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# IDEALOGY JOURNAL

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**NURUL SHIMA TAHARUDDIN,  
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# Animasi Agen Pedagogi *Talking-Head* Pelbagai Tahap Realistik Dan Kesannya Terhadap Emosi: Suatu Kerangka Konseptual

## *Animation of Pedagogical Agent Talking-Head with Various Realistic Level and Its Effects on Emotions: A Conceptual Framework*

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### ABSTRAK

Animasi agen pedagogi *talking-head* mampu menarik perhatian pengguna dan boleh digunakan sebagai agen pedagogi dalam medium pembelajaran digital. Namun, animasi *talking-head* berpotensi untuk mengakibatkan gangguan emosi dan perasaan tidak selesa terhadap pengguna apabila karakter animasi *talking-head* direka bentuk terlalu realistik. Perasaan tidak selesa ini dikenali sebagai fenomena *Uncanny Valley* dan diperkenalkan Masahiro Mori pada tahun 1970 melalui kajiannya. Oleh itu, kertas kajian ini akan membincangkan serta mencadangkan suatu kerangka konseptual sebagai panduan untuk kajian-kajian berkaitan permasalahan ini. Kertas kajian ini akan membincangkan kepentingan dalam pemilihan karakter animasi dengan tahap realistik yang betul untuk mengelakkan kesan fenomena *Uncanny Valley*. Kerangka konseptual ini dibina berdasarkan teori, prinsip dan tinjauan literatur yang dilakukan. Kertas kajian ini juga mencadangkan kajian lanjutan untuk mengukuhkan kerangka konseptual yang dibina.

**Kata Kunci:** Animasi *talking-head*, *Uncanny-valley*, tahap realistik, emosi.

### ABSTRACT

Animation of pedagogical agent *talking-head* are capable of capturing the user's attention and can be used as pedagogical agents in digital learning media. However, *talking-head* animations have the potential to cause emotional disturbance and discomfort to users when the character is designed too realistically. This discomfort is known as the *Uncanny Valley* phenomenon, introduced by Masahiro Mori in 1970 through his research. Therefore, this research will discuss and propose a conceptual framework as a guide for studies related to this issue. This research will discuss the importance of selecting animation characters with the appropriate level of realism to avoid the effects of the *Uncanny Valley* phenomenon. The conceptual framework is built based on theories, principles, and literature reviews conducted. This article also proposes further studies to strengthen the conceptual framework that has been developed.

**Keywords:** *talking-head animation, Uncanny-valley, realistic level, emotion*



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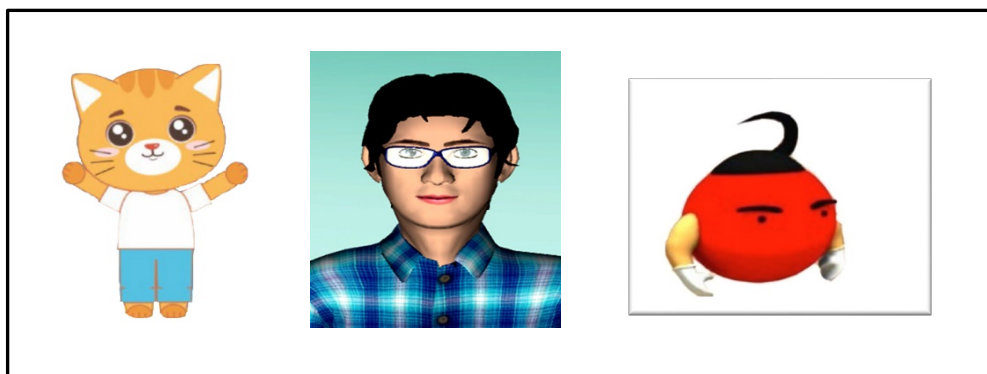
## 1 PENGENALAN

Kemajuan teknologi komputer khususnya dalam bidang animasi digital telah menjadikan elemen multimedia ini semakin mudah untuk dihasilkan dan penggunaannya telah berkembang ke pelbagai bidang termasuklah bidang pendidikan (Cakmak & Kuhnappel, 2000; Chan, 2015; Kainz et al., 2013). Perkembangan medium ini sebenarnya telah meningkatkan lagi keperluan inovasi terhadap penggunaannya dalam pengajaran dan pembelajaran di bilik kuliah secara berkesan (Chan, 2015; Tu & Chiang, 2016). Terdapat pelbagai strategi persembahan animasi digital yang boleh digunakan sebagai bahan bantu pembelajaran dan antaranya adalah animasi *talking-head*.

Animasi *talking-head* merupakan karakter animasi yang direka bentuk menyamai wajah manusia dan berfungsi menggambarkan pertuturan dengan pergerakan bibir yang disegerakkan (*synchronized*) dengan audio verbal seolah-olah karakter tersebut sedang bercakap atau memberikan penerangan (Ostermann, Chen, & Huang, 1998; Xie, Sun, & Fan, 2014). Animasi *talking-head* kebiasaannya digunakan pada aplikasi-aplikasi interaktif sebagai avatar dalam telepersidangan, aplikasi *virtual reality* dan juga bahan pembelajaran interaktif (Lu et al., 2021). Penggunaan animasi *talking-head* secara betul dan tepat dilihat berupaya memberi kesan yang positif kepada prestasi dan motivasi pelajar dalam proses pembelajaran (Ahmad Zamzuri & Mohd Najib, 2016; Shiban et al., 2015; van der Meij et al., 2015).

## 2 KARAKTER VIRTUAL TALKING-HEAD

Karakter virtual digunakan dalam pelbagai bidang atau konteks seperti dalam permainan video, avatar dalam aplikasi atas talian, dan karakter dalam bahan pembelajaran multimedia seperti agen pedagogi (Schroeder & Gotch, 2015). Agen pedagogi merupakan karakter virtual yang dipaparkan pada skrin komputer serta berperanan untuk menyampaikan isi kandungan pembelajaran dalam persekitaran multimedia (Kim et al., 2017; Lin et al., 2020; Schroeder, 2017). Agen pedagogi kebiasaannya direka bentuk dalam pelbagai rupa seperti haiwan (Liu et al., 2022), karakter yang menyerupai manusia seperti *talking-head* (Mohammadhasani et al., 2018), dan karakter berbentuk objek (Yung & Paas, 2015) seperti pada Rajah 1. Agen pedagogi *Talking-head* boleh dipersembahkan dalam bentuk yang paling asas iaitu imej statik pada skrin sehinggalah bentuk yang lebih kompleks seperti karakter animasi 3D (Schroeder et al., 2013).



**Rajah 1** (Kiri) – karakter menyerupai haiwan (Liu et al., 2022), (Tengah) – *talking-head* (Mohammadhasani et al., 2018), (Kanan) – karakter berbentuk objek (Yung & Paas, 2015)

Animasi *talking-head* berinteraksi dengan pengguna melalui suara atau teks pada skrin (Lin et al., 2020; Unal-Colak & Ozan, 2012; Xie et al., 2014) dan pengaplikasian animasi *talking-head* pada bahan pembelajaran multimedia dilihat mampu untuk mewujudkan persekitaran pembelajaran yang berkesan (Wang & Soong, 2015). Animasi *talking-head* berupaya untuk menarik perhatian pelajar dan melibatkan mereka dalam aktiviti pembelajaran untuk tempoh yang lebih lama serta mewujudkan persekitaran pembelajaran yang menyeronokkan (Unal-Colak & Ozan, 2012) selain memberi kesan yang positif terhadap emosi dan motivasi pelajar (Johnson & Lester, 2016; Tze et al., 2017). Selain dari itu, penggunaan animasi *talking-head* dilihat berkesan untuk membantu pelajar dalam menangani kesan emosi negatif dalam pembelajaran seperti keresahan atau *anxiety* terhadap sesuatu mata pelajaran (Kim et al., 2017).

Walaupun pengaplikasian animasi *talking-head* pada bahan pembelajaran multimedia dilihat memberi banyak kelebihan, namun begitu terdapat juga kajian yang menunjukkan keputusan yang sebaliknya. Saidatul Maizura et al. (2010) telah mengkaji kesan animasi *talking-head* yang berbeza tahap realistik dan mendapati tidak terdapat perubahan yang signifikan kesan animasi *talking-head* yang berbeza tahap realistik terhadap prestasi pembelajaran pelajar. Kajian yang dijalankan oleh (Domagk, 2010) pula mendapati tiada keputusan yang signifikan terhadap emosi bagi kumpulan pelajar yang menggunakan bahan pembelajaran animasi 3D *talking-head* realistik berbanding kumpulan kawalan yang menggunakan bahan pembelajaran berupa teks yang dipersembahkan pada skrin komputer. Manakala, kajian yang dijalankan oleh (Patel & MacDorman, 2015) pula mendapati sampel kajian menilai karakter animasi 3D *talking-head* sebagai pelik dan kelihatan mengerikan.

Hasil keputusan kajian lepas yang tidak konsisten ini menunjukkan bahawa pemilihan karakter animasi *talking-head* yang tepat perlu diberi perhatian semasa mereka bentuk bahan pembelajaran. Ini kerana pemilihan karakter yang tidak sesuai akan memberi kesan terhadap keberkesanan pembelajaran (Domagk, 2010). Peng, Chen, Wang dan Wang (2018) dalam kajian mereka mencadangkan supaya karakter animasi *talking-head* perlulah direka bentuk dengan wajah manusia yang lebih semula jadi dan tidak terlalu realistik. Ini kerana karakter yang direka bentuk kelihatan terlalu realistik seperti manusia sebenar dinilai sebagai kurang meyakinkan oleh pengguna (MacDorman et al., 2009).

### **3 ANIMASI TALKING-HEAD DAN KESAN TERHADAP EMOSI**

Penggunaan karakter *talking-head* yang betul dalam bahan bantu pembelajaran dilihat mampu meningkatkan emosi positif sepanjang proses pembelajaran (Um et al., 2012; Villavicencio & Bernardo, 2013). Namun begitu, apabila karakter animasi *talking-head* yang berbeza tahap realistik diuji, kesan terhadap emosi menunjukkan ke arah yang semakin negatif apabila karakter animasi *talking-head* tersebut direka bentuk pada tahap realistik yang tinggi dan hampir menyerupai manusia sebenar (Tinwell & Sloan, 2014). Ini adalah kerana, karakter yang terlalu realistik memberi gangguan terhadap emosi dan mendatangkan perasaan yang tidak selesa bagi pengguna (MacDorman & Chattopadhyay, 2016; Mori, 2012). Selain itu, karakter realistik seperti animasi *talking-head* 3D juga berupaya untuk mencetus emosi keresahan terhadap pelajar yang menonton karakter tersebut (Peng et al., 2020). Umum mengetahui bahawa emosi memainkan peranan yang signifikan terhadap motivasi di mana emosi positif akan meningkatkan motivasi pelajar untuk terus belajar manakala emosi negatif akan menyebabkan motivasi pelajar menurun dan seterusnya mengelak dari meneruskan pembelajaran (Lei & Cui, 2016; Mega et al., 2014; Pekrun et al., 2002, 2011). Ini secara tidak langsung akan memberi kesan terhadap keberkesanan pembelajaran secara keseluruhannya.

Selain daripada itu, ekspresi pada wajah karakter animasi *talking-head* juga dilihat memberi kesan terhadap emosi pengguna. Ekspresi pada wajah karakter boleh dibahagi kepada beberapa emosi asas iaitu marah, benci, takut, gembira, sedih, terkejut dan emosi neutral (Tinwell & Sloan, 2014). Pengguna melihat ekspresi wajah yang positif seperti gembira sebagai lebih mesra dan mampu untuk memberikan kesan yang positif terhadap emosi berbanding ekspresi wajah karakter yang lain (Liew et al., 2022; Tinwell & Sloan, 2014; Y. Wang et al., 2022). Kajian lampau dilihat tidak banyak menumpukan



terhadap faktor ekspresi dan tahap realistik karakter *talking-head*, terutamanya dalam meningkatkan motivasi dalam pembelajaran.

Dari hasil kajian lampau boleh disimpulkan bahawa karakter *talking-head* realistik memberi kesan negatif terhadap emosi pengguna berbanding dengan karakter *talking-head* yang tidak realistik (Mohd Najib, 2015). Namun begitu, adakah keputusan yang sama akan diperoleh sekiranya karakter animasi *talking-head* pelbagai tahap realistik dengan ekspresi wajah yang positif digunakan? Ini kerana, ekspresi wajah yang positif seperti senyuman berkemungkinan dapat menghilangkan atau mengurangkan kesan negatif terhadap emosi pengguna.

## 4 KERANGKA TEORI

Kerangka teori kajian ini dibina berdasarkan kepada teori *Control-Value of Achievement Emotions* bagi emosi dalam pembelajaran dan fenomenon *Uncanny Valley*.

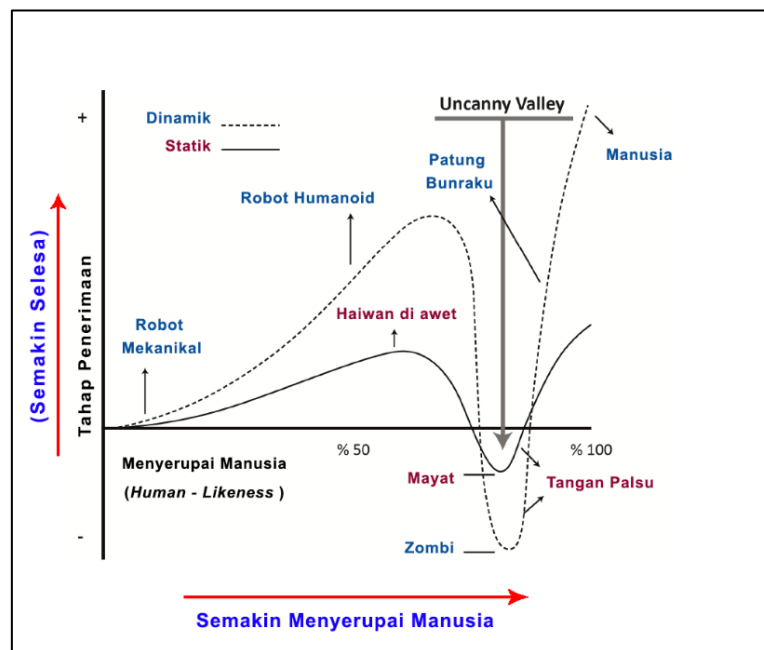
Teori *Control-Value of Achievement Emotions* yang telah dibangunkan oleh (Pekrun, 2006) berfokus terhadap emosi pencapaian dan bertujuan untuk menganalisis penyebab berlakunya perubahan emosi dan kesan emosi yang dialami dalam persekitaran pembelajaran (Muñoz et al., 2016; Pekrun, 2006). Emosi pencapaian merupakan emosi yang dirasakan secara langsung oleh pelajar semasa melakukan aktiviti pembelajaran atau emosi yang dirasakan oleh pelajar hasil dari pencapaian yang diperoleh dari aktiviti pembelajaran yang telah dilakukan (Artino et al., 2012; Pekrun et al., 2002, 2007; Pekrun & Linnenbrink-Garcia, 2012). Teori *Control-Value of Achievement Emotions* membahagikan emosi pencapaian kepada tiga nilai atau dimensi iaitu tindak balas emosi (positif atau negatif), tahap pengaktifan emosi (mengaktifkan atau menyahaktifkan) serta objek fokus (aktiviti atau hasil pembelajaran) (Artino et al., 2012) dan taksonomi tiga dimensi bagi emosi pencapaian telah dibangunkan berdasarkan dari ketiga-tiga nilai tersebut (Pekrun et al., 2007).

Berdasarkan taksonomi tiga dimensi bagi emosi pencapaian, emosi positif yang dialami oleh pelajar semasa aktiviti pembelajaran berlaku terbahagi kepada dua tahap pengaktifan emosi iaitu mengaktifkan (seronok) dan menyahaktifkan (bersantai). Emosi positif seperti berasa seronok atau gembira semasa melakukan aktiviti pembelajaran dilihat mampu untuk meningkatkan motivasi pelajar manakala emosi negatif seperti bosan dengan aktiviti pembelajaran pula akan menjejaskan motivasi pembelajaran pelajar (Pekrun et al., 2002; Plass & Kalyuga, 2019; Um et al., 2012). Oleh yang demikian, kajian ini akan menumpukan kepada dimensi tindak balas emosi positif (seronok) (seperti pada Rajah 2) serta mengenal pasti tahap realistik karakter yang dapat meningkatkan emosi positif pelajar terhadap pembelajaran.

Objek Fokus (Object Focus)	Positif (Positive)		Negatif (Negative)	
	Mengaktifkan (Activating)	Menyahaktifkan (Deactivating)	Mengaktifkan (Activating)	Menyahaktifkan (Deactivating)
Fokus terhadap Aktiviti (Activity Focus)	- Seronok (Enjoyment)	- Santai (Relaxation)	- Marah (Anger)  - Kecewa (Frustration)	- Bosan (Boredom)

**Rajah 2** Dimensi tindak balas emosi positif (seronok) berdasarkan teori *Control-Value of Achievement Emotions* (Pekrun et al., 2007)

Teori kedua yang disandarkan dalam kajian ini ada fenomenon *Uncanny Valley*. Fenomenon *Uncanny Valley* menerangkan perkaitan di antara perbezaan tahap realistik karakter terhadap tahap keselesaan dan emosi manusia (Mori, 2012). Fenomenon ini digambarkan melalui graf *Uncanny Valley* seperti pada Rajah 3. Fenomenon *Uncanny Valley* menyatakan bahawa karakter animasi yang terlalu realistik memberikan kesan yang negatif terhadap tahap keselesaan dan emosi pengguna yang menonton karakter tersebut (Lay et al., 2016; MacDorman & Chattopadhyay, 2016; Mori, 2012). Oleh itu, adalah penting untuk memastikan pemilihan karakter animasi dengan tahap realistik yang sesuai dilakukan semasa proses pembangunan kerana kesilapan dalam pemilihan karakter animasi dengan tahap realistik yang bertepatan akan menyebabkan kesan fenomenon *Uncanny Valley* berlaku kepada pengguna (Ahmad Zamzuri & Mohd Najib, 2016; Kaba, 2013; Kunz, 2015). Oleh yang demikian, kajian ini akan mengaplikasikan teori fenomenon *Uncanny Valley* untuk menilai adakah emosi pelajar terhadap karakter animasi *talking-head* memberi kesan terhadap emosi pembelajaran pelajar secara keseluruhannya.



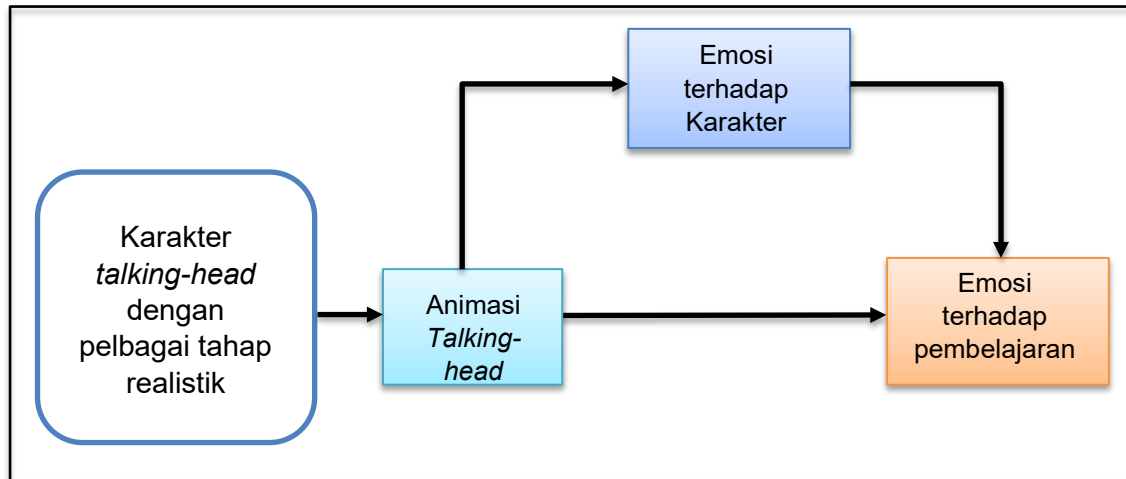
Rajah 3 The Uncanny Valley (Mori, 2012)

## 5 KERANGKA KONSEPTUAL KAJIAN

Berdasarkan dari tinjauan literatur dan teori yang disandarkan, kajian ini mencadangkan satu kerangka konseptual animasi *talking-head* sebagai agen pedagogi seperti pada Rajah 4. Berdasarkan daripada kerangka konseptual yang dibina, animasi *talking-head* dengan tahap realistik karakter yang betul dilihat dapat memberikan kesan yang signifikan terhadap emosi pembelajaran. Berdasarkan teori *Control-Value of Achievement Emotions* oleh (Pekrun et al., 2007), emosi positif yang dirasai oleh pelajar seperti seronok dan gembira semasa pembelajaran mampu untuk meningkatkan motivasi dan emosi pembelajaran. Emosi positif dilihat mampu untuk meningkatkan motivasi pelajar untuk terus belajar dalam satu tempoh masa yang bermakna. Namun begitu, tahap realistik karakter animasi *talking-head* mungkin menjadi penyebab berlakunya perubahan emosi yang dialami oleh pelajar dalam sesi pembelajaran. Oleh itu, Animasi *talking-head* dengan tahap realistik yang betul dan bersesuaian perlu dikenal pasti.

Reka bentuk karakter yang terlalu realistik akan memberikan kesan yang negatif terhadap tahap keselesaan dan emosi pengguna. Hal ini berlaku kerana kesilapan dalam memilih reka bentuk karakter yang bersesuaian terutamanya pemilihan dari sudut tahap realistik karakter. Berdasarkan dari fenomenon *Uncanny Valley*, tahap realistik karakter merupakan elemen utama yang perlu diberi perhatian semasa mereka bentuk animasi *talking-head* agar gangguan terhadap emosi pengguna dapat

dilakukan. Emosi negatif yang dirasakan pelajar terhadap karakter berkemungkinan akan menyebabkan motivasi pelajar menurun dan seterusnya akan mengelakkan diri dari meneruskan pembelajaran. Ini secara tidak langsung akan memberi kesan kepada emosi pembelajaran pelajar secara keseluruhannya. Selain daripada itu, ekspresi wajah karakter juga perlu diberi perhatian semasa mereka bentuk animasi *talking-head*. Ini kerana pengguna menilai ekspresi wajah yang positif seperti senyuman adalah lebih mesra dan mampu memberikan kesan yang positif terhadap emosi. Sehubungan dengan itu, emosi pelajar terhadap karakter animasi *talking-head* yang menunjukkan ekspresi muka yang positif perlu dikenal pasti dan seterusnya melihat adakah emosi pelajar terhadap karakter mempengaruhi emosi pembelajaran mereka.



Rajah 4 Kerangka Konseptual Kajian Yang Dicadangkan

## 6 KESIMPULAN

Animasi *talking-head* dilihat mempunyai potensi untuk dibangunkan sebagai bahan bantu pembelajaran yang dinamik. Inovasi bahan bantu pembelajaran sebegini mampu memberi ruang kepada tenaga pengajar atau pensyarah untuk mempelbagaikan kaedah pengajaran di dalam kelas. Namun begitu, kesilapan dalam pembangunan animasi khususnya pemilihan karakter animasi dengan tahap realistik yang sesuai akan memberi kesan yang negatif kepada pelajar terutamanya emosi terhadap pembelajaran pelajar. Oleh itu, kajian ini akan menilai kesan penggunaan karakter animasi *talking-head* yang berbeza tahap realistik terhadap emosi pembelajaran pelajar. Penilaian ini akan mengukur kesan emosi pelajar terhadap karakter animasi dan seterusnya melihat adakah kesan emosi terhadap tahap realistik karakter ini mempengaruhi emosi pelajar terhadap pembelajaran. Keputusan dari kajian terhadap penggunaan animasi *talking-head* ini diharapkan dapat menjadi panduan dalam pemilihan karakter yang paling sesuai agar mampu memberi kesan yang positif terhadap emosi pembelajaran pelajar.

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# Re-Imagining the *Inait* of the *Magavau* Ritual in Intercultural Music Compositional Process

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## ABSTRACT

*Inait* is a long ritual poem that is used in various rituals such as the *Magavau* ritual from Kadazan ethnic, Penampang, Sabah. Some are chanted, and some are recited in a normal speaking voice. When we listen to it, it has its musical characteristics. As a Western-trained music composer, a question came to my mind. Can the musical characteristics of the *inait* be retained in a new composition without any changes? Thus, this study is intended to explore the possibilities of composing musical work using the music characteristics found in the *inait* of the *Magavau* ritual from the Kadazan Penampang and incorporating Western tonal music. Using Akuno's CIC Model of Creativity, two (2) musical works are presented with an in-depth discussion of the compositional technique used. Each analysis and commentary of the works discuss inspiration, technical aspects, and musical examples are provided.

**Keywords:** Intercultural music composition, Intercultural composer, Compositional technique, *Inait* in *Magavau* ritual, Kadazan Penampang



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## 1 INTRODUCTION

*What is your music identity in this world?"*  
Carey, Ross James (personal communication, 2011)

When a composer presents a new art music composition to the public, it embarks on a journey that encompasses performance, reception, judgment, and explanation, expecting it to be accepted in the musical world (Willgoss, 2018). In both conception of the work by the composer and the reception by players and listeners, the concept of creativity is used (ibid). I argue that intercultural composers used the concept of creativity in developing their musical language.

In Sabah, many popular music composers have used the Kadazandusun traditional music elements in their music. One of them was a song entitled *Kanou Sumazau* by Datuk Peter Pragas, where he took melodies from folk songs and composed popular music. Many else unexplored elements are possible to be studied, like the sacred ritual by Kadazandusun ancestors. I realized that the Kadazan *Magavau* ritual from Penampang has a musical characteristic although in general, this ritual is mostly chanting. Later, I asked myself, are the music characteristics available in the ritual of *Magavau* can be used and retained in a composition music work? I was thinking of re-imagining the *inait* of the *Magavau* in the music compositional process. Thus, it come to my sense that I wanted to explore the possibilities of producing a musical composition using the musical characteristics found in *inait* from the *Magavau* ritual of the Kadazan ethnic from Penampang, Sabah.

## 1.1 *Inait* of the *Magavau* Ritual

In the past life of Kadazan people, they believe that powers in the real world and the unseen world must strike a balance in life. Kadazan community used a *bobohizan* as a medium to communicate with supernatural power. A *bobohizan* is someone who is proficient in Kadazandusun's customs and is usually a well-known practitioner in traditional medicine or a traditional doctor (Hussin, 2003; Sintang, 2003; Sansalu, 2002). According to Rev. Fr. Ned (personal communication, 2016), a *bobohizan* acts as a mediator between the living and the spirit world. In Kadazan's belief, the visible world of the living runs parallel with the invisible world of the spirits. To venture into the world of the spirits, the *bobohizan* will employ a *divato* to guide them in the spirit world. A *bobohizan* will act as an intermediary between the living and the Creator called *Kinoingan*. The spirit world is a dangerous place and the *bobohizan* needs the guidance to keep them off from danger. The *bobohizan* goes into the spirit world to rescue the spirits of the living body that has become detached from the body caused by a serious accident or to neutralize a bad dream by going to the world of dreams called *kohosidan*. The *bobohizan* takes the role of a medicine person when he/she prescribes traditional medicines to those suffering from illnesses caused by cancer and other serious sicknesses. The *bobohizan* also performs a thanksgiving ceremony for a good harvest during the *Magavau* and *monogit* rituals. The Kadazan people believe that spirits take their dwellings in physical objects especially big trees like the banyan tree or nunuk and big stones or menhir. The people cannot see them, as they are invisible. To their eyes, they are just trees but in the spiritual world, there are seen as houses. Each of the rituals has a different way to perform it.

To conduct a ritual, the *bobohizan* will usually use an *inait* to communicate with the invisible world. *Inait* is a long ritual poem memorized by the *bobohizan* that may take hours to recite. Some are chanted, and some are recited in a normal speaking voice. They are formed from biambic lines, in which the first line in each pair is in the common language, and the second (of the same meaning) is in the ritual language (Pugh-Kitingan, 2012). In recent days, the Kadazandusun people also perform the *Magavau* ritual during the *Pesta Kaamatan* (Harvest Festival) during the month of May to express their gratefulness to *Kinoingan*. *Inait* is learned orally and handed down over many generations.

## 1.2 Western Tonal Music

Most Western music is based on the tonality system since the 16<sup>th</sup> century. According to Benward and Saker (2003), a tonality system is an organized system of tones (e.g. the tones of a major or a minor scale) in which one tone (the tonic) becomes the central point to which the remaining tones are related. It has been developed since the Baroque period until the present day. However, during the 20<sup>th</sup> century, composers started developing atonal music or music that does not have any reference to a key center. This form of music was introduced by Arnold Schoenberg (Kamien, 2008). According to *Kamus Seni Muzik* (2009), tonality can be described as the character of a piece of music related to the key center. It is an organized system of tones (the tones of a major or minor which is a melodic sequence, made up of different intervals of half step and whole step). Another definition by Hyer (2008) explained that tonality is a musical concept that encompasses the organization of pitch elements and their relation to a central pitch.

## 1.3 Music Composition Concept

Chapman's definition of music composition is when the music of two or more cultures is merged; the outcomes can range from simple borrowings to the development of new forms of music (Chapman, 2007). Music composition has been defined as the creation of a cultural synthesis of the old and new, traditional and foreign into a philosophical, artistic, stylistic, and aesthetic product that communicates to various audiences. It is the creation of a cultural synthesis of traditional and foreign into a philosophical, artistic, and stylistic product that communicates to both local and foreign audiences (Musungu, 2010).

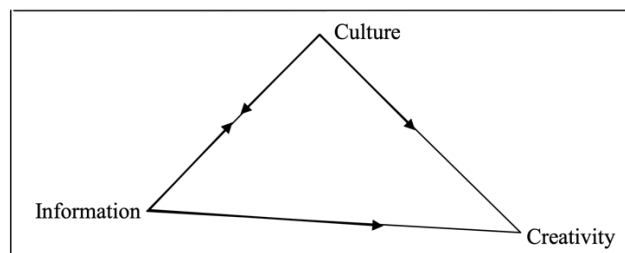


According to Kilin (2012, p. 47-48), a New Zealand composer has identified various approaches to creating music using other cultures such as:

- a) Incorporating folk tunes (or melodies based on folk tunes) in a Western art music piece.
- b) Imitating the timbres of non-Western music through the choice of instruments in Western art music.
- c) Imitating the sounds of non-Western music by adopting their modes, scales, rhythmic ideas, and so on, in a Western art piece.
- d) Appropriating non-Western material for a Western art music piece through transcription techniques, or studying the music and composing using traditional techniques.
- e) Including recordings of non-Western music in an instrumental Western music piece or an electro-acoustic composition.
- f) Composing for the non-Western(s), often in combination with Western instruments, though in a Western art music context, that is, as a work of chamber music.
- g) Composing for the non-Western instrument(s), perhaps in combination with Western instrument(s), in the context of the traditional music, or heavily inspired by authentic traditional performances and conceived as in that style, expose the composer's native.

## 1.4 Theoretical Framework

To conduct this study, I have used the CIC Model of Creativity introduced by Akuno (2000), where Creativity (C) in music comes from the relationship between Culture (C) and Information (I). According to Musungu (2010), “*Culture* is the total of one musical life absorbed from the environment through daily exposure including musical sounds and activities that make up the individual's environment while *Information* consists of the knowledge and skills that are passed on to an individual, which includes both formal and informal training that involve traditional musicians”.



**Figure 1** The Akuno's CIC Model of Creativity

The three (3) areas are explained as follows; *Culture A (CA)* represents the *bobohizan*; *Culture B (CB)* represents the Western tonal music; *Information A (IA)* represents the musical characteristics of *inait* in *Magavau* ritual; *Information B (IB)* represents the compositional technique and instrumentation; (C) *Creativity* is the result of intercultural music compositional process between *Culture(s)* and *Information(s)* (see Fig. 2 below).

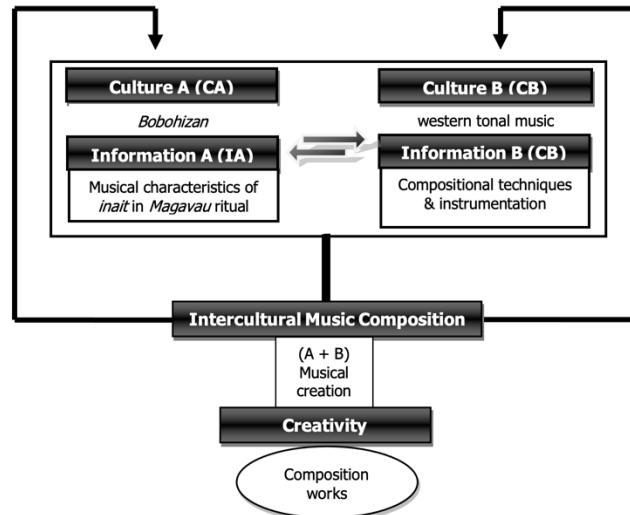


Figure 2 Concept in Model of Creativity

## 2 METHODOLOGY

This study applies the creative process in arts. Using the content analysis, two (2) *Magavau(s)* were chosen as my main material, and they were analyzed using *Sibelius* music notation software (Dainal, 2019). Then, The materials used as part of my intercultural music compositional process. Finally, using Akuno's CIC Model of Creativity, two (2) musical works are presented with an in-depth discussion of the compositional technique used. Each analysis and commentary of the works discuss inspiration, technical aspects, and musical examples are provided.

## 3 MUSIC CHARACTERISTICS OF *INAIT* IN THE *MAGAVAU* RITUAL

### 3.1 *Inait* in *Magavau A* – Kg. Kuai-Kandazon, Penampang

*Magavau A* had been recorded on May 31, 2016, during the closing ceremony of *Pesta Kaamatan Peringkat Negeri Sabah* in Hongkod Koisaan in Penampang. The leading *Bobohizan* was led by Wildy Moujing (Dainal, 2019).

**Part 1: Magagandai**  
 ♩ = (55 - 60)

Line 1

Bobohizan Yo\_\_\_\_\_ hoi An - da - zo da-zo\_ ku\_\_\_\_\_ ih ta\_ bu

Group An - da-

Line 2

Bobohizan Yo\_\_\_\_\_ hoi

Group zo\_ si- li\_ Si - li\_ zo\_ In - gi - do a - ta - ta - po

Bobohizan Si-li\_ Si-li\_ zo Ih\_ Non-du - lu\_

Group Ih Non - du - lu Doh Si - nu -

Bobohizan

Group - pu\_ Do - hi - mo Do Si - nan - sa

Figure 3 Transcription of Part 1 (*Magagandai*) in *Magavau A*; Line 1 – 2

**Part 2: Mangambai**  
 ♩ = (100 - 105)

Line 1

Bobohizan Au\_ Noh Ha - zid\_ pa\_ Na - no\_\_\_\_\_ i - dah\_ noh bu -

Group Na - no\_\_\_\_\_ i - dah\_ noh bu -

Line 2

Bobohizan -vai nga pong - Nu-nu mah - ih bun-tu vo-on ku\_

Group -vai nga pong - ki - oi vo-on ku\_

Bobohizan Ku - ai noh mai sin - di - on ku

Group Ku - ai noh mai sin - di - on ku

Figure 4 Transcription of Part 2 (*Mangambai*) in *Magavau A*; Line 1 – 2

**Part 3: Mongizak**  
 ♩ = (100 - 105)

Line 1

Bobohizan

I - zak i - za - kon - ku Bam - baa - zon do no - tim - pa

Group

I - zak i - za - kon - ku Bam - baa - zon do no - tim - pa

**Figure 5** Transcription of Part 3(*Mongizak*) in *Magavau A*; Line 1

### 3.2 *Inait* in *Magavau B* – Kg. Kituau-Ramayah-Limbanak-Sugud, Penampang

The *Magavau B* is shared from Rev. Fr. Ned’s collection for the study (Dainal, 2019). However, the name of the leader was unfortunately overlooked. Below are the transcriptions (first line in every part only) of the *Magavau* ritual.

