowledge and history shared subjectively among the community. Therefore, it is important to conduct this study for safeguarding the values and traditions of Sarawak Iban Pua Kumbu and to eliminate the knowledge barrier for the reference of future generations.

Literally, the perception of beauty is subjective. However, this study evaluates the aesthetic perception by using an established revised instrument namely as Art Reception Survey-Revised (ARS-Revised) (Wahed et al., 2019). This study's aim was to measure the aesthetic perception of the participants on design motifs applied to the Sarawak Iban Pua Kumbu, based on their genders and backgrounds by addressing the following research questions:

1. What are the aesthetic perceptions of the participants about the design motifs applied to Sarawak Iban Pua Kumbu?
2. What are the differences between gender and background of the participants on the five factors of aesthetic perception as measured by ARS-Revised?

2. Methods

The research design that the researcher decided to use was the quantitative descriptive survey research design, particularly a survey research (Ismail & Shafie, 2019). Aesthetic perception of the participants was measured to investigate the source of discrepancy using the Art Reception Survey-Revised (ARS-Revised) version, an improved version of the Art Reception Survey questionnaire by Hager and colleagues (Hager et al., 2012). ARS-Revised has a total of 21 items, measuring 5 factors which encompass cognitive stimulation, expertise, self-reference, artistic quality, and positive. The items were rated using a five-point Likert scale ranging from 1 to 5 (Strongly Disagree – Strongly Agree). The internal consistency of this questionnaire as indicated by the Cronbach's alpha value was reported high ($\alpha = .925$).

A self-administered questionnaire comprising two sections was distributed to 400 participants who were potential buyers of Pua Kumbu in the commercial market and visitors who visited Waterfront Kuching, Sarawak, Tun Jugah Foundation, Sarawak and Sarawak Textile Museum. Every visitor who visited these places had an equal chance to be selected as a participant. Thus, a simple random technique was employed and a total of 400 participants were involved. There were two criteria in the selection of participants which were above 18 years old and capable of understanding the Malay or the English language. These criteria are postulated to ensure that the participants could answer and respond to the survey accurately. The participants were instructed to respond regarding their level of agreement with the statements in the instrument and their participation was voluntary.

3. Data analysis

The data collected were analysed using the Statistical Package for Social Science (SPSS) version 25.0. The normality of the data was assessed with skewness and kurtosis (ranged between -2 and 2) (Joseph Jr et al., 2010). The data were presented in frequencies and percentages, mean, and standard deviation. Inferential statistics were carried out to measure art reception on the design motifs applied on Sarawak Pua Kumbu among participants based on their gender and background. An independent sample t-test was employed to analyse the differences between gender, while one-way analysis of variance (ANOVA) was used to compare the dependent variables between backgrounds. A post-hoc Tukey HSD test was performed to determine if there is a significant difference and the statistical significance was set at .05 ($p < .05$).

4. Results

4.1 Socio-demographic characteristics of participants

A total of N=400 participants have completed the survey. The participants consisted of 178 (44.5%) males and 222 (55.5%) females. They aged between 18 to 21 years old (31.3%), 26 to 30 years old (19.8%) and 31 to 35 years old (14%). Others aged from 36 to 40 years old (12.3%) and 41 years old and older (22.8%) (Table 1). The majority of participants (78.8%) were from Sarawak, and some were from Peninsular Malaysia (12%), Sabah (4.8%) and foreign (4.5%). In relation to the participants' education background, most of them had at least SPM, an O level in Malaysia context (34.5%),

Diploma (23.8%) and Bachelor's degree (11.8%). Few had certificates (8.8%) in Master's degrees (3%) and PhD (1.3%). Others were having diplomas and only school certificates. Most of the participants had monthly income from less than Ringgit Malaysia RM1000 to RM3000 (82%), and few were RM3001 and above (18%).

Table 1. Socio-demographic characteristics of participants

Variable		*N*	%
Gender	Male	178	44.5
	Female	222	55.5
Age (years)	18 to 25	125	31.3
	26 to 30	79	19.8
	31 to 35	56	14.0
	36 to 40	49	12.3
	> 41	91	22.8
Background	Sarawak	315	78.8
	Sabah	19	4.8
	Peninsular Malaysia	48	12.0
	Foreign	18	4.5
Education level	SPM (O level)	138	34.5
	Certificate	35	8.8
	Diploma	95	23.8
	Bachelor's degree	47	11.8
	Master's degree	12	3.0
	PhD degree	5	1.3
	Others	68	17.0
Monthly income (RM)	< 1000	102	25.5
	1001 – 2000	146	36.5
	2001 – 3000	80	20.0
	3001 – 4000	28	7.0
	> 4001	44	11.0

4.2 Comparison of the ARS five factors with participants' gender and backgrounds

Table 2 presents the ARS five factors by participants' gender and backgrounds. In overall score, Positive Attraction was scored the highest (4.27 ± 0.74), and lowest was Expertise (3.19 ± 1.06). In measuring the differences of the five factors between gender, only Expertise was found significantly different ($p < .05$); where male = 3.12 ± 1.01, female = 3.37 ± 1.08, $p = .018$. Other four factors were found not significant ($p > .05$).

Among the participants' backgrounds, Cognitive Stimulation, Self-Reference and Expertise were found significantly different ($p < .05$). Post-hoc Tukey was further performed, where there was a significant difference in Cognitive Stimulation between the Sarawak and Sabah participants, as well as Sabah and Peninsular Malaysia. On the other hand, the participants from Sarawak and Peninsular Malaysia, Sarawak and Sabah and as well as Sabah and Peninsular Malaysia were significantly different in Self-Reference and Expertise.

The backgrounds of the Sarawak participants perceived the highest scores in those three variables. Those visitors from Sabah perceived the lowest in Cognitive Stimulation, while those from Peninsular Malaysia perceived the lowest in both Self-Reference and Expertise. Meanwhile for the other factors, Artistic Quality and Positive Attraction, the means scores were similar in distribution, among the participants from different backgrounds ($p > .05$).

Table 2. Comparison of ARS five factors by gender and background (N=400)

	CS	SR	AQ	PA	Exp
Overall	4.06 ± 0.75	3.26 ± 1.08	4.23 ± 0.75	4.27 ± 0.74	3.26 ± 1.06
Gender					
Male	3.98 ± 0.79	3.15 ± 1.04	4.16 ± 0.70	4.19 ± 0.75	3.12 ± 1.01
Female	4.11 ± 0.72	3.35 ± 1.10	4.29 ± 0.77	4.33 ± 0.73	3.37 ± 1.08
p-value	.090	.065	.077	.072	.018*
Background					
Sarawak	4.12 ± 0.73[¥]	3.44 ± 1.05[¥€]	4.27 ± 0.72	4.30 ± 0.73	3.43± 1.01[¥]
Sabah	3.42 ± 0.82[¥€]	3.07 ± 0.77[€£]	4.04 ± 0.72	4.18 ± 0.69	2.61 ± 0.89[¥€]
Peninsular M.	3.96 ± 0.61[€]	2.23 ± 0.65[¥€£]	4.16 ± 0.77	4.18 ± 0.62	2.43 ± 0.92[¥€£]
Others	3.78 ± 1.07	3.10 ± 1.10	4.00 ± 1.10	4.09 ± 1.19	3.19 ± 1.12[£]
p-value	.001*	.001*	.229	.515	.001*

*significant difference at .05 ($p < .05$),
[¥, €, £] significant difference at .05 between two groups for Post-hoc Tukey HSD test (one-way ANOVA)
CS=Cognitive Stimulation, SR=Self-Reference, AQ=Artistic Quality, PA=Positive Attraction, Exp=Expertise

5. Discussion

Obviously, visual arts affect humans differently, and only great art consists of both beauty and alluring content (Else et al., 2015). No one can claim that his or her preferences of arts are better than others because preferences depend on the beholder. In order to achieve the objectives of the study, the following discussion was elaborated based on the research questions.

Question 1: *What are the aesthetic perceptions of the participants about the design motifs applied to Sarawak Iban Pua Kumbu?*

Aesthetic perception is a complicated relationship between visual stimuli and individual understanding which is linked to generating opinions, either positive or vice versa, depending on the visual complexity (Xenakis & Arnellos, 2014). Aesthetics can be categorised into two groups. The first group is an individual's sensible qualities toward an object and the second group is that the feeling arose can either be pleasant or unpleasant which involves aesthetic perception and reflective movement (Harries, 2009; Kant, 1987). It is suggested that 'reflective' refers to one's personal experience when dealing with the visual object (Harries, 2009).

Participants perceived the highest in a positive attraction which indicated that Pua Kumbu does attract an audience. This is reasonable with the unique design of this cultural art, which was exhibited or sold in the targeted areas. However, the participants revealed mixed feelings when they were asked in an open-ended manner on their feelings regarding Pua Kumbu. The question asked was, *"What do you feel about the Pua Kumbu?"*. To some of them, this textile was appealing and beautiful due to the colour and the uniqueness of the design motifs applied. Furthermore, not to mention their excitement of being able to purchase the Pua Kumbu. However, several participants did not want to touch the textile, as they were fearful of something they were not aware of. They perceived that the design motifs applied on the Pua Kumbu were frightening and unpleasant. This finding was interesting because, despite the fact that the participants were attracted to Pua Kumbu, they had personal judgement towards it, which they might perceive as a spiritual material (Magiman et al., 2018). It can be debated that human feelings are subjective to personal feelings toward the object which include their past experience and knowledge acquisition. The cognitive dynamic of human beings is generated by seeing beautiful and valuable objects that are capable of implanting aesthetic values. Beauty is not from the property of an object but is gathered from the feelings created by multiple cognitive areas which are known as *'imagination and reason'* (Kant, 1987). The pleasant or unpleasant feeling produced relies on how the sensory processes the information (Kant, 2000).

The expertise factor has demonstrated the least agreement among the participants. This could be explained by the lack of knowledge among the participants, especially on the making of Pua Kumbu,

in terms of its weaving, technique, and the history. This is supported by a study on painting artwork (Pietras & Czernecka, 2018), where those with prior knowledge on artwork would influence their aesthetic perception. Aesthetic perception is a function of the perceiver's processing dynamics: the more fluent the perceiver processes an image, the more positive their aesthetic response will be (Sun et al., 2014). Therefore, it can be expected that fluency of the perceiver (participants) in processing the information regarding Pua Kumbu depends on the perceivers' art knowledge (Hager et al., 2012). The interrelation between knowledge and perception significantly impacts the perceiver aesthetic interest, in a way,where it could either develop a positive or the negative aesthetic perception.

Question 2: What are the differences between gender and background of the participants and five factors of aesthetic perception as measured by ARS-Revised?

In relation to Question number two as described above, the findings showed that gender influences aesthetic perception on skill or knowledge in Pua Kumbu as addressed in this study, the expertise factor. The female participants exhibited a higher knowledge of Pua Kumbu compared to the male participants. The present finding of this study was supported by Bloomfield (2015) which stipulated that gender plays an important role in aesthetic perception. Female participants were more likely to have art knowledge or possess some skills in handcraft, sewing or weaving. Thus, they have more detailed perceptions toward the art of the design motifs on Pua Kumbu than their male counterparts. Furthermore, female participants who possess knowledge on the Pua Kumbu, are presumably interested in the details of the textile production, situating the socio-cultural context of their interpretation (Housen, 2001).

The background of the participants had influenced their cognitive stimulation, skill or knowledge, and self-reference in the design motifs of Pua Kumbu. Those who were from Sarawak perceived higher in these three variables which indicated that they were more likely to have some art knowledge and could link information about Pua Kumbu to their personal experience. This is relevant since the Sarawakians are the ones who have produced this cloth, and it is very significant among them. Previous studies had supported that for those with art knowledge, their aesthetic perception is related to knowledgeable connoisseurship (Meecham & Sheldon, 2005; Scruton, 2011), although beauty appraisal is not solely about beauty. Nevertheless, for other scholars, beauty is described as the understanding of the 'underlying process' of the aesthetic perception (Kirk et al., 2009; Leder & Nadal, 2014). The underlying process of the aesthetics perception is interrelated with science where the process is defined as *'neuroaesthetics'* (Cela-Conde et al., 2011; Chatterjee, 2003, 2014; Cupchik et al., 2009; Leder et al., 2004; Skov et al., 2018).

On the other hand, participants from Sabah revealed the lowest perception in both cognitive stimulation and expertise. This is an interesting finding since Sabah is situated in the same region as Sarawak; Borneo. They depicted that their knowledge or skill in the field of Pua Kumbu design motif was insufficient. The design motifs of Pua Kumbu were found to be 'not well' understood by the young Iban generation (Magiman, 2012; Magiman et al., 2018). Thus, it is acceptable if the Sabah participants were not well-informed about Pua Kumbu, specifically the design motifs. Naïve perceivers would concentrate more on what is depicted rather than how the design motif on Pua Kumbu was done; it comes as no surprise that they were positively attracted to this textile. This is supported by Leder et al. (2006), where those with no art exposure would appreciate the abstract art when there was information about the piece is given to guide their interpretation (Leder et al., 2004). The participants who were categorised as 'others' were from other countries, which were mostly European countries and Australia. In comparing the skill or knowledge, they revealed a significant greater mean score than those from Peninsular Malaysia. Tourists, who came to visit Kuching, Sarawak were exposed to some knowledge or information on the tangible and intangible culture of the state. The reason they travelled to the state was because of the culture and prior information on the interesting attractions; culture and history. Thus, they were more likely to exhibit greater knowledge of Pua Kumbu. Meanwhile, Peninsular Malaysia's participants showed the lowest self-reference. Self-reference refers to one's tendency to remember information when the information has been linked to him or her (Hager et al., 2012). In this study, these participants were less likely to relate themselves to the design motifs of Pua Kumbu. This can be attributed to the fact that Peninsular Malaysia is located in another region of Malaysia. They also

practise different cultures compared to those from Sabah and Sarawak, which justified the least relation of self-reference to the design motifs of Pua Kumbu.

6. Implication to education

The intangible cultural heritage was acknowledged as the main source of cultural diversity, with its primordial idea was to safeguard cultural diversity globally (Aikawa, 2004), and sculpting the way towards the Fourth Industrial Revolution (Bandelli, 2018). The integration of art and technology is building a pathway of bridging the gap of the cultural heritage to more current and dynamical approaches.