**Part 1: Magagandai**

Bobohizan

le an - da-zo da-zo ku - lh ta - a-bu ing-gi-do ku ie ta-zas

Group

An - da zo - si-li - si - li - zo Ing-gi-do - a - ta-ta-po

**Part 2: Mangambai**

Bobohizan

Au \_\_\_\_\_ noh ha - zid pa - na - no

Group

na - no I - da - noh bu - vai nga pong - ki - ai

**Part 3: Mongizak**  
(Chanting)

Bobohizan



Group

**Figure 6** Transcription of *Magavau B*

The complete musical characteristics have been done by Dainal (2019). Thus, the transcription of *Magavau(s)* in Western music notation is shown in this paper as a reference. Below is the summary of the music characteristics (purpose, form, tonality, melodic structure, rhythmic pattern, texture, tempo, and antiphony) in *Magavau A* and *Magavau B*.



**Table 1** Summary of the musical characteristics in *Magavau A* and *Magavau B*

<i>Magavau/</i> Musical Characteristics	<i>Magavau A</i>	<i>Magavau B</i>
<b>Purpose</b>	Ritual to honour the paddy spirit for the purpose of grateful for the rice harvest earned after harvesting. The celebration focuses in the restoration of <i>bambaazon</i> into the <i>tangkob</i> . In the olden days, the <i>Magavau</i> ritual is performed in the paddy field on the night of the first full moon after the harvest but presently, this ritual is carried out in the house of the owner of the field.	
<b>Form</b>	<p>Part 1: <i>Magagandai</i>  <i>Magagandai</i> literally means, “dandling” or to throw a baby up and down. In this case, the <i>bobohizan</i> dandles the rice, as if it is a baby, through <i>monoud</i>. The <i>Bobohizan</i> at first chants the opening theme then answered by the group to end the <i>inait</i> line.</p> <p>Part 2: <i>Mangambai</i>  The <i>bobohizan</i> and the group will form in train-like formation around the <i>tangkob</i> (a traditional large store/hut for harvested paddy) once the <i>Magagandai</i> process is done. This is a preparation stage to welcome the <i>bambaazon</i> (the spirits or life force of the paddy grains) from the invisible world. The <i>bobohizan</i> chants first, followed by the group chanting in unison while walking rhythmically surrounding the <i>tangkob</i>.</p> <p>Part 3: <i>Mongizak</i>  <i>Mongizak</i> means to call the <i>bambaazon</i> that fell to the ground while harvesting to come and reside in the <i>tangkob</i>. Both <i>bobohizan</i> and the group chant in unison to end the performance.</p>	
<b>Tonality</b>	Approximately Bb4 (~466Hz) and C4 (~261Hz). Tonal centre in <i>Magavau A</i> varies in every performance and does not have particular fixed tonal centre; may change with different performance.	Approximately A5 (~880Hz). Tonal centre in <i>Magavau B</i> varies in every performance and never have particular fixed tonal centre; may change with different performance.
<b>Melodic Structure</b>	<ul style="list-style-type: none"> <li>i) Melodic contour consists of wavy, centric, descending and bowl shape.</li> <li>ii) Interval up from steps to sixths.</li> <li>iii) Range E4 (~329Hz) to C6 (~1046Hz)</li> </ul>	<ul style="list-style-type: none"> <li>i) Melodic contour consists of wavy, centric, descending and bowl shape.</li> <li>ii) Interval up from steps to fifths.</li> <li>iii) Range from F3 (~174Hz) to D5 (~587Hz)</li> </ul>
		
<b>Rhythmic Pattern</b>	Both <i>Magavau A &amp; B</i> is a chanting type of performance with unstructured meter rhythmic pattern. In <i>Magagandai</i> , the rhythm is flexible and it is not determine by any fixed tempo. In <i>Mongizak</i> , the melody has a stronger steady pulse.	
<b>Texture</b>	Both <i>Magavau A</i> and <i>B</i> are in monophonic texture that consists of only one single melody line at a time. However, there are overlapping of voices between the <i>bobohizan</i> and the group especially at the end of phrase <i>bobohizan</i> chanting and at the beginning for the group.	
<b>Tempo</b>	Getting faster to the next part. Part 1: <i>ologot</i> or slow; Part 2: <i>asadang</i> or moderate; Part 3: <i>osiau</i> or fast. Many composers are used to describe their musical works in western language. It is my effort to use the local Kadazandusun terms in my compositional works to preserve this language, and be a pioneer to the other local Kadazandusun composers to stand our own identity. I have used words from the Dusunic group as to describe the speed of chanting in <i>Magavau</i> ritual.	
<b>Antiphony</b>	Occurs in <i>Magagandai</i> and <i>Mangambai</i> , where the <i>bobohizan</i> chants the melodic phrase first followed by the group members responded as counter melody and end the melodic phrase together. Both of these melodic phrases overlap each other at the end of each melodic phrase.	

## 4 ANALYSIS OF MY MUSICAL CREATION

The next following section will discuss the process of composing music, borrowing the music characteristics found in the *inait* of the *Magavau* ritual from the Kadazan Penampang. Two (2) musical works are selected, (i) *Limo Tangon Do Mananom Parai for Piano* (2016); and (ii) *Tusak Do Opurak for Flute and Piano* (2017).

### 4.1 Piece 1: *Limo Tangon Do Mananom Parai for Piano* (2016)

This piece consists of a series of storytelling about the process of traditional paddy field cultivation usually practiced by the Kadazandusun community. There are five (5) *Tangon* (stories) written according to its steps in cultivating the paddy field:

*Tangon I* : Paddy farmers used to get their fields ready before the rainy season. The weeds are cleared and the field is ploughed by buffaloes or tractors to a depth of a few inches. Manures and fertilizers are added to the soil. The whole surface then remains covered with water. The field is then ready for receiving seedlings from the nursery.

*Tangon II* : Generally, paddy seedlings are first prepared in the nursery and later transplanted to the field after 40 days. However, the yield of paddy that has grown to four or five leaves is better than the direct sowing. The transplanted paddy also grows faster because of regular spacing and matures within a shorter period.

*Tangon III* : Paddy fields also require regular maintenance, such as occasional weeding and thinning out the more crowded patches; the level of water has to be maintained according to the paddy growth and the fields have to be drained dry before the crop is harvested.

*Tangon IV* : The traditional harvesting system is either a curved knife or a sharp-edged knife. It is very labor-intensive. Harvesting is done in the dry season when the weather is sunny.

*Tangon V* : After the paddy stalks have been gathered and dried for a brief spell, threshing is done. By beating the sheaves against the bars, the grains are separated from the stalks. Before the final harvest, winnowing and milling are done. Winnowing is a process of removing unwanted particles from paddy grains. The simplest way is by pouring the paddy down from a height on a windy day to a large square mat on open ground. The grains fall to the mat while lighter chaff blows out. Sometimes hand-winnowing machines are also used. Milling means the removal of the yellowish husks from paddy so that white or polished rice is obtained. In a rice mill, the paddy is passed between different sets of hullers or rollers until it is milled or polished.

#### 4.1.1 Material

Material refers to the melodic theme used as the compositional technique which is taken from the *Magavau inait*. In Fig. 7, the theme for *Tangon I* is played by the left hand starting from bars 5 – 9. The right-hand accompaniment plays a lively short melodic phrase to depict the paddy farmers preparing the field before the planting begins.

**Figure 7** Material in *Tangon I* (bar 5 – 9)

In *Tangon II*, the melodic sequence from Part 1 (*Magagandai*) sung by the group is used as the main melody (see Fig. 8), and composed at a slow tempo marked as *Ologot*. The replication of the melodic sequence is to reflect the emotion expressed in the *bobohizan* chanting while imagining the process of the paddy seeds growing up. This melodic sequence will be heard three (3) times in the introduction, section A, and section B.

**Figure 8** Material in *Tangon II* (bar 1 - 2)

*Tangon III* emphasizes the melodic sequence taken from *Mongizak*, sung by the group to accompany the *bobohizan*. The melody consists of four (4) bars of phrasing, which is combined from two (2) small semi-phrases (see Fig. 9 - right hand).

**Figure 9** Material in *Tangon III* (bar 2 -5)

The melody in *Tangon IV* is borrowed from the melodic sequence in Part 1 (*Magagandai*) from the *bobohizan* part. The actual melody recorded from the *bobohizan* performance was unstable, thus the melodic contour is simplified in *Tangon IV*.

**Figure 10** Material in *Tangon IV* (bar 9 – 15)



*Tangon V* is the final composition for this piece. The melodic sequence from Part 3 (*Mongizak*) sung by the group, will be the main melody for *Tangon V*. There are two (2) variations of melodic phrase written for *Tangon V*, as shown in Fig. 11:



Figure 11 Material in *Tangon V* (bar 9 – 12; bar 17 – 20)

#### 4.1.2 Form

Below is the form analysis in *Tangon I* of *Limo Tangon Do Mananom Parai* (2016). *Tangon I* starts with an Introduction of right-hand accompaniment followed by the first half of the piece. The theme (see Fig. 12) is introduced at the lower register on the left hand and taken over by the right hand at an octave register. There are three (3) bars of transition between the left-hand and the right-hand melody. In the middle, an Interlude section is played before the second half comes in. The second half of *Tangon I* is the repetition of the first half composition. *Tangon I* ends with seven (7) bars of accompaniment motive but played in octave both left and right hand.

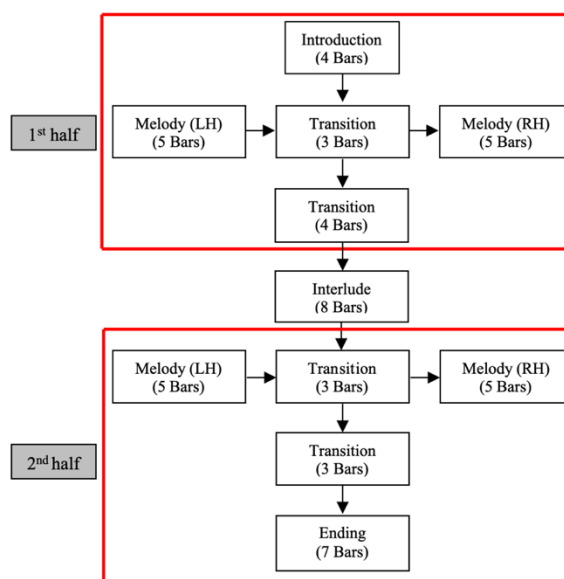


Figure 12 Form analysis in *Tangon I*

*Tangon II* begins with two (2) bars of a main theme without accompaniment and is followed by eight (8) bars of introduction with accompaniment. In section A, the theme (see Fig. 13) is played and accompanied by chord progressions. The interlude (marked with the letter B) is found at bars 18 – 24 and is a repetition of the introduction before going to section C. Section C plays the theme similar to Section A but in section C the melody is played in octave while the left-hand pattern plays an arpeggiated chord type of accompaniment. The piece ends with the last three (3) bars of repetition of the last cadence in section C.

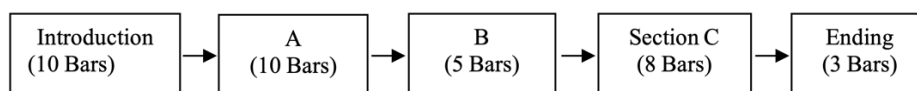
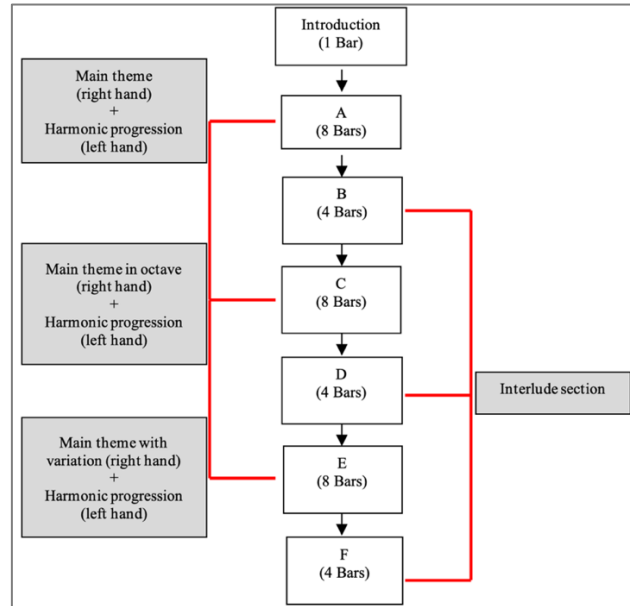


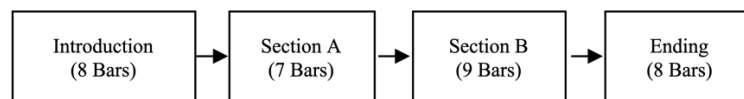
Figure 13 Form analysis in *Tangon II*

The form of *Tangon III* begins with a one (1) bar introduction of V – I harmonic progression. Then, eight (8) bars' main theme (see Fig. 14) is introduced in Section A. The theme is heard again with an octave playing on the right hand in section C and with variation in section E. There are four (4) bars of interlude in between sections A, C, and E. *Tangon III* ends with four (4) bars, which is a repetition musical idea of the Interlude section.



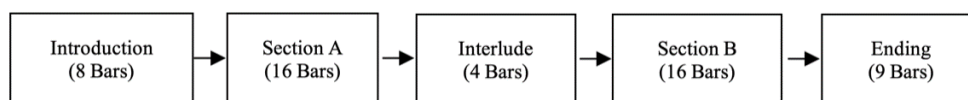
**Figure 14** Form analysis in *Tangon III*

In *Tangon IV*, the Introduction and Ending sections are shared with a similar musical idea, which is to deliver a happy mood to the listeners. This is influenced by the local culture of the Kadazandusun people where they must prepare themselves (including the harvesting tools, take enough breakfast together, and sometimes chant to express a happy mood) before going to harvest (*mongomot*) the matured paddy. Then, seven (7) bars of theme are introduced in section A (see Fig. 15). Section B is a repetition of section A but added two (2) bars cadence at the end of the section. The main theme in *Tangon IV* has inconsistent melodic phrases and reflects the labor-intensive of the harvester.



**Figure 15** Form analysis in *Tangon IV*

The Introduction, the Interlude, and the Ending section in *Tangon V* used similar musical ideas. In Section A, the theme (see Fig. 16) is divided into eight (8) bars of melody each but in every four (4) bars, the modulation happened. The modulation is influenced by the *Magavau* performance whereby the tonal center varies with different ritual performances. Section B also uses a similar idea but the rhythmic pattern is varied.



**Figure 16** Form analysis in *Tangon V*

### 4.1.3 Harmony

*Tangon I* is composed in C Major. Harmony in *Tangon I* occurs in the accompaniment part made up of the C Major and C Lydian. Fig. 17 shows how the harmony is developed on the right-hand part;

starts with a short motive accompaniment in bar 9, an interval of 3<sup>rd</sup> added, and then developed to three notes of harmony to form C Major and C Lydian chords.

**Figure 17 Right-hand** harmony development in *Tangon I* (bar 9 – 12)

A dominant chord is used to connect the first half of the composition to the Interlude section. The analysis is shown below (see Fig. 18):

V7/I – I Major  
G7 – C Major

**Figure 18** Harmonic progression analysis in *Tangon I* (bar 20 – 22)

*Tangon II* has two (2) tonal centres. The first tonal center is composed in F Major but in bar 25, the tonal center is modulated to Bb Major, using the [ii<sup>7</sup> – V<sup>7</sup> – I] technique. *Tangon II* starts with the harmonic progression in the Introduction section as follows: I – ii<sup>7</sup> – iv<sup>(add9)</sup> – I – IV – iv – iii – <sup>b</sup>iii – ii – I – V. Section A and Section C shared a similar harmonic progression: [I – ii – iii – V – I – ii – IV – ii – iv<sup>7(13)</sup> – I] [I – ii – I – vii<sup>dim</sup>] [I – ii – iii – V – I – ii – IV – ii – iv<sup>7(13)</sup> – IV – iv – iii – <sup>b</sup>iii – ii (unresolved harmonic progression and the Interlude section comes in)]. The harmonic progression in the Interlude section used a similar harmonic progression in the Introduction. Left-hand accompaniment used two (2) different arpeggiated styles as shown in sections A and C. Section C developed a more complex pattern from section A. See Fig. 19 and Fig. 20.

**Figure 19 Left-hand** pattern Section A in *Tangon II* (bar 11 – 12)

**Figure 20 Left-hand** pattern Section C in *Tangon II* (bar 26 – 27)

*Tangon III* is composed in Bb major. The piece begins with  $V^7 - I$  progression to introduce the tonality of the piece. Sections A, C, and E shared similar harmonic progressions:  $[I^{Maj6} - I - I^{(\#11)} - I]$  (see Fig. 20 - left hand). The  $(\#11)$  is borrowed from the Bb Lydian mode. In the Interlude and Ending section, the progressions are  $I^{(\#11)} - I - V^7 - I$ .

*Tangon IV* is composed in Eb Major. The rhythmic pattern introduced on the right-hand part came from the traditional gong pattern of the Tambunan style. The harmonic progression on the left hand in Introduction and Ending section is  $I - IV - I - IV$ . Section A and section B used a similar harmonic progression  $[I - IV - iv^{(9,11)} - iv^7 - IV - v^7 - iii - v^7 - IV - iv^{7(11)}]$ .

*Tangon V* is composed in Ab Major and A Major where the key changes every four (4) bars. The melody and the progression use the same idea when modulated. In Section A, the first four (4) bars use the Ab Major followed by A Major for the next four (4) bars. Only one chord accompanies the melody in every four (4) bars, which according to the tonal center during the music plays. The harmonic progression is applied only in Section B to accompany the melody. The harmony analysis is  $I - iii^6 - vi - V - I$ . The idea of using two (2) tonal centers is because the ritual performed by the *bobohizan* has no fixed key and they are always changing.

#### 4.1.4 Ornamentation

Ornamentation is the embellishment of a melody, either by adding notes or by modifying rhythms. In Fig. 21, the accompaniment is introduced with upper *turn* ornamentation, occurring on the upbeat of bar 1. This ornamentation is again repeated in bars three (3), five (5), and seven (7).



Figure 21 Upper turn in *Tangon I* (bar 1)

#### 4.1.5 Diminution

Diminution is a statement of the melody in which the note values are shortened by half value from the original melody. This technique is used in the Ending section in *Tangon I* from bars 51 - 52 to the end *Tangon I* piece.



Figure 22 Diminution technique applied in *Tangon I* (bar 50 - 51)

## 4.2 Piece 2: *Tusak Do Opurak for Flute and Piano (2016)*

In English, it means White Flower. This is a romantic piece to tell a story of a man who is trying to express his feeling to a beautiful woman that he loved. Once upon a time, as the couple were walking around a beautiful lake, the man notices a tree that is full of white flowers. He immediately picked a bunch of white flowers, gives them to the woman, and expresses his love for her.

### 4.2.1 Material

Three (3) materials borrowed from the *Magavau* ritual are used in this piece. The first one is a short motive with some variations. The melodic shape is maintained with few changes in the pitch and rhythm to synchronize with the harmony. See Fig. 23 below.

Flute  
*Ologot* (Calmly)  
♩ = 58  
mp  
Tusak Do Opurak  
(White Flower)  
Elvin Dainal  
Motive from Magagandai

Figure 23 Motive taken from Part 1 –*Magagandai Magavau A*

The second characteristic is found in bars 23 – 27 (marked with the letter C in the music score) where the melodic phrase is taken from *Mangambai*. The melody is embellished to create a more decorative melodic contour. The pitch is transposed an octave higher for the Flute because it is stronger at this range. The piano plays within the middle and the lower range. The third characteristic found in this piece occurred in the letter C in the Piano part, where the rhythmic pattern is influenced by the *Magunatip* dance.

Fl.  
Pno.  
C  
Borrowed musical characteristic with decoration  
Rhythmic pattern influenced by *Magunatip* dance  
C<sup>6</sup> C<sup>7</sup> F<sup>♯</sup>maj<sup>7</sup> E<sup>m</sup>7  
D<sup>m</sup>7 A<sup>b</sup> B<sup>b</sup> C

Figure 24 Melodic phrase and left-hand piano rhythmic pattern in *Tusak Do Opurak*

### 4.2.2 Form

The musical form in *Tusak Do Opurak* is written in AABA form, a common form in popular music with nine (9) bars in every section. The piece introduces the harmony and mood in the first four (4) bars to get the listener's attention. The melodic contour in sections A and B is similar, but in Section B the range has been transposed an octave higher. In section C a new melody and harmony is introduced. In section D, a modal interchange is introduced where the melody and harmony modulate into a parallel key, the A Minor from the original key A Major. Sections C and D are repeated in E and F, but a change occurs in section F where the key returns to the original key which is A Major.

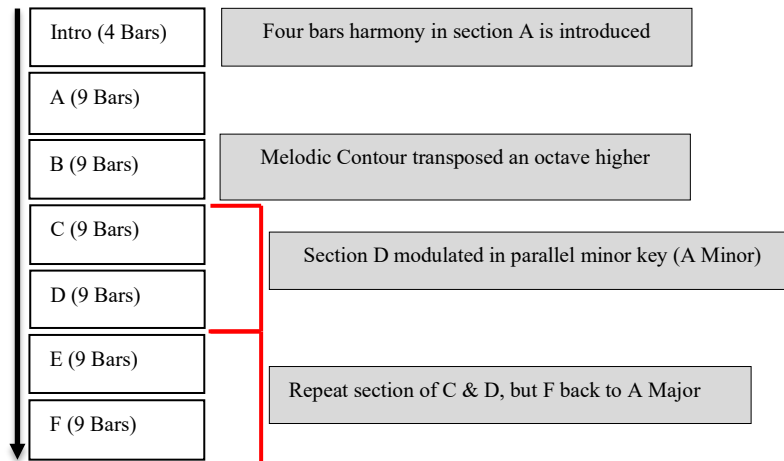


Figure 25 Musical form in *Tusak Do Opurak*

### 4.2.3 Harmony

*Tusak Do Opurak* consists of four (4) tonal centres: Ab Major, C Major, A Minor, and A Major. The first tonal centre is composed in Ab Major for the Introduction, A, and B. The harmony or chord progression created in A and B is the same. The only difference between these two (2) is the application of cadence; letter A used an Imperfect Cadence (IC) while B uses a Perfect Authentic Cadence (PAC) to complete the section. See the figures below.

Figure 26 Imperfect Cadence (IC) in A

Figure 27 Perfect Authentic Cadence (PAC) in B

After the A and B are introduced, the music modulates to a new tonal centre of C Major found in bar 25 marks as letter C to introduce new melody and harmony. There are two (2) phrases written in this section which is from bar 23 – 27, and from bar 28 – 31 respectively. They shared the same melodic shape but different harmony construction. The first harmony in phrase 1 uses a Major *line cliché* starting from the tonic in C Major followed by A minor *line cliché* at bar 28. The harmony in phrase 2 starts

with the A minor or the sixth chord from the tonic. This section is repeated in 41, marked with the letter E.

Figure 28 Harmony with *line clichés* technique at letter C

In this piece, modulation to a minor key is used to give harmony and variation and to create a romantic feeling in a piece. In the final section, which is at letter F, the melody and harmony modulate again to a new tonal centre in A Major.

Figure 29 Harmony in A minor key in letter D

Figure 30 Harmony in A Major key in letter F

## 5 CONCLUSION

This paper has successfully shown about intercultural music compositional process, by retaining the musical characteristics found in *inait* of the *Magavau* ritual into the creative process. For further research, recommendations have been presented as follows: (i) collecting the art tradition knowledge that slowly disappears by the current generation in the form of documentation, discuss-debate the issues related to music art tradition, and promoting all these traditions at the international level, and (ii) encourage young composers to develop their compositional techniques by drawing inspiration from extra-musical concepts. Encouraging creativity among music scholars, particularly those interested in the Kadazandusun art music tradition, can be facilitated by exploring new aspects of the culture related to art music. There can be no doubt that almost all traditional musical instruments and music in Malaysia

are facing extinction due to modernization and the change in the lifestyle of Malaysian citizens (Husin & Tajuddin, 2022).

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## CONFLICT OF INTEREST / KONFLIK KEPENTINGAN

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English translation: Five Stories of Paddy Cultivation for Piano
- Tusak Do Opurak for Flute and Piano* (2017) by Elvin Dainal  
English translation: White Flower for Flute and Piano

# Kupasan Terhadap Inklusi Batu Permata Kuarza di Kelantan Dari Aspek Formalistik Seni

## *Analysis of the Inclusion of Quartz Gemstones in Kelantan from the Formalistic Aspect of Art*

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### ABSTRAK

Penyelidikan ini bertujuan mengupas bentuk dan rekacorak inklusi batu permata dari aspek seni terutama dari sudut formalistik seni yang berkaitan dengan elemen seni dan prinsip rekaan. Penyelidik mendapati terdapat banyak kajian dan kupasan telah dijalankan keatas alam semulajadi seperti flora dan fauna namun belum terdapat kajian keatas batu permata dijalankan. Batu permata merupakan kumpulan mineral yang berharga dan mendapat permintaan yang tinggi di kalangan masyarakat. Setiap batu permata mempunyai bentuk dan reka corak tersendiri yang digelar sebagai inklusi. Inklusi batu permata memainkan peranan penting untuk mengenalpasti jenis, keaslian, dirawat atau tidak dan negara asal batu permata. Kecantikan dan keunikan inklusi batu permata yang merupakan sebahagian dari sumber alam semulajadi boleh juga dikaitkan dengan seni kerana ia mempunyai sifat-sifat artistik yang tersendiri. Penyelidikan ini menggunakan pendekatan kualitatif melalui kaedah pemerhatian dan analisis dokumen inklusi batu permata. Kupasan dan analisa dijalankan terhadap terhadap lima (5) batu permata kuarza yang diperolehi di sekitar negeri Kelantan. Jenis batu permata yang dijalankan terdiri dari akik (agate), batu jarum emas (rutile quartz), kecubung (amethyst) dan kristal (rock crystal). Sumber gambar inklusi diperolehi sendiri dari penyelidik dengan menggunakan gemologi mikroskop jenama Motic SMZ171 7.5X-50X dengan tambahan pencahayaan dari LED Fiber Optic Illuminator. Manakala hasil gambar inklusi dirakam dengan menggunakan kamera jenama Nikon SMZ 1500. Jenis inklusi yang dianalisa adalah band pattern, needle inclusion, tiger stripe inclusion dan liquid inclusion. Analisa inklusi batu permata dari aspek seni lukis dan seni reka khususnya sudut formalistik seni telah berjaya diterjemahkan dan hasil penyelidikan ini sesuai untuk dicadangkan sebagai bahan kajian (subject matter) bagi pengkarya menghasilkan sesuatu karya seni.

**Kata Kunci:** Inklusi, Batu Permata Kuarza, Kelantan, Formalistik Seni

## ABSTRACT

*This research aims to analyse the shape and design of gemstone inclusions from an artistic aspect, especially from the formalistic of art elements and design principles. Researchers have found that there have been many studies and studies conducted on nature such as flora and fauna, but no studies have been conducted on gemstones. Gemstones are a group of precious minerals that are in high demand among the community. Each gemstone has its own unique shape and pattern known as inclusions. Gemstone inclusions play an important role in identifying the type, authenticity, treated or not and country of origin of the gemstone. The beauty and uniqueness of gemstone inclusions which are part of natural resources can also be linked to art because they have their own artistic properties. This research uses a qualitative approach through the method of observation and document analysis of gemstone inclusions. An analysis was carried out on five (5) quartz gemstones obtained around the state of Kelantan. The types of gemstones that are carried out consist of agate, rutile quartz, amethyst and rock crystal. The source of the inclusion image is obtained from the researcher by using a Motic SMZ171 7.5X-50X gemology microscope with additional lighting from the LED Fiber Optic Illuminator while the results of the inclusion photos were recorded using a Nikon SMZ 1500 camera. The types of inclusion analyzed are band pattern, needle inclusion, tiger stripe inclusion and liquid inclusion. The analysis of the inclusion of gemstones from the aspect of painting and design, especially the formalistic aspect of art, has been successfully translated and the results of this research are suitable to be proposed as subject matter for artists to create a work of art.*

**Keywords:** *Inclusions, Quartz Gemstone, Kelantan, Art Formalistic*



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## 1 PENGENALAN

Perkataan seni atau *art* ditakrifkan dengan maksud yang berbeza oleh pengarang yang berbeza. Menurut Diana Newall dan Grant Pooke (2021), sebagaimana yang telah dinyatakan oleh Gombrich pada tahun 1984 iaitu seni boleh dimaksudkan dengan seni hias, seni reka, reka bentuk dan estetik. Seni boleh digambarkan sebagai seni seramik, seni bina, lukisan, seni langskap, seni instalasi, seni persembahan, montaj dan arca. Seni juga merupakan ciptaan sesuatu bentuk yang mempunyai hubungkait antara karya, pemerhati dan artis yang merupakan individu menghasilkan karya seni mengikut proses tertentu (Haziah Hussin, 2009). Menurut Mohd Johari Ab. Hamid (2006), seni tampak di Malaysia dipercayai telah lama berkembang sejak lebih 200 tahun dahulu.

Menurut teori klasik Plato yang masih kukuh digunakan sehingga ke hari ini, seni itu satu bentuk peniruan. Peniruan itu bukan bermaksud meniru bulat-bulat objek tetapi bagaimana artis itu mengolah objek tersebut kepada sebuah karya seni yang mempunyai citra peribadi (Bujang et al., (2008). Terdapat beberapa teori dan kaedah yang menjadi garis panduan seseorang penyelidik membuat interpretasi seperti ikonografi, semiotik, konsep keindahan dalam seni Islam, semantic differential, KJ method, 6 prinsip seni kraf tradisional Melayu dan falsafah seni. Dalam konteks falsafah seni, terdapat beberapa elemen penting digunakan seperti sejarah seni, aspek formalistik, dan kritikan seni (Badaruddin, M. I., et al, 2019). Menurut Wan Soliana Wan Md Zain (2023), karya seni dapat difahami melalui proses penghayatan yang mendalam atau lebih dikenali sebagai apresiasi seni. Apresiasi seni merupakan prinsip asas dalam memahami bahasa tampak bagi mentafsir karya seni dengan merujuk atau tidak merujuk kepada penggunaan subjek kajian, simbol, atau latar belakang sejarah, untuk kefahaman dan penghayatan karya seni.

Secara keseluruhannya, penyelidikan ini dilaksanakan untuk melihat dan membuat satu kupasan terhadap inklusi batu permata kuarza di Kelantan dari aspek formalistik seni. Kaedah analisa ini banyak digunakan oleh pengkaji dalam bidang seni untuk menterjemahkan maksud dan makna yang terdapat dalam sesuatu karya yang dihasilkan.

## 1.1 Formalistik Seni

Menurut Rosiah Md Noor dan Mohd Zahuri Khairani (2019), sebagaimana yang dinyatakan oleh Fichner-Rathus (2001) seniman menggunakan bahasa seni dalam menggabungkan elemen seni dan prinsip rekaan menerusi media dan teknik bagi menghasilkan sesebuah karya seni yang mempunyai bentuk dan maksud bagi berkomunikasi dengan pemerhati. Manakala menurut teori Mana Sikana, formalistik merupakan gambaran aspek dalam karya yang tidak terikat kepada perkara lain selain daripada karya seni dan melihat kepada mutu pencapaian karya dari sudut estetik semata-mata iaitu dari segi gaya dan bentuk serta penekanan terhadap elamen-elemen dan prinsip-prinsip rekaan (Mohammad Kamal, 2016).

Antoon (2009) menyatakan unsur-unsur formalistik telah diberi satu terma khas untuk difahami iaitu formalisme dan seni visual adalah proses artistik yang sering dikaitkan dengan sifat formalisme, teknikal dan estetika karya seni. Formalisme juga adalah perkara yang berkaitan dengan ciri-ciri estetika atau sifat objek yang menggabungkan unsur dan prinsip seni. Teori formalisme ini menekankan makna yang wujud dari kualiti formal sesebuah karya seni. Manakala Safrizal Shahir (2011) menyatakan kefahaman berkaitan formalisme dalam pengkaedahan seni adalah terikat kuat dengan seni moden.

Sementara itu, Ghazali, R., et al., (2019) menyatakan kritikan formalisme sebagaimana yang diketengahkan oleh Clive Bell dan Roger Fry bermaksud suatu kritikan yang mengkhususkan kepada bentuk (form) karya seni berbanding nilai kandungan, sosial dan konteks sejarah. Manakala menurut Yusita Kusumarini (2005), pemahaman berkaitan asas rekaan adalah berkaitan dengan pengenalan kepada rekaan, elemen rekaan, prinsip rekaan dan aplikasi. Elemen rekaan berkaitan dengan unsur rekaan seperti ruang, bentuk, nilai, garisan, tekstur, warna dan lain-lain. Prinsip rekaan pula terdiri dari ruang, keseimbangan, kesatuan, penekanan dan lain-lain.

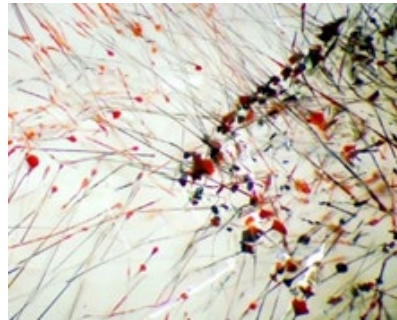
## 1.2 Seni Dan Inklusi Batu Permata

Alam semulajadi sentiasa menjadi peranan utama dikalangan artis sebagai pencetus idea dalam menghasilkan karya. Menurut Maggie Macnab (2012), alam semulajadi merupakan penyambung dan penyumbang yang hebat kepada keinginan artis atau pereka dalam menterjemah penghasilan rekaan karya atau produk. Sebagaimana yang pernah diucapkan artis terkenal seperti Jackson Pollock's iaitu "I am nature" and "My concerns are with the rhythms of nature". Menurut Abd. Rasid Bin Ismail dan Ahmad Rashidi Hassan (2012), Malaysia sangat bertuah kerana dianugerahkan sebuah negara yang dipenuhi dengan kawasan hutan yang dapat memberi sumber idea terutama kepada perekabentuk motif. Ini dapat dilihat dengan terdapat ramai artis dan pereka yang menjadikan alam semulajadi sebagai sumber inspirasi dan rujukan dalam berkarya (Siti Humaini Bt Said Ahmad @ Syed Ahmad, 2020). Alam semulajadi juga menjadi sumber inspirasi terhadap penciptaan motif, sudut hiasan dan rekaan dalam kesenian Melayu Islam. Ia dapat dilihat dalam setiap rekaan yang dipamerkan sangat cenderung untuk menerapkan unsur alam disamping motif geometri dalam karya seni Marzuki, Ibrahim et al, (2021).

Kecantikan dan keunikan yang terdapat pada batu permata yang merupakan sebahagian dari sumber alam semulajadi boleh juga dikaitkan dengan seni kerana sifat-sifat artistik yang terdapat pada inklusi batu permata. Menurut Mohd Zamani Daud et al, (2022) inklusi batu permata pula bermaksud bentuk atau rongga asing yang berada dalam batu permata. Maklumat berkaitan inklusi banyak digunakan oleh ahli gemologi bagi mengenal pasti jenis, kumpulan dan negara asal batu permata. Inklusi juga bermaksud apa sahaja bahan yang terperangkap dalam batu permata semasa kejadian contohnya kristal, cecair, gelembung gas atau keretakan yang disebabkan oleh bahan radioaktif yang mungkin merangkumi inklusi batu permata.

Melihat contoh koleksi gambar Egor Gavrilenko (n.d.), seorang gemologis professional yang menyatakan inklusi dalam batu permata boleh diterjemah dari berbagai sudut samada sains atau seni. Ia menyatakan, dengan melihat batu permata melalui mikroskop seseorang boleh menemui satu dunia yang hebat melalui bentuk-bentuk inklusi batu permata yang menyerupai landskap alam semula jadi,

pemandangan atau seakan lukisan abstrak. Ia dapat memberikan satu pengalaman artistik yang menakjubkan. Menerusi Rajah 1 di bawah, didapati reka corak inklusi bagaikan sebuah catan yang dihasilkan oleh artis dari kumpulan abstrak ekspresisme.



**Rajah 1** Inklusi Hematite dalam kuarza dari Brazil. (sumber: <https://www.gems-inclusions.com/inclusions-photo-gallery/night-at-the-prado-museum/>)

Menurut AIGS (2006), jenis - jenis inklusi yang biasa terdapat di kebanyakan batu permata adalah *crystal inclusion*, *fingerprint inclusion*, *needle atau silk inclusion*, *two phase* atau *three phase inclusion* dan *growth banding inclusion*.



**Rajah 2** Antara Jenis-Jenis Inklusi Terdapat Dalam Batu Permata. Dari kiri *crystal inclusion*, *fingerprint inclusion* dan *needle inclusion*. Sumber Gambar: Gem Identification, AIGS (2006).

Menurut Joel E. Arem (tiada tarikh), *crystal inclusions* merupakan inklusi yang senang dikenalpasti kerana mempunyai bentuk yang bersudut dan menjadi petunjuk utama kepada batu permata asli. Fingerprints inclusion pula boleh dijumpai dalam bentuk gas, cecair atau pepejal. Bentuk seakan cavities yang terbentuk akibat kemasukan melalui rongga rekahan yang retak dalam batu permata. Kristal-kristal kecil yang membentuk rekacorak gelar sebagai fingerprints atau juga feathers (Erik Axel Kilbo Pehrson (2017). Two-phase inclusions terdiri dari cecair dan gelembung wap yang menunjukkan pelbagai bahagian yang kebiasaan mengandungi kristal, cecair dan gelembung udara. Kristal yang terbentuk kebiasaan tidak berwarna. (Le Thi-Thu Huong et al., 2017).

### 1.3 Inklusi Batu Permata Kuarza

Kuarza atau *quartz* dalam bahasa inggeris merupakan salah mineral yang mudah ditemui dalam kebanyakan batuan jenis *sedimentary*, *metamorphic* dan *igneous*. Ia terdiri dari campuran silika dan oksigen yang membentuk 75% daripada kerak bumi. Oleh sebab itu, kumpulan mineral kuarza juga dipanggil sebagai kumpulan silika (Jens Götze, 2009). Indonesia merupakan negara pengeluar utama batu permata kuarza dunia. Manakala batu permata yang boleh dijumpai dari negara tersebut terdiri dari kumpulan kuarza seperti kecubung (*amethyst*), akik (*agate*) dan *chalcedony* serta batu permata opal (GIT, 2019). Kuarza mengandungi inklusi yang sangat jelas untuk dilihat seperti kandungan '*hematite seed*' dan '*rutile needles*'. Inklusi dalam batu permata akan menjadi petunjuk dan memberi maklumat berkaitan jenis batu permata. Contohnya batu permata nilam, garnet atau sebagainya yang mempunyai "star effect" boleh menjadi petunjuk yang jelas antara batu permata asli dan tiruan. Gambar 3 dibawah menunjukkan contoh inklusi yang terdapat dalam batu permata kuarza (C. Barry Carter, M. Grant Norton, 2013). Pendapat tersebut selari dengan Arya Magdalena (2019) yang menyatakan jika kita melihat kepada

lodolite, anda akan dapat melihat satu pemandangan hijau yang sangat menarik. Rajah 3 di bawah menunjukkan bentuk-bentuk inklusi yang terdapat pada lodolite.



Rajah 3: Dari kiri, Kuarza dengan inklusi hematite, rutile needles, pemandangan dalam air dan bentuk pemandangan hijau (Sumber Gambar: Internet)



## 2 METODOLOGI

Metodologi merupakan kaedah yang digunakan oleh penyelidik dalam mengutip dan menganalisa data penyelidikan (Rida,2015; Abdul Haris,2018). Penyelidikan ini menggunakan pendekatan kualitatif melalui kaedah pemerhatian dan analisis dokumen mengenai inklusi batu permata. Penyelidikan kualitatif difikirkan wajar memandangkan keputusan yang akan dicapai menjadi lebih bermakna, tepat dan kaya dengan maklumat penting (Miles, Huberman & Saldana, 2014).




Penyelidikan dijalankan terhadap lima (5) batu permata yang diperolehi di sekitar negeri Kelantan dan dianalisa dari segi inklusi dan jalur. Jenis batu permata yang dijadikan penyelidikan terdiri dari akik (*agate*), batu jarum emas (*rutile quartz*), kecubung (*amethyst*) dan kristal (*rock crystal*). Dengan menggunakan gemologi mikroskop jenis Motic SMZ171 7.5X-50X dengan tambahan pencahayaan dari LED Fiber Optic Illuminator. Hasil kekuatan pembesaran 50X dari mikroskop, gambaran inklusi dapat dilihat dengan jelas. Gambar inklusi telah dirakam dengan menggunakan kamera Nikon SMZ 1500.

Pengumpulan data dan analisa hanya memfokus dari sudut formalistik iaitu berkaitan dengan elemen seni dan prinsip rekaan . Data dalam bentuk lakaran dan ayat atau perkataan hasil analisa terhadap gambar inklusi batu permata dibuat. Menurut Liza Marziana Mohammad Noh et al. (2015), kelebihan kaedah formalistik ini adalah sama sepertimana yang diperjelaskan Carrol (1999: 129) iaitu dapat menemui makna yang tersembunyi dalam karya seni.

## 3 ANALISIS

No	Gambar & Lakaran Inklusi	Unsur Seni					Prinsip Rekaan							
		Garisannya	Rupa	Bentuk	Jalinan	Warna	Ruang	Harmoni	Kontra	Penegasan	Imbangan	Kepelbagaian	Irama & Pergerakan	Kesatuan
1		Terdapat garisan beraturan, garisan kasar, garisan halus juga beraturan	Rupa organik ada terdapat pada subjek tersebut	Ianya berbentuk 3 dimensi	Jalinan tampak dihasilkan tetapi berbentuk 3Dimensi pada subjek khusus	Warna sejuk ( <i>pastel cream &amp; brownish</i> )	Setiap garisan yang terdapat pada subjek tersebut memberikan ilusi pada elemen ruang	Harmoni wujud pada penggunaan warna dan garisan yang ada pada subjek	Kedua-dua warna tersebut adalah kontra antara satu sama lain	Warna yang digunakan dan subjek yang ditengahh dalam bentuk garisan dan warna memberikan unsur penegasan	Keseimbangan yang tidak simetri berlaku pada rupa luaran subjek dan juga dalam subjek (warna yang digunakan)	Kepelbagaian dalam rajah tersebut dihasilkan melalui penggunaan garisan, rupa dan warna yang pelbagai.	Garisannya beraturan yang dibentuk rupa pada warna brown memberikan elemen irama dan pengulangan pada subjek	Hasil daripada penggunaan bervariasi, warna yang kontra, kepelbagaian prinsip rekaan, telah memberikan unsur kesatuan dalam subjek tersebut.
2		Kebanyakan garisan yang digunakan pada subjek tersebut adalah garisan beraturan, diikuti dengan garisan halus, bergerigi dan kasar.	Rupa pada subjek adalah rupa organik	Ianya berbentuk 3 dimensi, dan mempunyai jisim	Jalinan sentuh yang pastinya boleh ketara melalui mata kasar	Menggunakan warna yang sejuk iaitu gabungan warna biru dan kelabu	Ruang nyata digunakan dalam membentuk subjek tersebut	Harmoni dalam penggunaan garisan beraturan juga penggunaan warna yang lembut	Kontra berlaku pada subjek tersebut dari segi garisan yang digunakan pada permukaan yang rata	Garisannya beraturan pada subjek tersebut memberikan penegasan bilamana garisan menggunakan warna yang sangat lembut dan rupa yang berbeza daripada permukaan yang rata pada subjek tersebut.	Menggunakan imbangan yang tidak simetri kerana bahagian kanan dan kiri subjek tidak sama	Garisannya beraturan, garisan berbintik, juga tonal warna yang berlainan pada subjek memberikan impak kepelbagaian dalam rajah tersebut.	Garisannya beraturan yang berulang-ulang mewujudkan nilai irama dan pergerakan pada subjek	Dari unsur garisan yang berbagai ke rupa bentuk organik yang baik tersebut memberikan nilai kesatuan yang tinggi pada subjek.

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*Analysis of the Inclusion of Quartz Gemstones in Kelantan from the Formalistic Aspect of Art*

3	 <i>Rutile Quartz: Needles Inclusion</i>	Garis-garis halus ada terdapat pada dalaman subjek tersebut	Rupa organik pada subjek primer	Bentuk 3 dimensi membentuk satu subjek tersebut	Jalinan sentuh untuk satu subjek tersebut manakala jalinan adalah pada garisan halus pada subjek tersebut	Warna sejuk pada subjek iaitu warna putih, dan gabungan warna pastel	Ruang illusi antara jalinan garisan dan latar belakang menetsuska n ruang-ruang perbezaan yang ketara	Penggunaan warna yang lembut dan juga garisan yang halus memberika n nilai harmoni pada subjek	Garis-garis halus di dalam oval subjek tersebut memberika n nilai membezakak n anta ruang dalaman, dan luaran subjek	Seperti yang dilihat, rupa oval subjek itu saja telah memberika n penegasan yang ketara pada rajah tersebut	Dari segi rupa luaran, ianya berbentuk imbangan yang simetri, tetapi dari segi dalaman pula, garisan halus yang berada dalam subjek tersebut adalah tidak simetri kerana terletak berselerak.	Penggunaan garisan yang pelbagai pada dalaman subjek telah memberikan lagi elemen kepelbagaian dalam membentuk subjek tersebut.	Pengulangan garisan halus pada subjek tersebut memberikan elemen irama dan pergerakan pada subjek	Nilai garisan, warna, juga rupa dan bentuk subjek memberika n nilai kesatuan yang baik dalam mewujudkan subjek tersebut.
4	 <i>Amethyst: Tiger Stripe Inclusion</i>	Terdapat garisan zig zag dan garisan beralun pada subjek tersebut	Walaupun ianya tampak berbucu, namun, rupa yang digunakan adalah rupa organik	Unsur bentuk 2 dimensi digunakan pada subjek tersebut	Jalinan tampak pada subjek tersebut nyata dilihat kerana subjek tersebut berbentuk 3 dimensi	Warna sejuk digunakan hasil daripada gabungan warna sekunder iaitu dari warna (merah + biru = ungu) dan juga warna putih	Ruang illusi wujud pada subjek tersebut kerana bersifat 2dimensi	Penggunaan warna sekunder ungu hasil daripada warna biru+merah memberika n keharmonia n pada subjek	Warna putih dan juga garisan bergerigi mewujudkan nilai kontra	Penggunaan warna putih dalam menampakkan lagi garisan dalam subjek tersebut memberika n elemen penegasan yang baik	Imbangan yang tidak simetri	Saiz dan rupa garisan tersebut adalah berbagai namun tetap mewujudkan subjek yang menarik	Penggunaan garisan yang beralun berulang-ulang pada subjek memberikan nilai irama dan pergerakan	Dari unsur garisan yang berbagai, warna yang harmoni ke rupa bentuk organik yang baik tersebut memberika n nilai kesatuan yang tinggi pada subjek
5	 <i>Rock Crystal: Liquid Inclusion</i>	Garis-garis beralun, garisan kasar juga halus ada pada rajah tersebut	Rupa organik wujud pada subjek tersebut	Bentuknya adalah 2 dimensi tetapi penggunaan warna juga riang memberika n impak 3 dimensi pada rajah tersebut	Jalinan tampak pada subjek tersebut namun bersifat 3 dimensi	Warna sejuk digunakan pada rajah tersebut, iaitu penggunaan warna pastel, gelap, dan juga cerah	Ruang2 nyata pada setiap rupa yang wujud pada subjek tersebut	Rupa organik pada setiap subjek memberika n unsur harmoni apabila ia diberi pengulangan dalam bentuk yang berbeza	Pencahayaan pada setiap objek yang berulang tersebut memberika n kontra	Warna dan tekstur pada subjek tersebut memberika n elemen penegasan	Imbangan yang tidak simetri kerana bahagian kanan, kiri, atas, bawah, tidak seimbang	Kepelbagaian dalam penggunaan tekstur, garisan, juga rupa dalam mewujudkan satu bentuk yang menarik	Kepelbagaian rupa dan bentuk objek yang terdapat dalam subjek tersebut mewujudkan nilai irama dan pergerakan yang menarik	Gabungan daripada ruang, bentuk, rupa, warna dan garisan mewujudkan nilai kesatuan yang tinggi pada subjek.

## 4 RUMUSAN

Hasil dapatan mendapati, inklusi batu permata kuarza dari Kelantan boleh dihuraikan dengan jelas melalui aspek formalistik seni iaitu unsur seni dan prinsip rekaan. Rumusan bagi 5 jenis inklusi yang dinilai adalah seperti berikut.

*Band pattern* mempunyai ciri-ciri yang unik dan menarik kerana terhasil dari bentuk corak garisan yang beralun kasar dan halus. Kebanyakan garisan yang terdapat pada subjek adalah garisan beralun, diikuti dengan garisan halus, bergerigi dan kasar. Garisan beralun yang berulang-ulang mewujudkan nilai irama dan pergerakan pada subjek. Manakala *needle inclusion* begitu unik dan moden kerana didominasi oleh garisan menegak dan menyerong yang kukuh dan tepat menggambarkan seakan binaan struktur dalam satu-satu ruang. Garisan halus di dalam subjek tersebut memberikan nilai kontra kerana ia membezakan anta ruang dalaman, dan luaran subjek. Bentuk garisan yang pelbagai pada dalaman subjek telah memberikan lagi elemen kepelbagaian dalam membentuk subjek tersebut. *Tiger stike inclusion* pula menonjolkan bentuk garisan zig zag dan garisan beralun pada subjek tersebut. Nilai irama dan pergerakan terhasil dari garisan yang beralun dan berulang-ulang serta unsur garisan yang berbagai, warna yang harmoni ke rupa bentuk organik yang baik tersebut memberikan nilai kesatuan yang tinggi pada subjek. Walaubagaimanapun *liquid inclusion* berbeza dengan inklusi yang lain, inklusi ini bersifat abstrak dan mempunyai gaya tersendiri. Inklusi ini bersifat abstrak dan mempunyai gaya tersendiri.

Oleh yang demikian, dapat dirumuskan bahawa pendekatan yang berbeza berkaitan maklumat inklusi batu permata yang banyak dianalisa dan dibincangkan dalam bidang geologi atau gemologi dapat juga diterjemahkan melalui bidang seni iaitu formalistik seni. Jika dihayati, setiap inklusi batu permata mempunyai kelainandan keunikan yang tersendiri dan amat berkait dengan alam semulajadi. Hasil penyelidikan ini sesuai untuk dicadangkan sebagai bahan kajian (*subject matter*) bagi mana-mana pengkarya menghasilkan sesuatu karya seni. Sebagaimana yang dinyatakan oleh Roger Fry iaitu elemen-elemen seni boleh digubah dengan berpandukan prinsip-prinsip asas rekaan bagi penghasilan sesuatu karya. Kajian seterusnya terhadap inklusi batu permata lain boleh dijalankan kerana setiap batu permata mempunyai kecantikan dan keunikan inklusi yang tersendiri. Selain itu kepelbagaian rekaan inklusi ini dapat memberikan sumber ilham kepada pelbagai bidang lain selain daripada kesenian.

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Penyelidikan ini tidak dibiayai oleh mana-mana agensi dan dana penyelidikan.

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# The Boneless Flower and Bird Painting Art: A Comparison Study Between Traditional and Modern Approach on Lin Ruoxi's Artworks

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## ABSTRACT

*Lin Ruoxi is one of the representative painters of the contemporary Lingnan School of Painting, and one of the main representative painters of contemporary boneless paintings. His boneless paintings have a distinctive personal style and have a profound influence on the creation of contemporary boneless paintings. The main purpose of this paper is to explore the modernity of Lin Ruoxi's boneless paintings from the perspective of stylistics and select Lin Ruoxi's representative works of boneless paintings in the past 40 years as the research objects. The photos are compared with conventional boneless paintings from five perspectives—technique, composition, colour, form, and medium—and the differences are summarised. Specifically, the observation and comparison approach is employed for the research. The study discovered that Lin Ruoxi's boneless painting technique had incorporated numerous other painting techniques based on tradition; the composition makes use of the plane composition principle; the colour draws inspiration from the colouring style of contemporary Japanese painting; the shape is refined and generalised to be more refined, with imagery; and the choice of media tends to be creative and diverse. The analysis of Lin Ruoxi's boneless painting style reveals that while it has its roots in traditional Chinese painting, it is inclusive, pioneering, and innovative, bringing his creations more in line with the demands of contemporary aesthetics. The great eclecticism and modernism in the artistic philosophy are evident.*

**Keywords:** Lin Ruoxi Boneless flower and bird painting Modernity



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## 1 INTRODUCTION

Traditional Chinese painting has a style known as "boneless painting." Boneless paintings frequently include flowers and birds, as well as fish and insects, mountains and rocks, etc. Chinese paintings of boneless have a comparatively long history, dating back to Xu Chongsi's "Boneless Flowers" in the Song Dynasty (Xie Lijun 2003). With the passage of time, boneless painting, as a subset of Chinese painting, encounters the same issues and difficulties as Chinese painting itself, namely the decision to follow tradition or embrace innovation. This issue was successfully resolved by Lin Ruoxi thanks to his insight and creative sensibility.

This article's research goal is to identify a representative boneless painting artist among contemporary painters, analyse and summarise his boneless painting, and summarise his body of work to determine the characteristics of his boneless painting. It encourages the study of contemporary

Chinese boneless painting. This article examines and contrasts traditional boneless paintings with Lin Ruoxi's boneless paintings, comparing and contrasting them from five angles—technique, composition, colour, form, and medium—and concludes that there is a distinction between the two. Based on the parallels and divergences between Lin Ruoxi's paintings of boneless, he identified the contemporary elements in Lin Ruoxi's boneless paintings and included his findings into a larger examination of contemporary Chinese boneless paintings.

This paper solves certain theoretical gaps in the study of Lin Ruoxi's art and serves as a case study for the study of contemporary Chinese boneless painting by analysing the aesthetic qualities of Lin Ruoxi's boneless painting. Modern Chinese boneless painting is a type of Chinese painting, and understanding its development process will help researchers better understand the development rule of Chinese painting. Learning how to uphold tradition and innovate at the same time is worthwhile.

## **2 LITERATURE REVIEW**

This essay focuses mostly on the contemporary elements of Lin Ruoxi's paintings of bony. In order to further the study goal and importance of this work, the literature review will concentrate on two topics: Lin Ruoxi's artistic history and background and the reasons for his boneless painting technique.

### **2.1 Lin Rouxi's artistic experience and background**

Since she was a young girl, Lin Ruoxi has devoted her time to painting original works of art. Six times since 1979, Lin Ruoxi has attempted the test, and in 1984, he was eventually accepted into the Guangzhou Academy of Fine Arts' Chinese Painting Department, laying the groundwork for his subsequent Chinese painting production. Situ Mian from the Guangzhou Academy of Fine Arts' Oil Painting Department recommended that Lin Ruoxi pursue oil painting due to his good modelling skills. Situ Mian, however, had a total epiphany after spending time studying Chinese painting. He thought Lin Ruoxi's creative journey would be more fruitful if he first studied oil painting and subsequently Chinese painting. Move ahead. Situ Mian's remarks were what inspired Lin Ruoxi to paint in the later style of Chinese and Western synthesis. The painstaking development of Lin Ruoxi's flower and bird paintings began when she was assigned to the flower and bird major in her third year of college. He visited Yunnan four times between 1987 and 1994 to draw there. In this time, Lin Ruoxi created several precise paintings of flowers and birds, gained a special knowledge and understanding of tropical plants, established a painting language, and eventually came to be known as the "Banna Diagram" (Zhang Meijie, 2011). This also served as the starting point for the future production of paintings of boneless.

Lin Ruoxi realised his goal after receiving his degree, continued to teach at the Guangzhou Academy of Fine Arts, and has since been able to continue painting passionately (Lin Ruoxi 2005). He made a significant life change by continuing his education to become a teacher. After thereafter, Lin Ruoxi engages in an increasing number of artistic endeavours and achieves more success. At the same time, Lin Ruoxi stopped being content with simply producing quality paintings. He wanted to use words to communicate his expertise and comprehension of painting to a wider audience. He made the decision to continue his education, and Jinan University accepted him to pursue a PhD in literature and art there. Under the direction of instructors Mr. Jiang Shuzhuo and Mr. Rao Fanzi, learn theoretical concepts and research techniques. While pursuing her doctorate, Lin Ruoxi visited the National Palace Museum in Taiwan to conduct research, travelled to the northwest grottoes for fieldwork, and travelled to four different countries in Europe to visit the Louvre, Orsay, and Pompidou Museums as well as Sudan and Ethiopia in Africa. Such encounters not only expanded his perspectives but also visibly altered his painting technique (Zhang Meijie 2011). Lin Ruoxi's knowledge theory system was developed because of this rich learning experience, creating a distinct creative form and a distinctive artistic style.

## 2.2 The Causes of Lin Ruoxi's Boneless Painting Style

It is impossible to separate Lin Ruoxi's life, character, and wisdom from the development of his boneless painting technique. Lin Ruoxi's knowledge and comprehension of actual life, as well as her own subjective refinement and creativity, are all embodied in this process, which is not a straightforward application of mature skills. Three perspectives may be used to analyse it: cultural impact, creative language exploration, and social context.

Lin Ruoxi has been exposed to traditional Chinese culture since she was young and has done extensive research on traditional painting and art history. He discovered that the meticulous flower and bird paintings of the Song Dynasty focused on sketching, and the patterns were rich in decoration; heavy-color flower and bird paintings are rational and flat, and the colours are conceptual colours, which are primarily similar, flat, and decorative (Li Yuanyuan 2012). The production of his artwork has also been greatly influenced by conventional Chinese literary ideas. To his writings and paintings, he will apply some literary and aesthetic principles. According to him, the primary distinction between Chinese and Western painting is that the former develops from one pole to another, whereas the latter moves back and forth between two poles. He also contends that in order for the two poles to coexist, there needs to be tolerance, neutralisation, and compromise (Lin Ruoxi 2005). Lin Ruoxi has, nevertheless, also been greatly influenced by ideas associated with Western modern art. He loved Mondrian's geometric compositions and straight lines, as well as Kandinsky's use of colour (Wu Juan 2018).

Another element in the development of Lin Ruoxi's style is the investigation and creation of creative language. The foundation of artistic creation is to replicate the flower-and-bird paintings of the Song Dynasty, study the individual works' content, form, and expression techniques, comprehend their artistic conception, and experience the rhythm and beauty of flower and bird life (Shi Botian 2020). The start of artistic sketching, which is more influenced by the painter's subjective sentiments than by the form and structure of objective objects (Zhao Yingzhi 2015). The act of refining the aesthetic experience gleaned from the sensation of life and environment and expressing it via language through highly creative processing is what is meant by the term "real creation"—the creation and sublimation of artistic idea. I investigated my own painting language during this process.

Lin Ruoxi's style of painting is greatly influenced by her social and cultural surroundings. Traditional Chinese culture was greatly impacted by the reform and opening up in the 1980s, and the culture tended to diversify. The assimilation, citation, and fusion of art forms became the pattern of current art growth under the impact of modern Western painting art (Zhang Meijie 2011). In such a setting, Lin Ruoxi expanded his views, invigorated his ideas, learned more about Western modern painting, and came up with more original concepts for his works of art. The development of Lin Ruoxi's boneless painting style (Liu Jiayin 2019) is particularly influenced by the compositional philosophy of western painting and ornate Japanese painting art. The rapidly expanding economy simultaneously improves people's quality of life and encourages a greater search of spirituality. People's life progressively include art. As a result, everyday life and regular people have replaced beautiful and sophisticated aesthetic activities. Paintings with significant visual impact were sought for in order to satisfy the public's aesthetic demands (Huang Xiaoling 2019). Guangzhou is the hometown of Lin Ruoxi. He has been greatly influenced by the Lingnan School of Painting, which was established in Guangzhou between the Ming and Qing Dynasties and promotes "combining the East and the West, taking the Chinese as the foundation, blending the past with the present, and taking the present as the soul." Particularly its eclectic thought and usage of Lingnan Painting Party materials and techniques (Shi Botian 2018).

The intense visual shock that Lin Ruoxi's paintings provide as a modern Chinese artist attracts everyone who likes them, drawing many academics to study Lin Ruoxi's works. Scholars will examine one of Lin Ruoxi's painting styles. Lin Ruoxi's paintings take several different formats. Students like studying Lin Ruoxi's painstaking paintings because of their vibrant colours, distinctive compositions, and sophisticated methods (Zhang Meijie 2011). Lin Ruoxi's ink paintings include a broad perspective,

pouring ink, a calm mood, and a sense of agility despite the serious subject matter, according to contemporary art reviewers (Niu Wenjuan 2019).

In order to determine the artistic qualities of Lin Ruoxi's boneless paintings, researchers consistently contrast Lin Ruoxi's creations with those of other well-known contemporary painters by contrasting their composition, colour, technique, form, etc. (Ren Anrong 2020). Additionally, Lin Ruoxi has developed his own logic for his paintings of boneless. Boneless paintings, in his opinion, "non-limited by brush strokes" and communicate themselves via texture, emphasising on the use of "water," breaking through the conventional "water" "Centre" pen notion (Lin Ruoxi 2012).

Lin Ruoxi's boneless paintings are now the subject of incomplete research, and his boneless works are frequently incorporated into studies of Gongbi paintings. There is a significant distinction between Lin Ruoxi's careful paintings and her boneless paintings. From the standpoint of style, Lin Ruoxi's paintings of boneless must be methodically sorted, and at the same time, their contemporary elements must be elevated to the highest theoretical level. As a result, there will be a significant improvement in the study of Lin Ruoxi's paintings on the one hand and significant theoretical support for the study of contemporary Chinese boneless paintings on the other.

### 3 RESEARCH METHODOLOGY

This article conducts qualitative research using the observation and comparison approach. The researcher has chosen: 1) sample traditional boneless paintings from the last 40 years; and 2) representative boneless paintings by Lin Ruoxi – for comparison analysis in the form of charts. By comparing of the artworks using the Theory of Practical Art Criticism by Edmund Burke Feldman, the four-step analysis method was used that focuses on the technique, composition, colour, form, and medium. First, briefly describe the fundamentals of the work and the material represented in the image; next, analyse the picture's characteristics from one angle; then, once more, explain the reasons for this characteristic; and finally, sum up and assess the outcomes of the two works' comparison based on the information provided above.

### 4 FINDING

#### SAMPLE 1: MEDIA



**Figure 1** Lakeside grass paper 34x34cm  
(Source: Lin Ruoxi, 1990)

**Description:** This piece of art features horses, forests, water, mountains, and other scenery, and the overall impression it leaves on viewers is one of tranquilly and distance.

**Analysis:** Boneless paintings by Lin Ruoxi are no longer restricted to traditional media. For example, raw paper is now more frequently chosen than cooked paper, and textural effects on raw paper demand more careful moisture management. Occasionally, tests are conducted on canvas, etc.

**Interpretation:** Lin Ruoxi's boneless painting method is the fundamental motivator behind the use of raw paper as the primary material. His expressive methods are varied, and the production on unfinished paper allows for the superimposition of several methods to create the impression of a layered, dense image.

**Judgment:** Traditional boneless paintings are challenged by the proliferation of new mediums. Lin Ruoxi's yearning for creativity cannot be met by blindly following tradition. The investigation of media is a key element in Lin Ruoxi's paintings with no bones. These efforts are not made to stand out but rather to better understand the image. According to Lin Ruoxi, it is more challenging to express boneless paintings on raw paper because moisture is difficult to regulate on this material. However, when done properly, Lin Ruoxi believes that the results would be more vibrant and rich-looking than typical boneless paintings.



**Figure 2** traditional boneless paintings time size unknow silk

**Description:** Traditional boneless painters mainly paint flowers and birds, fruits and vegetables, fish and insects.

**Analysis:** Traditionally, silk is the primary medium used for boneless paintings. Silk was chosen since paper was not developed in the early days. The fact that silk does not bleed makes it possible to create conventional boneless paintings.

**Interpretation:** Early Chinese paintings used a limited number of different media. On the one hand, this is because there aren't enough media resources available, and on the other, classic boneless painting just uses one expressive approach and doesn't need a lot of sophisticated media assistance.

**Judgment:** There aren't many options for the media used in traditional Chinese boneless painting, which is one of the painting styles. Traditional boneless paintings struggle to grow amid these constraints, and the transition from painting on silk in the morning to painting on cooked paper only happens gradually. This is also true since the creation of cooked paper is simple and can result in cost savings. However, the image effects presented by silk and cooked paper still differ. Silk is more fragile, and it's occasionally difficult to make cooked paper.

## SAMPLE 2: COLOR ASPECT



**Figure 3** Red ballad paper 53x48cm  
(Source: Lin Ruoxi, 2008)

**Description:** In this piece, flowers are the subject of the illustration, and a variety of complimentary and comparable colours are utilised to convey the image, giving the viewer a vivid and vibrant impression of the work.

**Analysis:** The vibrant and striking colours used in Lin Ruoxi's boneless paintings draw the viewer in, and the blending of diverse complimentary colours strengthens the image's visual impact while also paying heed to the rules of colour composition.

**Interpretation:** When using colour, Lin Ruoxi pays close attention to how subjective colour is expressed. He attributes emotion to colour, thinks that a picture must be congruent with the presentation of emotion, and demands that both the colour of the objects reflected in a picture and the colour blocks be pure. To give the colour a certain rhythm and sensation of rhythm, the processing of size and hue has to have contrast, variation, coordination, and echo.

**Judgment:** People frequently experience significant visual impacts when seeing Lin Ruoxi's boneless paintings, which is directly tied to the way he employs colour. The use of colour in Lin Ruoxi's boneless painting is influenced by Western colour theory as well as Japanese Ukiyo-e colours. While Lin Ruoxi's boneless paintings are rich in colour and transmit powerful and disturbing emotions, they stand in stark contrast to conventional boneless paintings, which are light and exquisite in colour and have a strong literati painting atmosphere.



**Figure 4** traditional boneless paintings time size unknow silk

**Description:** Traditional boneless painters mainly paint flowers and birds, fruits and vegetables, fish and insects.



**Analysis:** Because traditional Chinese paintings use fewer pigments, namely red, blue, green, yellow, and ochre, they contain less colours than traditional boneless paintings. As a result, there aren't many colour variations in boneless paintings; instead, the predominant colours are red and green. The collisions between water colours and stone colours are the most significant colour alterations since they are necessary for procedures.

**Interpretation:** The picture's predominant ink colour is one of the characteristics of traditional Chinese painting. This is since Chinese human paintings make up most traditional Chinese painting and encourage the use of ink colour variations to characterise the subject. There are a few different types of traditional Chinese painting pigments, and it is simultaneously influenced by traditional Chinese philosophy on the one hand and traditional Chinese philosophy on the other.

**Judgment:** The colors of traditional boneless paintings are mainly traditional Chinese painting pigments, and there are relatively few types of colors, mainly red, blue, green, yellow, and ochre. Influenced by Chinese literati paintings, the colors of Chinese paintings are mainly ink, and the picture is depicted through the change of ink color. Therefore, the development of traditional boneless paintings has great limitations, but boneless paintings are also influenced by literati paintings. People feel fresh, elegant and refined.

### SAMPLE 3: COMPOSITION



**Figure 5** Butterfly note paper 66x66cm  
(Source: Lin Ruoxi, 2009)

**Description:** The principal subjects of Lin Ruoxi's boneless paintings are flowers, birds, and landscapes. Paintings and butterflies serve as the primary visual elements in this piece.

**Analysis:** The composition of Lin Ruoxi's boneless paintings has seen significant advancements, essentially embracing a whole composition strategy for layout. It shatters the conventional framework and arrangement and highlights the diagram's simplicity and self-awareness. A personalised composition style is pursued, paying attention to the use of points, lines, surfaces, and rhythm to form a structure, as well as paying attention to the opening and closing, echoing, and sparseness of the picture composition. The compositional elements of western painting are added, expanding the vertical depth and tension of the picture space. The composition of the image is dense, gathering and dispersing, etc., and is rich in shape and powerful abstraction.

**Interpretation:** Lin Ruoxi's primary inspiration for creating this type of composition came from Western paintings like Piet Mondrian's painting composition, from which he copied and learnt.

**Judgment:** There are certain features in the composition of Lin Ruoxi's boneless paintings. The composition of Yun Shouping's boneless paintings seems more lifelike and natural because he pays attention to the managerial position of the picture and carefully considers the location of every object in the image. This demonstrates how Lin Ruoxi's boneless paintings have openly taken from Western

scientific and rigorous expression approaches, breaking through the traditional composition style and making the images expressive and engaging at the same time.



**Figure 6** traditional boneless paintings time size unknow silk

**Description:** Traditional boneless painters mainly paint flowers and birds, fruits and vegetables, fish and insects.

**Analysis:** The paintings created by traditional "boneless" painters have a straightforward structure and a single image that consists largely of broken branches.

**Interpretation:** Traditional Chinese paintings continue to be composed in a manner that is mostly similar to the composition of sketch paintings from the Song Dynasty, winning with smallness.

**Judgment:** The traditional boneless artists' compositional style was modified to meet the demands of the evolution of Chinese painting, which reflected the era's aesthetic requirements. Traditional boneless paintings have a high value on sketches, and many of the works' compositions more closely resemble objects in their natural condition. As a result, traditional boneless paintings have a relatively straightforward composition that mostly uses natural features.

#### **SAMPLE 4: FORM**



**Figure 7** Tianchi Lake paper 34x34cm  
(Source: Lin Ruoxi, 1990)

**Description:** The mountains and water may be made out in this work's depiction of a landscape deep in the highlands. It captures the emptiness of rivers and mountains.

**Analysis:** Each form in Lin Ruoxi's boneless paintings is a stylized version of an artistic picture, and they frequently include abstract and philosophical shapes. In the images, abstraction and figuration are

frequently blended; there are figurative elements like birds, homes, and bridges as well as abstract ones like mountains, rivers, and forests.

**Interpretation:** The discordant yet cohesive paintings of Lin Ruoxi are boneless. His modelling traits reflect the synchronisation of these interactions. To offer the viewer a genuine and vivid impression of the picture while still being able to explain himself instinctively, he frequently utilises abstract and generalised pictures to convey the tone of the piece and imagery to describe the specifics. the capacity to win over the audience.

**Judgment:** Although Lin Ruoxi's boneless paintings have more imagery than conventional boneless paintings, they nevertheless retain some of the physical characteristics of the objects they depict and are simply conceptualised, which distinguishes them from Western abstract art in a fundamental way. This depends on how well Lin Ruoxi comprehends conventional Chinese culture. Chinese philosophy places a strong emphasis on the beauty of artistic idea and the similarity of spirit. Fine brushwork and freehand brushwork, which are the evolution of conventional boneless painting, are combined by him to create modelling techniques. This innovation defies convention, has a significant expressive impact, and can be more fully incorporated into contemporary art.



**Figure 8** traditional boneless paintings time size unknow silk

**Description:** Traditional boneless painters mainly paint flowers and birds, fruits and vegetables, fish and insects.

**Analysis:** Traditional boneless paintings include figurative shapes, which are more akin to Gongbi paintings. The distinction is that line outlines are not necessary with boneless painting.