In this study, the intangible cultural heritage of Sarawak Iban Pua Kumbu is the primary focus, thus it is crucial to safeguard the art knowledge on the subject matter so that the appreciation on the aesthetic would be in 'good hand'. According to Adendorff et al. (2018), the 21st century was marked by the expansion of information and knowledge-based economies. Therefore, the implementation of Cultural and Creative Industries (CCIs) in the Fourth Industrial Revolution can decrease the skills gap, promoting social inclusion, cultural diversity and human development (Adendorff, 2018).

It is revealed that those with exposure to the art would have a greater perception of aesthetics on Pua Kumbu. Knowledge of Pua Kumbu should be shared with the younger generations so that the appreciation towards this textile would not disappear with time. It is believed, by exposing the art knowledge with digitalized and technological approach, its blurring the gap of Pua Kumbu and the art knowledge. In the current trends, it is exposed that the digital technology approach is taking place with the integration of the arts into education in Science, Technology, Engineering and Maths (STEM) (Bandelli, 2018) and more innovative educations for the effective learning environment (Ho, 2020).

As stated in UNESCO Human Development Report 2004, "cultural diversity has its own value as it enhances consumer choice and enriches cultural experience" (UNESCO, 2004). This statement highlights that even we are imminently heading towards the modernized world, but our roots in the intangible culture and heritage are what we carry together towards the end. It was believed the intangible cultural heritage was an important element in defining and forming people's identities and communities, which led to the major key of contributing to the globalization processes (D'orville, 2004), as humanity became the central element of safeguarding the cultural heritage (Wulff, 2004). Thus the effective way of preserving this heritage is required as to ensure the culture will last and be accepted globally.

In addition, it is recommended that the textile industry should strive to deliver art knowledge on the design motif, apart from producing Pua Kumbu. Its hidden meaning should be disclosed and shared, so that this art piece would be more appreciated, especially among non-Sarawakians. Future studies should explore more on the aesthetic perception in a qualitative manner, especially the weavers who are directly involved in the making of Pua Kumbu. Parallel to the 2020 innovative thinking or 'creativity capital', this will become the third major skill needed to survive and succeed in the Fourth Industrial Revolution (Adendorff, 2018). This effort would further contribute to art knowledge, which is an important highlight of this study.

7. Conclusion

In conclusion, the research questions were answered exclusively based on the results and findings of the study. The aesthetic perceptions were received in a similar fashion based on gender, except for the expertise, which is related to skill or knowledge on the subject matter. Females, who exhibited more interest in creative art, observed a greater expertise perception on the Pua Kumbu design motifs. The male aggressiveness and the female femininity in nature (Bloomfield, 2015) have influenced this finding. In other words, the judgments and views of aesthetics lies in the eyes of the beholders. It is suggested that between male and female participants were affirmatively dissimilar in those skills or knowledge. On the other hand, those who were from Sarawak revealed the highest scores in cognitive stimulation, self-reference, and expertise on the Pua Kumbu design motifs, with artistic quality and positive attractive observing a similar distribution regardless of the perceivers' background.

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Systematic Literature Review of Art Reception Survey (ARS) on Aesthetic Perception Studies And Future Research Directions

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Abstract
Aesthetic studies are engaged with various visual stimuli connected to human senses, which project different perceptions based on one's aesthetic experiences. The right output of the process is a 'symptom' of 'delighted' art which creates positive experiences in measuring a 'good taste' of art. This paper's aim was to review the ARS instrument on different domains of aesthetic studies namely textile, art writing, painting, figurative, abstract painting, representational art and film. The analyses comprised seven adaptations of the Art Reception Survey, indicating the properly designed instrument suited for the screening purposes. The findings demonstrated the influential factors of aesthetics including prior knowledge, art knowledge, familiarity and art connection. The findings also suggested the basis of the instrument adaptation in aesthetic studies, combined with the construction of the understanding between the trained and untrained perceivers.
Keywords: Aesthetic, Art Perception, ARS Instrument, SLR, Visual Art.

Introduction

Aesthetic perception involves the values of the feeling towards any visual arts (Bundgaard et al., 2017) which prompts interest when dealing with the arts. The feeling can either yield beauty, aesthetic interest, or any sort of pleasure. The channel of feeling produced by the perception process can also be translated as appreciative judgment, appraisal, or numerous evaluations and are the basis for the beauty of the art appreciation process.

The aesthetic emergence of human feelings is associated with the process of perception (Scherer, 2020), and when the stimulus is assessed as something that can be

understood, it becomes human's interest (Silvia, 2005). Meanwhile, human understanding and sensitivity lead to positive perception (Fayn et al., 2018), and by having the right knowledge of a particular subject, one's interest and curiosity can be explored as well as nurtured. It is believed that the aesthetic process happens naturally, as a response to the visual arts, not pre-existed (Xenakis & Arnellos, 2014).

The mechanisms applied to measuring the aesthetic perception are inter-related with various theories of instrumentation. Art practitioners and researchers have always been intrigued by the studies of aesthetics in various art fields. The growing curiosity has resulted in the establishments of numerous instruments, employed to measure the aesthetic perception and evaluate of the work of art. In regards to the insufficient valid instruments for the assessment of cognitive-affective reactions to aesthetic stimuli (Leder et al., 2004), the Art Reception Survey (Hager et al., 2012) has been customised with the intention of improve the selection of the items. Other than that, the instrument was developed as a response to the limitation of the previous aesthetic experience instrument, Assessment of Aesthetic Perception (SAAP) (Rowold, 2008) and Perception Evaluation instrument (Hagtvedt et al., 2008).

The Art Reception Survey (ARS) instrument was first introduced to measure paintings tallying to six factors; Cognitive stimulation, Negative emotionality, Expertise, Self-reference, Artistic quality and Positive attraction, with a total of 28 items (Hager et al., 2012). It is obvious that every factor appeared in the ARS represents the diversity of measures required for detailed analysing performed by each of the perceivers. In the ARS instrument, cognitive stimulation is the first factor to be measured, implying the reliance of the ability to process cognitive mastering on a person's knowledge. The second factor, negative emotionality or negative emotion or negative effect refers to the experience of receiving negative emotions. The third factor demonstrates the connection of expertise to the level of skills, or knowledge possessed by the perceiver in the context of visual arts. The fourth factor deliberates self-reference as a reference to the individual's tendency to remember or recall information, when information pertaining to visual art is linked to him or her. The artistic quality measures the understanding of originality and technical skills, as well as the last or fifth factor, positive attraction (Hager et al., 2012).

The study's aim is to review the instrument of Art Reception Survey (ARS) in every domain of aesthetic studies. The aim is aligned accordingly with the research question that ponders, "Which of the aesthetic studies employs the Art Reception Survey?". The prior section has enlightened the rationale of performing the systematic review, meanwhile the following section describes the methodology and the PRISMA (Preferred Reporting Item Systematic Reviews and Meta-Analysis) approach adopted by this study. The third section systematically reviews and synthesises the scientific literatures for the purpose of identifying, selecting and appraising relevant researches regarding the aesthetic perception studies. The last section recommends the areas of future research undertakings.

Methodology

Prisma

The review was guided by the PRISMA Statement (Preferred Reporting Items Systematic reviews and Meta-Analysis) (Moher et al., 2009).

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Resources

The review was formed based on information collection retrieved from Scopus and Dimensions, as the main journal databases in this study. Scopus is a robust database that offers numerous kinds of literature in different fields of studies. In this study, the data extracted using the related keywords were detected to be more than one thousand peer-review literature. Both databases provided wide-ranging subject areas such as social sciences, psychology and arts, and humanities, in addition to accommodating more than 22,800 journals from more than 5000 publishers.

Eligibility and Exclusion Criteria

The eligibility and exclusion criterion were determined prior to achieving the principles of the systematic literature review. Initially, the scope of the literature only included journals article, conference proceedings and published theses, while excluding review articles, book series, books and book chapters. Not to mention, the review focused on the articles published in English, implying the exclusion of the articles produced in other foreign languages, in the attempt to avoid misunderstanding in the article translations. Thirdly, the review underwent a four-year period, from 2016 to 2020 which was deemed an adequate length of time (5 years) to examine the evolution of researches and publications. In line with the aim of this study which was to examine the Art Reception Survey (ARS), the review process was grounded to only articles indexed in the social science-based index. Finally, the articles revolving around the aesthetic studies and the ARS instrument were chosen in the interest of being parallel with the objective.

Systematic Review Process

There were four stages involved in the systematic review process which was performed in May 2020. The first phase was executed by identifying the keywords used in the search process. The search depended on the previous studies and thesaurus where keywords similar to art reception surveys such as 'ARS', 'ARS instrument' were combined with the words related to 'aesthetic', 'aesthetics' and 'aesthetic art' to search string/query string. The result listed 7,540 documents retrieved from the Scopus database within 0.18 seconds of the recorded time. A similar search string was used in the Dimensions database and managed to regain 109,622,324 documents.

The second stage was then executed by screening the Scopus and Dimensions databases which reduced to only 23 documents, and seven articles eligible for reviewing process respectively. The remaining articles were removed because the standard of the documents clashed with the objective of the study. Not to mention, the requirement for the next stage was limited to articles published in English within the areas of social sciences, arts and humanities and psychology. In the attempt to maximise the screening procedure, the review also omitted the article journal type. The third stage involved eligibility and was conducted by assessing the full articles, of which the careful assessment narrowed down seven articles from Scopus and one article from Dimensions databases for the examination. At this stage of thorough screening, sic duplicated articles, six articles in foreign languages and eight inaccessible articles were removed from the Scopus database. Further reading was conducted on the articles gathered from the Dimensions database which resulted in the removal of one duplicate article, one unrelated topic and two articles in foreign language.

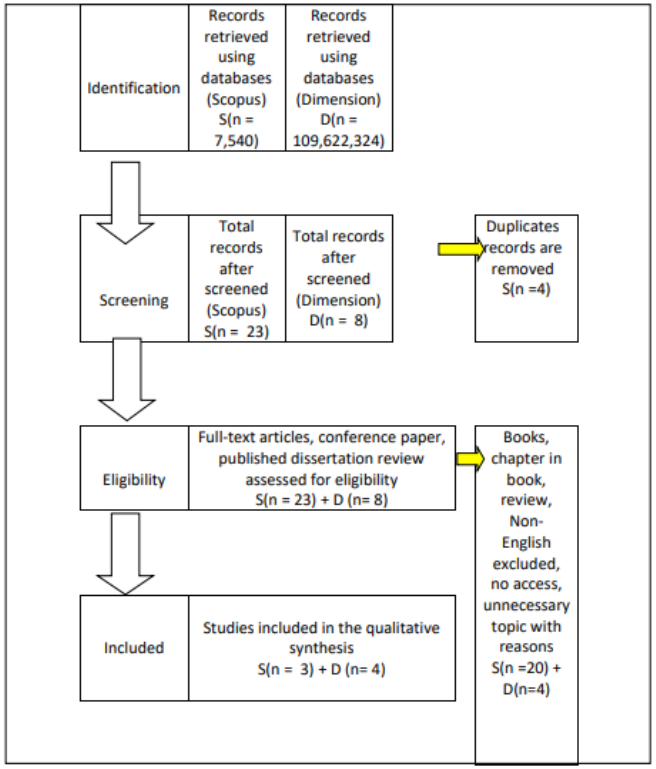


Fig. 1 The Flow Diagram of the Systematic Review

Result

Study Characteristics

The review which was extended to seven studies, comprised 1825 multiple respondents of both genders, male and female. As illustrated in Table 4, all of the articles published from 2016 to 2020 were of peer-reviewed journals. The studies were administered in different countries other than Malaysia (Wahed et al., 2020), which were United States (Quiroga, 2020), Germany (Miller & Hübner, 2019; Pirgie, 2016), Poland (Pietras & Czernecka,

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2018), Canada (Wang, 2018), and the Netherlands (Doicaru, 2016). Five of the studies targeted students as the main populations (Doicaru, 2016; Miller & Hübner, 2019; Pietras & Czernecka, 2018; Pirgie, 2016; Quiroga, 2020), while the other two studies recruited the visitors from the commercial markets and museums (Wahed et al., 2020), along with the online recruitment (Pietras & Czernecka, 2018). However, there was one study engaged in multiple populations involving university students, online users and the attendees of the International Film Festival in Rotterdam (Doicaru, 2016).

Domains

In the anticipation of achieving the study's objective, multiple domains were employed and aligned with the suggestion of Hager et. al (2012), that the ARS instrument is beneficial in the various fields of aesthetic research. The review uncovered that various domains have applied the ARS instrument such as textile (Wahed et al., 2020), art writing (Quiroga, 2020), painting (Miller & Hübner, 2019; Pietras & Czernecka, 2018; Wang, 2018), film (Doicaru, 2016), figurative (Pietras & Czernecka, 2018) and abstract art in museums (Pirgie, 2016).

Instruments

All studies adopted the Art Reception Survey (ARS) instrument with improvised versions in order to answer the objectives of the studies. The study undertaken by Wahed et.al (2020) employed the ARS instrument with 21 items, while one factor was removed; Negative emotionality, 15 items with combination manifold ARS factors (Quiroga, 2020), three items measuring three different factors of Positive Attraction ("this painting is beautiful"), Cognitive Stimulation ("this painting is thought-provoking"), and Negative emotionality ("This painting causes emotions") (Miller & Hübner, 2019). Moreover, the study implemented 20 items of the ARS instrument with five significant factors and omitted Cognitive stimulation. the(Pietras & Czernecka, 2018). The other three studies modified the overall ARS instrument with six factors and 28 items (Doicaru, 2016; Pirgie, 2016; Wang, 2018).

Table 1. Data Extraction Table of Included Studies

Domain	Objective	Main Findings
Textile	Measuring the aesthetic perceptions about the design motifs applied on the cloth, among 400 respondents according to their genders and backgrounds.	-The expertise factor exhibited a significant difference in the gender and background of respondents. -Self-reference and Cognitive Stimulation exhibited significant differences in the respondents' background.
Art writing on fine art	-Exploring how writing on arts leads to explanatory depth and affects aesthetic appreciation. -Exploring the perceptions toward the fine arts with how important people believe the arts to be.	-The finding shows that engagement in a writing task increased perception of the fine arts. - The fine arts are difficult to define and measure in psychological research mainly due to different cultural views and lack of a definition that is collectively agreed upon in society.
Painting	Investigating to what extent lay people can infer the aesthetic preferences of others.	- The finding shows that laypeople rely more on their affective states when judging aesthetic stimuli compared with art experts.
Figurative, abstract and contemporary painting	Investigating the predictors of aesthetic experiences across figurative, abstract and contemporary paintings in individuals with varying expertise.	- Students with art - experience (Art students) influenced art reception. - Art students perceived aesthetics greater compare to other two groups.
Abstract painting and Representational art	Assessing the familiarity of the self -relevant with the selected painting, and not on a comparison of aesthetic appreciation of paintings.	The survey acted as screening purposes for this study, and, the other factors in ARS are not discussed.
Abstract art	Investigate possible differences in the perception of genuine and original artworks compared to reproductions and non-artworks.	- No significant difference could be observed between the original and reproduced. - Original artworks were judged as significantly more interesting than computer images -Negative emotionality was rated as the least in the original art condition
Film	Developing an instrument to measuring the aesthetic appreciation of film, The Scale of Aesthetic Appreciation of Film (SAAF).	The used of the ARS in this study is to permitted the researcher in developing an instrument to measure the aesthetic appreciation of film.

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Main Findings

In reiteration, the Art Reception Survey (ARS) instrument has been positively remodelled to be equivalent to the domain's congruency; Textile, with the deletion of the Negative Emotionality factor. The Art Reception Survey–Revised (ARS-Revised) (Wahed et al., 2020) was distributed to 400 respondents who visited the Waterfront Kuching, Tun Jugah Foundation and Sarawak Textile Museum located in the Borneo part of Malaysia, Sarawak. The study disclosed interesting findings in regards to the Expertise, Self-reference and Cognitive Stimulation factors which exhibited a significant difference in the genders and backgrounds of the respondents. The art knowledge of the Sarawak respondents about the domain of the study, 'textile', or specifically the intangible cultural heritage of Sarawak Iban Pua Kumbu, was higher in Cognitive Stimulation, indicating the commendable awareness possessed by the Sarawak respondents, who seemed to be more familiar with the textile compared to other races in Malaysia. Aside from that, the study also revealed a significant influence of art knowledge on the genders and backgrounds of the respondents in appreciating aesthetic at its best (Wahed et al., 2020).

The comparable findings in were then discovered, highlighting the significance of the prior art knowledge in aesthetic studies (Pietras & Czernecka, 2018). The study was conducted on 181 Polish students (N-181) who enrolled in various programmes; Sport, Humanities and the Arts programmes from the Pedagogical University of Cracow as well as the University of Physical Education in Cracow, Poland. The Art Reception Survey (ARS) instrument (Hager et al., 2012) was modified through the employment of only 20 items instead of 28 items from the original version in measuring the students' aesthetic experiences across figurative, abstract and contemporary paintings. The findings revealed that the Art students grasped clearer understanding of the aesthetic, as opposed to other non-art groups; Sports and Humanities.

Next, Miller et al. (2019) distributed the ARS instrument which consisted of only three items measuring three different factors of the Art Reception Survey, namely Positive Attraction ("This painting is beautiful"), Cognitive Stimulation ("This painting is thought-provoking"), and Negative emotionality ("This painting causes emotions"), to 40 students of University of Konstanz (N=40) using the online form study design. The study focused on understanding the aesthetic preferences towards the domain subject; painting among the untrained and lay-people. The result suggested the art experts were able to form aesthetic perceptions better than lay-people, depending on their affective states (Miller & Hübner, 2019). Knowingly, the way humans appreciate something is different from one another, as it is usually based on how they see and react towards the subject. Silvia (2005) agreed that people display different emotional appraisals towards art and it makes visual art interesting. Therefore, the distinction between untrained and trained viewers creates a gap in evaluating and criticising a work of art, which also depends on the level of art appreciation possessed by a person (Silvia, 2005).

Quiroga (2020) improvised the ARS instrument by assessing the implication of fine arts writing towards aesthetic perception. Using the convenient sampling technique, the undergraduate students recruited from Texas Woman's University in North Texas were selected as the population of this study (N=397). A total of 15 items was administered and the result detected an increase in the respondents' art perception towards fine arts through the engagement of the writing task. The relation between fine arts in measuring the respondents' psychological being seemed difficult due to the confined cultural perspective

and insufficient collective agreement regarding the art definition among society (Quiroga, 2020).

Meanwhile, another study demonstrated a different idea of implementing the ARS which was through familiarisation with the self-relevance of the painting (Wang, 2018). The author adopted the ARS instrument with the exact total of six factors and 28 items without removing any of it. Using a simple random sampling technique, the survey was distributed online on the MTurk website to 360 respondents (N=360). The use of ARS in the study acted as a screening purpose, which focused only on two factors in the questionnaire; self-reference and expertise without further elaboration on the other factors (Wang, 2018). Another study by Pirgie (2016) generated an idea of re-creating the museum in exploring the perceivers' art perceptions of the genuine and original artworks compared to reproductions and non-artworks. The abstract art in the museum was selected as the domain of the study with a population of 91 students of the University of Vienna (N=91). Using the convenient sampling technique, the Art Reception Survey (ARS) instrument was distributed to the respondents who were divided into three groups; Original Art (n = 30), the Reproduction (n = 31) and the Non-Art (n = 30). A total of 28 items of the ARS with six factors was employed in the study. The ARS instrument displayed a significantly reliable method to measure respondents' connectedness with an artist, and by extension, an artwork. The findings suggested that the original artwork was more pleasing rather than slides or computer images, and the Negative emotionality factor was rated the lowest in the original art (Pirgie, 2016).

Furthermore, Doicaru (2016)'s study identified that Art Reception Survey (ARS) was used in developing a new instrument of measuring the aesthetic appreciation of film; Scale of Aesthetic Appreciation of Film (SAAF). A total of 322 students from the University of Amsterdam, nine from an experimental film at the Eye Film Institute in Amsterdam, 18 Facebook 'arthouses' and seven from the International Film Festival in Rotterdam were selected as the respondents through a random sampling technique (N=356). One-way repeated measure design was used in this experimental study. The original of 28 items of the Art Reception Survey (ARS) instrument with six factors were utilised in the study, with the addition of two more items inserted by the researcher. The literal reproduction from the ARS instrument was the change of the word "painting" to "film".

Overall, the findings suggested that there is a demand for studies on assessing the aesthetic of visual arts by using the ARS instrument, with the addition of the fluency of aesthetic perception and experiences.

Discussions

The Art Reception Survey (ARS) is widely applicable in any domain of aesthetic studies. It has been proven by the systematic literature review conducted in this study which was represented by a variety of domains in aesthetic studies. Nonetheless, some studies implemented the ARS instrument as the initial or screening purpose before proceeding to the new-fangled instruments or studies (Doicaru, 2016; Wang, 2018). The fluency of aesthetic evaluation was incorporated with the factors of confirming the effectiveness of conducting aesthetic studies. Based on the analysis conducted on the literature review, several aspects which encouraged the fluency of the aesthetic process were identified to be prior knowledge (Pietras & Czernecka, 2018; Wahed et al., 2020), art knowledge (Miller & Hübner, 2019; Wahed et al., 2020), the familiarity of the elements applied in the visual arts (Wahed et al., 2020; Wang, 2018) and the connection between art-artist-perceivers (Pirgie, 2016).

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According to Berlyn's study (1970, 1971), the more people have experience or prior knowledge, either directly or indirectly, the more perceptions can be established. Knowing before the subject eases the acquisition and the transfer of the relevant evaluation as well as perception. Besides, the prior knowledge received regarding the historical perspective as well as the artist's life story can increase the understanding of the contextual meaning possessed by every visual art (Cupchik et al., 2009; Nodine et al., 2008). Other factors such as experience (Grüner et al., 2019) and art genuineness (Benjamin & Jennings, 2010) keep the perceiver's aesthetic experience increased and grown, not solely because of the visual arts.

Bourdieu (1979) conducted a study on the aesthetic perception stimuli of the art knowledge among museum visitors to gather their experiences regarding the exhibited visual arts. As an art sociologist, Bourdieu believed that every art carries an unspoken message or code, which could be deciphered and comprehended (Bourdieu, 1979). The author defined this aesthetic activity as "educated taste", which allows the perceivers to have full of 'authority' to feel the art's 'flavour' (Bourdieu, 1979). Relatively, the connection between visual art and art knowledge is vital in performing aesthetic studies.

Furthermore, the adaptation and the familiarisation of the perceivers towards any environment of the culture were discovered to enhance their aesthetic understanding and knowledge (Yang et al., 2019). In other words, if the perceivers lack information regarding the input retrieved, the aesthetic experiences will be distracted, as they are understood differently in different cultures. Zeki (2011) added, the great visual art can distribute its messages and contents to all perceivers without boundaries in every historical time frame. It can be proclaimed that the artist also plays an important role to transfer the message or knowledge to the perceivers efficiently, which can result in the correct form of perception among the perceivers (Zeki, 2011).

Conclusion

In all the studies included here, the participants were mainly students, with a large range of ages, and mostly from the western countries. This prevents a generalisation of these findings on a wider population. Future studies are recommended to conduct a comparison in the fields of aesthetics between foreigners or visitors with the locals. It is believed that comparative studies can broaden the aesthetic evaluation scope thus contribute to new and different, yet interesting findings. In conclusion, this systematic review emphasised that Art Reception Survey (ARS) was appropriate to be used in any aesthetic studies using any category of research design, sampling technique and population. The findings of the ARS instrument in this study helped boost the perceivers' understanding and at the same time, assisted the researcher in categorising the trained and untrained perceivers. It was discernible in this study that trained perceivers had a better assessment of visual art compared to untrained perceivers, who needed more time to understand, evaluate and form opinions due to lack of experience and exposure.

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One Size Doesn't Fit All: Using Factor Analysis to Gather Validity Evidence When Using Art Reception Survey – Revised (Ars-Revised) On Sarawak Iban Pua Kumbu

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One Size Doesn't Fit All: Using Factor Analysis to Gather Validity Evidence When Using Art Reception Survey – Revised (Ars-Revised) On Sarawak Iban Pua Kumbu

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Abstract
This study evaluates the factorial validity of the 21-item of ARS-Revised, which assesses the aesthetic perception of Sarawak Iban *Pua Kumbu* among its potential buyers at Kuching Waterfront and visitors of Sarawak textile museum and Tun Jugah Foundation Kuching, Sarawak, Malaysia by using a simple random sampling (*N*=400). An exploratory factor analysis (principal component analysis, Direct Oblimin rotation) was performed to verify the validity and reliability, indicated a new four-factor structure with the 21-item ARS-Revised with five-point Likert scale from the original six-factor. The four-factor solution explained 69.7% of the total variance. Factor loading of each item reflecting the dimension of the four factors, namely; Knowledge and information and the relation of one have *on Pua Kumbu,* Historical art knowledge, the technical skills in the making and the attraction towards *Pua Kumbu*, Ability to process information depending on one's knowledge (cognitive stimulation) and Positive attraction towards *Pua Kumbu*. The overall Cronbach's alpha was high, α = .925, indicating that the items has a high internal consistency. The result obtained has proven that the ARS-Revised had high reliability and factorial validity with a new four factors. This paper highlights the validated and the functional of ARS-Revised with four-factor of 21-item with slight differences in assessing the aesthetic perception of Sarawak Iban *Pua Kumbu*.

Keywords: Aesthetic Perception, Art, Ars-Revised, Exploratory Factor Analysis, Reliability, Textiles, Validity

Introduction

Aesthetic perception involves the values of the feeling towards any visual arts (Bundgaard et al., 2017) which prompts interest, and formed a complicated relationship between visual stimuli and individual understanding which links to generating opinions, either positive or vice versa (Xenakis & Arnellos, 2014). Some other studies justified that aesthetic perception is not restricted to visual arts but involves a diversity of trans-disciplines of biology, chemistry, physics, mathematics and psychology (Dewey, 2005; Hatch, 2012). Furthermore, studies have agreed that perceptual properties are perceived as more beautiful than others (Berlyne, 1974; Jacobsen & Hofel, 2003; Ramachandran & Hirstein, 1999).

The Sarawak Iban *Pua Kumbu* in Malaysia is one of the top cultural artifacts from the Iban indigenous tribe, and it is a tangible cultural heritage which is protected sacredly by the Iban community, especially the older generation. It is believed, the evaluation of perceptions is an effort to safeguard the Sarawak cultural heritage so it can be transmitted to future generations thus preserving cultural diversity. The complexity of symbols represented in the design motifs that are applied to the *Pua Kumbu* contributes to the interest, especially among the young generation in understanding the meaning of these motifs (Magiman et al., 2018). Most of the applied design motifs are created with different levels of difficulties, related to the perceivers' aesthetics perceptions that may influence their decision-making in buying the *Pua Kumbu*. As in the *Pua Kumbu* situation, the correct information is required to correct the perception of others outside of the Iban community about the motifs with the hope that it will retain the culture motifs (Magiman et al., 2018).

The *"one size doesn't fit all"* metaphor was inspired from the *"one size fit all"* which is initially used in the clothing world, designed to fit people of a wide range of size. As this is to the original version of a metaphor, the acronym definition is best to describe the Art Reception Survey (ARS) (Hager et al., 2012) with original of 6 factors and 28 items in the questionnaire was revised accordingly to fit in many form of art domains such as painting, textile, art writing, abstract art and figurative art. In this study, the revised version of ARS-Revised questionnaire were introduced by Wahed et al (2019) with 21-items of five factors which is suitable to be applied in the study of Pua Kumbu.

The ARS-Revised of 21-item (Wahed et al., 2019) was used in this study to measure the participants' aesthetic perception of Sarawak Iban *Pua Kumbu*. The ARS-Revised was the revised version of the original version of the ARS of 28-item (Hager et al., 2012). The ARS credibility on assessing the aesthetic studies is unquestionable with involved of many other aesthetic domains such as art writing (Quiroga, 2020), painting (Miller & Hubner, 2019; Pietras & Czernecka, 2018; Wang, 2018), film (Doicaru, 2016), figurative arts (Pietras & Czernecka, 2018) and abstract art in a museum (Pirgie, 2016). However, there was no study has been conducted to assess aesthetic perception by using the ARS on textile art, except a study by Wahed et al (2019). Therefore, the ARS was revised to a shortened version from 28-item of six factors to 21-item of five factors. This shorter version was derived after the removal of low item-scale correlation of two items from Positive Attraction and Expertise. One factor of five items, which was the Negative Emotion was excluded after considering its content validity besides the low intraclass correlation. It was strongly disagreed to have negative emotions towards the *Pua Kumbu*. Therefore, this factor was unnecessary for measuring the aesthetic experience towards the textile.