**Interpretation:** Originally, traditional boneless painting was a style of painting that was progressively dissociated from precise painting. As a result, despite changes in technique, it nevertheless emphasises on the design's concreteness, retaining some of the shadow of Gongbi painting, particularly in the shape.

**Judgment:** The form of a typical boneless painting is more definite than the shape of an ink painting, however the shape of a Gongbi painting is not only determined by the geometry of the lines but also by the shape of the various colour blocks individually. This is a serious issue. progress. The colour blocks are not easily smudged, and the shape of the colour blocks may be properly retained since the painting is done on silk or cooked paper. This is a key component of classical boneless paintings as well.

## SAMPLE 5: TECHNIQUES



**Figure 9** abundant paper 34×46cm  
(Source: Lin Ruoxi, 2002)

**Description:** Nature-based scenes predominate in Lin Ruoxi's boneless paintings. From the date of production, Lin Ruoxi's early boneless paintings used a style that was unstable and mostly dependent on colour accumulation and water contact. Later, he employed the method deftly, and the images were bright and rich.

**Analysis:** In the image, Lin Ruoxi's boneless painting approach employs a variety of techniques, including sprinkling, colliding, accumulating, heaping, spraying, piecing, pasting, chapping, and more. This technique is no longer restricted to the sole method of "colliding water and powder." These approaches are flexibly applied to the image in accordance with the requirements of picture performance, considerably improving the readability of brushstrokes, handwriting, and colour texture as well as the image's overall visual impact.

**Interpretation:** The boneless painting method used by Lin Ruoxi produces varied and rich textural effects. And these textures are chosen based on the information that has to be conveyed in the image. Some techniques are developed gradually via experimentation, while others are taken directly from other forms of painting. In other words, the occurrence of certain textural effects is unavoidable and incidental.

**Judgment:** If Lin Ruoxi's boneless paintings are compared to Yun Shouping's, it can be concluded that Lin Ruoxi's paintings have more courage to experiment with traditional painting methods and incorporate new ones, which not only expands but also enriches the boneless painting genre. It increases the expressiveness of Lin Ruoxi's boneless paintings and extends the distance with conventional painting technique.



**Figure 10** traditional boneless paintings time size unknow silk

In conclusion, while Lin Ruoxi's boneless paintings share traits with conventional boneless paintings, they also diverge significantly from them. Some aspects of the tradition are being developed in-depth, like the expansion of techniques and the integration of various traditional painting techniques; the choice of media is no longer constrained, only to better express the picture; and the shape is no longer constrained by specific shapes, gradually being replaced by the idea of image modelling. The qualities of foreign artworks are copied in various ways. For instance, to split the image into points, lines, and surfaces, the idea of plane composition is applied; the colour scheme is based on the colour theory of contemporary Japanese paintings. The boneless flower and bird painting style of Lin Ruoxi was formed because of these modifications.

Through comparison, Lin Ruoxi's boneless paintings exhibit strong senses of innovation that are not constrained by tradition and are full of tension, composition, and rich and varied texture effects. He does not, however, overly pursue traditional Chinese paintings in terms of aesthetic appeal. In terms of creative thinking and attitudes, he excels at summarising traditions, adhering to the classics, being inclusive, and actively exploring new schemas. The plain, cold, and ethereal literary realm is transformed to the warm, full, and realistic musical domain and ornamental aesthetics. Lin Ruoxi's paintings of boneless have a strong sense of eclecticism. This form of eclecticism, which has had enormous success, reflects Lin Ruoxi's wisdom in balancing the two inclinations of preserving heritage and breaking new ground and innovation in the production of Chinese modern art. His artwork is innovative in shape, vibrant, and fascinating, reflecting It has a strong modern aesthetic and adheres to the artistic trend of current paintings of boneless.

## **5 CONCLUSION AND RECOMMENDATION**

It is easy to see that Lin Ruoxi has a distinct grasp of Chinese painting from the interpretation of his paintings of boneless. The paintings of boneless by Lin Ruoxi feature the typical aesthetic qualities of Chinese paintings as well as clear specific characteristics, demonstrating that he is an artist with unique creative traits. He strongly adheres to traditional Chinese painting but does not slavishly appreciate Western art. perseverance and willpower.

Therefore, the notion of eclecticism plays a significant part in Lin Ruoxi's distinctive boneless paintings. These characteristics are portrayed in five aspects: technique, composition, colour, form, and medium. The concept of eclecticism combines traditional and modern, Chinese painting and Western painting, allowing Lin Ruoxi to develop his own visual language while also meeting the demands of contemporary aesthetics, locating a means of expression for the contemporary period, and advancing contemporary art. Pursuit results in a contemporary artwork of boneless flowers and birds.

Modern boneless paintings are still in the early stages of production, therefore there will be a lot of unanticipated issues. The case study of Lin Ruoxi's boneless paintings will offer some concepts and techniques for the study of contemporary boneless paintings, but it is more important to develop a comprehensive theoretical framework for this field of research. As a result, it is advised to create a systematic framework for understanding common problems and to approach specific problems differently to ensure that the long tradition of contemporary Chinese painting never sees the current boneless painting style perish.

In other words, the study of the modernity of Lin Ruoxi's boneless painting not only perfects the study of Lin Ruoxi's artistic creation, but also offers several helpful suggestions for the study of contemporary boneless painting. It also has a significant impact on the growth of contemporary Chinese painting. effect.

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## AUTHOR CONTRIBUTIONS

Duan Feifei as the main author played a role in collecting data, planning research tree and delegate task for research member, while Issarezal Ismail as the corresponding author produced an analysis based on data and literature, and Ishak Ramli conducted literature review and methodology.

## CONFLICT OF INTEREST

There are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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# A Visual Analysis Study of Motion Graphic Effect as Visual Communication for Mental Health Empowerment

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## ABSTRACT

*This study analyses the effectiveness of motion graphics in promoting mental health through qualitative content analysis. The study demonstrates the significance of visual elements, design concepts, and motion effects for disseminating ideas and empowering individuals. Color, typography, and images can elicit emotions, encourage empathy, and strengthen audience connections. Storytelling and message delivery are enhanced by motion effects such as pacing, timing, and animation techniques. This study contributes to the growing knowledge of visual communication and mental health and offers designers, practitioners, and stakeholders' valuable insights. More research is necessary to determine the long-term effects and efficacy of motion graphics in real-world settings and to develop evidence-based plans for their application in mental health promotion and support.*

**Keywords:** Motion Graphics, Motion Effects, Visual Communication, Mental Health



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## 1 INTRODUCTION

The mass media play a significant role in the modern world, and they can serve as a unified platform for all public health communication, comprehensive healthcare education, and guidelines. As a result, we examined the various types of mental health messages and advertisements disseminated via multiple mass media forms. The mental health of an individual is crucial to their physical health. The state of one's mental well-being is vital to their physical health and well-being. (Venkat & Janakiram, 2021). It includes a variety of psychological, emotional, and social elements that affect how people perceive the world, think, feel, and act. Our capacity to meet life's problems, build wholesome relationships, and have fun is a sign of our mental health. It entails having a sense of direction, enjoying a sense of community, and feeling joy. In cases where stress is excessive or has a detrimental impact on health, such as depression, it can make it difficult for students to maintain self-control and attain their academic goals (Miskan & Mohd Fisol, 2020). On the other hand, a variety of mental health diseases and conditions, including schizophrenia, bipolar disorder, anxiety, and depression, can be brought on by a poor state of mental health.

Consequently, it is crucial to prioritize mental health and seek professional assistance when necessary. If students exhibit symptoms of a mental health condition, they must immediately seek treatment. Therapies, medications, and alterations to one's lifestyle, or a combination thereof, can be treatment options. In addition, most mental disorders appear in early adulthood and are treated with a substantial delay (Chung et al., 2017). The transition to university occurs at a time when there is a high risk of unhealthy coping, the onset of psychopathology, and academic failure; as a result, it provides a crucial window of opportunity for early detection and intervention (Hawton K, Saunders KE, O'Connor RC, 2012). Working with MERCY Malaysia to provide psychosocial support helpline services based at the CPRC, MoH since March 25, 2020, while in the field, such hospitals and health clinics, Mental Health Services, and Psychosocial Support (Mental et al.) are also offered.

This study examines the analysis of motion graphics used to promote mental health. Motion graphics can promote self-care and wellness by displaying relaxation techniques, mindfulness exercises, and stress-reduction strategies. Motion graphics can encourage individuals to prioritize their mental health and self-care by visually depicting these practices (Larson & Tobin, 2017). Lastly, promoting mental health and well-being through self-care practices such as physical activity, a healthy diet, stress reduction, and social support is essential. By focusing on their mental health, individuals can improve their overall quality of life and contribute to developing a more robust and healthy society.

## 2 LITERATURE REVIEW

This literature review examines motion graphic effects as a visual communication tool for mental health empowerment. Mental health is a major issue worldwide, and effective communication strategies are essential for increasing knowledge, understanding, and empowerment. Motion graphics, distinguished by dynamic visual features and movement, are becoming increasingly popular in various industries, including advertising, entertainment, and education. This study aims to look into the potential of motion graphic effects for conveying mental health messages, increasing well-being, and empowering people dealing with mental health issues.

According to research in social psychology and advertising, mental simulation positively affects customers' attitudes toward product or brand evaluation. The basic idea is that mentally stimulating oneself in a positive scenario produces a positive impact, which increases the perceived realism of the experience and thus leads to persuasion. (Jeong & Jang, 2016)

Several studies demonstrate that motion graphics effects can effectively transmit mental health information to many people. Motion graphics can communicate complex concepts, feelings, and experiences connected with mental health concerns using visual metaphors, dynamic typography, and animated drawings. Such effects can captivate viewers, elicit empathy, and improve their comprehension and connection to the subject. Coloring Psychology Motion graphics can strategically use color to promote mental health because it plays a vital role in eliciting emotions. Hues with much life, like yellows and oranges, might imply optimism and positivism, whereas cool hues, like blues and greens, can imply relaxation and tranquility (Kwallek et al., & Sales, C. (1997).

Additionally, Motion graphics effects are frequently utilized to create visual narratives that empower those struggling with mental health issues. Character development, plot advancement, and emotional pacing are examples of visual storytelling strategies that can help people empathize with the represented events and find solace or inspiration. Furthermore, the interactive nature of motion graphics enables viewers to connect with the content actively, instilling a sense of agency and empowerment.

Accessible and inclusive motion graphics effects are essential for their effective use in mental health communication. According to studies, it is critical to provide features such as closed captioning, audio descriptions, and user control options to accommodate individuals with disabilities or diverse communication preferences. By considering accessibility, motion graphics can reach a



larger audience and promote mental health empowerment. Regarding mental health empowerment, motion graphics effects have emerged as a promising visual communication option. Improving intervention accessibility is a crucial first step for ensuring that individuals with intellectual disabilities can comprehend the purpose and content of digital mental health interventions. (Vereenooghe, 2020).

The visual components of motion graphics effects significantly influence their capacity for empowerment and communication. According to research, viewers' emotional reactions and levels of engagement can be affected by the color schemes, font, and visual styles utilized. Including elements like calming colors, fluid motions, and aesthetically pleasing designs can result in a positive emotional experience that promotes mental health empowerment. Mental health research can direct the development of novel interventions and maximize their efficacy. Psychological therapy that employs emotive mental images may reduce anxiety and depression (Victoria Pile, 2021).

These themes simplify complex concepts, raise awareness, and encourage positive behavior modification. The study highlights the importance of moral considerations, such as maintaining confidentiality and privacy, depicting mental health experiences accurately, and avoiding negative stereotypes. Communicators, mental health professionals, and designers can use motion graphic effects to create compelling visual messages that connect with viewers, promote empathy, and support mental health. This study contributes to the growing body of knowledge on the connection between visual communication and mental health and lays the groundwork for future research and evidence-based approaches to the use of motion graphic effects in mental health empowerment programs. The study's conclusion will highlight the potential for motion graphic effects as a tool for mental health empowerment and provide suggestions for the development of effective mental health visual communication methods in Malaysia.

### **3 RESEARCH METHODOLOGY**

The study on motion graphic effects as visual communication for mental health empowerment emphasizes these visual components' potential to effectively communicate mental health messages and empower people toward well-being.

- 1) In this content analysis study, ten samples of animated videos from 2016 to 2021 have been selected for examination.
- 2) The analysis employs themes and variables from three components, namely the elements of design, the principles of design, and the principles of motion design, to examine the Motion Graphic Effect as Visual Communication for Mental Health Empowerment on the existing animated videos produced by various mental health campaigns and retrieved from open sources.
- 3) The analysis will discuss the frequency with which each item is used in mental health campaigns.

## 4 FINDINGS

**Table 1** Content Analysis Study

Video Sample	Element of Design							Principle of design							Principle of Motion							Audio	Fluid motion	Transition	Visual installation									
	2D	3D	Line	Shape	Form	Texture	Space	Value	Color	Emphasis	Balance	Alignment	Contrast	Repetition	Proportion	Movement	White space	Timing, Spacing & Rhythm	Eases	Mass & Weight	Anticipation					Arcs	Squash, Stretch & Smears	Follow-through & Overlapping action	Exaggeration	Appeal	Secondary and layered animation			
Sample 1  2016	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	
Sample 2  2018	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	
Sample 3  2019	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	
Sample 4  2019	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	
Sample 5  2020	✓			✓	✓		✓	✓	✓							✓			✓				✓	✓	✓							✓		

**Table 2** Content Analysis Study

Video Sample	Element of Design							Principle of design							Principle of Motion							Audio	Fluid motion	Transition	Visual installation									
	2D	3D	Line	Shape	Form	Texture	Space	Value	Color	Emphasis	Balance	Alignment	Contrast	Repetition	Proportion	Movement	White space	Timing, Spacing & Rhythm	Eases	Mass & Weight	Anticipation					Arcs	Squash, Stretch & Smears	Follow-through & Overlapping action	Exaggeration	Appeal	Secondary and layered animation			
Sample 6  2020	✓			✓	✓		✓	✓	✓							✓			✓				✓		✓								✓	
Sample 7  2020	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓	✓	✓	✓	✓	✓					✓		
Sample 8  2020	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓	✓	✓	✓	✓	✓					✓		
Sample 9  2021	✓			✓	✓		✓	✓	✓							✓			✓				✓	✓	✓							✓		
Sample 10  2021	✓			✓	✓		✓	✓	✓							✓			✓	✓	✓	✓			✓	✓					✓		✓	

The study's findings demonstrated the use of visual communication for mental health empowerment in the visual analysis study of motion graphics. Researchers often examine and analyze numerous motion graphics made especially for this purpose to conduct a visual analysis study of the impacts of motion graphics on mental health empowerment. To transmit ideas like empowerment and mental health, they would look at the principles of design, the elements of design, and the principles of motion. Line, shape, form, texture, space, value, and color are design elements. The design principles of focus, balance, alignment, repetition, proportion, movement, and white space are also important. These findings also cast doubt on the principles of timing, space, rhythm, ease, mass, weight, anticipation, arcs, squash, stretching, and smearing, as well as exaggeration, appeal, secondary, and layered animation. Through this study, researchers could learn more about the best visual tactics for grabbing viewers' attention, raising awareness of mental illness, reducing stigma, and encouraging people to take proactive steps to improve their mental health.

**Table 3** Element of Design, Principle of Design and Principle of Motion

Video Sample	Element of Design									Principle of design								Principle of Motion															
	2D	3D	Line	Shape	Form	Texture	Space	Value	Color	Emphasis	Balance	Alignment	Contrast	Repetition	Proportion	Movement	White space	Timing, Rhythm & Pacing	Ease & Weight	Anticipation	Flow	Visual Hierarchy & Grouping	Visual Contrast & Overlapping	Engagement	Appeal	Secondary and tertiary animation	Audio	Fluid motion	Transition	Visual Instability			
Sample 1	10%	-	10%	10%	10%	-	10%	10%	10%	10%	-	10%	-	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	10%	10%	-	10%	-	10%	-	
Sample 2	10%	-	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	-	10%	-	
Sample 3	10%	-	10%	10%	10%	-	10%	10%	10%	10%	-	10%	-	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	-	10%	-
Sample 4	10%	-	10%	10%	10%	-	10%	10%	10%	10%	-	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	-	10%	-	
Sample 5	10%	-	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	-	10%	-	-	10%	10%	10%	-	10%	-	10%	-	10%	-
Sample 6	10%	-	10%	10%	10%	-	10%	10%	10%	10%	10%	-	-	10%	-	10%	10%	10%	10%	-	10%	-	-	10%	10%	10%	-	10%	-	10%	-	10%	-
Sample 7	10%	-	10%	10%	10%	-	10%	10%	10%	10%	-	-	-	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	-	10%	-	
Sample 8	10%	-	10%	10%	10%	-	10%	10%	10%	10%	-	10%	-	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	-	10%	-	
Sample 9	10%	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	-	10%	10%	10%	10%	10%	10%	-	10%	-	-	10%	10%	10%	-	10%	-	10%	-	10%	-
Sample 10	10%	-	10%	10%	10%	-	10%	10%	10%	10%	10%	-	-	10%	10%	10%	-	10%	10%	10%	10%	-	-	-	10%	10%	-	10%	-	10%	-	10%	-
<b>Total</b>	100%	0%	100%	100%	100%	10%	100%	100%	100%	100%	50%	70%	10%	100%	50%	100%	80%	100%	100%	70%	100%	60%	60%	90%	100%	60%	100%	20%	100%	20%	50%	0%	

In mental health awareness videos, several design elements, design principles, and motion principles have been used. According to the data, the most frequently utilized design feature is line, shape, form, space, value and color which is 100%. The highest frequency for the Principle of Design is focus, repetition, and movement, which is 100%. The highest frequency employed for the Principle of Motion is 100% for appeal, anticipation, ease, as well as time, spacing, and rhythm.

## 5 CONCLUSIONS

The study on motion graphic effects as visual communication for mental health empowerment highlights the potential for these visual elements to convey mental health-related messages and empower individuals toward well-being effectively. These themes simplify complex concepts, raise awareness, and encourage positive behavior modification. The study highlights the significance of ethical considerations, such as maintaining privacy and confidentiality, accurately representing mental health experiences, and avoiding harmful stereotypes. Using motion graphic effects, designers, mental health practitioners, and communicators can create visually compelling messages that resonate with individuals, encourage empathy, and promote mental health. This study contributes to the expanding body of knowledge on visual communication and mental health and lays the groundwork for future research and evidence-based strategies for incorporating motion graphic effects in mental health empowerment initiatives. The study's conclusion will highlight the potential of motion graphic effects as a tool for mental health empowerment and suggest the development of effective mental health visual communication techniques in Malaysia.

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Nur Iylia Amani Abdul Nasir is the first author of this article, and her supervisor, Nur Aniza Mohd Lazim, is the corresponding author. Mastura Omar and Ellyana Tan oversaw the research and added necessary literature and content, while Siti Nor Fatulhana Ishak checked the intonation and clarity of the language used in this paper.

## CONFLICT OF INTEREST / KONFLIK KEPENTINGAN

No conflict of interests.

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# From One to Diversity: Explore the Design Principles of Flexible Branding Visual Identity and Its Application on Design Practice

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## ABSTRACT

*As a new trend in visual design, Flexible Branding Visual Identity (FBVI) holds the overwhelming advantage in its being adaptable in situation, flexible in application and rich in connotation, and therefore adopted by increasing number of brands in the building and promotion of visual image. Much attention has been drawn to this field but without much reflection on its usage and the theory behind. This research aims to explore the methods and skills for the use of flexible branding visual identity. Drawing on the theories of visual psychology as well as visual thinking, the research makes a comparison between the traditional and newly-developed approach in brand design in terms of advantage and disadvantage. Along with the review of a great number of cases, the research formulates the idea of overall perception advantage, arguing that flexible logo has the potential to impress the viewers as a self-contained system instead of an individual element. Based on the above discussion, the research concludes some principles about FBVI as guidelines to design practice. In the end, the case of visual identification of Cantonese Temple Fair is to exemplify how the principles are applied to a visual promotion project that addresses the problem of incorporating varieties of local culture into a coherent system.*

**Keywords:** Flexible branding visual identity, Visual communication, Cantonese Temple Fair



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## 1 BACKGROUND OF STUDY

Flexible branding visual identity (FBVI), also known as dynamics branding identity, or adaptive identity, is a new trend in today's brand design. More and more visual identity designs are shifting their focus from a single logo to a systematic group of variant logos. Formally speaking, flexible brand image design often takes a mother structure or core pattern as the main axis and presents a range of graphic styles with similarity through a variety of form principles, utilizing the systematic and recognizable graphic forms for brand image building and brand value dissemination. In recent years, flexible identification design is commonly used in major brands, especially in cultural and artistic brands, because its rich visual expression highlights the multifacetedness of brand image and reinforce the brand impact on people's minds. Secondly, the multiform visual identification system has a natural fit with the Internet. With the help of digital media technology and mobile network platform, the new promotion means is more inclined to the colourful and dynamic presentation, and the visual language under the combination of multiple forms is more conducive to the construction of dynamic brand image than the traditional single form.

Local cultural activities are the active carrier of local culture, which integrates material culture and intangible culture, and combines modern leisure tourism and traditional folk customs into one. Therefore, the influence of cultural activities plays an important role in building cultural soft power. The initial intention of the research is to optimize the brand image, promoting Guangfu cultural activities by invoking the new means of design thinking. We take cultural activities as the source of radiation, traditional Guangfu culture, and driving the cultural industry. At the same time, the subject combines the interdisciplinary fields of marketing, branding and design, to find the modern representation of traditional Guangfu culture, traditional folklore to make the traditional folk cultural activities glow with new charms, to attract more young people to pay attention to traditional folk activities.

## 2 THE ORIGIN AND DEVELOPMENT OF FBVI

At the beginning of the twentieth century, brand visual image design was mostly influenced by the modernist style, emphasizing the design concept of "less is more", in the form of simple and clear, the overall consistency of the main, flexible brand image design is not common. The earliest flexible branding can be traced back to 1959 when graphic designer Karl Gerstner created his first brand. The earliest flexible branding can be traced back to graphic designer Karl Gerstner's 1959 identity for the Bo te à musique store in Basel, Switzerland, as shown in Figure 1. It is worth noting that Gerstner's design concept was quite forward-looking, he wanted to establish a flexible visual image that could be applied to different applications and wanted the brand to be remembered not as a figurative graphic, but as an overall atmosphere and tone, which can be said to be the germ of the overall perception advantages of flexible brand visual design. With the continuous development of network and media technology since the middle of the last century, more and more brands realized the weakness of a single logo in image communication. Until the 1980s, a number of classic flexible brand image designs emerged in the fields of radio or internet companies, such as MTV in 1981, NAI in 1993, and Google in 1998, as shown in Figure 2. The most notable feature of these early flexible image designs was the varied styles of the logos. In Asia, the concept of brand visual identity came to Asia later, in the second half of the twentieth century before the Asian countries gradually applied to the brands, flexible brand image design is a latecomer. Among many Asian countries, South Korea is a frontier in the research and practice of flexible brand design. There are many enterprises and organizations boldly use flexible logo, such as Seoul's new city image logo, South Korea E-MART supermarkets and the National Museum of Modern Art, etc., there are a number of design researchers in the theoretical level to do some exploration and summary. According to the author's observation, China's local brand image design, the use of flexible design thinking and successful practice in marketing is not much. As early as 2012 years ago, there are Shenzhen designers Liu Yongqing, Guan Pucha some attempts, and then the 120th anniversary of the University of Zhejiang University in 2017, using flexible design approach to the creation of the activities of the logo and so on.

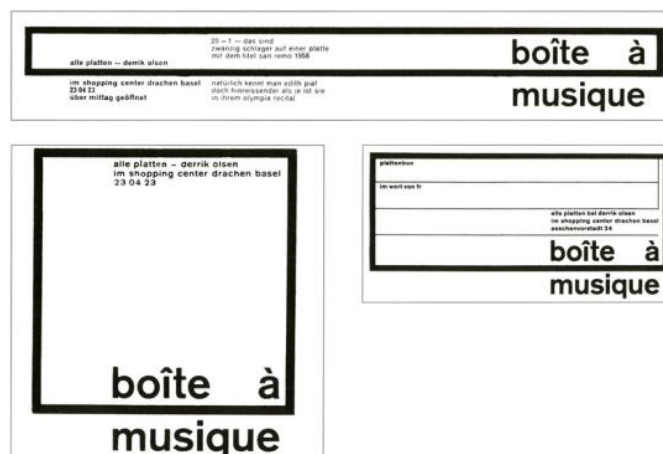
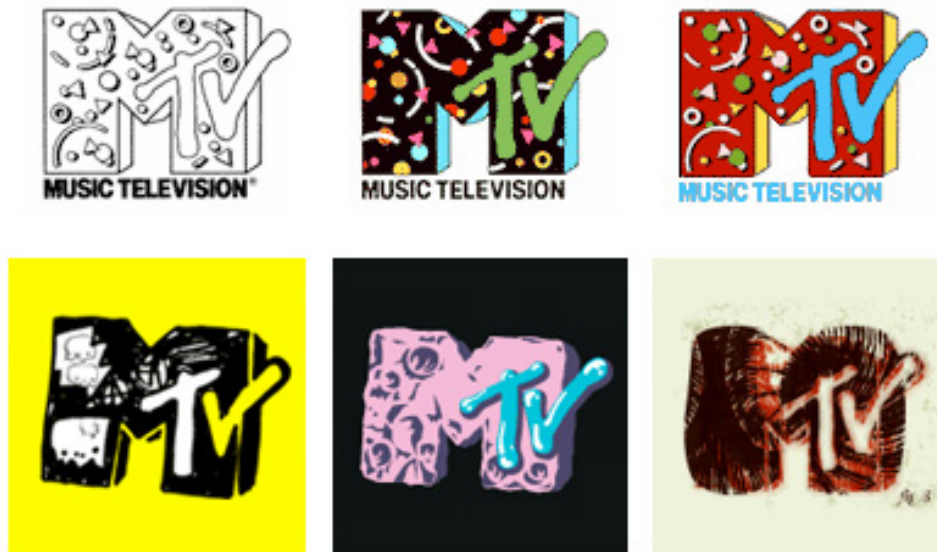


Figure 1 The brand visual identity of Bo te à musique store  
(Source: Karl Geatner, 1964, Copyright Consent: Permissible to Publish)



**Figure 2** The logo design of MTV CHANNEL  
(Source: Tang Wenguang, 2012, Copyright Consent: Permissible to Publish)

### 3. THE OVERALL PERCEPTION ADVANTAGE OF FBVI

#### 3.1 Visual Interpretation Analysis of Traditional Brand and Multiform Brand Image

In the traditional brand visual identity design theory, it is generally believed that the logo should be as simple as possible, too complex shape is not easy to memorize, and in the process of communication, the logo should be consistent, and appear repeatedly in different brand touchpoints, creating a link between the logo and the brand it denotes, so as to successfully make the brand image impressive. At the same time, the spirit and culture of the brand carried by the environmental setting, such as the interior design of the store, the package of goods, the advertising poster, slowly penetrate the target audience. According to this theory, a simple and recognizable single graphic is the first choice for a logo. However, on the contrary, the multiform brand image logo is not confined to a single shape. They are based on a stable inner connection and develop a rich and varied form, these forms in a variety of application scenarios are not repeated replica but change moderately due to the situation and change. These two very different methods of operation embody the two ways of understanding in Gestalt theory. Wertheimer, M., the founder of Gestalt, once summarized the way we understand graphics into two categories: one is to analyse the whole schema in terms of its "parts" and use this as a starting point to gradually transition to the analysis of the combination of the schema; the other is to analyse the overall structure as a start, and then gradually analyse the subordinate parts sequentially (Rudolf Arnheim, 1954). The "bottom-up" mode of understanding is the theoretical premise of traditional brand visual design. Each brand scene contact of the audience is an interpretation and digestion of the brand logo, and different brand touch points provide the opportunity to superimpose the impression and understanding of the depth of understanding, and thus gradually form the overall perception of the brand in the consumer's mind. flexible brand image design does not put all brand demands on a single logo, but presents a flexible system, the viewer needs to use a bird's eye view to feel the diversified visual language within the system, to achieve consensus among differences and similarities, and then to perceive the whole brand, and further to understand the specific meaning conveyed by each graphic when reviewing each different form. The viewer's experience is more in favour of the "top-down" interpretation path.

### 3.2 Comparison Analysis of Visual Application in The Traditional Brands and Flexible Brand Images

According to their interpretation mechanism, the two paths of interpretation have their own advantages and disadvantages. For brands with a single stable concept and strong cohesion, using a logo symbol and relatively simple application specifications to convey the brand spirit is conducive to the clear establishment of the brand image in the minds of consumers, and the visual language with less information enables the viewer to obtain precise and specific brand knowledge (Kevin Lane Keller, 2011) consists of two parts: brand cognition and brand image. Therefore, brands using this kind of visual system generally emphasize the constancy of their business philosophy and the robustness and reliability of their image, and are mostly found in large enterprises or official institutions with strong professionalism in their business fields; in contrast, the top-down bird's-eye view experience guided by the flexible visual system will make it difficult for the viewer to focus on thinking because of the large amount of information in a single communication. Given this premise, in the above-mentioned case study of the music store in Basel, it is easy to get a macro and vague sense of the tone or atmosphere of the brand during the first contact with the brand, and it is only after several contacts that the brand can be understood in terms of its specific claims. This kind of characteristic is very suitable for brands with rich concepts and strong diffusion power.

Therefore, flexible brand design is mostly applied to media, culture and art related organizations or activities, which emphasize on the creation of atmosphere, enrichment and expansion of connotation, and dissemination and influence of culture, and flexible brand image design can help them to enhance the cultural charm, and even trigger the interactivity so as to create more topics. In summary, the applications of both are summarized in the table below:

**Table 1** The comparison analysis of two types of branding design (Source: by author)

	<b>Traditional Branding Visual Identity Design</b>	<b>Flexible Branding Visual Identity Design</b>
Applicable Brand Characteristics	<ol style="list-style-type: none"> <li>1.Strong cohesion of the concept, the connotation of a single.</li> <li>2.Emphasizing constancy, stability and reliability.</li> <li>3.Large enterprises or official organizations with strong specialization in a single business or operation field.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong conceptual diffusion and richer connotation</li> <li>2. Emphasizing the creation of atmosphere, enrichment and expansion of connotation</li> <li>3. media, culture and art related organizations or activities</li> </ol>
Effectiveness	Accurate-perception: the visual language is less informative but specific, obtaining precise brand knowledge and multiple brand scene contacts to feel the atmosphere	Perception - Specific: The visual language is informative and complex, leading to a sense of the brand's tone and ambience, and then to an understanding of the specific claims.
Visual perception	"Bottom-up" from part to whole	"Top-down" from the whole to the parts



In practice, the advantages of multiform visual system are often applied to the following branding solutions:

1. Multiform visual system has the flexibility to extend the content, which is very suitable for business expansion of the brand image design, or the establishment of sub-brand, the overall consistency of the relevance and can clearly identify the brand hierarchy. For example, when many broadcasting stations expand their channels, the new logo will follow the main body of the original visual system and add elements that characterize the channel on this basis.
2. The rich visual effect of the multiform branding system creates a strong atmosphere, which can quickly attract viewers, and the varied styles can cater to the aesthetic trends of different groups and different times. For example, in the classic case of MTV channel's visual system, with constantly repeating the three letters of M, T, V three-dimensional modelling, the main body boldly tries the style of the visual effect, everyone can find their own favourite in this system, just as the channel plays a variety of music. In addition, there are even brands that view the visual system as a "container" that allows everyone to fill in their own personal style of "content" and create their own brand logo through interactive creation.
3. The variable nature of flexible branding makes it easier to meet the ever-changing communication means and media in the future, apart from the traditional forms of print media, but also mobile media with a wide range of audience (Li Nan, 2014). In addition, a number of flexible visual systems are extended from dynamic branding design or inspired by each frame in dynamic motion. In turn, flexible branding provides dynamic branding with key frames of change on the timeline and provides dynamic branding with a direction of inspiration for change.

## **4 DESIGN PRINCIPLES OF FBVI**

It can be seen, through comparison, that the flexible brand image design can play a better role than the traditional brand design as long as it is used properly. To successfully build a flexible brand visual image, it is necessary to find out the guiding design principles, as are shown in the following three points.

### **4.1 Stability of Core Subjects**

The overall perception advantage of flexible brand identity design depends on the effective establishment of a visual system. The famous art theorist Rudolf Arnheim mentioned in his book "Visual Thinking": How does an image come together to make a meaning through its various components? One of the simplest laws upon which the organization of these relationships (i.e., the relationships between parts) relies, is the law of similarity (Rudolf Arnheim, 1969). Therefore, the establishment of similarity through a certain law in the visual elements of different forms is the key to constructing a flexible brand image design, and it is only through similarity that the imagery communication function of the combination of individual elements can be maintained. The basis for this similarity of the internal visual elements must be a stable kernel of connection, which must run through all the pattern variants, so that the flexible combination system is consistent, and this connection should be obvious enough for the viewer to easily perceive. If the connection or similarity is too subtle, the flexible visual design system is bound to become loose and messy. Similarly, brand image visual system, a variety of colourful graphics are derived from the core body. The core body is divided into two categories: one is a fixed structural modelling; the other is a fixed composition logic.

#### **4.1.1 Stable structure modelling**

The overall graphic outline or modelling framework is fixed, and the variants continue to enrich the content by filling or replacing additional elements without changing the stable structure. In several successful cases, the core body is highly stable, giving rise to similar combinations of graphic styles. For example, the visual identity of the urban neighbourhood Tigre Sur adopts a flexible branding

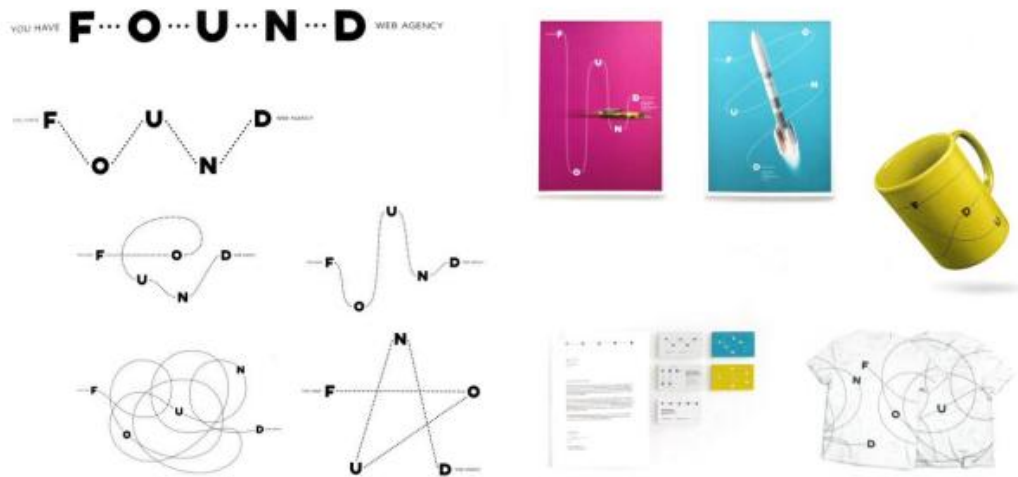
approach, using the initials "T" and "Sur" as the source of inspiration to create a series of exciting and vivid graphics (Fig. 3), from which it can be seen that, regardless of the other visual elements of the graphic, it is not the same as the other visual elements. As can be seen from the figure, no matter how the other visual elements of the graphic change, the letter "T", the downward arrow and the triangles on both sides form the core of the visual system, and this fixed modelling combination is always present in each graphic variant, so that the different patterns produce correlation, and the viewer perceives the whole graphic combination through the correlation, thus experiencing the fun of the brand. The viewer perceives the whole graphic combination through the correlation, thus experiencing the fun of the brand.



**Figure 3** City Neighborhood Tigre Sur: Visual Identity Design for a Renovation Project  
(Source: <https://www.behance.net/gallery/53881143/DISTRITO-TIGRE-SUR>)

#### 4.1.2 Stable compositional logic

Compositional logic consists of the constituent elements and the way they are organized, and the elements are constantly deconstructed and reconstructed around the underlying logic of the graphic combination. Even if no additional elements are introduced, variant graphics centred on this type of body are usually more varied and can even be extended into auxiliary patterns with great adaptability. For example, a network company called FOUND, mainly engaged in website optimization and improve search engine business, they brand visual identity design as an interesting game, the rules of this "game" is to use the dotted line to the F-O-U-N-D four letters in series, respectively, at the beginning of the line and at the end of the line to write "YOU HAVE" and "WEB AGENCY" at the beginning and end of the line respectively. This "rule of the game" is regarded as a fixed underlying logic of graphic composition within the visual system, around which designers have developed a series of interesting logos. Around this logic, designers have developed a series of interesting logo graphics, each of which resembles a road map for a treasure hunt (Figure 4). Individual logos seem to be loosely organized and thinly shaped, but when this compositional logic is fully developed in application scenarios, the powerful recognition and adaptability of the brand visual system is fully revealed and combined with the meaning of the brand name FOUND, the creative concept of the visual and the playful and relaxing atmosphere can be immediately perceived.



**Figure 4** Brand visual identity design for web agency FOUND  
(Source: Chen Jinming & Wang Xiangliang, 2018)

## 4.2 Organic Nature of The Core Body

The core body should have potential qualities that can be developed and extended relative to the derived variants, and should have a certain degree of openness to allow for more complementary possibilities, which requires that the core body in the modelling design cannot be a tight "closed loop", in common parlance, just as an organic stem cell, there is a continuous development and growth, and differentiation into different organs. The potential of differentiation into different organs. Therefore, in the case of multiform brand design, the core body generally has the following characteristics:

### 4.2.1 Simple and concise shape, showing abstract geometry.

The core body generally less use of complex or figurative patterns, the more specific images point to the meaning of the clearer, the more the structure tends to be self-complete, the more repulsive to change, any elements added, or the form of variation is bound to the destruction of the original form and change the imagery. Pure, abstract graphic patterns inclusive, more conducive to the form and meaning of further derivation. It is worth mentioning that the Chinese and English fonts are also often used as the main shape, and the stroke shape of the font is also in line with the principle of simplicity and geometry to a certain extent.

### 4.2.2 Awareness of grid system

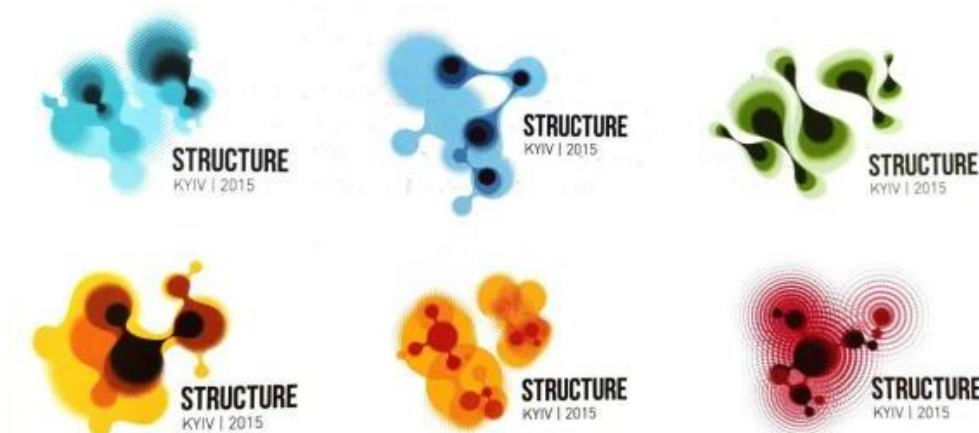
Grid system is the law of layout design, the skilful use of grid can design a harmonious, unified and flexible layout, which is a good reference for flexible brand image design, therefore, many brands will introduce grid system in flexible logos, with grid rules as the logic of the composition, combining both flexible and harmonious variants. For example, in a cultural campaign called "Rotterdam 2001", the designers created a visual system to promote the overall image of Rotterdam's urban charm. In the visual system, there are only two simple elements, circle and square, but the ingenuity lies in the use of the grid system, the two elements according to different sizes and proportions and spatial location in accordance with the flexible combination of the grid arrangement, seemingly monotonous grids and elements, to interpret a strong sense of design and visual effects (Figure 5).



**Figure 5** Design of the visual identity for the cultural promotion of Rotterdam 2001  
(Source: Chen Jinming & Wang Xiangliang, 2018)

#### 4.2.3 Compositional logic has a high degree of freedom and openness

Compositional logic plays the role of the main axis in the system, and the basic elements, under the leadership of compositional logic, combine graphic patterns in a certain form. Therefore, the organization of the elements of the law cannot be too restrictive or too complex and affect the flexibility of the system. Compositional logic is generally the way of layout arrangement, through the development of a combination of forms to organize the size or location of the elements. In the context of new media art, many designers nowadays use data or coding as the compositional logic for generating graphics, which is a relatively new and flexible design concept, such as the flexible logo designed by the Ukrainian design firm BBDO for the Structure Urban Volunteers team, which abandons the figurative elements that represent the Ukrainian capital, Kiev, and boldly adopts a more experimental approach. The designers used real data as the basis for the logo. The designers used real data as the basis for the logo, placing different statistics such as population density, traffic, lighting, soil borne disease areas, dimensions, and noise on a map of Kiev, and then translating them into a design language (Figure 6). This way of generating graphics is very flexible and free, and according to the laws of data visualization, different data can generate different graphic patterns.



**Figure 6** Structure City Volunteer Team Visual Identity Logo Design  
(Source: Chen Jinming & Wang Xiangliang, 2018)

### 4.3 Adaptability of Visual System

Visual diversity should be reflected in the design of multiform brand image to adapt to different application scenarios as much as possible. With the development of media technology, cross-platform and cross-media communication is an important direction for brand promotion in the future. The traditional practice of repeating a single brand visual logo is obviously unable to adapt to the trend of media diversification, and innovative design tools such as dynamic branding have emerged. As a form of brand design between traditional brand and dynamic brand, flexible brand has the characteristics of static plane visualization, but also has the subjective experience of dynamic change, which can make up for the gap between the two very well. Therefore, when creating a flexible brand visual system, the needs of traditional print media should be fully considered to ensure that the brand image is conveyed in different application scenarios. At the same time, it is important to ensure that a flexible brand visual system provides an organic pattern of variation, with the flexibility to derive appropriate graphic styles based on the characteristics of the media. For example, the University of Applied Sciences in Hungary undertook a branding exercise after a name change, where the new acronym, MET, and variable graphics simulating classic architecture and cityscapes clearly distinguished the different faculty members, where the graphics flexibly adapted to different layout needs in different sizes of printed materials, and where the graphics cleverly maintained the identity of the core subject and correspondingly adapted to the characteristics of the outer contours of the core body in three-dimensional spaces and on other media such as web-based platforms. In other media, such as stereoscopic space and online platforms, the graphic cleverly maintains the characteristics of the core body's outer contours and makes more flexible changes, accordingly, providing vividness while maintaining a high degree of consistency and recognizability (Fig. 7).















**Figure 7** Visual Identity Enhancement of the Hungarian University of Urban Applied Sciences  
(Source: Chen Jinming & Wang Xiangliang, 2018)

## 5 FLEXIBLE BRANDING VISUAL IDENTITY DESIGN FOR GUANGFU TEMPLE FAIR

The Guangfu Temple Fair is a cultural event that combines the culture of praying for blessings, folk culture, food culture, trade and leisure. As an annual grand event, Guangfu Temple Fair and Spring Flower Market, Polo Festival and Beggar's Nest and other traditional folk activities, has a high degree of visibility and wider public participation, but from the nature of the activities of the positioning, the organization of the scale and the degree of importance attached by the government, undoubtedly with the name of "Guangfu" commanding the Guangfu Temple Fair has more potential cultural influence, more comprehensive strength to assume the responsibility of disseminating and promoting the Guangfu culture. Influence, more comprehensive strength to assume the responsibility of disseminating and promoting the culture of Guangfu. The temple fair was originally a religious ceremony for the gods in the north, and the Guangfu temple fair abandoned the traditional temple fair in the reward of the gods and entertainment of the gods in the background, in the beginning of the conception of the positioning of the cultural carnival relying on the City God Temple as the center, is the official sponsorship of a kind of "temple fair" in the form of a new type of cultural and leisure activities, combined with the folk culture of Guangfu.

Guangfu Temple Fair has been ten years, in the scale of activities and the richness of the program is constantly upgraded, however, according to the author's tracking observation, the organizers in the activities of the image of the management and positioning strategy is relatively weak. Specifically manifested in: (1) the overall visual image of the event is not prominent enough, vertical comparison, Guangfu Temple Fair in the main visual color and elements are very traditional, very easy to drown in the same period of the Spring Festival festival publicity design, horizontal comparison, the logo fails to establish a strong and distinctive recognition of the many temple fair activities in the country's logo; (2) the temple fair in Guangfu to provide a good vehicle for the propaganda of the Guangfu culture for the local people is a collective cultural memory. local people is a collective cultural memory revisited, for outsiders is a window to show cultural charm, but in the pre-event publicity strategy, failed to make full use of the advantages of the cultural carrier, strengthen the cultural content output, so as to create the brand memory of the cultural feast. In response to these problems, the introduction of a multiform brand image and a brand promotion strategy based on semiotics can amplify the infectious power of the visual image, externalize the cultural connotations, and contribute to the multidimensional dissemination of cultural activities.

**Table 2:** Various cultural elements applied in the branding design (Source: by author)

Cultural Features	Cultural Element	Aesthetic Inspiration		
Living	Manchurian window		The pattern and composition form in the window lattice	
Cantonese Music	Guangdong Opera		Opera mask, water-sleeve	
Cantonese Cuisine	Dim sum served in bamboo steamer		Bamboo steamer	
Cantonese Folk art	Guangzhou embroidery		The well-organized pattern	
Cantonese Luck Symbol	Lion dance		Sharpe color and artistic image of lion	
Cantonese mythology	The Stone Statue of the Five Rams		Abstraction of five rams	

## 6 CONCLUSIONS

Compared with the traditional brand visual image, the visual language of flexible visual identification system is flexible and multi-dimensional communication, which is more conducive to the brand to create atmosphere, enhance the sense of experience and enrich the cultural connotation. Guangfu Temple Fair is defined as a new type of folk cultural activity, which can incorporate all

kinds of cultural resources and provide the compatible function of cultural carriers. The brand system of multiform visual system has the advantage of strong adaptability, which can dock the image symbols in the brand framework of Guangfu Temple Fair, and present the cultural outlook, atmosphere and value positioning of the Guangfu Temple Fair in the three dimensions of cultural symbols, aesthetics symbols and value symbols more adequately. It should be noted that the relationship between flexible visual identity system and cultural activities is not "one-to-one", and there are many possibilities for the selection of cultural symbols and the refinement of aesthetic symbols. The introduction of this case illustrates on the one hand the feasibility of flexible visual identity system in cultural activities, and on the other hand, it provides a demonstration path for the subsequent research or practice. The case illustrates the feasibility of multiform visual identity systems in cultural activities on the one hand and provides a model for subsequent research or practice on the other.

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## CONFLICT OF INTEREST / KONFLIK KEPENTINGAN

No conflict of interests.

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# From One to Diversity: Explore the Design Principles of Flexible Branding Visual Identity and Its Application on Design Practice

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## ABSTRACT

*As a new trend in visual design, Flexible Branding Visual Identity (FBVI) holds the overwhelming advantage in its being adaptable in situation, flexible in application and rich in connotation, and therefore adopted by increasing number of brands in the building and promotion of visual image. Much attention has been drawn to this field but without much reflection on its usage and the theory behind. This research aims to explore the methods and skills for the use of flexible branding visual identity. Drawing on the theories of visual psychology as well as visual thinking, the research makes a comparison between the traditional and newly-developed approach in brand design in terms of advantage and disadvantage. Along with the review of a great number of cases, the research formulates the idea of overall perception advantage, arguing that flexible logo has the potential to impress the viewers as a self-contained system instead of an individual element. Based on the above discussion, the research concludes some principles about FBVI as guidelines to design practice. In the end, the case of visual identification of Cantonese Temple Fair is to exemplify how the principles are applied to a visual promotion project that addresses the problem of incorporating varieties of local culture into a coherent system.*

**Keywords:** Flexible branding visual identity, Visual communication, Cantonese Temple Fair



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## 1 BACKGROUND OF STUDY

Flexible branding visual identity (FBVI), also known as dynamics branding identity, or adaptive identity, is a new trend in today's brand design. More and more visual identity designs are shifting their focus from a single logo to a systematic group of variant logos. Formally speaking, flexible brand image design often takes a mother structure or core pattern as the main axis and presents a range of graphic styles with similarity through a variety of form principles, utilizing the systematic and recognizable graphic forms for brand image building and brand value dissemination. In recent years, flexible identification design is commonly used in major brands, especially in cultural and artistic brands, because its rich visual expression highlights the multifacetedness of brand image and reinforce the brand impact on people's minds. Secondly, the multiform visual identification system has a natural fit with the Internet. With the help of digital media technology and mobile network platform, the new promotion means is more inclined to the colourful and dynamic presentation, and the visual language under the combination of multiple forms is more conducive to the construction of dynamic brand image than the traditional single form.

Local cultural activities are the active carrier of local culture, which integrates material culture and intangible culture, and combines modern leisure tourism and traditional folk customs into one. Therefore, the influence of cultural activities plays an important role in building cultural soft power. The initial intention of the research is to optimize the brand image, promoting Guangfu cultural activities by invoking the new means of design thinking. We take cultural activities as the source of radiation, traditional Guangfu culture, and driving the cultural industry. At the same time, the subject combines the interdisciplinary fields of marketing, branding and design, to find the modern representation of traditional Guangfu culture, traditional folklore to make the traditional folk cultural activities glow with new charms, to attract more young people to pay attention to traditional folk activities.

## 2 THE ORIGIN AND DEVELOPMENT OF FBVI

At the beginning of the twentieth century, brand visual image design was mostly influenced by the modernist style, emphasizing the design concept of "less is more", in the form of simple and clear, the overall consistency of the main, flexible brand image design is not common. The earliest flexible branding can be traced back to 1959 when graphic designer Karl Gerstner created his first brand. The earliest flexible branding can be traced back to graphic designer Karl Gerstner's 1959 identity for the Bo te à musique store in Basel, Switzerland, as shown in Figure 1. It is worth noting that Gerstner's design concept was quite forward-looking, he wanted to establish a flexible visual image that could be applied to different applications and wanted the brand to be remembered not as a figurative graphic, but as an overall atmosphere and tone, which can be said to be the germ of the overall perception advantages of flexible brand visual design. With the continuous development of network and media technology since the middle of the last century, more and more brands realized the weakness of a single logo in image communication. Until the 1980s, a number of classic flexible brand image designs emerged in the fields of radio or internet companies, such as MTV in 1981, NAI in 1993, and Google in 1998, as shown in Figure 2. The most notable feature of these early flexible image designs was the varied styles of the logos. In Asia, the concept of brand visual identity came to Asia later, in the second half of the twentieth century before the Asian countries gradually applied to the brands, flexible brand image design is a latecomer. Among many Asian countries, South Korea is a frontier in the research and practice of flexible brand design. There are many enterprises and organizations boldly use flexible logo, such as Seoul's new city image logo, South Korea E-MART supermarkets and the National Museum of Modern Art, etc., there are a number of design researchers in the theoretical level to do some exploration and summary. According to the author's observation, China's local brand image design, the use of flexible design thinking and successful practice in marketing is not much. As early as 2012 years ago, there are Shenzhen designers Liu Yongqing, Guan Pucha some attempts, and then the 120th anniversary of the University of Zhejiang University in 2017, using flexible design approach to the creation of the activities of the logo and so on.

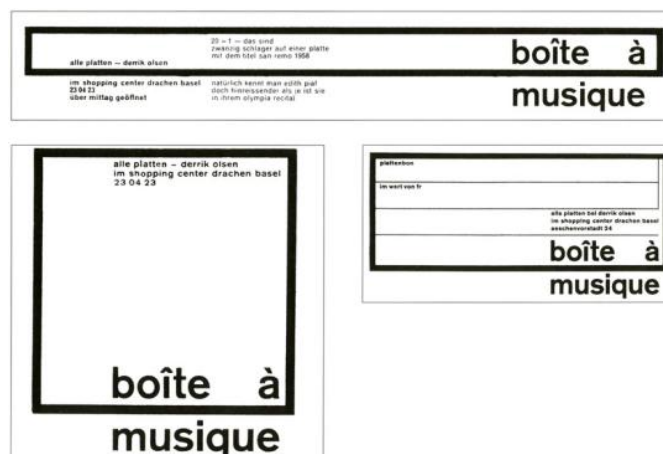
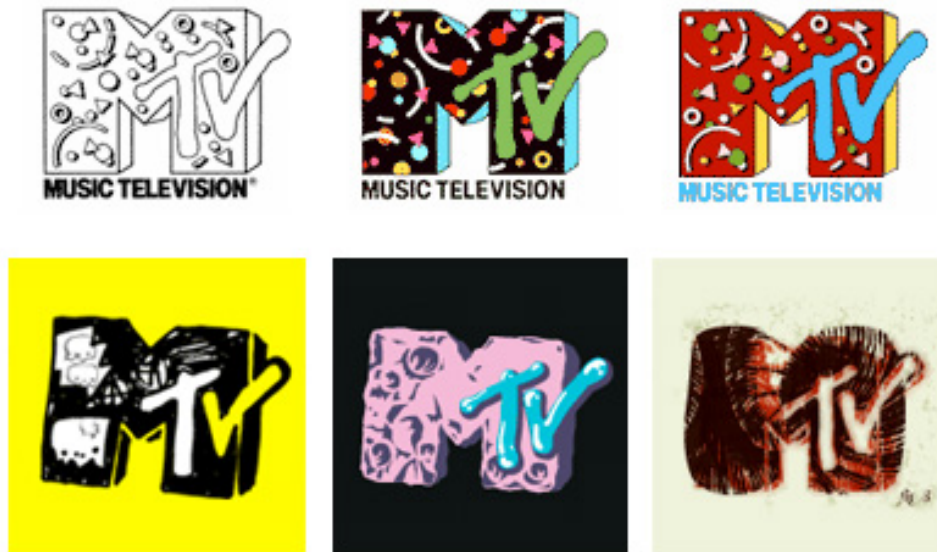


Figure 1 The brand visual identity of Bo te à musique store  
(Source: Karl Geatner, 1964, Copyright Consent: Permissible to Publish)



**Figure 2** The logo design of MTV CHANNEL  
(Source: Tang Wenguang, 2012, Copyright Consent: Permissible to Publish)

### 3. THE OVERALL PERCEPTION ADVANTAGE OF FBVI

#### 3.1 Visual Interpretation Analysis of Traditional Brand and Multiform Brand Image

In the traditional brand visual identity design theory, it is generally believed that the logo should be as simple as possible, too complex shape is not easy to memorize, and in the process of communication, the logo should be consistent, and appear repeatedly in different brand touchpoints, creating a link between the logo and the brand it denotes, so as to successfully make the brand image impressive. At the same time, the spirit and culture of the brand carried by the environmental setting, such as the interior design of the store, the package of goods, the advertising poster, slowly penetrate the target audience. According to this theory, a simple and recognizable single graphic is the first choice for a logo. However, on the contrary, the multiform brand image logo is not confined to a single shape. They are based on a stable inner connection and develop a rich and varied form, these forms in a variety of application scenarios are not repeated replica but change moderately due to the situation and change. These two very different methods of operation embody the two ways of understanding in Gestalt theory. Wertheimer, M., the founder of Gestalt, once summarized the way we understand graphics into two categories: one is to analyse the whole schema in terms of its "parts" and use this as a starting point to gradually transition to the analysis of the combination of the schema; the other is to analyse the overall structure as a start, and then gradually analyse the subordinate parts sequentially (Rudolf Arnheim, 1954). The "bottom-up" mode of understanding is the theoretical premise of traditional brand visual design. Each brand scene contact of the audience is an interpretation and digestion of the brand logo, and different brand touch points provide the opportunity to superimpose the impression and understanding of the depth of understanding, and thus gradually form the overall perception of the brand in the consumer's mind. flexible brand image design does not put all brand demands on a single logo, but presents a flexible system, the viewer needs to use a bird's eye view to feel the diversified visual language within the system, to achieve consensus among differences and similarities, and then to perceive the whole brand, and further to understand the specific meaning conveyed by each graphic when reviewing each different form. The viewer's experience is more in favour of the "top-down" interpretation path.

### 3.2 Comparison Analysis of Visual Application in The Traditional Brands and Flexible Brand Images

According to their interpretation mechanism, the two paths of interpretation have their own advantages and disadvantages. For brands with a single stable concept and strong cohesion, using a logo symbol and relatively simple application specifications to convey the brand spirit is conducive to the clear establishment of the brand image in the minds of consumers, and the visual language with less information enables the viewer to obtain precise and specific brand knowledge (Kevin Lane Keller, 2011) consists of two parts: brand cognition and brand image. Therefore, brands using this kind of visual system generally emphasize the constancy of their business philosophy and the robustness and reliability of their image, and are mostly found in large enterprises or official institutions with strong professionalism in their business fields; in contrast, the top-down bird's-eye view experience guided by the flexible visual system will make it difficult for the viewer to focus on thinking because of the large amount of information in a single communication. Given this premise, in the above-mentioned case study of the music store in Basel, it is easy to get a macro and vague sense of the tone or atmosphere of the brand during the first contact with the brand, and it is only after several contacts that the brand can be understood in terms of its specific claims. This kind of characteristic is very suitable for brands with rich concepts and strong diffusion power.

Therefore, flexible brand design is mostly applied to media, culture and art related organizations or activities, which emphasize on the creation of atmosphere, enrichment and expansion of connotation, and dissemination and influence of culture, and flexible brand image design can help them to enhance the cultural charm, and even trigger the interactivity so as to create more topics. In summary, the applications of both are summarized in the table below:

**Table 1** The comparison analysis of two types of branding design (Source: by author)

	<b>Traditional Branding Visual Identity Design</b>	<b>Flexible Branding Visual Identity Design</b>
Applicable Brand Characteristics	<ol style="list-style-type: none"> <li>1.Strong cohesion of the concept, the connotation of a single.</li> <li>2.Emphasizing constancy, stability and reliability.</li> <li>3.Large enterprises or official organizations with strong specialization in a single business or operation field.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strong conceptual diffusion and richer connotation</li> <li>2. Emphasizing the creation of atmosphere, enrichment and expansion of connotation</li> <li>3. media, culture and art related organizations or activities</li> </ol>
Effectiveness	Accurate-perception: the visual language is less informative but specific, obtaining precise brand knowledge and multiple brand scene contacts to feel the atmosphere	Perception - Specific: The visual language is informative and complex, leading to a sense of the brand's tone and ambience, and then to an understanding of the specific claims.
Visual perception	"Bottom-up" from part to whole	"Top-down" from the whole to the parts

In practice, the advantages of multiform visual system are often applied to the following branding solutions:

1. Multiform visual system has the flexibility to extend the content, which is very suitable for business expansion of the brand image design, or the establishment of sub-brand, the overall consistency of the relevance and can clearly identify the brand hierarchy. For example, when many broadcasting stations expand their channels, the new logo will follow the main body of the original visual system and add elements that characterize the channel on this basis.
2. The rich visual effect of the multiform branding system creates a strong atmosphere, which can quickly attract viewers, and the varied styles can cater to the aesthetic trends of different groups and different times. For example, in the classic case of MTV channel's visual system, with constantly repeating the three letters of M, T, V three-dimensional modelling, the main body boldly tries the style of the visual effect, everyone can find their own favourite in this system, just as the channel plays a variety of music. In addition, there are even brands that view the visual system as a "container" that allows everyone to fill in their own personal style of "content" and create their own brand logo through interactive creation.
3. The variable nature of flexible branding makes it easier to meet the ever-changing communication means and media in the future, apart from the traditional forms of print media, but also mobile media with a wide range of audience (Li Nan, 2014). In addition, a number of flexible visual systems are extended from dynamic branding design or inspired by each frame in dynamic motion. In turn, flexible branding provides dynamic branding with key frames of change on the timeline and provides dynamic branding with a direction of inspiration for change.

## **4 DESIGN PRINCIPLES OF FBVI**

It can be seen, through comparison, that the flexible brand image design can play a better role than the traditional brand design as long as it is used properly. To successfully build a flexible brand visual image, it is necessary to find out the guiding design principles, as are shown in the following three points.

### **4.1 Stability of Core Subjects**

The overall perception advantage of flexible brand identity design depends on the effective establishment of a visual system. The famous art theorist Rudolf Arnheim mentioned in his book "Visual Thinking": How does an image come together to make a meaning through its various components? One of the simplest laws upon which the organization of these relationships (i.e., the relationships between parts) relies, is the law of similarity (Rudolf Arnheim, 1969). Therefore, the establishment of similarity through a certain law in the visual elements of different forms is the key to constructing a flexible brand image design, and it is only through similarity that the imagery communication function of the combination of individual elements can be maintained. The basis for this similarity of the internal visual elements must be a stable kernel of connection, which must run through all the pattern variants, so that the flexible combination system is consistent, and this connection should be obvious enough for the viewer to easily perceive. If the connection or similarity is too subtle, the flexible visual design system is bound to become loose and messy. Similarly, brand image visual system, a variety of colourful graphics are derived from the core body. The core body is divided into two categories: one is a fixed structural modelling; the other is a fixed composition logic.

#### **4.1.1 Stable structure modelling**

The overall graphic outline or modelling framework is fixed, and the variants continue to enrich the content by filling or replacing additional elements without changing the stable structure. In several successful cases, the core body is highly stable, giving rise to similar combinations of graphic styles. For example, the visual identity of the urban neighbourhood Tigre Sur adopts a flexible branding

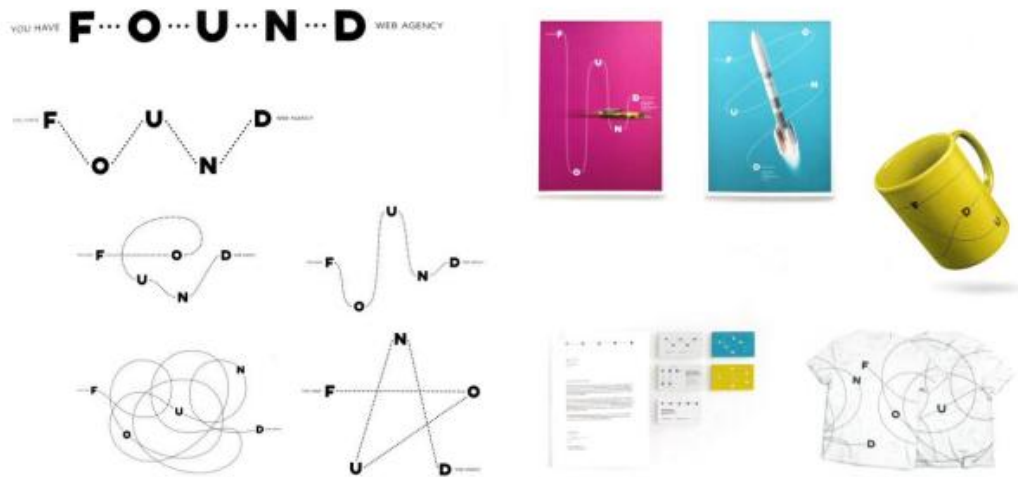
approach, using the initials "T" and "Sur" as the source of inspiration to create a series of exciting and vivid graphics (Fig. 3), from which it can be seen that, regardless of the other visual elements of the graphic, it is not the same as the other visual elements. As can be seen from the figure, no matter how the other visual elements of the graphic change, the letter "T", the downward arrow and the triangles on both sides form the core of the visual system, and this fixed modelling combination is always present in each graphic variant, so that the different patterns produce correlation, and the viewer perceives the whole graphic combination through the correlation, thus experiencing the fun of the brand. The viewer perceives the whole graphic combination through the correlation, thus experiencing the fun of the brand.



**Figure 3** City Neighborhood Tigre Sur: Visual Identity Design for a Renovation Project  
(Source: <https://www.behance.net/gallery/53881143/DISTRITO-TIGRE-SUR>)

#### 4.1.2 Stable compositional logic

Compositional logic consists of the constituent elements and the way they are organized, and the elements are constantly deconstructed and reconstructed around the underlying logic of the graphic combination. Even if no additional elements are introduced, variant graphics centred on this type of body are usually more varied and can even be extended into auxiliary patterns with great adaptability. For example, a network company called FOUND, mainly engaged in website optimization and improve search engine business, they brand visual identity design as an interesting game, the rules of this "game" is to use the dotted line to the F-O-U-N-D four letters in series, respectively, at the beginning of the line and at the end of the line to write "YOU HAVE" and "WEB AGENCY" at the beginning and end of the line respectively. This "rule of the game" is regarded as a fixed underlying logic of graphic composition within the visual system, around which designers have developed a series of interesting logos. Around this logic, designers have developed a series of interesting logo graphics, each of which resembles a road map for a treasure hunt (Figure 4). Individual logos seem to be loosely organized and thinly shaped, but when this compositional logic is fully developed in application scenarios, the powerful recognition and adaptability of the brand visual system is fully revealed and combined with the meaning of the brand name FOUND, the creative concept of the visual and the playful and relaxing atmosphere can be immediately perceived.



**Figure 4** Brand visual identity design for web agency FOUND  
(Source: Chen Jinming & Wang Xiangliang, 2018)

## 4.2 Organic Nature of The Core Body

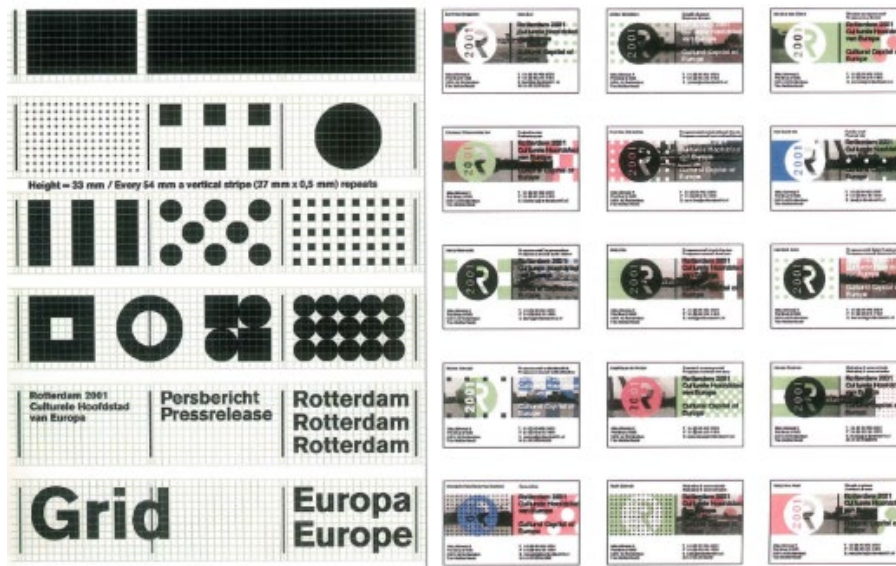
The core body should have potential qualities that can be developed and extended relative to the derived variants, and should have a certain degree of openness to allow for more complementary possibilities, which requires that the core body in the modelling design cannot be a tight "closed loop", in common parlance, just as an organic stem cell, there is a continuous development and growth, and differentiation into different organs. The potential of differentiation into different organs. Therefore, in the case of multiform brand design, the core body generally has the following characteristics:

### 4.2.1 Simple and concise shape, showing abstract geometry.

The core body generally less use of complex or figurative patterns, the more specific images point to the meaning of the clearer, the more the structure tends to be self-complete, the more repulsive to change, any elements added, or the form of variation is bound to the destruction of the original form and change the imagery. Pure, abstract graphic patterns inclusive, more conducive to the form and meaning of further derivation. It is worth mentioning that the Chinese and English fonts are also often used as the main shape, and the stroke shape of the font is also in line with the principle of simplicity and geometry to a certain extent.

### 4.2.2 Awareness of grid system

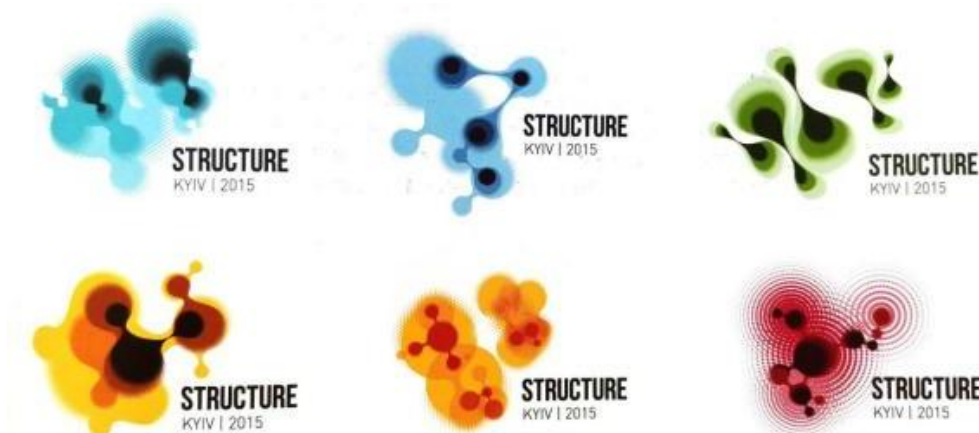
Grid system is the law of layout design, the skilful use of grid can design a harmonious, unified and flexible layout, which is a good reference for flexible brand image design, therefore, many brands will introduce grid system in flexible logos, with grid rules as the logic of the composition, combining both flexible and harmonious variants. For example, in a cultural campaign called "Rotterdam 2001", the designers created a visual system to promote the overall image of Rotterdam's urban charm. In the visual system, there are only two simple elements, circle and square, but the ingenuity lies in the use of the grid system, the two elements according to different sizes and proportions and spatial location in accordance with the flexible combination of the grid arrangement, seemingly monotonous grids and elements, to interpret a strong sense of design and visual effects (Figure 5).



**Figure 5** Design of the visual identity for the cultural promotion of Rotterdam 2001 (Source: Chen Jinming & Wang Xiangliang, 2018)

#### 4.2.3 Compositional logic has a high degree of freedom and openness

Compositional logic plays the role of the main axis in the system, and the basic elements, under the leadership of compositional logic, combine graphic patterns in a certain form. Therefore, the organization of the elements of the law cannot be too restrictive or too complex and affect the flexibility of the system. Compositional logic is generally the way of layout arrangement, through the development of a combination of forms to organize the size or location of the elements. In the context of new media art, many designers nowadays use data or coding as the compositional logic for generating graphics, which is a relatively new and flexible design concept, such as the flexible logo designed by the Ukrainian design firm BBDO for the Structure Urban Volunteers team, which abandons the figurative elements that represent the Ukrainian capital, Kiev, and boldly adopts a more experimental approach. The designers used real data as the basis for the logo. The designers used real data as the basis for the logo, placing different statistics such as population density, traffic, lighting, soil borne disease areas, dimensions, and noise on a map of Kiev, and then translating them into a design language (Figure 6). This way of generating graphics is very flexible and free, and according to the laws of data visualization, different data can generate different graphic patterns.