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To further validate the ARS-Revised in assessing the aesthetic experience on *Pua Kumbu*, the factor analysis was performed. Factor analysis is a technique for arranging, defining, and reducing large items from the questionnaire to other constructs under one dependent variable in a study sample (Chua, 2009). One of the factor analysis technique, the Exploratory factor analysis (EFA) was generated. The EFA tries to uncover complex patterns by exploring the dataset and testing predictions (Child, 2006). In this study, the items of ARS-Revised was explored to validate the inventory. The oblique rotation, Direct Oblimin was performed for a better interpretation of the factors retain in the EFA. A rotation method minimized the number of variables that have high loadings on each factor (Yong & Pearce, 2013).

Thus, this study aimed to evaluate the 21-item ARS-Revised factorial structure, construct validity and reliability analysis in assessing the aesthetic perception of Sarawak Iban Pua Kumbu among its potential buyers and perceivers.

Methods

Participants

The sample consisted of 400 participants who were potential buyers of *Pua Kumbu* at the sampling frame selected; Kuching Waterfront, and those who visit the Sarawak textile museum and Tun Jugah Foundation, Kuching, Sarawak, Malaysia. The participants were recruited by following a simple random sampling, which means they were selected in a random manner. This sampling technique was chosen as it removes bias from the selection procedure and would result in a representative sample (Proctor, 2005), thus, the homogeneity of the participants was guaranteed. The sample size was *N*=400, which is sufficient when solutions show several high loading marker variables (> .80), as suggested by (Tabachnick & Fidel, 2001). A sample size of 150 is the minimum number to ensure the analysis of the data is sufficient. Therefore, the sample size of this study is reasonable.

There were 178 (44.5%) males and 222 (55.5%) females. They aged between 18 to 21 years old (31.3%), 26 to 30 years old (19.8%) and 31 to 35 years old (14%). Others aged from 36 to 40 years old (12.3%) and 41 years old and older (22.8%). The majority of participants (78.8%) were from Sarawak, and some were from Peninsular Malaysia (12%), Sabah (4.8%), and foreign (4.5%). For the education level, most of them had at least A-Level (34.5%), Diploma (23.8%) and Bachelor's Degree (11.8%). Few had a certificate (8.8%), Master's Degree (3%) and PhD (1.3%). Others were (17%). Most of the participants had a monthly income from less than Ringgit Malaysia RM1000 to RM3000 (82%), and few were RM3001 and above (18%).

Procedure

The ARS-Revised was administered to visitors who were amongst the potential buyers of *Pua Kumbu* at Kuching Waterfront and visitors at the Sarawak textile museum and Tun Jugah Foundation Kuching, Sarawak, Malaysia. The data collection was conducted from May 2019 until July 2019.

Measures

The ARS-Revised (Wahed et al., 2019) is a 21-item tool adapted from the original version of 28-item of ARS (Hager et al., 2012) to assess the aesthetic perception of *Pua Kumbu's* design motif. It consists of five factors measuring cognitive stimulation, expertise, self-reference, artistic quality and positive attraction. A 5-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – strongly agree, 5 – strongly agree) is used. Mean scores were obtained by dividing the summed score to the number of items of each factor. The mean score of each factor was ranging from 1 to 5.

Statistical analysis

The underlying structure of the ARS-Revised was explored using EFA. The EFA was performed after confirming that the data was suitable for factor analysis. Principal components analysis (PCA) was used to extract the factors followed by the Direct Oblimin rotation of factors. This rotational approach was chosen with the assumption of there are correlations between the factors studied. The number of factors to be retained was guided by two decision rules: Kaiser's criterion (eigenvalue above 1), and inspection of the scree plot (Pallant & Manual, 2010; Yong & Pearce, 2013). To confirm all factors extracted are reliable, the communality value for each item must be above 0.3 (Tabachnick et al., 2007). Rotation component matrix reporting the factor loadings exceeding 0.3 were included in the analysis. Any item loading value less than 0.3 must be excluded from this analysis.

Construct validity was assessed by using correlation analysis. Pearson correlation coefficients was performed, where r = .00 to.30 is negligible, > .30 to.50 is low, > .50 to.70 is moderate, > .70 to.90 is high and > .90 to 1.00 is very high (Cohen et al., 2003). A high correlation indicates a good construct validity.

The reliability of the overall ARS-Revised and five factors was assessed using Cronbach alpha coefficients. Cronbach's alpha (α >.80 good fit and > .70 acceptable fit) was used to measure internal reliability (Lance, 2006). The reliability analysis was conducted in each of the factors to ensure all items consistently reflect the construct measured (Hair, 2010).

Descriptive statistics of each factor were presented in mean and standard deviation (M (SD)).

Results

Exploratory factor analysis

The sample data was tested for suitability for factor analysis. The Barlett Sphericity Test was significant (χ^2 = 6193.24, p < 0.05), supporting the factorability of the correlation matrix and the Kaiser-Meyer-Olkin (KMO) sampling adequacy measure was .908, supported the matrix factorability (Izquierdo Alfaro et al., 2014). The PCA revealed four eigenvalues exceeding 1, explaining 41.23%, 16.17%, 7.34%, and 5% respectively (total 69.7%). The inspection of the scree plot also supported a four-factor solution (Figure 1).

Table 1 illustrates the factor loading of the rotation component matrix by using Direct Oblimin rotation. The component matrix details the factor loading onto factors 1, 2, 3 and 4 before the rotation. Following the PCA with Direct Oblimin rotation, the items loaded to different factors. Inspection of the pattern matrix showed are relatively clear four-factor solution in contrast with Wahed et al., (2019) where there were five-factor. For Factor 1, artistic quality items; AQ1, AQ2, and AQ3, positive attraction items; P1 and P2 and one item of expertise, E1 were loaded. Thus, this factor represents historical art knowledge on *Pua Kumbu*, the technical skills in the making, and the attraction towards it. Factor 2 related to items from expertise (E2, E3 and E4) and self-reference (SR1, SR2 and SR3). These expertise and self-reference items loaded strongly to factor 2. Therefore, this factor represents knowledge and information one has when *Pua Kumbu* linked to him or her.

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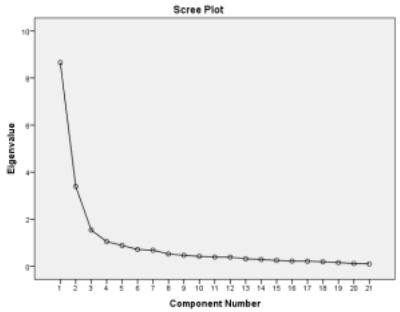


Figure 1: The scree plot for ARS-Revised 21-item

Factor 3 relates to all items in cognitive stimulation, which means this factor represents the ability to process information depending on one's knowledge. Factor 4 relates to all items in positive attraction (P1, P2, P3 and P4) and one item of artistic quality, AQ4. P1 and P2 cross-load to factor 3 and factor 4 with strong loading; .351 and .408 respectively. However, the loadings were higher in factor 4. Therefore, factor 4 represents a positive attraction to *Pua Kumbu*. Analysis of the rotation component matrix indicated a strong loading of items into factors, including those items which cross-loaded to another factor.

Based on the rotated component matrix results, Factor 1 is artistic quality in terms of technical skill with some knowledge on the historical art and feelings of admiring the beauty and look of the subject matter, Factor 2 relates to skill and knowledge with self-reference, Factor 3 maintain cognitive stimulation, and Factor 4 is a positive attraction and fascination on the creating of *Pua Kumbu*.

Table 2 shows the new four-factor namely; Knowledge and information and the relation of one have on *Pua Kumbu*, Historical art knowledge, the technical skills in the making and the attraction towards *Pua Kumbu*, Ability to process information depending on one's knowledge (cognitive stimulation) and Positive attraction towards *Pua Kumbu*.

Table 3 shows that the four factors of ARS-Revised revealed a substantial correlation between them. Factor 1 was positively correlated with Factor 2 (r = .332) and Factor 4 (r = .423) with low level, while moderate with Factor 3 (r = .504). Factor 4 was positive moderate correlated with Factor 2 (r = .646) and Factor 3 (r = .586). A moderate construct validity was revealed from these correlations results.

	1		2		3		4		
Items	**P**	**S**	**P**	**S**	**P**	**S**	**P**	**S**	**Comm.**
CS1	-.100	.242	-.126	-.414	**-.838**	**-.840**	.013	-.292	.728
CS2	.058	.378	.109	-.203	**-.777**	**-.791**	-.079	-.389	.645
CS3	-.072	.255	-.139	-.427	**-.851**	**-.850**	.062	-.264	.748
CS4	.189	.473	-.067	-.334	**-.583**	**-.718**	-.094	-.425	.571
CS5	.160	.447	.020	-.257	**-.619**	**-.715**	-.105	-.419	.553
E1	**.697**	**.658**	-.304	-.381	.038	-.280	.167	-.209	.529
E2	-.002	.163	**-.735**	**-.805**	-.273	-.484	.153	-.099	.708
E3	-.003	.204	**-.812**	**-.873**	-.174	-.468	.011	-.217	.788
E4	-.038	.151	**-.823**	**-.854**	-.098	-.390	-.009	-.192	.736
SR1	.058	.273	**-.870**	**-.896**	.046	-.362	-.164	-.346	.835
SR2	.038	.252	**-.850**	**-.874**	.045	-.349	-.169	-.338	.793
SR3	.129	**.322**	**-.816**	**-.845**	.067	-.345	-.155	-.352	.762
SR4	**.771**	**.794**	-.044	-.211	-.115	-.406	.062	-.357	.647
AQ1	**.832**	**.872**	.119	-.072	-.085	-.388	-.059	-.463	.777
AQ2	**.838**	**.892**	.058	-.122	-.014	-.367	-.123	-.514	.809
AQ3	**.732**	**.837**	-.014	-.178	.044	-.344	-.254	-.585	.748
AQ4	.035	.365	-.139	-.265	.040	-.290	**-.687**	**-.707**	.517
P1	**.351**	**.623**	.150	-.085	-.227	-.482	**-.445**	**-.670**	.614
P2	**.408**	**.667**	.232	-.002	-.171	-.438	**-.494**	**-.708**	.697
P3	-.039	.387	-.283	-.456	-.109	-.474	**-.706**	**-.768**	.720
P4	-.004	.426	-.089	-.291	-.144	-.471	**-.756**	**-.828**	.719

P= Pattern, S= Structure, Comm. = Communality

Table 1: Pattern and structure matrix for PCA with Oblimin Rotation of four factor of ARS-Revised items

	F1	**F2**	**F3**	**F4**
F1	1			
F2	.332*	1		
F3	.504*	.494*	1	
F4	.423*	.646*	.586*	1

*correlation is significant at .05.
F1=Factor 1, F2=Factor 2, F3=Factor 3, F4=Factor 4

Table 2: Correlations between Four Factors of ARS-Revised

Reliability

The reliability analysis by Cronbach's alpha was reported a high internal consistency, α = .817 - .935, which was higher than the five factors ARS-Revised. Overall internal consistency was high, α = .925 (Table 3).

Descriptive statistics

Table 4 illustrates the descriptive statistics of the four factors of ARS-Revised. The highest mean score was Factor 1 4.42 (0.73), followed by Factor 2 4.19 (0.74), Factor 3 4.06 (0.75) and Factor 4 3.01 (1.19).

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Five Factor	***A***	**No of item**	**Four factors**	**α**	**No of item**
SR	.854	5	F1	.935	6
Exp	.835	4	F2	.860	5
CS	.855	5	F3	.855	5
AQ	.809	4	F4	.817	5
PA	.824	4			
Overall	.925	21			

CS=Cognitive stimulation, Exp=Expertise, SR=Self-reference, AQ=Artistic quality, PA=Positive attraction

Table 3: Cronbach alpha for five factors and four factors of ARS-Revised

Factor	**M (SD)**
Factor 1: Historical art knowledge, the technical skills in the making and the attraction towards *Pua Kumbu*	4.42 (0.73)
1. I can relate this *Pua Kumbu* to its historical art context	
2. This *Pua Kumbu* makes me think about my own life history	
3. The composition of the *Pua Kumbu* is of high quality	
4. This *Pua Kumbu* is very innovative	
5. This *Pua Kumbu* features a high level of creativity	
Factor 2: Knowledge and information and relation of one has on *Pua Kumbu*	3.01 (1.19)
1. I know this *Pua Kumbu*	
2. I have an idea on what the weaver is trying to convey in this *Pua Kumbu*	
3. I can relate this *Pua Kumbu* to a particular weaver	
4. This *Pua Kumbu* mirrors my own personal emotional state	
5. I can associate this *Pua Kumbu* with my own personal biography	
6. This *Pua Kumbu* makes me think about my own life	
Factor 3: CS -Ability to process information depending on one's knowledge	4.06 (0.75)
1. It is exciting to think about *Pua Kumbu*	
2. I would like to learn more about the background of this cloth	
3. It is fun to deal with this *Pua Kumbu*	
4. This *Pua Kumbu* is thought-provoking	
5. This *Pua Kumbu* makes me curious	
Factor 4: PA-Positive attraction towards *Pua Kumbu*	4.19 (0.74)
1. The weaver's manner in creating *Pua Kumbu* is fascinating	
2. This *Pua Kumbu* is beautiful	
3. This *Pua Kumbu* is pleasant to look	
4.This *Pua Kumbu* thrills me	
5. I feel inspired by this *Pua Kumbu*	

Table 4: The Four-Factor of the ARS-Revised

Discussion

As detailed in the original author of the ARS (Hager et al., 2012), the instrument would be a valuable and versatile tool for future studies in assessing aesthetics in the different subject matters. The original purpose of this instrument was to evaluate aesthetic perception on paintings, and it discovered different six dimensions of aesthetic experience; cognitive stimulation, negative emotion, expertise, self-reference, artistic quality and positive attraction. This study uses the ARS-Revised of five-factor of 21-item which was validated previously in assessing the aesthetic perception of *Pua Kumbu* design motifs (Wahed et al., 2019). Some items were omitted due to low internal consistency and negative emotion was removed after considering its irrelevant, based on content validity. Therefore, altogether a pool of 21 items entered the analysis.

The EFA was performed to assess validity has observed a significant finding. The original 21-item of the ARS-Revised remains, however, the number of factors was composed.