**Figure 6** Structure City Volunteer Team Visual Identity Logo Design (Source: Chen Jinming & Wang Xiangliang, 2018)



### 4.3 Adaptability of Visual System

Visual diversity should be reflected in the design of multiform brand image to adapt to different application scenarios as much as possible. With the development of media technology, cross-platform and cross-media communication is an important direction for brand promotion in the future. The traditional practice of repeating a single brand visual logo is obviously unable to adapt to the trend of media diversification, and innovative design tools such as dynamic branding have emerged. As a form of brand design between traditional brand and dynamic brand, flexible brand has the characteristics of static plane visualization, but also has the subjective experience of dynamic change, which can make up for the gap between the two very well. Therefore, when creating a flexible brand visual system, the needs of traditional print media should be fully considered to ensure that the brand image is conveyed in different application scenarios. At the same time, it is important to ensure that a flexible brand visual system provides an organic pattern of variation, with the flexibility to derive appropriate graphic styles based on the characteristics of the media. For example, the University of Applied Sciences in Hungary undertook a branding exercise after a name change, where the new acronym, MET, and variable graphics simulating classic architecture and cityscapes clearly distinguished the different faculty members, where the graphics flexibly adapted to different layout needs in different sizes of printed materials, and where the graphics cleverly maintained the identity of the core subject and correspondingly adapted to the characteristics of the outer contours of the core body in three-dimensional spaces and on other media such as web-based platforms. In other media, such as stereoscopic space and online platforms, the graphic cleverly maintains the characteristics of the core body's outer contours and makes more flexible changes, accordingly, providing vividness while maintaining a high degree of consistency and recognizability (Fig. 7).















**Figure 7** Visual Identity Enhancement of the Hungarian University of Urban Applied Sciences  
(Source: Chen Jinming & Wang Xiangliang, 2018)

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## 6 CONCLUSIONS

Compared with the traditional brand visual image, the visual language of flexible visual identification system is flexible and multi-dimensional communication, which is more conducive to the brand to create atmosphere, enhance the sense of experience and enrich the cultural connotation. Guangfu Temple Fair is defined as a new type of folk cultural activity, which can incorporate all

kinds of cultural resources and provide the compatible function of cultural carriers. The brand system of multiform visual system has the advantage of strong adaptability, which can dock the image symbols in the brand framework of Guangfu Temple Fair, and present the cultural outlook, atmosphere and value positioning of the Guangfu Temple Fair in the three dimensions of cultural symbols, aesthetics symbols and value symbols more adequately. It should be noted that the relationship between flexible visual identity system and cultural activities is not "one-to-one", and there are many possibilities for the selection of cultural symbols and the refinement of aesthetic symbols. The introduction of this case illustrates on the one hand the feasibility of flexible visual identity system in cultural activities, and on the other hand, it provides a demonstration path for the subsequent research or practice. The case illustrates the feasibility of multiform visual identity systems in cultural activities on the one hand and provides a model for subsequent research or practice on the other.

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## AUTHOR CONTRIBUTIONS

Author's individual work covers data collection, analysis and writing etc.

## CONFLICT OF INTEREST / KONFLIK KEPENTINGAN

No conflict of interests.

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# Enhancing Visitor Experience Using Service Design Approach for Museum Sustainability

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## ABSTRACT

Countries all over the world have recognised museums' functions in showcasing a country's background, historical moments, and significant events where it can provide a fascinating glimpse into its history and tradition, bringing us to the highlights of a country's achievement. As a result, many countries began to develop their museums to be more focused on delivering visitor-oriented services in order to attract more visitors, which is supported by numerous recent studies on the museum and/or visitor experience. Currently, museums are expected to provide better services by providing positive experiences and satisfaction to visitors which may reverberate on the brand royalty, resulting in visitors returning to the museums. These circumstances will offer free advertising through the museum's visibility on the public radar in the future for attracting newcomers. Understanding visitors' visiting styles, behaviours, needs, and motivations is critical because it provides details on visitors' expectations while also understanding the visitor experience, all of which can be aptly accomplished using the service design approach. The foundation of this paper will be a proposed framework for museum experience based on service design, as it is performed using service design tools such as personas and customer journey maps, which will benefit the museum institution by observing visitors' perspectives and thus improving museum services. Finally, it is believed that observing museums' capability as a service provider from the visitors' perspectives while considering museums' intentions will benefit museums in the long run, while also ensuring their sustainability as a major contributing factor to the tourism industry, which is in line with the current consumerism trend.

**Keywords:** Museum, Service Design, Personas, Visitor Experience.



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## 1 INTRODUCTION

In recent times, museums have emerged as an asset for countries in Europe and Asia (Ser, 2020), whereas in Malaysia, it only contributes 27.8% to the tourism industry in 2019 (MTPB, 2019). Between January 2019 and December 2019, visiting museums was among the lowest for main tourist activities, down from 30.6% from the same period on 2018 (MTPB, 2018, 2019). However, there was a gain in the first quarter of 2020, it is still among the three lowest activities preferred by tourists in Malaysia (MTPB, 2020b). Despite a slight increase in the first quarter of 2020, it remains one of the three least popular activities among tourists in Malaysia (MTPB, 2020b). When COVID 19 pandemic hit the country and the implementation of the Movement Control Order (MCO) has caused the country to close its borders since 18 March 2020, no more information on the most popular activities among local and

international tourists for the years 2020, 2021, and the first quarter of 2022 can be obtained (MTPB, 2020a, 2021, 2022).

Furthermore, according to the Department of Museums Malaysia (DMM) Annual Report from 2017 to 2019, the number of museum visitors has decreased since 2017 with 3,181,012 in 2017, 2,972,445 in 2018, a 6.56% decrease from 2017, and 2,782,578 in 2019, a 6.39% decrease from 2018. According to the report, the National Museum of Malaysia is one of the topmost visited museums by local and international tourists, but it has seen a decrease in visitors since 2017 (JMM, 2017, 2018, 2019). During the Covid-19 Pandemic, tourist numbers fell even further because of the country's implementation of the MCO in 2020 and 2021 (JMM, 2020, 2021). These figures demonstrate that museums in Malaysia, particularly the National Museum, have lost their appeal to current tourists even before the pandemic outbreak. As a result, it is time for Malaysian museums, particularly the National Museum, to realise their full potential in boosting the tourism sector.

Today, museums all over the world are becoming more focused on providing visitor-oriented services, which is supported by data from numerous recent studies on the museum and/or visitor experience (Liu & Idris, 2020; Lykourantzou et al., 2013; Muhammad Hashim, 2013; Tsiropoulou et al., 2016). Understanding visitors' visiting styles, behaviours, needs, and motivations is critical because it provides details on visitors' expectations while also understanding the visitor experience. Furthermore, museums are expected to provide better services in the future by providing positive visitor experiences and satisfaction, which may echo back on the brand royalty, resulting in visitors returning to the museums, which can offer free advertisement through the museum's visibility on the public radar (Tsiropoulou et al., 2016).

In the current context, museums have evolved from object-oriented, in which the artefacts displayed on the pedestal are believed to deliver knowledge on their own, to more realistic visitors-oriented conditions in which museum management begin to acknowledge the contribution of visitors themselves in the interpretation of the museum's exhibits (Matuk, 2016; Mavragani, 2018; Pirnar & Sari, 2013). According to Falk and Dierking (2013), to achieve a new level of visitor satisfaction in museums, museums must look through the eyes of visitors and focus more on the visitor experience. While Liu & Idris (2018) emphasised the importance of conducting a visitor experience study, which has been overlooked in many previous studies, they used a novel approach that categorises museum visitors based on their motivations and needs. According to Almshari et al. (2019), museums should also provide visitors with personalised interaction and services, ensuring a more inclusive and enjoyable visit for all.

Similarly, many studies have suggested that effective exhibition production can affect visitor experience; for example, some museums may not be visited because the presentation of museum exhibition material failed to provide knowledge and a positive visitor experience, forcing museums to reinvent themselves by incorporating new media to attract more museum visitors (Neuburger & Egger, 2017). In addition to the physical service provided by museums, other aspects for museums to consider are service quality and service satisfaction, which is a major factor considered by visitors when selecting destinations (Mavragani, 2018). Thus, Mavragani (2018) emphasised that research on visitor expectations and perceived service offered by museums is also required to determine positive visitors' attitudes towards the institution, their future revisit intentions, and their willingness to recommend to others, all of which can lead to increased museum revenues.

## **2 PURPOSE OF THIS STUDY**

The goal of this research is to determine the strategic approaches that museums in Malaysia should take to improve their current services. This can be accomplished by considering museum services from the perspective of visitors as well as considerations from the perspective of museums as service providers to deliver meaningful experiences through the service design approach. It is critical to establish proper guidelines for local museums to optimise the visitor experience as perceived by its

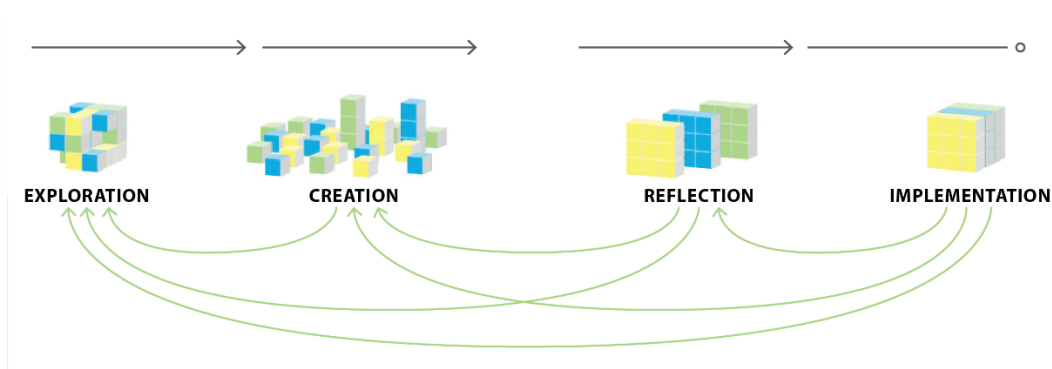
visitors. Museums must find ways to enhance the visitor experience by developing new methods for interpreting the museum's products, which can be tangible or intangible, by providing entertainment through an increased level of interactivity, and by improving experience (Chan et al., 2019). Without a doubt, museums must become more visitor-centred rather than focusing solely on physical preparations such as layout arrangements and exhibitions detailing (i.e., object-based approach). The visitor-based approach can help museums understand occurrences at museums from the perspective of museum visitors, whether the environment settings are successful or not, and thus reflect on the visitor experience (Lanir et al., 2017). Recognizing visitor expectations and how museum visitors perceive museum services will influence future re-visit intentions and willingness to recommend the museums to another potential visitor (Mavragani, 2018). Finally, it is believed that observing local museums' capability as a service provider from the perspective of visitors while considering museums' intentions will benefit museums in the long run, while also ensuring their sustainability as a major contributing factor to Malaysia's tourism industry, which is consistent with the current consumerism trend.

### 3 MUSEUM SERVICE DESIGN

Service design has been recognised as one of the best approaches for designing services. It provides tools and procedures that potentially will elevate the visitor experience for museums to be proficient in delivering good services while offering better experiences to museum visitors. According to Bourliou (2020), service design in museums allows us to identify services that can improve the visitor experience by connecting audiences with museum exhibitions and, of course, the museum's services. Furthermore, service design can provide innovative approaches to service providers and service designers to analyse, innovate, and improve services (Frischhut et al., 2012).

Furthermore, to comprehend the visitor experience, museum managements and professionals must first comprehend the visitor's behaviour. Recognizing visitor behaviours allows museum curators to evaluate their work and assess the physical layout, which influences how visitors interpret the exhibits (Lanir et al., 2017). Nowadays, most museum management and professionals recognise the need for improved visitor-centric displays, especially when they have the necessary equipment and technology to do so. Lanir et al. (2017) stated in their findings that while a great deal of effort is put into designing and building the small details for the exhibitions, yet little research has been done on their effects on the visitors' behaviours, which is due to the lack of measuring tools to evaluate how effective their designs are going to be.

Figure 1 shows that there are four iterative stages of the service design which are exploration, creation, reflection, and implementation (Stickdorn, 2018; Stickdorn & Schneider, 2011). All four stages are intended to discover and gain insights into service experiences from the perspective of stakeholders by putting themselves in the shoes of customers, employees, managers, or even competitors, where these experiences will be visualised into new ideas and concepts, and finally to implement the new or improved service design to all sections of an organisation (Stickdorn & Schneider, 2011; Stickdorn & Schwarzenberger, 2016).



**Figure 1** Four iterative stages of the service design thinking  
(Source: Stickdorn & Schneider, 2011)

This approach has been described as an iterative process aimed at identifying design flaws and making improvements to ensure that the intended customer only receives feasible services with positive experiences. In the context of museums, this iterative approach ensures the sustainability of local museums by making necessary improvements to service design, resulting in a memorable and enhanced visitor experience for museum visitors. Many tools have been identified for each stage of service design, including service safaris, customer journey maps, shadowing, personas, idea generation, service prototype, desktop walkthrough, storytelling, service blueprint, and business model canvas, to name a few (Stickdorn & Schneider, 2011).

### 3.1 Museum Personas Based on Falk's Identity Related Motivation (IRM)

Museum visitors come from various demographics, psychographics, and behavioural segmentation. In other words, each museum visitor has different characteristics, motivations and behaviour that influences their experiences when visiting museums, making each visitor experience highly personalised and unique (Falk & Dierking, 2016). Personalization research can improve museum visitor knowledge by designing services with appropriate content adaptation, allowing for improved visitor experience (Mokatren et al., 2019). One of the techniques to personalize museum experience is by adopting one of the service design tools, i.e., to create 'personas' based on types of visitors (Liu & Idris, 2020).

Personas in service design refer to a fictional profile, often created to portray a particular group based on their shared interests, that represents a character with which clients and design teams can interact (Stickdorn & Schneider, 2011). Service providers can gain further understanding of customer demographics and preferences by producing personas cards to represent market segments as shown in Figure 2. Museum visitors can be categorized using Falk's identity related motivation (IRM) where they can play the role of one or more of the following five categories which are (1) explorer, (2) facilitator, (3) experience seeker, (4) professional/ hobbyist, and (5) recharger. To better understand each type of visitors: explorer are those who are curiosity driven with a generic interest in the content of the museum, facilitator are those who are socially motivated, experience seeker are those who are motivated to visit because they perceive museum as an important destination, professional/hobbyist are those who feel a close tie between the museum content and their professional or hobby, and lastly, recharger are those who are primarily seeking to have a contemplative, spiritual and/or restorative experience (Falk, 2016).



Figure 2 Personas card for museum visitors

Personas created based on Falk's IRM can represent a personalised experience for many museum visitors (Falk, 2016; Mokatren et al., 2019). According to Almshari et al. (2019), museum visitors can be classified based on two key triggering features, namely their motivations for visiting and the perceived success factors that contribute to their museum experience. These visitor clusters correspond



to both Falk's visitor categorization and a classification of exploration styles, indicating that these two aspects can serve as reliable indicators to identify museum visitors' personas, which will facilitate in the design of museum services. This approach is expected to assist in the identification of museum visitors' personas solely based on available information, without the use of any other data or prior knowledge about the visitors.

Museum experience involves period before the visit, during the visit and after the visit (Falk & Dierking, 2016). Allegedly, museum experience begins before visiting the museums, i.e., pre-visit, and prolonged after they leave the museums, i.e., post-visit, while the during-visit occur when they are in the actual museum environment (Falk & Dierking, 2016; Liu & Idris, 2020). This paper will merely discuss enhanced visitor experiences using service design approaches such as personas, service safaris, customer journey maps, and service blueprints; thus, the terms 'visitors' will be used mostly where we will be focusing on museum visitors during-visit experiences as this will directly involve museum physical settings' services within the museum actual environment.

### 3.2 Proposed Framework for Visitor Experience During Visit

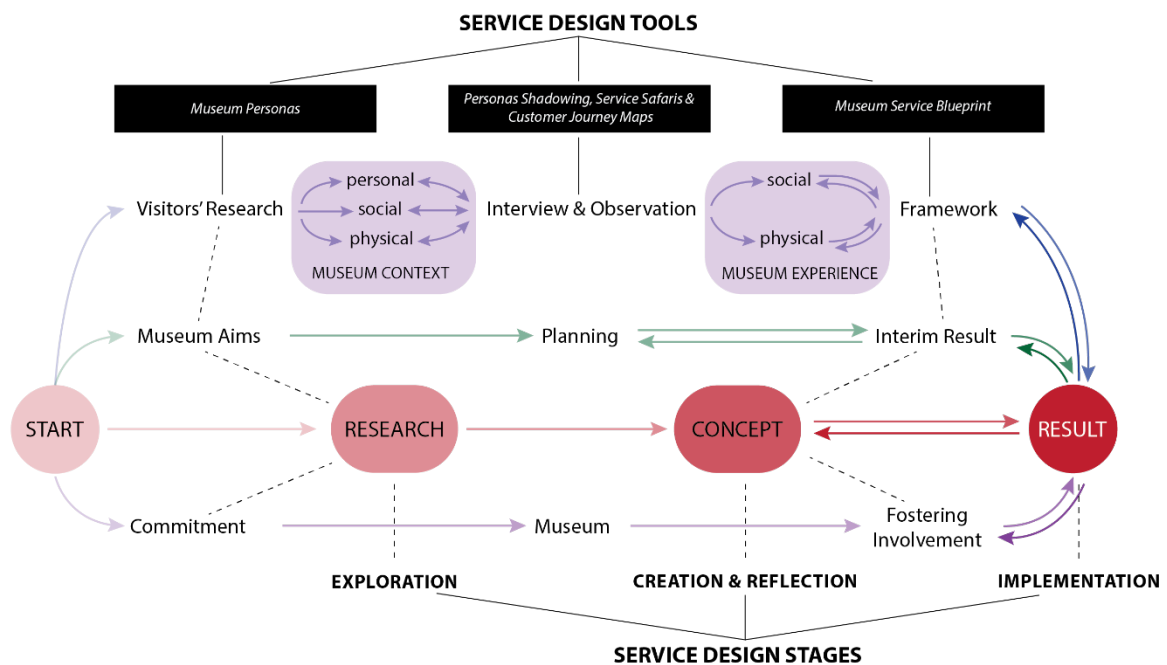
Based on Falk & Dierking (2016), visitors often explore the exhibit in various sequences when visiting a museum. For instance, some visitors begin at the first exhibit and work their way through the museum until they reach the exit, others choose to skip certain exhibit that do not capture their interest, and some even begin at the exit and exploring in a reverse order. These patterns of museum exploration are influenced by multiple factors, including museum visit frequency, their expectations, and their knowledge and experiences that they already have prior their museum visitation (Almeshari et al., 2019; Falk & Dierking, 2016). Hence, for service design to work properly, one must first study and observe these exploration styles prior to designing better services that can enhance visitor experience.

Apart from personas, this study utilizes shadowing, service safaris and customers journey maps as service design tools to examine visitor's experiences during the exploration stage of their museum visit. These tools enable a comprehensive observation and analysis of visitors' interactions with museum services and its environment, as well as identifying touchpoints along the way. Shadowing enables observing and tracking visitors over time to gain a better understanding of their actions, thoughts, emotions, and motivations. Other service design tools such as service safaris allows client to understand the customer common needs while customers journey maps capture the customer's viewpoint and highlight opportunities for redesigning the museum services by identifying their intended or unintended affordances (Kara et al., 2015; Reason et al., 2016; Stickdorn & Schneider, 2011).

Within the context of this study, shadowing and customer journey maps for museum services provide a broad overview of the factors that influence the visitor experience constructed from the visitor's perspective. Personalizing the map by to cater specific types of museum visitors can make an immersed visitor-focused experience. Referring to Stickdorn & Schneider (2011), customer journey maps that is designed based on personalised character can offer a heightened empathic engagement to the newly created made-up journey. This led us to adopt another service design tool, personas, as to represent the types of museums' visitors to personalise the customer journey. By identifying and engaging with each persona derived from Falk's IRM, service designers can gain different perspectives on museum services, allowing them to develop new or enhanced museum services that can cater to various types of museum visitors, ensuring a positive visitor experience.

Figure 2 is a proposed framework adapted from Enninga et al. (2013), illustrates the museum during-visit service design map. This map depicts the progressions of an iterative process in service design, including start, research, concept, and result, as well as directing us to where the visitor context and visitor experience overlay within the map. It is also mapped to the four stages of service design, namely exploration, creation, reflection and implementation (Stickdorn & Schneider, 2011). During the research stage, museum aims and visitors research must be attained together considering service design approach must consider both the relationship between service providers, which is museum, and

customers, which is visitors, to improve overall services. As a result, museum commitment must be obtained during this stage as well, which are given by museum curators and management. Visitors' research is conducted by looking into museum visitors' contexts, it includes personal, social, and physical contexts, and additionally, service design tool, i.e., museum personas, are determined during this stage too.



**Figure 3** Museum during-visit service design map

Hence, all these processes during research stage are moved forward to planning, for museum aims, and interview and observation, for the visitors' research. The interview and observation utilize another two types of service design tools, namely shadowing and customer journey maps. It should be noted that, in addition to shadowing and customer journey maps, there are numerous other service design tools that can be used during the exploration stage Stickdorn & Schneider (2011). This proposed framework will only determine issues and aspects that can improve and enhance visitors' experiences from social and physical contexts, as personal context is the only factor that museum's management and service designer cannot change.

During the concept stage, a framework is built using another service design tools from the create and reflect process, i.e., museum service blueprint, based on the previously determined outcome. By fostering involvement from museum management, this blueprint can be determined as an absolute result for the museum service design that can enhance visitor experience, or it can only be considered as an interim result. Since service design is an iterative and non-linear process, it is possible to return to the planning stage and repeat the process until a satisfactory result is achieved. However, the process should not go in circles but should constantly move forward (Stickdorn, 2018). Finally, when reaching the result stage, museum management and service designers can assess the effectiveness of their enhanced service design through long-term studies to evaluate the outcomes by utilizing surveys and making informed decisions regarding potential future iterations such as going through the process again, which is the worst-case scenario, or else in different aspects that can also contribute to the enhancement of the museum services such as branding and marketing.

## 4 DISCUSSIONS AND RECOMMENDATIONS

A museum during-visit service design map for investigating museum visitors' experiences is proposed based on personas and a process-based framework, which can assist in improving museums' services by observing visitors' perspectives. This framework is expected to provide valuable insights into visitors' experiences, allowing for further exploration and improvement. Personas can be employed as service design tools by categorising museum visitors into five groups based on Falk's IRM, namely explorer, facilitator, experience seeker, professional/hobbyist, and recharger. Consequently, employing a user-friendly and accessible tool to identify museum visitors' personas would facilitate and speed up the selection of personas in museum studies Almeshari et al. (2019).

In today's context, the adoption of technologies such as augmented reality (AR), virtual reality (VR) and mixed reality (MR) poses new challenges for designers and service providers. While Flach et al. (2017) believes that to provide enriching experiences, designers should investigate the affordances of the product, which in this case is the museum's services, where the affordance construct can bridge the gap between the users' point-of-view are aligned with the product perspectives. Therefore, designers need to guarantee that integrating technology such as AR, VR and MR in the museum will be a success by enhancing engagement while preserving authenticity, thus offering meaningful affordances to the visitors (Matuk, 2016). As a result, any new studies on museum services or museum AR should prioritise visitors' perspectives over product perspectives to gain deeper insights into visitor experience. The use of technology, such as augmented reality (AR), as a novel tool, can assist museums in providing up-to-date, high-quality services and a diverse range of exhibitions. Consequently, this can encourage repeat visitors and recommendations of their positive experiences to others, ensuring museums' long-term growth.

## **5 CONCLUSION**

This study proposes on how museum managers, curators, and designers can use service design approaches to create improved and enhanced service design that cater to museum visitors' satisfaction. The aims are for museums to understand their visitors' needs and motivations to align their services and collaborate with service designers to improve the visitor experience. Museums can fulfil their roles and capacities by interpreting visitors' needs and motivations and then implementing the suggested visitor experience enhancement strategies. This, in turn, will attract more local and international tourists to visit museums, resulting in increased visitor numbers. Therefore, evaluating museums' effectiveness as service providers from the perspective of visitors, while keeping the museums' aims in mind, is expected to yield long-term benefits. To summarize, the pursuit of museum sustainability requires an innovative mindset that seeks to modernize the traditional approaches and embrace forward-thinking strategies. As a result, it will transcend the museum, i.e., an old institution, and support their sustainability as significant contributors to the thriving tourism industry, aligning with the prevailing consumerism trend.

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## **AUTHOR CONTRIBUTIONS**

Ana Baidza binti Abu Bakar, as the main author, played a pivotal role in conceiving and designing the study, and writing the manuscript. Muhammad Zaffwan Idris, as the corresponding author, made significant contributions to the manuscript by providing critical revisions and valuable feedback.

## CONFLICT OF INTEREST

There is no conflict of interests.

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# Exploring the Application of Design Elements that Combine Mixed Components with Ceramic Tea Sets

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## ABSTRACT

*The purpose of this study is to explore the research on the application of design elements by combining multiple materials with ceramic tea sets. This research emphasizes the design elements of combining multiple materials with ceramic tea sets mainly in the analysis and study of material types, process technology, and consumers' aesthetic demands. This project adopts a qualitative research method because it is suitable for studying the innovative elements in contemporary ceramic tea set design, and discovering the visual and technological innovation of integrating comprehensive materials into ceramic tea sets; specifically, this research analyses the application of the design elements of shape, colour, and material in combining multiple materials with ceramic tea sets, and examines the styling principles of ceramic tea set design, the forms of expression, and their influencing factors in this analysis. Research. In general, this study will summarise some useful design principles and development trends for modern ceramic tea set design. It will provide a methodology and theoretical reference for the design of practical ceramic tea ware and hopefully promote the development of ceramic tea ware design. It will be beneficial to designers, researchers, scholars, students, and those interested in research.*

**Keywords:** ceramic tea set, comprehensive materials, design elements, aesthetic value.



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## 1 INTRODUCTION

The ceramic tea set is an essential household item in people's lives, owned and used by almost everyone. Ceramic material has its unique charm, its non-corrosive so that the tea set itself will not be oxidized and damaged. With the continuous improvement of technology and the increase of public demand, the use of various materials in the design of ceramic tea sets has prompted artists to change the original single material and design approach, by combining with other material components to change the style of the tea set and the practical function. With the incorporation of diverse designs and innovative elements, people's growing material needs, and aesthetic sensibilities have driven innovation in the design of everyday ceramic tea sets. Among many materials, the combination of natural materials and ceramics brings a new experience that cannot be achieved by other industrial materials.

## 2 OVERVIEW OF THE DEVELOPMENT OF CERAMIC TEA SETS

Ceramic tea set development is long, from the late Eastern Han Dynasty, after the Wei Jin and North and South Dynasties, Tang, Song, Yuan, Ming, and Qing Dynasties, through the firing of porcelain craftsmen in the continuous improvement of the skills integration experience, so that the development of ceramic tea set slowly towards maturity. 1, from the Tang Dynasty onwards, the type of tea set is

mainly copper and ceramic tea set, because by the Tang and Song Dynasty in the whole society, the beginning of the importance of the trend of domestic copper and porcelain, and not emphasize gold and jade (Wang Yunju, 2021), of which the Yuezhou kiln is the most prominent, the Yuezhou kiln is characterized by a thin bone, uniform glaze, glaze green and green glaze, Lu Yu's "The Book of Tea", the evaluation of porcelain as a tea utensil in various places at that time, is "Yuezhou on", because it is "similar to jade", "class ice", porcelain green tea colour green. (Tian Zibing, 2010) 2, Song Dynasty: the history of Chinese tea is "tea in the Tang and Sheng in Song", the first is because of the royal family for the promotion of tea, both the common people and dignitaries joined the ranks of tea, the second is the economic prosperity of the Song Dynasty and the government for the respect of the literati, so that the literati more the pursuit of quality of life and spiritual satisfaction, drinking tea, the quality of life and spiritual satisfaction.

Secondly, the economic prosperity of the Song Dynasty and the government's respect for the literati made the literati pursue more quality of life and spiritual satisfaction, and tea drinking was the most elegant daily pastime at that time. Tea culture in the Song Dynasty was more developed than in the Tang Dynasty, so the production and modelling of tea sets were more refined, and the production of ceramic tea sets gradually increased. In addition, during this period, Ding, Ru, the official, brother, five famous kilns, as well as Yaozhou kiln, Jizhou kiln, Magnetic kiln, and other distribution throughout the country, promoted the development of ceramic tea sets. Song Dynasty ceramic tea sets, simple and solemn in shape, the pursuit of natural nourishment in colouring, the overall embodiment of the people of the Song Dynasty to focus on the taste of life, which is the result of the combination of the social background of the Song Dynasty, the aesthetics of the present day, and the aesthetics of the Song Dynasty. (Wang Yunju, 2021) 3, the Yuan Dynasty is an important period of the development of ceramic tea sets, which he inherited from the Tang and Song dynasties, the Ming and Qing dynasties. High-footed cups flourished in the Yuan Dynasty, and the biggest change in the tea set was that Jingdezhen created the famous blue and white porcelain decorated with underglaze colours inherited from the magnetic kiln and the Jizhou kiln, and the shape of the vessel was influenced by the living habits of the nomadic Mongolians, which had a very high multi-cultural value. (Wang Yunju, 2021) 4, the Ming Dynasty and the Tang and Song Dynasties tea set is different, the Ming Dynasty tea set is much simpler, especially in the number of varieties reduced a lot. Based on the Song Dynasty, the Ming Dynasty made historic progress in simplifying tea sets. The white porcelain tea sets of Jingdezhen and the purple sand tea sets of Yixing in Jiangsu Province all made great progress during the Ming Dynasty, with a whole new chapter in shapes, styles, and colours. (Wang Yunju, 2021) 5, in the Qing Dynasty, the gradual increase in the types of tea, in addition to green tea, there are black tea, oolong tea, white tea, black tea, yellow tea six tea, and the shape of these teas still belongs to the bar-shaped loose tea and tea drinking the same way as the Ming Dynasty (Li Wenjie, 2008). Pottery tea sets and porcelain tea sets further development, and the number of Jingdezhen kiln production and production is very large. Among them, the highest level of porcelain official kilns created the burning of ancient Chinese porcelain at the top: pastel, enamel, and other coloured porcelain, the development of Zisha pots in the Qing Dynasty Jiaqing, Daoguang years reached its peak, the porcelain tea set is also technically the peak, the best of which belongs to the celadon porcelain tea set, the tea set is mainly burnt in the kiln, known as the "glutinous rice tire" (Wang Rhyme Ju, 2021). 6, modern tea sets and porcelain tea sets. 6, modern tea drinking, generally popular green tea, black tea, floral tea, oolong tea, pressed tea, and a variety of tea, tea brewing and drinking in different ways, the use of a variety of vessels. 1950, after the Ming Dynasty Golden Dawn of the successful reproduction of ivory white, the emergence of Jianbai porcelain, high-white porcelain, porcelain sculpture is known as the modern Chinese porcelain world, "Three Golden Flowers! ", of which Jianbai porcelain is rated as the crown of white porcelain, this white glaze tea set, suitable for brewing all kinds of tea. Coloured porcelain tea set varieties of many colours, especially blue and white porcelain tea set the most striking, there are blue and white glaze red, doucai, etc., patterned blue and white, light and elegant colours. (Li Wenjie 2008)

### **3 FUNCTIONAL AND MODELING CHARACTERISTICS OF MODERN CERAMIC TEA SETS**

In the production and manufacturing process of modern tea sets, designers first need to clarify the function of tea sets, focusing on improving the practicality and aesthetics of tea sets. With the development of modern manufacturing and the maturity of new technologies, the production of ceramic tea sets will continue to apply new ideas, constantly stimulating ceramic tea set manufacturing and design ideas of innovation, we need to design tea sets in the tea set based on the actual function of the innovative design, rather than simply the appearance of change.

China's daily use of ceramic tea mainly in Jingdezhen as the manufacturing centre, generally used in the traditional mode of hanging glaze art, such as purple sand pots as China's tea in the rookie show the peak of China's tea production process. In the manufacturing process, the tea set needs to reflect minimalism, through the curve of the soft and thick shape of the pot body, forming the best proportion of the match. The design of ceramic tea set modelling is also a key issue that people need to pay attention to in the current manufacturing process of tea reflects the fusion of high technology and various schools of thought, making ceramic tea set in function and form with greater progress, abandoning the traditional functionalism and putting forward a more practical content, the human visual and sensory better linked together. In China's current ceramic tea set design process, people found that only improving the function of the tea set, in the same technical standards and large-scale production mode, cannot effectively promote the sustainable development of the product, instead of the need to make the ceramic tea set has a more pleasing to the eye modelling, will be an effective combination of aesthetics and technology.

A few days ago, many design forms reflect compositionally, and there are many reorganizations and divisions, such as the use of straight lines in the body of the pot, the overall presentation of simplicity, and paying more attention to modernism, through modernism to express the design concept. With the neck and development of science and technology, but also make a variety of materials combined with the application of more possibilities, the application of elements is also becoming more and more diversified, designers can be more diversified to express the concept.

## **4 COMPREHENSIVE MATERIALS**

### **4.1 Interpretation of integrated materials**

The interpretation of the material is diverse, in which "Myer's new encyclopaedia" on the "material" is defined as: "from the raw materials obtained from within, for the production of semi-finished products, workpieces, parts and finished products of the initial material, such as metal, stone, leather, plastic, paper natural fibres, chemical fibres and so on. ". Design art originated in primitive society, this period of creation activities on the ground, such as wood, bamboo, cotton, wool, stone, bone, and other natural materials used directly; to the period of artisanal society, the most notable feature is the use of pottery and fire as well as the development of metal material technology, these processed materials to make a qualitative leap in people's lives, and therefore produced class division, such as the court of the creation of artifacts and the folk creation of the difference; to the In the early 19th century, mechanized mass production brought new energy and power, new materials were commonly used, and a variety of synthetic materials were produced, such as light metals, plastic stools, new materials made new products in an endless stream of forms, and the texture and texture of different materials also gave different feelings of use (Yang Shifu, 2021).

The concept of "integrated materials" was proposed in the 20th century in the West, which refers to the use of different materials in product design, to form an obvious appearance of differentiation and contrast in terms of shape, texture, light, colour, and texture, and to bring people a rich sense of experience. The application of integrated materials in interdisciplinary fields such as science and



technology and design and art has made certain achievements, and naturally, it has also received extensive attention from ceramic designers. (Yang Shifu, 2021) At present, the comprehensive materials used in ceramic design on the market are mainly metal materials, non-metallic materials, and organic polymer materials, and the commonly used materials are glass, cement, rattan hemp, gold, silver, copper, plastic, rubber, and so on.

## **4.2 The application of comprehensive materials in artwork**

The application of composite materials in art is very wide, providing artists with more creative possibilities and means of expression, in the creation of paintings and works of art, through collages, such as paper, fabric, and leather for the expression of artistic concepts, so that the expression of the picture is more visual, but also to make the picture not only two-dimensional plane space. In sculpture works, it is more commonly used to comprehensive materials to create, the artist can be combined metal, wood, plastic, fibre, and other materials, to form a new form of expression of the work; in installation artworks, the use of a variety of materials is even more commonplace, the artists have a very good understanding of the physical and chemical properties of the material, through the use of the characteristics of the material, placed in the work of art for the creation of expression to create interactive and experiential artworks, the artist will be able to use the material to express their ideas.

Through the use of material properties, artists place them in their works to create and express, creating an interactive and experiential art experience that touches and resonates with people's hearts and minds. Practice shows that the use of integrated materials improves people in the process of artistic creation of space and level, but also through the integrated materials broaden the channels of expression of artistic ideas, in the design of ceramic tea sets, also through the combination of a variety of materials, to explore a richer way of expression, and constantly improve the attempt to explore the crafts, can choose and try more and more rich materials, our design language farther, the more options for design expression. The richer the materials we can choose and try, the more far-reaching our design language is, and the more selective the design expression is while enriching the user's sensory experience.