The PCA with Direct Oblimin rotation pointed a four-factor solution, explaining almost 70% of the data's variance. The factor that explained most of the variance was Factor 1 with five items, describes the historical art knowledge and information on the originality and technical skills in the making of *Pua Kumbu*. One of the items expresses the relation of one's think about his or her life history. Factor 2 loaded with 6 items describes knowledge and information and the relation of one has on *Pua Kumbu*. Individuals who scored high in this factor know and have an idea of what the weaver tries to convey in the *Pua Kumbu* and could relate the *Pua Kumbu* to a particular weaver. They also tend to associate *Pua Kumbu* information to their personal emotional state, biography and memories. Factor 3 was cognitive stimulation which was loaded with five items. This factor remains the five items as in ARS-Revised. It describes the perceiver's intellectual devotion to *Pua Kumbu*. Individuals who score high on this factor are intellectually intrigued by the *Pua Kumbu*. They enjoy thinking about the *Pua Kumbu* and curious to learn more about the weaver and background. The fourth factor which was loaded with five items, pronounces the positive attraction towards *Pua Kumbu* and fascinated in the manner of the weaver in creating this masterpiece. It consists of items referring to beauty, pleasantness, and emotional engagement, such as being thrilled and inspired.

The reliability analysis of the ARS-Revised of five factors revealed a high internal consistency. However, with the new four factors, the internal consistency increased. This indicated that the items in each factor are more related as a set of groups. The overall internal consistency was very high, α = .925. The four-factor obtained in this study contributes to the growing body of studies investigating the factor structure of the ARS-Revised. The original work by Hager et al., (2012) to Wahed et al., (2019) to the present paper proof the study using this instrument is promising to explore the aesthetic perception in artworks.

The correlations between factors explain a construct validity of the new four-factor ARS-Revised. The relationships were positive and moderately strong revealed that each factor is interrelated in assessing aesthetic perception. On the other hand, the descriptive results revealed the highest mean score amongst the four factors was Factor 2. This factor describes the historical art knowledge and information on the originality and technical skills in the making of *Pua Kumbu*. One of the items

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expresses the relation of one's think about his or her life history. The results imply that the perceivers were likely to have artistic value on *Pua Kumbu* in terms of its quality, innovation and creativity. Historical relation existed between their life history and the historical art knowledge through this *Pua Kumbu*. This makes sense due to the *Pua Kumbu* itself is strongly related to a historical event, involve Iban tribe and their culture back in ancient days. The making of *Pua Kumbu* is well-known by weavers who are talented and chosen ones, and its design motifs are always the main attraction in admiring the textile.

The least mean score was Factor 1, where it describes knowledge and information and the relation of one has on *Pua Kumbu*. Given the circumstances that the perceivers were the potential buyers of *Pua Kumbu*, they might have lacked information and somewhat has less relation to this art piece. This could be explained by the lack of knowledge among the participants, especially on the making of *Pua Kumbu*, in terms of its weaving, technique, and history. This is supported by a study on painting artwork (Pietras & Czernecka, 2018; Saxena & Jain, 2014), where those with prior knowledge of artwork would influence their aesthetic perception.

Conclusion

As the outcome from EFA with Direct Oblimin rotation, four factors of the ARS-Revised were suggested. Internal consistency was high and construct validity presented a valid measure. In sum, the study managed to validate the functional of ARS-Revised with four-factor of 21-item with slight differences in assessing the aesthetic perception of Sarawak Iban *Pua Kumbu.*

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Reliability and Validity of Questionnaire on Assessing the Aesthetic Perception of Design Motif Applied on Sarawak Pua Kumbu Cloth Using the Art Reception Survey (ARS)

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Abstract. The objective of this study was to assess the reliability of the Art Reception Survey (ARS) in measuring the aesthetic experience of a Pua Kumbu cloth among visitors who visited the textile museums in Kuching Sarawak. Using this instrument with 28 items grouped into 6 factors, the reliability was assessed by measuring its internal consistency using Cronbach's alpha coefficient. Thirty (30) visitors served as respondents in this study, who were from various age groups and different geographic backgrounds. The results from the reliability analysis revealed that the factors had good internal consistency. Cronbach's alpha coefficient ranged from α = .672 to .978. The results also indicate that Negative Emotion, Expertise and Positive Attraction produced a low intraclass correlation coefficient. Negative Emotion and the first items from two other factors revealed poor item-scale correlations. This study suggests the removal of the Negative Emotion factor, which was revealed to be irrelevant in measuring the aesthetic experience of the Pua Kumbu cloth, and of items 1 of both Expertise and Positive Attraction, making the remaining 21 items in the instrument reliable to measure the aesthetic experience of the respondents towards the Pua Kumbu cloth.

Keywords: *aesthetic experience; perception; Ngepan; traditional costume; design motif.*

1 Introduction

The Iban people in the State of Sarawak are also known as the Sea Dayak. The community is the largest group of indigenous people in Malaysia Borneo [1]. Historically, the Iban community lived as nomads in Borneo and were known for their courage, reflecting their reputation as fighters and headhunters, being feared by many in the past [2]. The Iban see themselves as a great tribe and will do anything to protect their culture and traditions from extinction [2]. Pua Kumbu, made of woven cotton, is the most famous textile from the Iban people in Sarawak. They are strongly bound to their customs and beliefs and their understanding is evidently well-matched and crafted in Pua Kumbu. In most

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societies, weaving is linked to women and their status within the community is revealed by the type of motifs they weave. While most motifs are visual representations of animals, plants and even daily activities, others are more complex and abstract. Intricate patterns in Pua Kumbu are often traditional and hereditary [3].

Pua Kumbu are produced by Iban women using the dye resist technique and weaving on a backstrap loom. The textiles with multi-colored patterns are highly appreciated as ceremonial blankets [4]. The design motifs applied on Pua Kumbu are complex and abstract, inspired by flora, fauna and animistic beliefs as well as the Iban communities' daily activities [4]. The creativity of the Iban weaver can be traced from the attractive and meaningful design motifs applied. The cultural values they contain are transferred to the wearer [5]. The striking look of Sarawak Pua Kumbu attracts the public to buy them as a souvenir without knowing the intrinsic meaning of the design motifs, thus potentially leading to misinterpretation [6].

The role of the Iban motifs as crucial elements of visual communication for the tribe have shown a decline in recent times. They do still receive appreciation from the younger generations, but only for their aesthetic value, not the intrinsic meaning of their cultural identity [7]. The complexity of the design motifs is based on a combination of several geometrical forms inspired by nature and interpreted according to the understanding of the weavers with their own meaning and symbolism [3].

Most of the design patterns applied are created at different levels of difficulty, which has an influence on the public's aesthetic perception as a decision-making factor in buying a cloth. As for the Sarawak Pua Kumbu, the correct information is required to clarify the meaning of the motifs in the hope that this will keep the culture alive [6]. Misinterpretation of the design patterns applied on the cloths may lead to their misuse and could upset the feelings of the Iban people. Therefore, the public needs to be well-informed about these traditional motifs before wearing them [10].

'Aisthesis' in Greek comprises all activities that involve the collection of information through the senses: hearing, sight, touch, smell, and, taste. The relation between art and aesthetics is constituted by the embodiment of perceptual, emotional-responsive, and expressive communicative relationships [13]. To ensure that the aesthetic process goes smoothly, high sensitivity is required because any interference that occurs during the process will change the perception [13]. For example, the color red, in the family of warm colors, is considered a bold and beautiful color and highlights the confidence of its fans.

However, for some red is not a good choice because they think the color is too 'screaming' and 'disturbing'.

The process involved in human perception is known as the aesthetic experience. It is generally defined as a special state of mind that is qualitatively distinct from everyday experience [10]. To that extent, 'flow' [11,12] is a similar concept applied to the aesthetic experience phenomenon. It is an effortless mental energy flow caused by the awareness of the similarity between incoming information and one's own goals. To have an aesthetic experience, a person should be open and attentive. This is because in order to undergo a purely aesthetic experience there is a certain way to look, hear, feel and perhaps imagine or process an object that lends itself to a more profound experience [9].

Perception can vary a lot in terms of definitions and theories. It involves different types of processes, such as recognition (being aware of), organization (gathering and storing), and interpretation (binding to knowledge) of sensory information. The human senses (sight, hearing, touch, smell and taste) receive signs from the environment and simultaneously generate a perception [12]. An illusion of the visual representation of objects frequently contributes to misinterpretation, due to mismatching perceptions, or sometimes the visual representation is deliberately misinterpreted [13].

The reaction of people towards a work of art stimulates an aesthetic emotion ('beautiful' or 'ugly') towards the work, which is strongly related to personality traits and one's preferences. Beauty is a daily phenomenon but defining it is difficult [13] as this concept is deliberately wide-ranging: it covers feelings towards what we like, what we find fascinating, interesting, great, funny or inspiring [14]. However, it is possible to explain beauty using psychological theory [15]. The feeling of pleasure more or less depends on how we perceive or are aroused by beautiful things around us.

Many great philosophers, such as Plato, Aristotle, Kant, Hegel, and Schopenhauer, have the common understanding that pleasure is a central element of the aesthetic experience [14], while others think have defined pleasure as 'flow'. A feeling of pleasure can only be achieved when positive emotions of high (excitement, enthusiasm, thrill) and low intensity (happiness, joy, gladness and serenity) are stimulated [16].

The aim of this pilot study was to assess the reliability of the Art Reception Survey (ARS) [17] in representing the aesthetic experience of Sarawak Pua Kumbu with regard to the ability of this instrument to match the art reception of the respondents, more specifically visitors of a textile museum that displays Pua Kumbu cloths.

2 Methodology

The pilot study was carried out with the voluntarily participation of visitors (N = 30) who visited the Tun Jugah Foundation and Sarawak Textile Museum in Kuching, Sarawak. The acceptable sample size for a preliminary research is suggested to be between 10 to 30 respondents [19]. Before the respondents were given the questionnaire, they were briefly informed on the purpose of the survey and they were prompted to comment on the questionnaire. Upon answering the questionnaire, they were shown some Pua Kumbu designs (Figure 1).



Figure 1 Pua Kumbu designs.

They were given approximately 10 minutes to observe the cloths. Then, they filled in the questionnaire. The time taken to complete the questionnaire was recorded. The range time for the respondents to complete the questionnaire was between 10 and 15 minutes.

The Art Reception Survey (ARS) was utilized to measure the respondents' aesthetic experience towards a Sarawak Pua Kumbu cloth. It measures various components of the aesthetic experience, including the respondents' cognitive participation, their affective assessment (positive or negative), their judgment on the artistic quality and creativity as well as their knowledge and understanding of the cloth. The first section of the questionnaire elicits the demographic profile of the respondents. The second section consists of 28 items grouped into six factors: Cognitive Stimulation, Negative Emotion, Expertise, Self-Reference, Artistic Quality and Positive Attraction. The items are rated by using a 5-point Likert scale, ranging from strongly disagree to strongly agree (1 to 5).

Every factor that appears in the ARS represents the diversity of measures needed for analyzing the aesthetic experience of the respondents in detail [19]. Cognitive Stimulation is the first factor, which indicates that the ability to process cognitive mastering depends on a person's knowledge. The next factor, Negative Emotionality, or negative emotions or affects, refers to the experience of the respondents having negative emotions towards the Sarawak Pua Kumbu.

The third factor, Expertise, is related to the level of skills or knowledge possessed by the respondents in the particular field of Sarawak Pua Kumbu. The fourth factor, Self-Reference, refers to an individual's tendency to remember or recall information when information regarding the Sarawak Pua Kumbu is linked to him/her. Artistic Quality measures the respondents' understanding of the originality and technical skills in the making of the Pua Kumbu. The last factor is used to measure any positive attraction the Sarawak Pua Kumbu exerts on the respondents; Positive Attraction is considered a feeling that emerges based on the subjective success of processing information and is often described as pleasure or happiness processing [17].

For the purpose of this pilot study, the reliability was assessed by measuring its internal consistency using Cronbach's alpha, which indicates the internal correlation of all items on a scale. A high coefficient suggests a more consistent scale, pointing to a more precise evaluation of a defined parameter through the items. An alpha value of 0.7 of higher indicates good internal consistency [19].

3 Result and Discussion

A total of $N = 30$ respondents completed the questionnaire (Table 1). Forty percent ($n = 12$) of the respondents were male and 60% ($n = 18$) were female. Thirty percent of the respondents were from the age categories of 18 to 25 years old ($n = 9$) and 31 to 35 years old ($n = 9$) each. The age groups of 26 to 30 years old and more than 41 years old were 23.3% and 16.7%, respectively. For the education level, SPM holders and diploma holders were 16.7% ($n = 5$) each. Sixty six percent ($n = 20$) of the respondents were bachelor degree holders. The majority of the respondents were from Sarawak (53.3%, $n = 16$), followed by Peninsular Malaysia (36.7%, $n = 11$) and the remaining were from Sabah (10%, $n = 3$).

Table 1 Characteristics of the respondents.

Variables		N (%)
Gender	Male	12 (40)
	Female	18 (60)
Age groups (years)	18-25	9 (30)
	26-30	7 (23.3)
	31-35	9 (30)
	> 36	5 (16.7)
Education level	SPM	5 (16.7)
	Diploma	5 (16.7)
	Bachelor degree	20 (66.7)
Background	Sarawak	16 (53.3)
	Sabah	3 (10)
	Peninsular Malaysia	11 (36.7)

To assess the reliability of continuous variables, the intraclass correlation coefficient (ICC) is presented (Table 2). The correlation coefficients of the instruments varied between 0.291 and 0.951. The Cronbach's alpha coefficients ranged from 0.672 to 0.987 (Table 3). All factors had values greater than 0.60 so they can be considered to have moderate to high internal consistency.

Table 2 Intraclass correlation coefficient.

Scales	Intraclass Correlation Coefficient	p-value
Cognitive Stimulation	.899	.001
Negative Emotion	.463	.001
Expertise	.291	.001
Self-Reference	.895	.001
Artistic Quality	.951	.001
Positive Attraction	.431	.001

Table 3 Cronbach's alpha for scales of the questionnaire.

Scales	*n*	α	Lower	Upper
Cognitive Stimulation	5	.978	.963	.988
Negative Emotion	5	.812	.680	.900
Expertise	5	.672	.441	.826
Self-Reference	4	.971	.950	.985
Artistic Quality	4	.987	.978	.993
Positive Attraction	5	.791	.644	.889

The ARS was developed to measure the aesthetic experience towards artworks [17]. In this pilot study, the researchers intended to measure the aesthetic experience toward a Pua Kumbu cloth. The items in the assessment resulted in good internal consistency as assessed with Cronbach's alpha. The ICC indicated sufficient reliability, except for the factors Negative Emotion, Expertise and Positive Attraction. Therefore, item-scale analysis for each of the factors was conducted to further consider the removal of any of the items if necessary.