## **5 APPLICATIONS OF INTEGRATED MATERIALS IN THE DESIGN OF CERAMIC TEA SETS**

### **5.1 The application of wood materials and ceramic tea set combination**

Most of the current combination of ceramics and wood methods are inlaid, attached, and as a combination of other parts with, etc., through the wood surface treatment technology or bending process to make it and ceramics interspersed, splicing and thus become an innovative tea set Figure 1 for the inlaid and parcelled, the use of the two combination, the main body of the teapot using a wooden handle and base inlaid, the combination of this method of combining the combination of the method compared to other combining method will be a little simpler. Design and production method is the ceramic first fired, and then according to the size of the size of the custom wood part, in function of the functionality and practicality of the anti-scald, the design of the method of the modern composition of straight lines, the overall look of the lines smooth, simple design, and the design of the teacups, the designer takes into account the temperature of the brewing water according to the user to choose to drink the tea, choose to use the temperature of the brewing water, so it can be detached according to the hot and cold Cup base of the wood kit, this design method has a flexible and versatile; Tea tray also uses wood, with teapots and tea cups with the overall design has a certain practicality and aesthetics, to give the user a variety of possibilities to choose; Figure 2 used inlaid, in the handle part of the use of wooden materials inlaid, ebony handles and light cyan pot body combination, the handle anti-scalding has the role of preventing scalding, but also has a Decorative role, the top in the parcel of coloured rope and pendant, the overall dynamic and interesting, quite a classical charm.



**Figure 1** Natasha Duda's work  
(Source: Puxiang.com)



**Figure 2** Square inch clay Shadow Ching porcelain side handle teapot Image from the Internet  
(Source: Adib, 2023)

Ceramics and wood parts can be divided into two individuals, they each have their use function, indispensable, such a combination of methods in the design is often used by designers, and products on the market are also relatively common types. It is in the process of choice and requirements are not high, needs designers on the overall shape and function of the design and consideration, control ceramic moulding part of the shape of the regular, wood according to the style and size of the moulding to match the output can be. Wood and ceramic tea design combined with the design and processing technology is more mature, but also designers choose more of a material.

## 5.2 The combination of metal materials and ceramic tea set application

A ceramic tea set and the combination of metal materials is also one of the designers often choose to create, the combination of the two and collision can produce a unique artistic effect and functional wash design, metal material has its unique physical properties, usually, ceramic teapots will use metal spout (Figure 3, Figure 4), such as stainless steel or copper spout, the metal spout can be better control of pouring the flow of water, increasing the durability of teapots and Practicality; in ceramic teacups and teapots handle is also commonly used metal materials, such as stainless steel or copper materials; in teacups and teapots commonly used on the surface of the inverted silver material and brass material to do some workmanship, through the carving of the surface decorations or stickers (Figure 3), to increase the decorative and gorgeous sense of the tea set, with artistic value and appreciation value. In addition, metal material is also commonly used as some accessories in the tea set to participate in the design of the tea set, such as tea funnel, tea tray, tea tray, etc., which has practical functionality and utility, and at the same time, also enhances the diversity of the overall design. The use of metal material

characteristics, combined with ceramic tea design, with the diversity of ceramic tea, ceramic tea design provides more possibilities.



Figure 3 Tea Man's Notebook from the Internet



Figure 4 Ceramic Tea Set from the Qing Dynasty from the Internet

### 5.3 The combination of glass materials and ceramic tea set application

Glass materials and ceramic materials combined with three broad methods of fusion, sintering, and sol-gel method, according to the design approach is not the same choice of process, in the existing industrial materials, glass material with transparency and smooth corrosion resistance, but also through the chemical processing techniques for bending and deformation of shaping the shape of the form, so it can be through the design of modelling on the combination of its ceramic tea ware process, presenting a variety of modelling styles design, is a way to explore the diversity of ceramic tea ware form styles. A variety of modelling form style designs is also a way to explore the diversity of ceramic tea set form style, in the combination of ceramics and glass in the process, we need to measure the modelling style, the size of the precise measurement, usually using borosilicate heat-resistant glass blowing process and porcelain production is completed, with the gel adhesive bonding fixed. According to the idea of design and creation, you can also choose different colours of glass to decorate, glass material is fresher and more natural, but also more loved by the user.



**Figure 5a and Figure 5b** Taiwan Yilong EILONG ceramic glass tea set Jingyan composite material rose celadon glass teacup  
(Source: web,2023)

## 6 CONCLUSIONS

In the development of ceramic tea set design, designers through the appropriate materials to express different ideas, ceramic tea set design the material not only convey the language of art but also through different materials to convey a variety of concepts, to truly achieve the artist and the viewer of the art of aesthetic interaction. Ceramic art expression forms and aesthetic unity, and ceramic tea set as a product, the first key lies in the function first, so in the consideration of the expression of the concept, the selection of materials at the same time, but also pay attention to the material has the practicality of expression. Combined with different materials to create a unique aesthetic effect, and improve the practicality and durability of the tea set, through the combination of ceramic tea set and a variety of materials, designers can break through the traditional scope of creation, to create more innovative and personalized tea works, enriching the artistic expression of tea culture, and improve the appearance of the ceramic tea set feeling as well as the use of experience.

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## CONFLICT OF INTEREST

No conflict of interests.

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# The Influence of Rice Paper on the Texture Characteristics of Modern Chinese Boneless Paintings

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## ABSTRACT

To analyse and summarise the textural features of contemporary Chinese boneless painting, this essay focuses on the application of modern Chinese boneless painting techniques on rice paper. On raw, cooked, and half-cooked rice papers, we experimented with Chinese contemporary boneless painting techniques in this study to produce a range of modern boneless painting texture samples. The texture and visual effects offered are significantly distinct yet rice paper with different qualities is expressed using the same contemporary Chinese boneless painting methods. It so displays how the paper used in the creation of modern Chinese boneless paintings has an impact on their artistic manner. This sort of research, which summarises the technical features of current Chinese boneless paintings from the standpoint of painting media, is very important to the advancement and innovation of contemporary Chinese boneless paintings. The adoption of contemporary Chinese boneless painting methods can also aid more painters.

**Keywords:** modern Chinese boneless painting, rice paper, technique, texture



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## 1 INTRODUCTION

The term "Xuan paper" refers to the drawing paper used in Chinese artworks. Hemp, bark, and plant fibres are often processed as the primary raw ingredients. In terms of performance, it is separated into three categories: raw rice paper, cooked rice paper, and semi-cooked rice paper. Cooked rice paper and half-cooked rice paper are both manufactured from raw paper, although rice paper itself is raw (Wang Jian & Xing Sen 2022).

By surrendering the qualities of excellent brushwork and freehand painting and incorporating aspects of Western painting, modern Chinese boneless painting evolved from traditional boneless painting. The most distinctive aspect of Chinese contemporary boneless painting is its portrayal of texture, which departs from the conventional notion of "pen and ink" in painting and places "skill" as the primary factor. The artwork displays a rich texture effect to attain its painting goal by utilising contemporary boneless painting methods. Many media factors, such as water, paint, paper, tools, etc., limit the use of techniques, so it is necessary to study how these media perform to better fulfil their functions. This article's primary concern is to have an in-depth understanding of Xuan paper and master the properties of different Xuan papers, to better demonstrate the techniques of modern Chinese boneless painting.

The qualities, elements, and functions of Xuan's paper have been extensively investigated by professionals (Liu Qingren 2008), and this has considerably aided artists in understanding the capabilities of paper. Traditional boneless paintings, however, make use of baked paper. Rarely use paper with other qualities for production. Because cooked paper is the foundation of traditional boneless painting techniques, these artists lack a clear understanding of the picture effects that will result from creating boneless paintings on other types of paper.

Numerous studies have found that the traditional boneless painting period's relatively few painting techniques and painting medium (Xuan paper) severely restrict the creation of texture effects. Then, to merge contemporary boneless painting methods and produce greater textural effects, it is required to have a thorough grasp of the composition and qualities of paper with other features. Many efforts may be performed on rice paper with the addition of contemporary boneless painting methods. This has the potential to both improve the texture of contemporary boneless paintings and to further the development of contemporary Chinese boneless paintings.

The goal of this essay is to examine the many effects of contemporary Chinese boneless painting methods on rice paper. Analyse the artistic qualities of contemporary Chinese boneless paintings from the viewpoint of painting methods; examine the causes of the development of the texture in these works; and discuss the importance of the research on Xuan's paper. This offers more creative approaches for researching contemporary Chinese boneless painting methods using not just rice paper but also colours, tools, and other materials. The advancement of Chinese traditional culture and art, as well as the promotion of Chinese modern boneless painting, may all be facilitated by the creation of Chinese modern boneless painting techniques. These advancements will also help Chinese traditional culture and art get wider recognition and attention.

## **2 LITERATURE REVIEW**

The goal of this essay is to examine the many effects of contemporary Chinese boneless painting methods on rice paper. Analyse the artistic qualities of contemporary Chinese boneless paintings from the viewpoint of painting methods; examine the causes of the development of the texture in these works; and discuss the importance of the research on Xuan's paper. This offers more creative approaches for researching contemporary Chinese boneless painting methods using not just rice paper but also colours, tools, and other materials. The advancement of Chinese traditional culture and art, as well as the promotion of Chinese modern boneless painting, may all be facilitated by the creation of Chinese modern boneless painting techniques. These advancements will also help Chinese traditional culture and art get wider recognition and attention. The artwork is layered and better expresses the beauty of creative conception thanks to rich ink colour variations. It is primarily employed for creating freehand paintings. To reduce the paper's ability to absorb water and make the ink and colour more difficult to disseminate, glue and alum water are added to raw rice paper to create cooked rice paper. It is more suited to producing delicate brushwork and conventional, boneless paintings with rather rigid outlines. Paintings that blend tiny freehand brushwork and fine brushwork with freehand brushwork are more frequently employed because the water absorption capacity of half-baked rice paper is between that of uncooked rice paper and cooked rice paper (Zou Hongwei 2008).

It so displays how the paper used in the creation of modern Chinese boneless paintings has an impact on their artistic manner. This sort of research, which summarises the technical features of current Chinese boneless paintings from the standpoint of painting media, is very important to the advancement and innovation of contemporary Chinese boneless paintings. The adoption of contemporary Chinese boneless painting methods can also aid more painters. The development of boneless painting methods has since been a popular area of inquiry for many academics who are looking for new ways to express themselves through contemporary boneless paintings.

The "boneless drawing" is a Chinese painting style that uses colour or ink to sculpt the picture without an outline, thus while researching contemporary boneless painting approaches, traceability should begin there. unharmed means of expressing oneself (Suna 2009). This method subsequently evolved into a style of painting, and the boneless technique of "hit the water and hit the powder" was also progressively produced. "Hit the water and hit the powder" is a modern phenomenon. More techniques, including "mixed impact staining," "interlaced dot colour," "colour and ink mixing," and "colour accumulation and ink accumulation," have been developed (history Xia Yang 2020). These methods are used to create rich, contemporary images of contemporary art paintings that visually satisfy the expectations of the general audience. Modern boneless painting exhibits the most naturalistic use of technique as a visual art form, and the texture effect is made possible by the material used for painting. The primary medium of boneless paintings is water. Modern boneless paintings have distinctive textural changes when they are exposed to water (Wu Yuhua, 2016). Of course, the involvement of pigment and ink in the textural effect is also inextricably linked. The boneless artwork has a new appearance because of the combined efforts of these three (Hong Shixing 2020). Another significant method for learning methods is the production of contemporary boneless paintings. Accidental texture effects are formed throughout the creative process, and these effects are highly helpful in presenting the picture. As a result of numerous research studies, this unintentional texture effect has evolved into a necessary texture component (He Li 2006). Modern boneless painting is a different form of painting, too. Additionally, it will be inspired by various other painting styles, such as watercolour painting, which similarly use water as a painting medium. The two's methods share a lot of parallels. can benefit from one another's knowledge (Tang Feng & Xu Jiali, 2021). In conclusion, there is a wealth of study on the style and texture of contemporary boneless painting, which has also substantially advanced contemporary boneless painting.

There are still certain gaps in the research on the method of modern boneless painting, despite the extensive study that has been done on its technique and texture. Prior research concentrated on how to advance the methods of contemporary Chinese boneless paintings, omitting the significance of rice paper as a painting medium and the study of the interaction between rice paper and the texture of contemporary boneless paintings. By examining the performance characteristics of rice paper and the textural characteristics created under the impact of methods, this study aims to address the little-researched role of rice paper in the study of contemporary boneless painting techniques. To better support the development of contemporary boneless paintings, it may be used as a reference for the study of the link between various painting media and the texture of boneless paintings.

### **3 RESEARCH METHODOLOGY**

The experimental observation research methodology is used in this study (Figure 1). The goal of this research is to determine how various rice paper characteristics affect the texture of contemporary art paintings. Using experimental observation, it is discovered that applying contemporary boneless painting techniques on rice paper with various qualities would result in textured results with more details. The texture effect created when the same contemporary Chinese boneless painting technique is applied to rice paper with various qualities is radically different, demonstrating yet another way that rice paper has a significant impact on the texture effect of modern Chinese boneless painting.

To simulate the texture of contemporary boneless paintings, this project will use three types of rice paper with various characteristics and modern painting techniques. The performance of rice paper, contemporary boneless painting techniques, the colours used, the amount of water utilised, and the visual experience provided by the texture effects should all be considered as a starting point for observing and analysing these texture effects.

Describe the rice paper, colours, processes, etc. utilised in contemporary boneless painting experimental works; analyse the experimental works are two steps in Edmund Feldman's (Edmund Feldman, 1993) four-level structural critique that may be used to analyse experimental works. The given texture effects evaluate and assess the influence of various texture effects on contemporary boneless



painting approaches, as well as describe the experimental processes that led to the production of such texture effects.

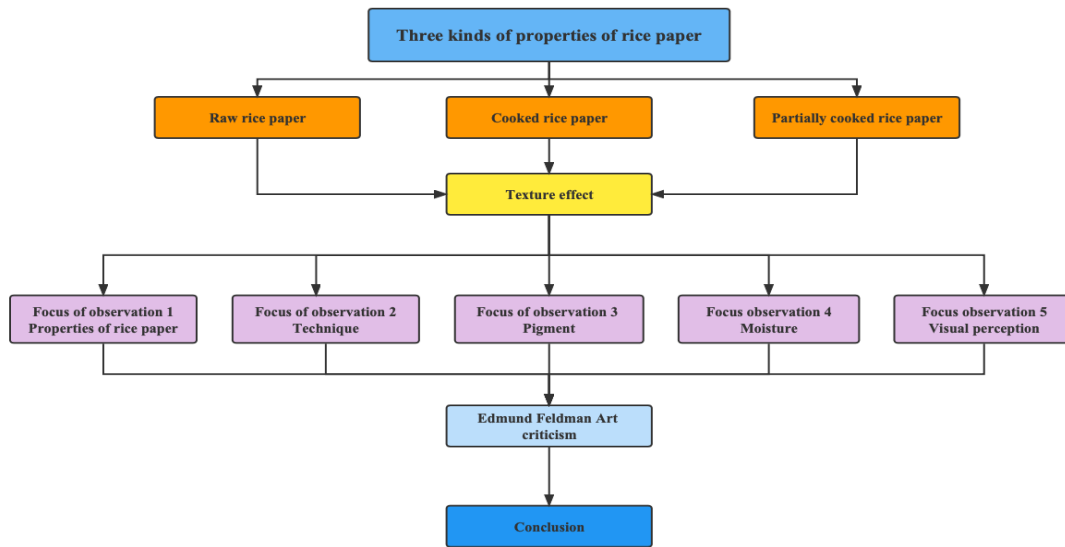


Figure 1 Experimental observation research

## 4 RESULT AND DISCUSSION

### 4.1 Sample 1: Raw rice paper

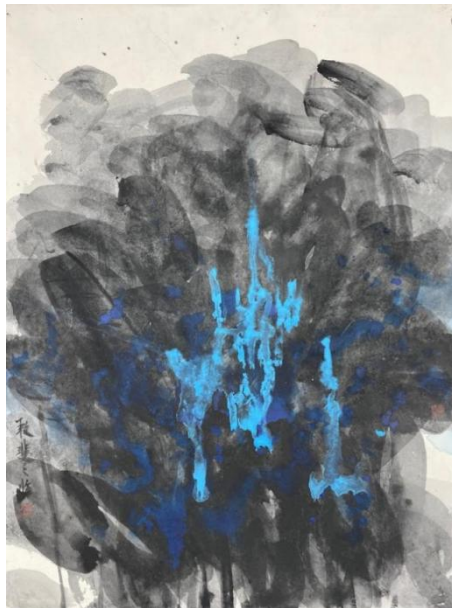


Figure 2 Experimental works of modern boneless paintings on raw rice paper  
"Secret" 45\*60cm raw rice paper, 2023

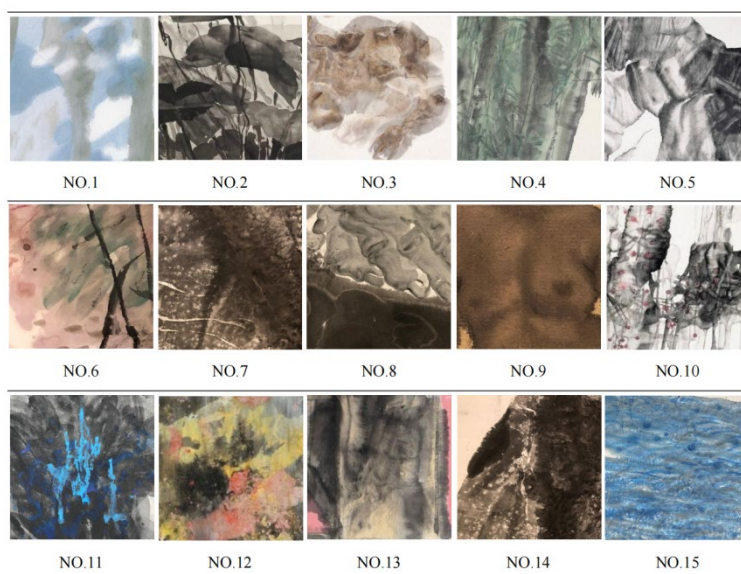
Description: In this experimental piece, rice paper that has not been cooked is used. The artwork uses mineral ink, watercolour, and ink, and it is described using the terms "colour accumulation and ink accumulation," "water collision," and "water flushing."

Analysis: This experimental piece captures the serenity of a deep, dense forest. The ink colour is chosen as the picture's background colour, and it is painted over layer by layer from light to dark to create a texture effect resembling a shadow and a far-off forest. This emphasises the forest's depth and

density while also giving it a mysterious appearance. To give the image greater depth, two distinct blues are utilised to superimpose each other simultaneously. The blue is more akin to a coating of fog covering the ink, which fits the picture's overall tone better.

Interpretation: The effectiveness of the paper is used to analyse this experimental activity. The "ink accumulation method" can be used since raw rice paper has a considerable seepage effect after being exposed to water. The edge of the outline created by the brush on the paper will immediately take on the appearance of uneven seepage when the ink comes into contact with the raw rice paper. When ink is accumulated repeatedly, the previous ink colour will be "water flushed" away. The resultant blurred beauty is created by the effect, which causes the edge of the contour to continually leak, liquefy, and spread outward. The ink colour seems deep and rich when it is superimposed, adding to the layers of the image. Regarding the "colour accumulation method," consideration should be given to the use of mineral colour and watercolour on the one hand, and the "water collision method" on the other hand, when accumulating colours. Mineral colours are frequently used on the top layer because the material of mineral colour is composed of fine particles, which will form precipitation during the colour accumulation process, causing the picture to have a mottled and thick florescent appearance. The process of colour accumulation is the process of colliding colours with water so that the effect of uneven distribution of colours on the screen can be formed.

Judgment: This experimental piece's textural effect greatly enhances the contemporary boneless painting style. The mix of various approaches gives the image a greater textural appearance than the conventional boneless painting method. The image simultaneously conveys change and vibrancy, which makes it simpler to convey the artist's feelings and thoughts.

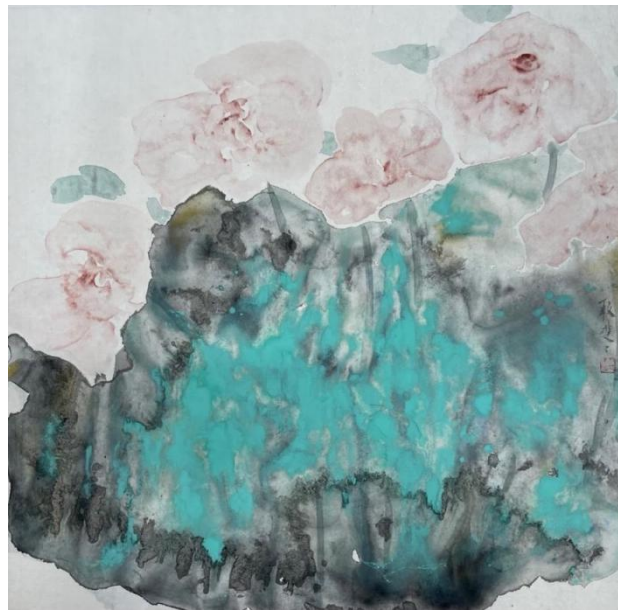


**Figure 3** Experiments on various texture effects of modern boneless paintings on raw rice paper

**Table 1** Analysis of the texture effect of sample 1 modern boneless painting

Figure 1	technique	moisture		pigment		texture effect	visual feeling
		many	few	water color	mineral color		
	hit the water and hit the powder	•		•	•	The contour line will be blurred and unclear; the layered effect of different shades will appear after the color dries	Imagery
<b>Raw rice paper</b>	color accumulation and ink accumulation		•	•		There is obvious bleeding effect, either deep or shallow; at the same time, layers of pigments are super imposed to give a thick feeling	Mystery
	water flushing	•		•	•	After the water dries, only traces of color will be left, irregular and changeable	Hazy feeling

## 4.2 Sample 2: Cooked rice paper



**Figure 4** Experimental works of modern boneless paintings on cooked rice paper "Brilliant" 53\*53cm cooked paper, 2023

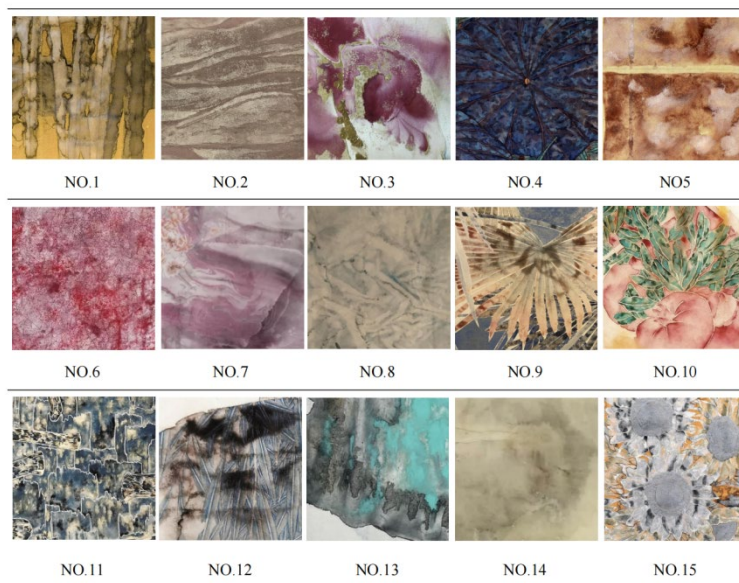
Description: For the purposes of this experiment, cooked rice paper is used. The terms "colour accumulation method," "collision colour method," and "water flushing method" are used to describe the painting, which was created using ink, mineral colour, and watercolour.

Analysis: This experimental piece depicts peony blooms that are in the early stages of flowering in the summer, capturing their graceful and polished nature. In order to convey the branches and leaves of the peony flower, the picture uses pink-green as the primary colour and light as the base colour. Despite the lack of clarity in the expression of the branches and leaves, the texture is created by the collision of ink colour and water. The result, as well as the buildup of green on top of the black colour, depicts the opulent scene. With this form of image expression, the picture has more tension and encourages the spectator to use their imagination. To maintain the consistency of the painting's language, the peony flower's colouring follows the same imagery in the description of the flower head. The colour refers to

a darker colour, accentuating the layered petals of the peony flower, which are many but not disorganised.

Interpretation: The effectiveness of the paper is used to analyse this experimental activity. Modern boneless paintings are frequently made using cooked rice paper, a kind of paper. Glue alum is applied to the paper's surface, which can stop water from penetrating the paper. It is appropriate for accumulating colour, striking powder, hitting water, hitting colour, and flushing water and colour. Additionally, controlling the image is made easier. Whether it is ink colour or pigment, water's impact on it won't generate wavy, distorted, or realistic contour edges; instead, it will frequently leave a rather distinct, unaltered watermark line. To differentiate the delicate brushwork, this line is frequently utilised. lines that are outlined. Because of this, the textural impression created by contemporary boneless paintings painted on cooked rice paper frequently provides viewers a sensation of looseness, unrigid Ness, richness, and variety, which enhances to the picture's sense of relaxation and makes it simpler to accept.

Judgment: This experimental piece extends the texture effect based on conventional boneless paintings. Traditional boneless paintings do not frequently have large regions of flushing or colour buildup. As a result, order is sought amid the turmoil. There are also painstaking layers of rich details present at the same time. As a result, the texture effect created has more imagery and is comparable to ink painting, but there are also significant variances. People feel hearty after experiencing this type of textural impact.



**Figure 5** Experiments on various texture effects of modern boneless paintings on cooked rice paper

**Table 2** Analysis of the texture effect of sample 2 modern boneless paintings

Figure 2	technique	moisture		pigment		texture effect	visual feeling
		many	few	water color	mineral color		
	hit the water and hit the powder	•		•	•	It will leave clear water marks and form outlines; the colors will blend, change a lot, and have layers	Mottled feeling
cooked rice paper	color accumulation and ink accumulation	•		•	•	No seepage, multi-color (ink) can be superimposed, the water flows naturally, and the changes are rich	Heaviness
	water flushing	•		•	•	There is no obvious contour line after the water dries, but the color is uneven and has a flowing effect	Stereoscopic

### 4.3 Sample 3: Semi-cooked rice paper



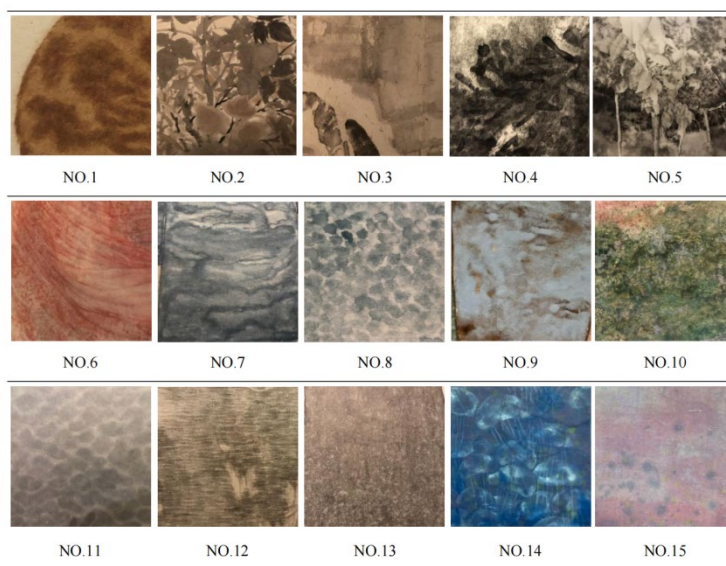
**Figure 6** Experimental works of modern boneless paintings on half-cooked rice paper  
"Dream" 55\*76cm semi-cooked rice paper, 2023

Description: In this experimental piece, the rice paper is just partially baked. The primary colouring materials employed in the image are mineral colours and watercolours, and the "colour accumulation method," "collision colour method," and "water flushing method" are utilised to characterise the image.

Analysis: This experimental piece shows a sight of jellyfish drifting in the water organically and expresses a peaceful visual experience. Blue and red are used to blur the backdrop to gradually introduce colour relationships into the image. The jellyfish in the lower half of the image uses a lot of water to collide with the blue, making it appear to be looming and slowly moving upwards. However, because the jellyfish itself has been processed to weaken its shape, it appears in a sort of non-existent effect, and the image creates a blurred visual effect.

Interpretation: The effectiveness of the paper is used to analyse this experimental activity. When the water-colour pigments are expressed on semi-cooked rice paper, it is challenging to produce the effect of dyeing. Half-cooked rice paper has some bleeding properties, but the bleeding is not noticeable, and it will not make a distinct outline edge. It is difficult to create overlaid effects because dyeing is not properly connected between each stroke, creating an uneven colour effect that also makes it simple to generate harmonious colour changes when it is piled and collided. Mineral pigments, which can cover colour, are therefore thought to be used for colour accumulation and contrast enhancement. such that the resulting texture effect frequently has a hazy appearance.

Judgment: This experimental work's textural effect is a result of the properties of semi-cooked rice paper. Other mediums are required for modern boneless painting methods, and the given textural result is more typical of contemporary painting. It is not constrained by conventional boneless painting methods. Images and feelings must be handled.



**Figure 7** Experiments on various texture effects of modern boneless paintings on cooked rice paper

**Table 3** Analysis of the texture effect of sample 3 modern boneless painting

Figure 3	technique	moisture		pigment		texture effect	visual feeling
		many	few	water color	mineral color		
	hit the water and hit the powder	•			•	No obvious water mark, easy to pick up color, produce gradient effect	Shock
Semi-cooked rice paper	color accumulation and ink accumulation		•	•	•	There will be a bleeding effect, the color is easy to reconcile after stacking, and the effect is relatively soft	Femininity
	water flushing	•		•	•	The color will not leave a visible mark when the water dries, and will blend with the paper to form a block	Sense of ease

## 5 CONCLUSIONS

Numerous texture effects of contemporary boneless paintings have been achieved through research on the performance of various rice papers and experimentation with modern boneless painting techniques. Such expected experimental results demonstrate that the research's course is correct. The experimental results show, on the one hand, how different types of rice paper can affect the texture of modern boneless paintings. On the other hand, they also demonstrate how important it is to conduct in-depth research into the medium of modern boneless painting if modern boneless paintings are to advance and innovate.

Research on the performance of various rice sheets and experimenting with contemporary boneless painting techniques have led to the creation of several textural effects in contemporary boneless paintings. These anticipated experimental outcomes show that the research's route is appropriate. The outcomes of the experiment demonstrate, on the one hand, how various varieties of rice paper might impact the texture of contemporary minimalist paintings. On the other hand, they also show how critical it is to carry out in-depth analysis of the contemporary boneless painting medium for modern boneless paintings to progress and innovate.

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## **AUTHOR CONTRIBUTIONS**

Duan Feifei as the main author played a role in collecting data, planning research tree and delegate task for research member, while Issarezal Ismail as the corresponding author produced an analysis based on data and literature, and Ishak Ramli conducted literature review and methodology.

## **CONFLICT OF INTEREST**

There are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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# A Systematic Review on The Cultural Design Process for Cultural Creative Product in China

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## ABSTRACT

Lack of cultural creative product's (CCP) appeal and innovation are causing low purchasing interest among locals especially in China. There is a need to enhance the product appeal to improve the product purchasing in China. The purpose of this study is to identify what are the best cultural design processes for CCP in China. This desktop study investigates on the current cultural design processes in China, the emotion of cultural design processes for CCP, and the best cultural-emotion design processes characteristics for CCP. This paper uses systematic review to identify topic's themes, knowledge gaps and approaches towards traditional cultural element, design process and cultural creative products. 30 journals articles were searched through Google scholar database between 1991 to 2022. This study found that when traditional connotation elements and creative design were injected into the CCP design processes, these elements could transform and develop CCP into cultural emotion and functional experiences, hence, enhance purchasing power for users. The findings of this study would aid local manufacturers rise in sales through instilling connotation features and creative design during cultural design processes in CCP.

**Keywords:** Cultural Design Process, Cultural Creative Product, Cultural Features, Functional Experiences.



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## 1 INTRODUCTION

The consumer market is transforming because of changing customer needs and perceptions. The design process places a great deal of emphasis on the diversity and cultural aspects of the product descriptions (Hus et al., 2011). Culture consists of patterns that form the external and internal image of a community. Culture has two functions, namely, building a country's image, defining its identity, and encouraging national consciousness and nationalism despite spirituality, humanitarianism, and mentality (Wan et al., 2023). Science and technology are revolutionizing the world, and traditional product cultures are being explored with more development on modern products (Wu, 2015). China's Beijing Palace Museum, one of the most famous museums, is making cultural products more popular. Cultural relics from the Palace Museum were exhibited to people from throughout the country and around the world in 2012, providing information on the museum's cultural products (Tu et al., 2019). It allowed people to become more familiar with the history and culture of China in museums, resulting in increased tourism to China.

Chinese economic development has become reliant on the cultural economy in the past ten years. China intends for the cultural industries to develop into an expanding market, which will benefit domestic economies (Shan, 2014). Specifically, Chinese cultural sectors maintain the traditional cultural industry and, through design creativity, emphasize aesthetics in order to satisfy people's higher goals (Tu et al., 2019). In order to develop cultural industries in major Chinese cities, the Chinese government first created cultural industry clusters in first-tier cities, such as Beijing, Shanghai, and Shenzhen (Shan, 2014). The Chinese government also provides support to local cities to build museums to communicate the people's spiritual life and showcase their traditional culture. Moreover, museums emphasize the domestic traditional cultural output and social value in people's social lives (Song & Li, 2018).

Since 2020, the COVID-19 outbreak has significantly impacted the travel and tourism industries (Leposa, 2020). China has to face the enormous challenge of cultural industry development (Zhang, 2022). The Chinese economy must be restructured in the cultural and creative industries, especially in local city tourism (Vecco et al., 2022). In this way, the museum's cultural and creative products also play an important role in the local city's economy as the cultural industry and tourism recover and develop. Several studies have found that the lack of traditional culture inheritance and development affects the competitiveness of Chinese cultural creative products. Science and technology are rapidly globalizing, and the traditional culture of products is being explored with more development on modern products (Wu, 2015), so more cultural and creative products will be produced for tourism, attracting more tourists and improving the local economy. Wu (2015) contends that while China boasts one of the world's oldest and most complex cultures, Chinese traditional culture struggles to represent itself in modern products. Therefore, there is an evident need to enhance the appeal of cultural and creative products to elevate their market presence and encourage increased product purchasing in China.

## 2 METHODOLOGY

In this section the method uses systematic review that involves comprehensive review of scholarly sources between 1991-2022 on topics mentioned above. This paper looks to identify gaps, point of departure, and the state of knowledge in the field.

A review of the cultural design process of cultural creative products spanning 1991 to 2022 is provided in this section. This research aims to pinpoint Chinese cultural design processes that are most effective for such products. The current analysis focuses on three key aspects of the cultural design process: enhancing cultural connotation and creating creative designs.

### 2.1 Connotation of Traditional Cultural Elements

The culture products refer to the "culture" and the "products" (Maccarrone-Eaglen, 2009) that extend a product's saleable item and are offered to a market while satisfying people's demand. Miller (2012) denoted that in a consumer society there are three factors of consuming products that there are society, families, and individuals. In society, different levels of needs are met, which is consistent with Maslow's theory (Heylighen, 1992). In addition, the products must consider their roles so they can express their value for consumption (Miller 2012), with the economy being the primary reason for leading consumption. Cultural products impact users by allowing them to compare a culture's past and present meanings. Wang et al. (2013) suggested a cultural product named "cultural-inspired," while MacLeod (2006) extends the concept of cultural products as a difference in the experiences of tourists and locals. Wang et al. (2013) and Wu (2015) agree that each cultural product has different meanings for the specific culture. In China, most cultural products represent tourism products, created from museum artifacts that represent a city's traditional heritage.

It is necessary to rethink cultural meaning and elements in China's cultural products to satisfy customer's spiritual needs for cultural products by considering "creative design, aesthetic of life, and fashion" (Tu et al., 2019). The China government wants cultural industries to become the domestic

market, so new CCP must be introduced (Shan, 2014). This study finds multiple views about culture as experiences and activities, which explain that the usage of culture represents activities and characteristics in a particular social context (Wang et al., 2013). Some include defining the traditional elements to represent cultural connotation analysis (Zhang et al., 2020).