Table 4 Item-scale analysis of Cognitive Stimulation.

	Item	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
1	It is exciting to think about this Pua Kumbu Cloth	.870	.977
2	I would like to learn more about the background of this Pua Kumbu cloth	.974	.961
3	It is fun to deal with this Pua Kumbu cloth	.974	.961
4	This Pua Kumbu cloth is thought-provoking	.941	.966
5	This Pua Kumbu cloth is makes me curious	.882	.976
	Internal consistency of Cognitive Stimulation	α = .978	Standardized α = .979

Tables 4-9 represent the item-scale analysis for each of the scales in the ARS. The range of item-scale correlation was .870 to .974 for Cognitive Stimulation (Table 4). For Negative Emotion, the range was .293 to .781, with the lowest correlation coefficient for item 1 (Table 5). Negative Emotion measures the respondent's negative emotion or the experience of negative emotions. If item 1 is deleted, the alpha value will increase to .883, thus, this item is suggested to be removed.

Table 5 Item-scale analysis of Negative Emotion.

	Item	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
1	This Pua Kumbu cloth makes me feel troubled	.293	.883
2	This Pua Kumbu cloth makes me feel afraid	.701	.742
3	This Pua Kumbu cloth disgusts me	.781	.747
4	This Pua Kumbu cloth makes me sad	.701	.742
5	This Pua Kumbu cloth makes me feel lonesome	.781	.747
	Internal consistency of Negative Emotion	α = .812	Standardized α = .852

Expertise measures the respondent's having skill or knowledge in the particular field of Pua Kumbu cloth. The Emotion item-scale correlation ranged between -.310 and .700, with the lowest value for item 1 (Table 6). If this item is deleted, the alpha value will increase to .812, thus, this item is suggested to be removed. Self-Reference measures the respondent's tendency to remember information when the Pua Kumbu cloth information has been linked to him or her. The item-scale correlation ranged between .905 and .954 (Table 7). Artistic Quality, refers to the originality and technical skills in the process of making Pua Kumbu cloth. The item-scale correlation ranged between .960 and .963 (Table 8).

Table 6 Item-scale analysis of Expertise.

	Item	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
1	With regard to its content, this Pua Kumbu remains inaccessible to me	-.310	.812
2	I can relate this Pua Kumbu cloth to its art-historical context	.546	.586
3	I know this Pua Kumbu cloth	.700	.520
4	I have an idea what the weaver is trying to convey with this Pua Kumbu	.678	.531
5	I can relate this Pua Kumbu cloth to a particular weaver	.578	.559
	Internal consistency of Expertise	α = .672	Standardized α = .597

Table 7 Item-scale analysis of Self-Reference.

	Item	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
1	This Pua Kumbu cloth mirrors my own personal emotional state	.954	.949
2	I can associate this Pua Kumbu cloth with my own personal biography	.914	.962
3	Personal memories of mine are linked to this Pua Kumbu cloth	.917	.960
4	This Pua Kumbu cloth makes me think about my own life history	.905	.963
	Internal consistency of Self-Reference	α = .971	Standardized α = .972

Table 8 Item-scale analysis of Artistic Quality.

	Item	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
1	The composition of the Pua Kumbu cloth is of high quality	.960	.980
2	The Pua Kumbu cloth is very innovative	.960	.980
3	The Pua Kumbu cloth features a high level of creativity	.963	.980
4	The weaver's manner of creating Pua Kumbu cloth is fascinating	.963	.980
	Internal consistency of Artistic Quality	α = .985	Standardized α = .985

Positive Attraction measures the feeling that emerges related to the subjective success of the information processing and is often described as pleasure or happiness processing (Table 9). Item 1 had the lowest item-scale correlation at .221. If this item is removed, the alpha value will increase to .923. Thus, this item is suggested to be removed.

Table 9 Item-scale Analysis of Positive Attraction.

	Item	Adjusted item-scale correlation	Cronbach Alpha if the item is deleted
1	I would consider spending money to buy this piece of art	.221	.923
2	This Pua Kumbu cloth is beautiful	.758	.721
3	This Pua Kumbu cloth is pleasant	.760	.702
4	This Pua Kumbu cloth thrills me	.674	.721
5	I feel inspired by this Pua Kumbu	.795	.678
	Internal consistency of Positive Attraction	α = .791	Standardized α = .885

Based on the ICC, Negative Emotion, Expertise and Positive Attraction had the lowest values. Analyzed in detail, items 1 of these three factors are suggested to be removed to increase the alpha values. Regarding the scales, the respondents were assumed to have no idea of expressing negative emotions or were less likely to have an experience of feeling negative towards a cloth. They were

unable to relate the cloth's meaning. Lack of knowledge on Pua Kumbu could lead to the inconsistency of this item (item 1) of Expertise. In addition, the respondents would not consider spending money to buy a Pua Kumbu. This is an interesting finding. The respondents visited the museum for the sake of enjoying the artwork, but not intending to buy Pua Kumbu. This explains the internal inconsistency of this item (item 1) from the Positive Attraction factor.

Table 10 shows the mean score for each of the factors in the instrument. The mean score for Negative Emotion was 1.153 ± .271, which indicates that the respondents strongly disagreed with having negative emotions towards the Pua Kumbu cloth. Therefore, this factor can be considered unnecessary for measuring the aesthetic experience towards the cloth.

Table 10 Descriptive statistics of each ARS scale.

	Scales	M±SD
1	Cognitive Stimulation	4.233 ± .826
2	Negative Emotion	1.153 ± .271
3	Expertise	3.207 ± .629
4	Self-Reference	2.133 ± 1.090
5	Artistic Quality	4.750 ± .431
6	Positive Attraction	4.507 ± .457

On the other hand, the mean scores of Expertise (3.207 ± .629) and Self-Reference (2.133 ± 1.09) indicate a sufficient explanation that the respondents were less likely to agree that they have expertise or knowledge on the Pua Kumbu cloth and also could not refer to information that linked them with the cloth. This is acceptable as the respondents were visitors to that particular museum and could find the Pua Kumbu interesting and still have no knowledge related to it. The study does suggest to remove item 1 of Expertise to increase the internal consistency. Positive Attraction had a high mean score (4.508 ± .457), which means that this factor was relevant to the respondents, but item 1 is suggested to be removed to increase the internal consistency.

4 Conclusion

Taken together, this pilot study found that Artistic Quality was of the highest concern for the respondents, followed by Positive Attraction and Cognitive Stimulation. However, Expertise, Self-Reference and Negative Emotion were placed lower in the rating of the respondents. This is very relevant to the aesthetic experience of the respondents of Pua Kumbu. In addition, the lowest score of Negative Emotion indicates that had a positive perception towards the Pua Kumbu cloth. The findings suggest that the ARS is reliable in measuring the aesthetic experience towards Pua Kumbu cloth when removing the factor Negative Emotion, item 1 of Expertise and item 1 of Positive Attraction.

Therefore, the total number of remaining items for this instrument is 21 and the total number of remaining factors is 5: Cognitive Stimulation, Expertise, Self-Reference, Artistic Quality and Positive Attraction. This study presents a revised, more relevant version of ARS, called ARS-Revised (ARS-R), comprising of 21 items of the original 28 ARS items and five factors. ARS-R seems to be improved and reliable to examine the aesthetic experience towards artworks, in this study, Pua Kumbu.

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What's On The News Today? A Systematic Review of Art Reception Survey (ARS) On Aesthetic Studies

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Abstract

Aesthetic studies are engaged with various visual stimuli connected to human senses which project different perceptions based on one's aesthetic experiences. The right output of the process is a 'symptom' of 'delighted' art which creates positive experiences in measuring a 'good taste' of art. This paper aimed to review the ARS instrument on different domains of aesthetic studies namely, textile, art writing, painting, figurative, abstract painting, representational art and film. The analyses comprised eight adaptations of the Art Reception Survey indicating the instrument was properly suited for the screening purposes. The findings revealed the influential factors of aesthetics which are prior knowledge, art knowledge, familiarity and art connection. These findings also suggested the basis of the instrument adaptation in aesthetic studies as well as the construction of the understanding among the trained and untrained perceivers.

Keywords: Aesthetic, Art Perception, ARS Instrument, SLR, Visual Art

1 Introduction

The aesthetic process is interrelated with art which embodies awareness, emotional-responsive, and expressive communicative relationships [1]. A German philosopher; Alexander Gottlieb Baumgarten, translated the aesthetic term as the prioritised task of cognitive through human senses [2], which is generated by seeing beautiful things, valuable and having aesthetic values [3]. The influx of beauty is not from the property of an object but is gathered from the feelings created by multiple cognitive areas which are known as 'Imagination and Reason' [4]. It is revealed that human feeling is subjective to perceivers' personal feelings towards the visual art object which are formed according to their prior experiences and art knowledge. Therefore, the aesthetic emergence of human feelings is associated with the process of evaluation [5], and when the stimulus is evaluated as something that can be understood, it becomes a human's interest [6].

The mechanisms applied to measuring the aesthetic perception are inter-related with various theories of instrumentation. Studies on aesthetics in various art fields have been put into attention among art practitioners and researchers. Therefore, numerous instruments have been established to assess measuring the aesthetic perception and evaluation of the work of art. Due to the lacked valid instruments for the assessment of cognitive-affective reactions to aesthetic stimuli [7], the Art Reception Survey [8] has been established to enhance the selection of the items, and was created as a response to the limitation of the previous aesthetic experience instrument, Assessment of Aesthetic Perception (SAAP) [9] and Perception Evaluation instrument [10]. The Art Reception Survey (ARS) instrument was first introduced to measure painting according to six factors; Cognitive stimulation, Negative emotionality, Expertise, Self-reference, Artistic quality and Positive attraction with a total of 28 items [8]. It can be seen here, every factor that appeared in the ARS represented the diversity of measures needed for analysing in detail by each of the perceivers. In the ARS instrument, cognitive stimulation is the first factor to be measured which indicates the ability to process cognitive mastering depends on a person's knowledge. The second factor, negative emotionality or negative emotion or negative effect refers to the experience of receiving negative emotions. The third factor shows that expertise is related to the level of skills or knowledge possessed by the perceiver in regards to the visual arts. In measuring the fourth factor, self-reference refers to the

individual's tendency to remember or recall information when information regarding visual art is linked to him or her. The artistic quality measures the understanding of originality and technical skills, and the last or fifth factor, is positive attraction [8].

The study aimed to review the Art Reception Survey (ARS) instrument [8] on every domain of aesthetic studies. The aim was aligned simultaneously with the research question, "Which of the aesthetic studies uses the Art Reception Survey?". The prior section has enlightened the rationale of performing the systematic review meanwhile, the following section describes the methodology and the PRISMA (Preferred Reporting Item Systematic Reviews and Meta-Analysis) approach employed in this study. The third section systematically reviews and synthesises the scientific literature to identify, select and appraise the relevant researches on the aesthetic studies. The last section recommends the areas of future research undertakings.

2 Methodology

This section discusses the method used to retrieve the articles related to aesthetic studies by adopting the method called PRISMA, which includes resources (Google Scholar and Dimensions) used to run the systematic reviews, eligibility and exclusion criteria, steps of the review process (identification, screening, eligibility) as well as data abstraction and analysis.

2.1 Prisma

The review was guided by the PRISMA Statement (Preferred Reporting Items Systematic reviews and Meta-Analysis) [27].

2.2 Resources

The review relied on Google Scholar and Dimensions as the main journal databases in this study. Google Scholar is a robust database that consists of numerous kinds of literature in different fields of study worldwide. As for this study, the data extracted using the keyword was more than one thousand peer-review literature. Both databases consist of wide-ranging subject areas such as social sciences, psychology and arts, and humanities in addition to accommodating >22,800 journals from more than 5000 publishers.

2.3 Eligibility and Exclusion Criteria

The eligibility and exclusion criterion is determined to achieve the principles of the systematic literature review. Initially, the scope of the literature, only included article journals, conference proceedings and published theses, while excluding review articles, book series, books and book chapters. Moreover, the review focused on the articles published in English and disregarded the articles produced in other foreign languages as to avoid misunderstanding in translating the articles. Thirdly, a period between 2016 – 2020 was selected which is an adequate period (5 years) to examine the evolution of researches and publications. As the review process aimed at the Art Reception Survey (ARS) [8], articles indexed in the social science-based index were selected. Finally, the articles revolving around the aesthetic studies and the ARS instrument were chosen in the interest of being parallel with the objective.

2.4 Systematic Review Process

There were four stages involved in the systematic review process which was performed in May 2020. The first phase was executed by identifying the keywords used in the search process. The search depended on the previous studies and thesaurus where keywords similar to art reception surveys such as 'ARS', 'ARS instrument' were combined with the words related to 'aesthetic', 'aesthetics' and 'aesthetic art' to search string/query string. The result listed 7,540 documents retrieved from the Google Scholar database within 0.18 seconds of the recorded time. A similar search string was used in the Dimensions database and managed to regain 109,622,324 documents. The second stage was conducted by screening the Google Scholar and Dimensions databases which reduced to only 23 documents, and eight articles were eligible for reviewing process respectively. The remaining articles were removed because the standard of the documents clashed with the objective of the study. Not to mention, the requirement for the next stage was limited to articles published in English within the areas of social sciences, arts and humanities and psychology. In an attempt to maximise the screening procedure, the review also omitted the article journal type. The third stage involved eligibility and was performed by assessing the full articles. After a careful assessment, eight articles from Google Scholar and one article from Dimensions databases were deemed qualified for the examination. At this stage of thorough screening, four duplicated articles and four articles in foreign languages were removed from the Google Scholar database. Further reading was conducted on the articles gathered from the Dimensions database which resulted in the removal of one duplicate article, one unrelated topic, two articles in foreign languages and two inaccessible articles.

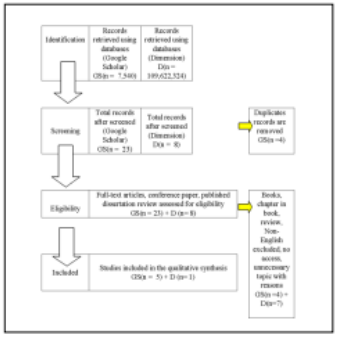


Figure 1: The flow diagram of the systematic review

3 Results

3.1 Study Characteristics

There were eight studies comprising 1825 multiple respondents of both genders selected for this review. All of the articles published from 2016 to 2020 were peer-reviewed journals (Table 4). The studies were conducted in different countries, other than Malaysia [12] which were United States [13], German [14, 15], Poland [16], Canada [17], and the Netherlands [18]. Five of the studies targeted students as the main populations [13-16, 18], while the other two studies recruited the visitors from the commercial markets and museums [12] as well as via online recruitment [17]. However, there was one study engaged in multiple populations involving university students, online users and the attendees of the International Film Festival in Rotterdam [18].

3.2 Domains

The studies employed multiple domains to achieve the research objectives which were aligned with the suggestion of [8] that the ARS instrument is beneficial in the various fields of aesthetic research. The review uncovered that various domains have applied the ARS instrument such as textile [12], art writing [13], painting [14, 16, 17], film [18], figurative [16] and abstract art in museums [15].

3.3 Instruments

All studies adapted the Art Reception Survey (ARS) instrument [8] with improvised versions to answer the objectives of the studies. The study conducted by [12] employed the ARS instrument with 21 items, and one factor was removed; Negative emotionality, 15 items with combination manifold ARS factors [13], three items measuring three different factors Positive Attraction ("this painting is beautiful"), Cognitive Stimulation ("this painting is thought-provoking"), and Negative emotionality ("This painting causes emotions") [14]. Meanwhile, the implementation of 20 items of the ARS instrument with five significant factors and eliminated Cognitive stimulation in the study [16]. The other three studies modified the overall ARS instrument with six factors and 28 items [15, 17, 18].

Table 1: Data extraction table of included studies

Author and Domain	Objective	Main Findings
Textile [12]	Measuring the aesthetic perceptions about the design motifs applied on the cloth, among 400 respondents according to their genders and backgrounds.	- The expertise factor exhibited a significant difference in the gender and background of respondents. - Self-reference and Cognitive Stimulation exhibited significant differences in the background of respondents
Art Writing on fine art [13]	-Exploring how writing on arts leads to explanatory depth and affects aesthetic appreciation. -Exploring the perceptions toward the fine arts with how important people believe the arts to be.	- The finding shows that engagement in a writing task increased perception of the fine arts. - The fine arts are difficult to define and measure in psychological research mainly due to different cultural views and lack of a definition that is collectively agreed upon in society.
Painting [14]	Investigating to what extent lay people can infer the aesthetic preferences of others.	- The finding shows that laypeople rely more on their affective states when judging aesthetic stimuli compared with art experts.
Figurative, abstract and contemporary painting [16]	Investigating the predictors of aesthetic experiences across figurative, abstract and contemporary paintings in individuals with varying expertise.	- Students with art - experience (Art students) influenced art reception. - Art students perceived aesthetics greater compare to other two groups.
Abstract painting and Representational art [17]	Assessing the familiarity of the self -relevant with the selected painting, and not on a comparison of aesthetic appreciation of paintings.	The survey acted as screening purposes for this study, and, the other factors in ARS are not discussed.
Abstract art [15]	Investigate possible differences in the perception of genuine and original artworks compared to reproductions and non-artworks.	- No significant difference could be observed between the original and reproduced. - Original artworks were judged as significantly more interesting than computer images -.Negative emotionality was rated as the least in the original art condition
Film [18]	Developing a reliable and valid instrument to measuring the aesthetic appreciation of film, The Scale of Aesthetic Appreciation of Film (SAAF).	The used of the ARS in this study is to permitted the researcher in developing an instrument to measure the aesthetic appreciation of film.

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4 Main Findings

The Art Reception Survey (ARS) instrument [8] has been improvised to meet with the domain of the study; Textile, with the removal of the Negative Emotionality factor. The Art Reception Survey–Revised (ARS-Revised) [12] was distributed to 400 respondents who visited the Waterfront Kuching, Sarawak, Tun Jugah Foundation and Sarawak Textile Museum in Malaysia. The fieldwork of this study was located in Kuching, Sarawak. The study disclosed interesting findings in relation to the Expertise, Self-reference and Cognitive Stimulation factors which exhibited a significant difference in the genders and backgrounds of the respondents. The art knowledge of the Sarawak respondents regarding the domain of the study, 'textile', or specifically to the intangible cultural heritage of Sarawak Iban Pua Kumbu, was higher in Cognitive Stimulation indicating the Sarawak people possessed the prior knowledge, thus were more familiar with the textile compared to other races in Malaysia. Moreover, the study also revealed a significant influence of art knowledge on the genders and backgrounds of the respondents in appreciating aesthetic at its best [12]. The comparable findings have also been discovered which highlighted the significance of the prior art knowledge in aesthetic studies [16]. The study was conducted on 181 Polish students (N-181) who enrolled in various programmes; Sport, Humanities and the Arts programmes from the Pedagogical University of Cracow as well as the University of Physical Education in Cracow, Poland. [16] modified the Art Reception Survey (ARS) instrument [8] by employing 20 items instead of 28 items from the original version in measuring the students' aesthetic experiences across figurative, abstract and contemporary paintings. The findings revealed the Art students understood the aesthetic better compared to other groups; Sports and Humanities.

Next, [14] distributed the ARS instrument [8] which consists of only three items of measuring three different factors of the Art Reception Survey which are Positive Attraction ("This painting is beautiful"), Cognitive Stimulation ("This painting is thought-provoking"), and Negative emotionality ("This painting causes emotions"), to 40 students of University of Konstanz (N=40) using the online form study design. The study focused on understanding the aesthetic preferences towards the domain subject; Painting among the untrained or lay-people. The result suggested the art experts were able to form aesthetic perceptions better than lay-people, depending on their affective states [14]. Notably, the way humans appreciate something is different from one another, as it is usually based on how they see and react towards the subject. [6] agreed that people display different emotional appraisals towards art which makes visual art interesting. Therefore, the distinction between untrained and trained viewers creates a gap in evaluating and criticising a work of art, which also depends on the level of art appreciation possessed by a person [6].

[13] improvised the ARS instrument [8] by assessing the implication of fine arts writing towards aesthetic perception. Using the convenient sampling technique, the undergraduate students recruited from Texas Woman's University in North Texas were selected as the population of this study (N=397). A total of 15 items was administered and the result detected an increase in the respondents' art perception towards fine arts through the engagement of the writing task. The relation between fine arts in measuring the respondents' psychological seemed difficult due to the limitation of cultural perspective and lack of collective agreement on the art definition among society [13].

Meanwhile, another study demonstrated a different idea of implementing the ARS which was through familiarisation with the self-relevance of the painting [17]. The author adopted the ARS instrument with the exact total of six factors and 28 items without removing any of it. Using a simple random sampling technique, the survey was distributed online at the MTurk website to 360 respondents (N=360). The use of ARS in the study acted as a screening purpose, which focused only on two factors in the questionnaire; self-reference and expertise without further elaboration on the other factors [17].[15] generated an idea of re-creating the museum in exploring the perceivers' art perceptions of the genuine and original artworks compared to reproductions and non-artworks. The abstract art in the museum was selected as the domain of the study with a population of 91 students of the University of Vienna (N=91). Using the convenient sampling technique, the Art Reception Survey (ARS) instrument [8] was distributed to the respondents who were divided into three groups; Original Art (n = 30), the Reproduction (n = 31) and the Non-Art (n = 30). A total of 28 items of the ARS with six factors was employed in the study. The ARS instrument is showed significantly reliable to measure respondents' connectedness with an artist, and by extension, with an artwork. The findings revealed that the original artwork was more pleasing rather than slides or computer images, and the Negative emotionality factor was rated the lowest in the original art [15].

Furthermore, [18] study revealed Art Reception Survey (ARS) was used in developing a new instrument of measuring the aesthetic appreciation of film; Scale of Aesthetic Appreciation of Film (SAAF). A total of 322 students from the University of Amsterdam, nine from an experimental film at the Eye Film

Institute in Amsterdam, 18 Facebook 'arthouses' and seven from the International Film Festival in Rotterdam were selected as the respondents through a random sampling technique (N=356). One way repeated measure design was used in this experimental study. The original of 28 items of the Art Reception Survey (ARS) instrument with six factors [8] were employed in the study with the addition of two more items inserted by the researcher in the study. The literal reproduction from the ARS instrument was the change of the word "painting" to "film". Overall, the findings suggested that there is a demand for studies assessing the aesthetic of visual arts by using the ARS instrument as well as the fluency of aesthetic perception and experiences.

5 Discussions

The Art Reception Survey (ARS) was applicable in any domain of aesthetic studies. It has been proven by the systematic literature review conducted in this study which consisted of a variety of domains in aesthetic studies. Nonetheless, some studies implemented the ARS instrument as the initial or screening purpose before proceeding to the new-fangled instruments or studies [17, 18]. The fluency of aesthetic evaluation was incorporated with the factors of confirming the effectiveness of conducting aesthetic studies. Based on the analysis conducted on the literature review, several aspects which encouraged the fluency of the aesthetic process were identified to be prior knowledge [12, 16], art knowledge [12, 14], the familiarity of the elements applied in the visual arts [12, 17] and the connection between art-artist-perceivers [15].

According to Berlyn's study, the more people have experience or prior knowledge, either directly or indirectly, the more perceptions can be established [19, 20]. Knowing before the subject eases the acquisition and transfer of he relevant evaluation and perception. Besides, the prior knowledge received regarding the historical perspective as well as the artist's life story can increase the understanding of the contextual meaning possessed by every visual art [21, 22]. Other factors such as experience [23] and art genuineness [24] keep the perceiver's aesthetic experience increased and grown, not solely because of the visual arts.

[25] conducted a study on the aesthetic perception stimuli of the art knowledge among museum visitors to gather their experiences regarding the visual arts exhibited there. As an art sociologist, Bourdieu believed that every art carries an unspoken message or code, which could be deciphered and comprehended [25]. The author identified this aesthetic activity as "educated taste", which allows the perceivers to have full of 'authority' to feel the art's 'flavour' [26]. Relatively, the connection between visual art and art knowledge is vital in performing aesthetic studies.
Furthermore, the adaptation and the familiarisation of the perceivers towards any environment of the culture were found to enhance their aesthetic understanding and knowledge [27]. In other words, if the perceivers lack information regarding the input retrieved, the aesthetic experiences will be distracted, as they are understood differently in different cultures. [28] added the great visual art can distribute its messages and contents to all perceivers without boundaries in every historical time frame. It can be proclaimed that the artist also plays an important role to transfer the message or knowledge to the perceivers efficiently, which can result in the correct form of perception among the perceivers [28].

6 Conclusion

In all the studies included here, the participants were mainly students, with a large range of ages, and mostly from the western countries. This prevents a generalisation of these findings to a wider population. Future studies are recommended to conduct a comparison in the fields of aesthetics between foreigners or visitors with the locals. It is believed that comparative studies can widen the aesthetic evaluation result thus contribute to new and different yet interesting findings. In conclusion, this systematic review highlighted that Art Reception Survey (ARS) was appropriate to be used in any aesthetic studies using any category of research design, sampling technique and population. The findings of the ARS instrument in this study helped boost the perceivers' understanding and at the same time, assisted the researcher in categorising the trained and untrained perceivers. It can be seen that trained perceivers have a better assessment of visual art compared to untrained perceivers, who need more time to understand, evaluate and form opinions due to lack of experience and exposure.

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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 collegues 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?
Production	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	Characteristics	
	Elements	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 *Paku-pakis* 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.

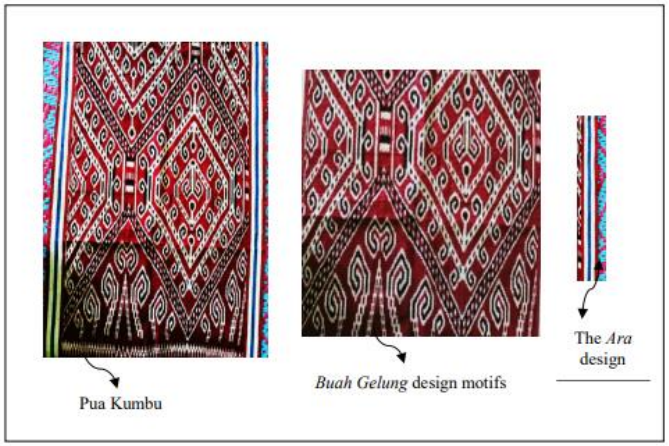


Fig. 1. The full decoration of Pua Kumbu (1), the *Ara* design patterns (2), and, the multiple sizes of *Buah Gelung* design motifs (3).

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 *miring* for the humanoid design motifs only.	Anyone can
W(2)	Not performing the ritual.	Not Male
W(3)	Perform *miring* for the humanoid design motifs only.	Not Male
W(4)	Perform *miring* 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	Production		
	Duration	Technique	Propose
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 unageing 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	*Paku-Pakis plant,* bamboo shoots and *Midin leaves*	No ritual
Animal	**Predators:** snake *(Nabau)*, crocodile *(baya)*	*Miring* ritual
	Non-Predators: birds, lizard, spider, crab, fish	No ritual
Humanoid	*Dewa Kepala Dua, Petara,* and goddesses	*Miring* 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 preceeded 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 suroundings, 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 complextity 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 safeguarde 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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Art and Expression

Art and Expression

INTRODUCTION

ARTe: Art and Expression is a biannual book chapter, published under collaboration of Department of Fine Arts, Faculty of Art & Design, UiTM Perak Branch with Galeri Al-Biruni under the supervision of Universiti Teknologi MARA, Malaysia. 'ARTe' is an amalgamation of english word 'Art', and malay word, specifically Perak slang 'Ate' which translate as conversation starter. 'ARTe' uses the concept of book chapter that platform art enthusiasts to express their inner-creativity in the form of literacy conjecture

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Art and expression as aspiration towards stylistic and artistic practices

MISSION

- To enhance the culture of research and academic publication among academician and artist for international recognition
- To promote intellectual, cultural and knowledge sharing through artistic expression
- To celebrate the diversity and differences in arts practices thus creating and intellectual platform for artist to express their interest in art

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Preface

ARTe, which features academic writing through book chapters, is a product of UiTM Perak College of Creative Arts Studies, through a joint venture between Galeri Al Biruni and the Department of Fine Arts.

ARTe Volume 2 is a publication that features the theme of Art and Local Culture. To further enliven the habit of writing among visual artists, this issue is not limited to the usual format of journal writing. Little freedom is given to the writing style with local issues featured.

This issue which gathered 17 articles alltogether focus on art in the context of local culture. Writers diverge their attention towards findings on art and local cultures that directly discover new awareness on topics of local nature. Among the issues raised are the study on the awareness of local visual arts and illustration that depicts local images and scenes.

There are also writings that touches on art education through appreciation, interpretation and art experimentations involving calligraphy, photography, fasion design, interface design and entertainment phenomenon through social media like video and tiktok.

Traditional ethnic techniques that are rare in nature, are improvised as alternative to the usual contemporary art production, and presented in academic context. So does local crafts that capture attention and become inspiration to some writers as an aspiration for the tradition of the Malay culture and local ethnicities. Furthermore, there is also a creative writing that is celebrated in this issue, which is an article that touches on the implementation of legislation involving local cultures seen from Islamic perspective. This addition will truly benefit many who are interested in finding out issues related to the fundamentals of Arts and Local Culture.

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CHAPTER 7

"WHAT DO EXPERTS SAY?" VISUAL COMPLEXITY AND COMMUNITY ACCEPTANCE OF PUA KUMBU

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Abstract

This chapter highlights the aesthetic perceptions of academicians regarding the complexity of Pua Kumbu design motifs and the community acceptance of this tangible heritage. The complexity of the symbols presented in the design motifs contributes to the current lack of interest in this art form, especially among the young generation, tourists and other races in Sarawak. The complexity of the symbols has also led to these motifs being further misunderstood, as well as the mistreatment and misuse of this majestic art form. Therefore, this research used a qualitative approach to explore the perspectives of four academicians in the fields of textiles, art and culture. In-depth interviews with semi-structured questions were conducted, as was observation and analysis of the relevant documents. According to the findings, weavers are the masterminds behind the visual complexity of Pua Kumbu, which reveal Iban knowledge through the design motifs. In conclusion, prior knowledge of Iban culture can broaden the community acceptance of this art form, minimise the knowledge gap and prevent these masterpieces from being forgotten and neglected.

Keywords: Aesthetic Perception; Community Acceptance; Design Motifs; Pua Kumbu; Visual Complexity

7.0 Introduction

Visual complexity is an activator that prompts individual preferences towards the tangible object of cultural heritage. Studies on visual complexity have been conducted since early 20th century and influenced by its origin in the Gestalt psychology theory and still being studied up till today. Sun and colleagues (2018) defined visual complexity as the degree of difficulty in the reconstruction of a description of visual art. It is associated with factors such as colors, texture and edges, curvature, object number, object size, pattern regularity, pattern compositions, and other related elements (Sun et al., 2014, 2018). The complexity plays a significant role in the perceiver's aesthetic preferences (Ball et al., 2018; Reber, 2012) in building perceivers' lifelong interest in deciding whether to like the visual arts or vice versa (Huang et al., 2020; Myszkowski et al., 2018).

Analyzing a work of art is not just merely looking, but also appreciating the work intrinsically to obtain some form of understanding and contributing to the perceivers' knowledge pool. Relatively, the acceptance of the perceiver towards the work of art depends on many factors such as the visual complexity of the visual art (Sun et al., 2018), the art knowledge (Tschacher et al., 2015), and "aesthetic fluency" through direct instruction and prior experience (Smith & Smith, 2006). Smith and Smith (2006) further pointed out that the interaction of aesthetic perception can be perceived when the aesthetic value is effortlessly attached to the art knowledge, which is measured closely based on perceivers' age, art training and art education.

Grüner, Specker and Leder (2019) stated that the establishment of art knowledge by the perceivers is treated as a foundation in forming better understanding of art. As for those without basic art knowledge, extra effort is required in comprehending the visual art displayed to them (Grüner et al., 2019; Miller & Hübner, 2019). The distinction between untrained and trained perceivers creates a gap in evaluating and criticising a work of art, which also depends on the level of art appreciation possessed by a person (Silvia, 2009). Thus, to explore the perspective of academicians in the Malaysian landscape is necessary in order to have an insight of the design motifs visual complexity of the Pua Kumbu textile, and to explore the community acceptance toward the art piece. It is believed, to analyse an object of cultural heritage is not only by 'look', but understand inherently to achieve collateral form of understanding.

7.1 Methodology

This research used the qualitative research method to explore the visual complexity and the community acceptance of the Pua Kumbu design motifs based on the perspective of academicians. The semi-structured questions, observation and analysis of relevant documents were conducted in answering the research questions:

i. What is the perspective of academicians on the visual complexity of the Pua Kumbu design motifs?
ii. What is the perspective of academicians on the community acceptance of the Pua Kumbu textile?

In the initial phase, the research questions were developed thematically to align with the aim of the study. Purposive sampling was employed, and specific samples of Malaysian academicians in the textile and art culture fields were chosen. Their expertise in the area of textile, and art culture fields related to the present study were greatly needed to strengthen the findings (Newman, 2014). Due to time and distance constraints, the qualitative data were collected in a variety of ways, including virtual discussions and physical face-to-face discussions, depending on the agreement of both interviewer and the interviewee. A question list was used as a guideline, and the questions were addressed in accordance with the conditions, emotions, and locations of the respondents. Closed observations on the actual Pua Kumbu in exploring the motifs complexity and on relevant documents were conducted to support the findings of the study. All data received were transcribed, and member checking was completed and finally, the qualitative data from the interviews were analysed. Table 7 shows the description of the respondents which are coded systematically to ensure personal data are hidden.

Table 7: Descriptions of the Academician and Coding

Name	Position & Qualification	Expertise	Coding
Academician 1	Senior Lecturer, Dr.	Iban Arts, Culture and Heritage	**A(1)**
Academician 2	Professor Dr.	Malay Art Culture, teaches weaving	**A(2)**
Academician 3	Assoc. Prof. Dr.	Iban Arts, Culture and Heritage	**A(3)**
Academician 4	Senior Lecturer, Dr.	Iban Arts, Anthropology and Sociology	**A(4)**

Thematic analysis was used where the interview questions were constructed in two main themes, which are i) Visual complexity, and, ii) Community acceptance and knowledge acquired. Seven questions were designed and categorized according to each theme, as shown in Table 8. Each question created is considered to collect and analyse information from the respondents.

Table 8: Descriptions of the Academician and Coding

Themes	Categories	Questions
Visual Complexity (Design Characteristics)	Pattern's regularity & compositions	1. Do you understand the design motifs applied? 2. What do you think of the design motif applied in terms of complexity?
	Colours	What is your opinion on the colour combination applied on Pua Kumbu?
	Object Size	What do you think of the size of the design motifs applied on Pua Kumbu?
Community Acceptance and Knowledge Acquired		1. Do you think the community understands the design motifs applied to the textile? 2. What is the best way to preserve Pua Kumbu for future the benefits? 3. What is your recommendation for Pua Kumbu future design and development?

7.2 Literature Review

The Pua Kumbu textile is one of the cultural artefacts from the Iban indigenous tribe, and it is a tangible cultural heritage which is protected sacredly by the Iban community, especially the older generation (Wahed et al., 2020).The way of living and belief practised by Iban are implicated in the local products such as the Iban's textile which is embedded with design motifs inspired from flora, fauna, and animism.

However, the complexity of the symbols presented in the design motifs contributes to the current lack of interest in this art form, especially among the young generation (Magiman et al., 2018), tourists, and other races in Sarawak (Wahed et al., 2019) in further understanding these motifs. This has led to the mistreatment and misuse of this majestic art form. Recently, a video of a social media influencer mocking the 'Ngepan Iban'- the traditional Iban costume publicly was posted on social media platforms (Emma, 2021) caused anger among the people of Sarawak, and the Iban people exclusively. This disrespectful action resulted due to lack of exposure and knowledge barriers. Wahed et al. (2020) suggested that those exposed to the art would have better aesthetic perception of Pua Kumbu. Perceivers with Pua Kumbu knowledge were able to form positive aesthetic perceptions while accepting and preserving to this tangible cultural heritage of Sarawak, Malaysia at its best. Pua Kumbu art knowledge is only acquired through observation and demonstration. Most Pua Kumbu research is done on personal or public blogs, not academic publications (Jehom, 2015). The beauty of Pua Kumbu's intangible cultural heritage is not just a cultural expression, but also a wealth of knowledge and the ability to pass it on from generation to generation. Arai remarked that conserving and propagating cultural values and customs is a global obligation (Arai, 2004).

7.3 Results and Analysis

This section reflects on the results of the interviews with the focus group. It presents the analysis of their verbal responses during the interviews. The responses were categorised into two sections, which are (i) Visual Complexity (Design Characteristics), and (ii), Community Acceptance and Knowledge Acquired. Table 9 shows the coded answer of the respondents in four different questions on the design characteristics which are categorized into (i) understanding of experts on patterns, (ii) complexity & compositions, (iii) colour combinations, and (iii) object size.

Table 9: The Interview Coding and Theme (Visual Complexity)

Interviewees	Visual Complexity (Design Characteristics)			
	Understanding (Patterns)	Complexity & compositions	Colour	Object Size
A(1)	Yes, I understand.	Complicated. It was the identity of the Iban motifs.	The original Pua colour is marron, but blue and green are more modern.	The mix of big and small motifs creates a complete pattern.
A(2)	Understand the technique, not the meaning	Complicated.	The printed colour has to be diluted since it is too bright.	Preferably small and detailed. If the image is large, make it repeated.

A(3)	Yes, I understand.	The complexity is depending on the patterns and should have complete set of every design.	Natural colour. Green, yellow, orange is not relevant to Iban.	Smaller motifs make finer patterns, yet larger motifs appeal to others.
A(4)	Yes, I understand.	Based on the difficulty of motifs, traditional IP issues, and taboos.	Natural colour.	The design motif size does not reflect Pua Kumbu.

Meanwhile, to obtain the understanding of the acceptance and knowledge acquired of the design motifs applied on the Pua Kumbu from the point of view of the experts, five questions were carefully delivered. The responses of each respondent are disclosed in themes and coded in Table 10

Table 10: The Interview Coding and Theme (Visual Complexity)

Interviewees	Community Acceptance and Knowledge Acquired		
	Community Understanding	Preservation	Future Design
A(1)	Do not understand unless they have the knowledge.	Competitions	Keep weaving, publish book, competition, implement the design as a decorative wall, or product.
A(2)	Do not understand unless they have the knowledge.	Apply the design to scarf, textile, souvenir product	Incorporate the design motifs to current textile fashion.
A(3)	Do not understand unless they have the knowledge.	Early education and exposure, seminars, workshops, conferences, documentaries	Integrated the design motif with product
A(4)	Do not understand, unless explained.	Just continue weaving and preserve it.	Cannot integrate into other design.

7.4 Discussions

Based on the findings, several discussions are held, which include (i) prior knowledge leads to positive aesthetic perceptions, (ii) weavers determine the visual complexity of the Pua Kumbu, and, (iii) versatility of promotional approaches can broaden community acceptance.

i. Prior knowledge leads to positive aesthetic perceptions

Most of the academicians agreed that Pua Kumbu does not receive positive recognition from the community due to lack of knowledge, which led to the mistreatment of the textile. This is supported by a study on painting artwork (Pietras & Czernecka, 2018) whereby greater aesthetic perception are influenced with prior knowledge on artwork. Therefore, it can be expected that fluency of the perceiver (community) in processing information regarding Pua Kumbu depends on the

art knowledge of the perceiver (Hager et al., 2012). The interrelation between knowledge and perception significantly impacts the aesthetic interest of the perceiver by either developing a positive or negative aesthetic perception to safeguard this art piece.

According to respondent A(2), those with exposure of the Iban culture and are from the state of Sarawak, have a better understanding on the intangible cultural heritage. However, those who lack exposure of the Iban culture, are unable to understand further. This is due to the natural environment and the adaptation of the cultural environment that contribute to a better aesthetic perception (Redies, 2015). This is supported in the study by Wahed et al. (2020) whereby background knowledge determines the understanding of the perceivers on the art piece. The findings revealed that participants from Peninsular Malaysia and Sabah demonstrated the lowest understanding on the Pua Kumbu design motifs. Art knowledge or skill in the field of Pua Kumbu design motif is depicted to be insufficient (Wahed et al., 2020). Academicians mutually agree that the establishment of positive aesthetic perception among perceivers is by education.

ii. Weavers determine the visual complexity of the Pua Kumbu

The concept of producing the design motifs of Pua Kumbu is based on the weaver's interpretations, where some weavers prefer big shapes of design motifs, and some prefer small sizes of design motifs which contribute to the greater visual complexity of the perceivers. The visual complexity of the Pua Kumbu design motifs is very subjective, which not only focuses on to the shape, line, form, size, colour and forth, but also relies on the stories portrayed by weavers in an art piece. Every design motif applied in the Pua Kumbu are interconnected to one another which, and with the combination the designs, the interpretation of the weaver can be translated, and only a person with the Pua Kumbu art knowledge, can successfully 'read' it. Academicians believe that the visual complexity of the Pua Kumbu lies within the weavers, as they are the storyteller of this majestic textile.

iii. Versatility of promotional approaches can broaden community acceptance

Academicians opine that this authentic textile should receive better recognition based on the credibility of the Pua Kumbu design motifs and the originality of the intangible features which are the emblematic of the Iban community and Malaysia in general. The integration of the Pua Kumbu design motifs to other surfaces of product can enrich acceptance of the community and enhance the perceivers' aesthetic perception and safeguarding the art piece from being inexistent. In the study conducted by Mathew (2018), the use of African and Ghana Adinkra design motifs by adapting them into different mediums was deemed as a way to safeguard the knowledge of its design motifs (Mathew, 2018). The integration of the traditional or heritage content into contemporary practice can enhance acceptance within the community, especially to young generations.

In addition, competitions, seminars, workshops, conferences, documentaries, and books will initiate the interest of the community and further preserve the heritage. Various promotional approaches, such as exhibitions, workshops, social media, knowledge sharing, and tourism education will foster knowledge and safeguard the cultural heritage for future generations.

7.5 Conclusions

The perspective of academicians on the visual complexity of Pua Kumbu design motifs and community acceptance on the textile were narrated in this chapter. Authors attempted to identify the optimal and significant discussion based on the interviews conducted, literature review, and observations which indicate that the textile has yet to receive adequate recognition from the community, either internally or externally, and this phenomenon is caused by various factors which resulted to textile mistreatment and misinterpretation. In summary, safeguarding the Pua Kumbu is not one person's mission but must involve collaboration between multiple organisations, stakeholders, and governments. Therefore, cooperation between communities and the tourism and heritage sectors is required to preserve this tangible art piece worldwide. Promoting the tangible cultural heritage product can broaden community acceptance and eliminate knowledge barriers, and contribute to the global preservation of the 'unspoken' knowledge. Finally, the tangible cultural heritage of Pua Kumbu should be recognised for its contributions to the preservation of traditional human values.

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