China has a long history and culture; traditional elements accumulate in genes over time. The Chinese culture is one of the oldest and most complex cultures in the world (Wu, 2015). The civilization dates back thousands of years and has profoundly influenced other cultures. Chinese culture is a diverse and complex mix of traditional and modern elements (Zhang, 2021). Generations have passed down these elements from generation to generation, keeping them alive even today in spirit. Yang et al. (2019) acknowledge that Chinese people pride themselves on their cultural roots and strive to maintain them. Chinese traditional culture is rich in traditions, values, and arts passed down through generations. Chinese culture is essential to the world's cultural heritage and should be respected and preserved (Zhang, 2021). Chinese traditional culture includes practices, beliefs, art forms, and customs handed down through the generations. They also give the Chinese people a sense of unity and cultural identity. This cultural heritage is an essential part of the Chinese national identity and is a source of pride and inspiration for the Chinese people. It is an essential part of Chinese culture and identity that should be respected and preserved. Traditional cultural elements are incorporate into museums (Falk & Dierking, 2013).

Hence, culture gives cultural creative products authenticity and depth. The cultural creative product preserves and transmits heritage. Products with nostalgic connotations make people feel connected to the past. Traditional cultural heritage resources must be preserved to instil local culture and attract tourists. CCP as culturally inspired products, represent the life story and activities that went into them.

## 2.2 Cultural Connotation and Creative Design as Part of Design Process

In Song and Li's (2018), cultural heritage and historical knowledge can be incorporated into creative design elements. Heritage experts organize ancient artifacts and important historical information into cultural elements to be shared with designers. The designer extracts the cultural elements and creates the final product (Song & Li, 2018). The connotation of cultural heritage is part of the design process for incorporating cultural creative products (Zhang, 2021). Song and Li (2018) identified that the formation and application design processes, from ancient artifacts to CCP. Song and Li (2018) summarized that the cultural design process into three primary stages (Table 1).

**Table 1** The formation and application process of object knowledge in cultural creative products

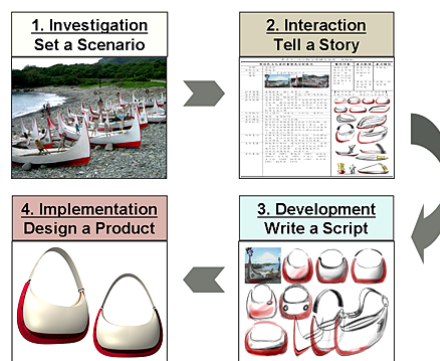
(Source: Adapted from Song & Li ,2018)

<b>Design process</b>	<b>Heritage Experts</b>	<b>Creative Designers</b>
Stage 1: Input	Ancient Artifacts	Object design knowledge
Stage 2: Output	Historical material resources	Cultural creative Products (CCP)
Stage 3: Analysis and Finishing		

In Song and Li (2018) study, they summarized that the cultural design process into three primary stages. Their process begins by extracting regional cultural resources to analyse their cultural significance. After that these cultural meanings are then transformed into design symbols, patterns, and other elements. Finally, the design elements are transferred to the product design stage. The cultural resource is influenced by multiple factors, including spirit, material, and institutional influences which

then are transformed into design meaning during the design process (*ibid.*). During early-stage design processes, cultural knowledge (Abdul Ghafar & Ibrahim, 2018) is needed to hinder misleading product output. This study agrees with scholars (Hofstede, 1991; Abdul Ghafar & Ibrahim, 2018) that cultural resources perceive cultural meaning in different layers of the social environment. Hofstede (1991) national culture model describes differences between cultures are through four concepts of symbols, heroes, rituals, and values; Song and Li's (2018) cultural influences are based on regional spirits, materials, and institutions from historical sources to subsequent levels of design; whilst Lin (2007) denotes that culture is one core components of cultural products that duplicate traditional elements; and An (2021) views cultural resources as a redesign of cultural features adapted in a product connotation that add value towards the community context. Therefore, this study explores the process by which regional cultural resources provide meaning in design. Several researchers have highlighted the importance of cultural knowledge in avoiding misleading product outcomes. There is a comparison of Song and Li's regional influences with Hofstede's national culture in this article.

Meanwhile, Chen and Yang (2016) regarded that cultural heritage could provide the foundation for creative design to transform them into culturally enriched products, providing the origin of cultural and creative products. Symbols and features from culture are seen as factors that could transformed into design elements, fostering creativity and shaping new product experiences (*ibid.*). To transform cultural influences into contemporary product functions, designers play a pivotal role in applying and enhancing the cultural connotation of products (An, 2021). However, Song and Li (2018) defined cultural design as a creativity process rather than solely on the product's connotation.



**Figure 1** The cultural product design process  
(Source: Adopted from Lin ,2007)

Figure 2 illustrates Lin's (2007) four steps design creativity involvement in a cultural product, starting with investigation in which a cultural feature is identified to establish a scenario. After understanding the user and the cultural environment, the second step involves interaction. During the third step, development, the identified scenario is applied to tell the story and design products that meet the user's needs. In the fourth step, designers evaluate and check the cultural features based on the preceding stages, thereby modifying prototypes and conducting further assessments. However, Chen & Yang (2016) identified cultural and creative products design processes in two stages: 1) cultural connotation, and 2) creative design. Song and Li (2008) and Wu (2015) argued that cultural products need to incorporate cultural meaning and historical narratives as part of the design factors in translating symbols or patterns into functionality. Hence, give cultural products extensive cultural value (Hsu & Tsai, 2015). Hsu & Tsai suggested that cultural products must possess three key design factors that are functional, aesthetic, and symbolic. Bai and Zhou (2019) highlighted that when exploring design factors in cultural usage, products should represent activities and characteristics within a specific social context. Thus, this study foresees that the aforementioned concepts are aligned with how the five stages of design thinking (Li & Li, 2022) contribute to the enhancement of creativity and design factors.

Therefore, this study foresees that cultural design enhances cultural connotations of a cultural product and fosters creativity. Cultural heritage and resources facilitate the transformation of culture connotation into creative functional experiences, resulting CCP design that impart cultural values to users.

## **2.3 Cultural Emotions and Experiential Design as Part of Design Process**

The strong connection between customer emotion, experience, and product design has only been demonstrated in a small number of studies (Waqas et al., 2020). Khalid and Helander (2006) pointed out that the success of a product in the marketplace depends on factors such as its aesthetic appeal, ability to provide pleasure, and level of satisfaction. These emotional characteristics strongly influence customer interactions with products (Khalid & Helander, 2006). Khalid and Helander also assert that culture exerts a powerful emotional influence on consumers and shapes how they perceive and interact with products. In product design, culture differences especially between the Western and East Asian cultural emotions should not be avoided (ibid.). Consumers' national cultures greatly influence how they experience and behave about certain aspects of product design and activities (Hofstede, 1991; Waqas et al., 2020). Gharib (2017) perceived that emotions are a result of users' relationships with products, meanings, and experiences. Hence, by incorporating cultural features into the design process they can establish emotional bonds between users and products (ibid.). In product design, personality, feelings, and emotions can contribute to meeting consumer demands (Khalid & Helander, 2006). Thus, this study anticipates that consumers' emotions and experiences may affect product function and support cultural product interactions.

Users' experiences with a product are essentially determined by their cultural backgrounds (Waqas et al., 2020); connection between design strategy and consumers (Noble & Kumar, 2008); full filling users' need that are aligned with product design, functions and services; and understanding users' emotions and psychological responses (Khalid & Helander, 2006; Hsu et al., 2018). Zhang & Shi (2020) suggested that CCP needed to cater today's society lifestyle when cultural connotations are analysed. To improve sustainable users' behaviours, CCP would need to enhance contemporary cultural value, and influence users' buying decisions. Bhamra et al. (2011) argue that design intervention strategies such as incorporating creative functions in the CCP design could aid users' buying decisions. Additionally, Li et al. (2021) found that perceived value and purchase intentions are positive influences on CCP purchasing.

Consumers' experiences with a product are essentially determined by their cultural backgrounds, according to Waqas et al. (2020). Creating a connection between design strategy and consumers (Noble & Kumar, 2008) and aligning design strategies with cultural functions and services can effectively address consumers' cultural needs. Understanding consumer emotions and psychological responses (Khalid & Helander, 2006) could contribute to the design of user experiences (Hsu et al., 2018). Zhang & Shi (2020) report that CCP better addresses the needs of today's society when cultural connotations are analysed. In addition to improving sustainable behaviour, cultural value, and consumer buying decisions, Bhamra et al. (2011) argue that design intervention strategies incorporate creative functions in the design of products. Furthermore, Li et al. (2021) found that perceived value and purchase intentions are positive influences on CCP purchasing.

Hence, these studies demonstrate the intricate interconnection between cultural experiences, design strategies, and consumer behaviour. For product design to be effective, cultural context must be acknowledged and accommodated, whilst emotional and psychological aspects must be addressed. Creative functions must be integrated into the design process as a value in influencing users' purchasing intentions. These principles should be incorporated into the product design processes as part of CCP successful users' interactions.

### **3 DISCUSSION**

In this segment, this study will build its inference on CCP value as part of users' cultural knowledge, CCP innovation from past to present, and CCP design process.

#### **3.1 CCP Value as Part of Users' Cultural Knowledge**

CCP incorporates traditional cultural features into their design. Traditional culture can be expressed through handicrafts, decorations, artwork, souvenirs, tourism products, and more. Moreover, these products offer insights into historical social life through an experiential representation of intangible culture. In addition to encapsulating various cultural outcomes, CCP seamlessly incorporates them into everyday life. In this way, CCP brings traditional culture into homes, allowing for an emotional experience with cultural relics from the past. Designers need to use creative design processes to create CCP products that are multifunctional and embed cultural meanings.

To meet modern market demands, CCP products need to communicate traditional culture and values to consumers. In recent years, the growth of CCP industries such as the Palace Museum in Beijing has been directing consumers globally to become aware of Chinese traditional culture. Products' user experiences, designs, and functions must be incorporated into CCP. CCP's cultural and functional diversity could create a new usage culture that connects ancient traditional lifestyles with modern lifestyles. CCP can be arts, a popular culture, and aesthetic spirits.

#### **3.2 CCP Innovation from Past To Present**

Consumers cannot feel contextual traditional culture collectively through dire innovation and cultural meaning. High pricing and low quality CCP features reflect a deflated local economy. Low quality and high pricing of CCP features reflects deflated local economic of the CCP sales. To enlighten CCP, each contextual city must identify measures to keep their culture sustainability to the future generation, so CCP give connection from the past culture. Therefore, present CCP must give representation meaning of the past culture. From CCP, consumers can relate to past culture through creative products at home. Memories of the culture relic would relate then to the experiential past history. Future CCP isn't just about preserving the past, but also presenting modern life with new products.

#### **3.3 CCP Design Process on Customers' Needs**

Cultural design contributes to creative design by articulating cultural features. In the cultural theme, heritage and resources are integral components that contribute to the development of creative functional experiences that ultimately add cultural value to products. Creative design processes are clarified, facilitating the creation of products that meet modern needs.

Products with cultural value and modern functions meet people's needs to influence customer purchasing behaviors with cultural creative products. Creative design and cultural features are expressed through cultural design processes. Cultural heritage and resources can be incorporated into creative themes. Culture is the development of cultural transformations into creative functional experiences to increase the cultural value of products. To express cultural features and creative design, cultural and creative products use cultural design processes. The use of experience to influence customer purchase behavior is also another way of giving modern function and cultural value to purchasing.

### **4 CONCLUSION**

Analyzing CCP design processes reveals that there is a significant interaction between the product's emotional experience and cultural heritage. Incorporating traditional values (motifs and symbols), and

aesthetics into CCP design can create emotional connections that resonate with local and global audiences. Emotions such as nostalgia and pride in one's cultural heritage may be mixed with curiosity and appreciation among consumers. The study of CCP design process could aid designers' insights to inspire innovation while honoring historical context, ensuring the end product is not just a commodity, but an embodiment of cultural identity. Consumers are also increasingly seeking products with emotional depth and cultural significance. In addition to enhancing consumer engagement, culturally enriched designs can differentiate between CCP products.

The emotional experience of a product and its cultural heritage are profoundly intertwined with CCP design processes. Through incorporating traditional values, including motifs, symbols, and aesthetics, CCP design establishes emotional connections with local and global audiences. This blend of elements induces a range of emotions, combining nostalgia and pride in cultural heritage with curiosity and appreciation on the part of consumers. CCP design can provide designers with valuable insights to foster innovation while respecting historical contexts, ensuring the final product transcends being a mere commodity and truly represents cultural identity. Increasingly, consumers are looking for products with depth and cultural significance, and CCP products can stand out by offering culturally enriched designs.

Furthermore, CCPs help preserve traditional cultural knowledge and foster cross-cultural understanding by transmitting intangible cultural knowledge. Traditional cultural expressions are presented on a contemporary CCP could ensure consumers relevance in the modern world and ensuring cultural sustainability. In the future, design processes in CCP should continue to emphasize authenticity, relevance, and emotional impact, fostering an ecosystem where culture and commerce complement each other. Additionally, this finding contributes to the perpetuation and dynamic evolution of global cultural heritage preservation by satisfying the experiential needs of today's discerning consumers.

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# Augmented Reality for Interactive Experiences in Museums: A Review

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## ABSTRACT

Declining interest of visitors towards museum exhibits are causing museum to be vestige and dire. There is a need to personalized museum experiences through the exhibited artifacts display value. This desktop study uses a systematic review from the Scopus and IEEE XPLORE databases over ten years (2014 to 2023). The purpose of the paper is to identify what is the best Augmented Realities (AR) interaction for museum spaces. The discussion will be based on methods or tools to AR interactions, manifestations of AR interaction in museum spaces, and interaction modalities in museum spaces. This study found that when intelligent terminals are used to digitalize virtual exhibits together with wearable devices, it could create interactive gamified multi-mode interfaces for user-exhibit experiences. The outcomes of this paper would aid museums' design curators to utilize AR interaction and yield visitors interest toward learning and entertainment of museum artifacts.

**Keywords:** Augmented Reality; museum; digital technology; digital museum.



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## 1 INTRODUCTION

Museums, as the heritage and cultural institutions aims to fulfilling visitors needs for learning, entertainment, and socializing (Russo & Peacock, 2009). Museums are facing downturn due to lower gratification towards museums artifacts resulting dire and low visitor numbers especially in China. China museums are lacking contemporary digital enable exhibition to offer enjoyable learning and entertainment towards cultural museum artifacts. The cultural heritage could gain a new perspective and achieves a higher position in the community when delivered through digital technology (Chandini Pedit et al., 2015). Utilizing digital technology in museum exhibition halls could be one of the methods employed for educational process in museums that enable access to information resources, preservation, and distribution of exhibitions themes (Aziz, 2017). Allison (2008) suggested that human-computer interaction could enhance user experiences and contribute to intuitive systems that help to reconceptualize the history narration through the artifacts. To efficiently and effectively share content and context with visitors, museums are rapidly adopting state-of-the-art technologies (Guazzaroni & Pillai, 2019), and confronted with technological developments and sophisticated customer demands, museums must adapt their roles, develop new capabilities, and stay true to their mission and identity (Pine & Gilmore, 2013; Padilla-Melendez, 2013).

Our main objective in this review is to determine the most effective techniques for augmented reality interactions in museums. There is a need to personalized museum visits in order to maximize the display value of exhibited artefacts. Consequently, the research can assist developers and designers in comprehending the possibilities and difficulties associated with creating exhibitions that effectively integrate augmented reality interactions. The conclusions drawn from the analysis suggest that employing augmented reality technology can enhance visitors' overall museum experiences.

## 2 METHODOLOGY

This desktop study conducted a systematic review of the Scopus and IEEE XPLORE databases over a ten-year period (2014 to 2023). The discussion and arguments will be based on methods or tools for AR interactions, manifestations of AR interaction in museum spaces, and interaction modalities in museum spaces. The bibliometric data consisted of 695 documents, and the results were encoded and synthesized using multiple criteria with Microsoft Excel tools (refer to Figure 1).

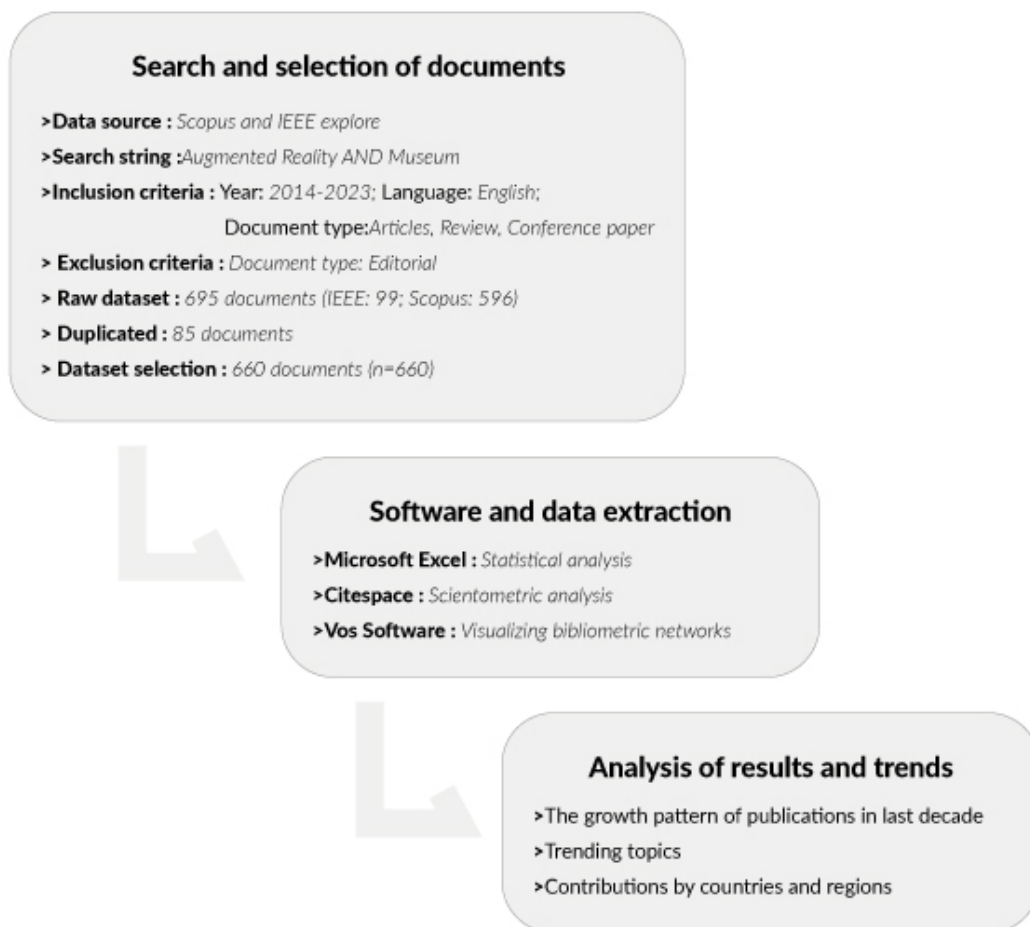


Figure 1 The desktop methodology in this study

## 3 LITERATURE REVIEW

This section explores about methods or tools for AR interactions, manifestations of AR interaction in museum spaces, and interaction modalities in museum spaces.

### 3.1 Methods or tools to AR interactions

The latest technologies for creating, visualizing, and interacting with digital 3D heritage content have become more readily available in public education, entertainment venues, and academic/research units. Consequently, there is an increasing exploration of the potential use of wearables in museum exhibits. Jung et al (2020) identified that wearing Virtual realities (VR) or AR multimodal devices could help visitors navigate a heritage site better, whilst Google Cardboard VR headset could give immersion experience of an artifact. Dieck & Jung (2017) supported that by using handheld AR, it could enhance user satisfaction while still preserving cultural heritage and offering a user-adapted learning experiences.

Modern approaches such as interaction design incorporation, interactive storytelling, and artificial intelligence could direct a new paradigm for museum experience design (Dal Falco & Vassos 2017; Vermeeren et al., 2018; Harada et al., 2018). The use of human-computer interaction for museum artifacts can offer a unique interactive and storytelling experience (Zidianakis et al., 2022; Benko et al., 2016). When AR replicas were visualized in real time, visitors could interpret historical figures through narrative-based setups (Rizvić et al. (2021). This study agrees that augmented museum exhibitions together with supplementary information could contribute to creation of an 'animated archive of cultural materials' (Patti.,2020) (refer to Figure 2). In the same vein, this initiative could catalogue objects alongside their descriptions and identify multiple representations of the same artifact.



**Figure 2** A 3D-augmented book titled *Constitutio Criminalis Theresiana* (Nemesis Theresiana). Courtesy of Duguleană M.  
(Source: Duguleană, M. 2018, Copyright Consent: Permissible to Publish)

Additionally, Lehto et al. (2020) found that incorporating stories is advantageous for younger guests. Thus, by enhancing the learning process, we can improve the storytelling experiences of historical locations, thereby piquing tourists' curiosity about the past. In the digital presentation of content related to museum items, augmented reality devices can offer a variety of experiences and styles. Research has shown that wearable technology increases user satisfaction (Dieck et al., 2018). Additionally, heritage routes can become more approachable and user-friendly through the use of mobile applications with digital narrative content (Basaraba et al., 2019). Despite the numerous benefits of augmented reality

(AR) technology, one drawback is the time-consuming process of creating AR applications (Viinikkala et al., 2016). This leads to increased production costs and poses challenges for widespread AR promotion.

### 3.2 Manifestations of AR interaction in museum spaces

Furthermore, Lehto et al. (2020) found that incorporating stories is advantageous for younger guests. Thus, while enhancing the learning process, it improves the storytelling experiences of historic locations. This, in turn, piques tourists' curiosity about the past. In the digital presentation of content related to museum items, augmented reality devices can offer a variety of experiences and styles. Wearable technology has been shown to increase user satisfaction (Dieck et al., 2018). Additionally, heritage routes can become more approachable and user-friendly by using mobile applications with digital narrative content (Basaraba et al., 2019). Despite the numerous benefits of augmented reality (AR) technology, one drawback is that creating AR applications is time-consuming (Viinikkala et al., 2016), increasing production costs and posing challenges to widespread AR promotion.

For instance, AR is applied in the restoration of damaged sacred objects, contributing to the rejuvenation of these culturally significant heritage artifacts (Boboc et al., 2017). It aids in determining the most effective restoration strategy to create a precise replica, thereby reducing costs and expediting the restoration process. Through the use of 3D reconstruction technology, a digital model of the damaged object can be generated (Parfenov et al., 2022) (refer to Figure 3). Subsequently, the optimal restoration strategy is identified by implementing an AR application developed based on this digital model (Abate et al., 2018; Blanco-Pons et al., 2019). Despite its advantages, augmented reality technology encounters challenge due to the lack of clear guidelines on its utilization. Another substantial obstacle to the widespread adoption of AR technology in the reconstruction process is the limited experience with AR applications.



**Figure 3** The example of 3D reconstructed Prejmer Fortified Church, a UNESCO monument from Transylvania, Romania. (Source: Voinea et al., 2019, Copyright Consent: Permissible to Publish)

Many discussions have been sparked by the emergence of cutting-edge technology, such as multi-touch displays, mobile and portable electronics, and their innovative applications. According to applied pioneering research, the revolutionary impact of modern technologies on creative and cultural heritage continues to be a central focus in academia (Wang, 2021). These cutting-edge technologies are essential for museums to effectively utilize digital technologies, enhance visitor experiences, and create new opportunities for digital exhibitions (Darzentas et al., 2022). Despite the opportunities presented by indoor environments, many recent augmented reality experiences—such as discovering cultural heritage locations (Bujari et al., 2017) and enhancing experiential learning (Vlizon et al. 2021)—have been designed using smartphones and tablets as supporting hardware, particularly for outdoor settings (Slavec et al., 2021; Tzima et al., 2021). A mixed reality system with geoinformatics support was described by Evangelidis et al. (2020) as a means of bringing historical events back to life. Today's travelers anticipate using integrated tools to share and document their experiences during and after their visit, as well as to obtain crucial information prior to, during, and following their trip. Museums can now readily reach their audiences through digital technologies and possibilities, thanks to the development of new websites, mobile applications, and social media (Sookhanaphibarn et al., 2015). With digital technology, viewers have a wide range of options and sources to choose from when enjoying excursions and experiences.

Overall, digital museums are revolutionizing the museum experience, with many new technologies enhancing the quality of the encounter and enabling visitors to immerse themselves in profound learning. Therefore, a thorough exploration of the application of integrated AR interaction can optimize the display space and form of exhibits through the 3D reconstruction of cultural relics (Zhu, et al., 2023) and protect intangible cultural heritage data and images by using fused intelligent terminal apparatus and realistic video images in the scene (Christopoulos, et al., 2011).

### **3.3 Interaction modalities in museum spaces**

With AR gaining attention in museums, AR technology has subverted the traditional way of museum display, making it more 'humane'—a trend that helps visitors deeply understand and explore the culture of historical artifacts rather than simply observe and browse (Mason, 2020). Digital technology, which is popular with younger users, can change the way museums are visited.

The interactive mode of implementing virtual animations for cultural relics through mobile applications is highly attractive to visitors. Among the mobile application developed are 'Seek Out Katipunan' that allows users to view 3D animations of displayed artifacts within the museum's environment (Colcol et al., 2017); Research has shown that applications for augmented reality (Fenu & Pittarello, 2018), 3D holographic interfaces, and integration with the Meta platform can be advantageous even for senior individuals (Pedersen, 2020). Furthermore, augmented reality technologies have been implemented in galleries, libraries, archives, and museums (GLAMs) to engage visitors with cultural heritage contents (Hoang & Cox, 2018). A literary museum is enhanced by an augmented reality online application that uses storytelling techniques to transport visitors to the virtual world of Svevo's scholarly work. This study predicts that interactions between humans and computers will intertwine two seemingly unrelated narratives—one virtual and the other authentic. For instance, visitors visualize and engage with the virtual narrative during real-time encounters. Another illustration is The Museum Coffee Table (Teneketzi, 2020), an augmented physical surface that enables access to information about artists and their creations through tangible objects. This arrangement makes it possible for the whole family to spend quality time together at the table, sip coffee, and learn new information while enjoying the museum.

One interactive method to acquire knowledge about cultural artifacts more efficiently is through the use of wearable technology. Utilizing markers, projection mapping, and animations to present folklore heritage, national traditions, and legends, AR technology can create virtual try-on experiences for traditional costumes and accessories in digital Intangible Cultural Heritage (ICH) content (Wen & Chen, 2016). It can also immerse users in a traditional setting (Xie & Tang, 2018) and measure user adoption

of AR-specific devices (Laštovička-Medin, 2019; Han et al., 2019; Litvak & Kuflik, 2020). Regarding the smart glasses themselves, this study assumes that, although novelty was viewed favorably, some users found the interface challenging. Nevertheless, they integrated the smart glasses into their everyday usage and perceived pleasure as a beneficial outcome. The extended time required to develop AR applications is a drawback of AR technology, despite all its benefits (Viinikkala et al., 2016). Combining gamification with human-computer interaction may help create immersive user experiences (Liarokapis et al., 2017). For example, the Hellenic Maritime Museum enhances learning and makes it more engaging by offering students interactive, gamified educational activities during their visits (Rammos & Bratitsis, 2019).

The utilization of mobile learning processes significantly enhances academic results. The objective of the mobile augmented reality multi-user gaming application provided in (Angelopoulou et al., 2011) is to acquire historical information while playing, both indoors and outdoors. Serious games, commonly known as "games with educational purposes," serve as valuable teaching tools in the humanities by allowing players to actively engage and fully immerse themselves in a virtual world, as noted by Mortara et al. (2014). Differentiating the various serious games reviewed (Damala et al., 2016), one can use different game genres (such as adventure, strategy, or puzzle games) and additional learning objectives. These objectives may include games focused on historical reconstruction (like *The Playing History* or *The Battle of Thermopylae* (Christopoulos et al., 2011) or *Discover Babylon*) and games designed to raise awareness of cultural diversity (such as *Time Explorer* or *Tate Trumps*).

Storytelling is another form of gamification that has the potential to fundamentally transform how users interact with cultural heritage (CH). The evolution from traditional storytelling to digital storytelling (DS) integrates the age-old craft of storytelling with the latest technological advancements (Vert et al., 2021). In interactive digital storytelling (DS) applications, extended reality (XR) technologies have proven effective in enabling users to immerse themselves in historical events, interact with historical figures (Rizvić et al., 2021), and gain a deeper appreciation for traditional Chinese poetry (Zhao & Ma, 2020).

Human-computer interaction can take various forms, including wearables, museum exhibits, gamification of locations to encourage interaction, and more. However, immersive technologies also demonstrate strong potential to serve the public interest in heritage, encompassing both intangible and tangible aspects such as objects, structures, and historic locations. Improving people's experiences and encouraging learning and collaboration are closely related to how well augmented reality (AR) performs in human-computer interaction. The many ways that augmented reality (AR) will be used in museums—including content, locations, types of interactions, and environments—will enable multi-sensory experiences (Marto et al., 2022).

Furthermore, Ferdani et al. (2020) suggest that the dynamic enhancement of user knowledge, enjoyment, and engagement can be achieved through the combination of non-game mechanisms and interactive gamification. Users are immersed in an interactive experience when digital immersive elements are incorporated into museum displays (Lisi et al., 2019) through the interactive gamification of multimodal interfaces (Liarokapis et al., 2017). In conclusion, findings from several studies indicate that mobile augmented reality-mediated engagement activities have a beneficial effect on visitors' interactions with cultural material in museums and are a crucial component of the storytelling experience in this setting. The reason this approach is popular is that stories captivate and immerse consumers in a way that makes them feel more personally connected to historical events and cultural heritage. As far as storytelling is concerned, the most common is using characters, often associated with a place, to inform the user about history, stories, or legends.

In terms of the impact of implementing AR interactions within the historical context of various museum artifacts, participatory activities can enhance visitors' experiences at historic sites, improve the learning process, and heighten their interest in historical locations. In this context, the study predicts that utilizing augmented reality interactions might be a solution to enhance the user experience in museums.

Visitors can engage with cultural heritage in a sensual, affective, and constructive way by immersing themselves in historical culture. A very immersive experience can be created by including interactive activities into augmented reality interactions, which will increase visitor engagement. Thus, wearable technology is paired with intelligent terminals to create interactive, gamified interfaces that digitize virtual exhibits. As a result, users would have more and more immersive experiences.

## **4 DISCUSSION**

In this section it will discuss on the commonly used methods or tools of AR interaction in museums, the optimal performance of AR interaction in museum spaces, and interactive modes suitable for museum environments

### **4.1 Common methods or tools for AR interaction in museum**

The traditional museum exhibit has been transformed by AR technology, rendering it more "humane." Instead of mere observation and browsing, this approach encourages visitors to fully understand and explore the culture of historical items. Wearable technology, such as smart glasses, is widely available and well-received by museum visitors (Litvak & Kuflik 2020). For instance, the Hecht Museum in Israel enhanced its outdoor displays with audio and visual aids using smart glasses (tom Dieck et al., 2018). Focusing on the 19th-century British Painting Museum exhibition, Google Glass was employed to assess the impact of wearable technology on users' learning experiences. The results indicated improvements in users' satisfaction, comprehension, knowledge, and abilities. Although the study identified some challenges specific to outdoor contexts, such as illumination, wearables received positive feedback. Addressing these challenges will be essential for future advancements.

Regarding the technological components, a number of considerations come into play when choosing the tracking method. One important consideration is the application's intended use area, which includes both indoor and outdoor environments. The quantity of research that has been done on tablets and smartphones is consistent with what we anticipate will happen to the common display technology. Mobile devices are unquestionably among the most widely utilized instruments for experiencing augmented reality due to their ubiquitous ownership—nearly every potential user possesses one (Craig, 2013). Head-mounted displays, on the other hand, are more frequently utilized indoors compared to other display types, and their adoption rate is lower outdoors, which could be attributed to site layout considerations.

### **4.2 The best performance of AR interaction in museum**

About the results of each study, we obtained some interesting results regarding the impact of using AR interactive forms on the experience of historical artifacts in museums. The apparent prevalence of 3D modeling is evident in content types. 3D modeling is widely used because it is easier to entertain than natural images/videos, can reproduce the original model faithfully, and even because of the lack of what the author intended to portray as accurate. The comparison of Koo et al.'s (2020) produced application with independent and guided tour types highlights the potential for the mobile app visit experience to emerge as a competitive alternative. Moreover, they claim that the app markets itself as more beneficial and adaptable because it can handle an infinite number of users and does away with the requirement for reservations, unlike guided tours. For the demand, it is always adequate (Koo et al., 2020). To round off this list of advantages, companies can avoid paying exorbitant fees for purchasing and maintaining gadgets by allowing employees to use their own devices (Sprung & Haxha, 2020).

Upon closer examination of the integration of participatory activities, game mechanics emerge as the most commonly employed. Varinlioglu & Halici (2019) found support for the use of game elements in gamified environments, as these components enhance user immersion during visits. Confirming this, the study by Lehto et al. (2020) established a correlation between users' interest in the app and their



preexisting interest in the game. Notably, the application received higher ratings from users already interested in the game compared to those with no prior interest (Lehto et al., 2020).

### 4.3 Interactive mode suitable for museum

According to Dunleavy et al. (2009), augmented reality technology can aid users in comprehending abstract concepts by providing visual assistance. Wu et al. (2013) have highlighted that augmented reality (AR) enables the overlay of virtual items and data onto the real world. Leveraging information science and technology, exhibitions can now offer a more interactive experience, allowing visitors to engage with touchscreen computer displays and hands-on activities. Exhibition strategies should surpass the expectations of younger visitors to capture their interest and encourage exploration of museums and appreciation for archives. Incorporating interactive display technologies into cultural heritage museums is recommended to transform the perception of artifact exhibitions.

Digital resources enhance the enjoyment of visiting a cultural heritage site by providing visitors with access to relevant, engaging, and user-driven learning opportunities (Longo et al., 2018). Additionally, Lin & Lin (2017) suggest an emerging trend in cultural tourism is the use of technology to enhance visitor experiences. This increases the flexibility and educational value of visits to digital museums, allowing visitors to design customized tours based on their interests and time constraints. Utilizing interactive media for digital exhibitions and artwork in digital museums is a key aspect of digital technology. Furthermore, interactive entertainment and art are increasingly prevalent in public spaces. A notable trend is the rise of digital public art, blending digital and public art (Narumi et al., 2016). All things considered, the experience of visiting digital museums is undergoing a significant transformation due to the continual introduction of new technology.

## 5 CONCLUSION AND FUTURE WORK

An emerging field that leverages the array of mobile devices available and the services offered by museums in daily life is the use of engagement activities in the context of implementing augmented reality technology in museums. This literature study explores the types of augmented reality technology suitable for museums and potential future applications.

In conclusion, the results from various studies suggest that participatory activities using augmented reality interactions have a positive impact on the museum visitor experience. Analysing the engagement levels of different visitors, augmented reality digital means can effectively maximize the protection and presentation of Intangible Cultural Heritage (ICH). The seamless integration of content with real video images in the scene is achieved using intelligent terminals. The public can engage more effectively with historical events and cultural heritage through intuitive and visually striking virtual object presentations.

Museums and visitors can now engage and connect on a deeper level thanks to augmented reality interactive technologies. Creating AR experiences involves using various interactive techniques to present complex information about relevant artifacts, with the widespread use of portable mobile devices being a common approach. In this way, AR interaction allows for dynamic access and exchange of detailed information about exhibited artifacts. The promotion and application of AR interaction in museums aim to facilitate the transition for visitors from a physical to a digital mode of experiencing exhibits.

However, there are still limitations to the use of AR interaction, most of which are associated with the sophisticated technological know-how needed to create these applications. One of the most viable and approachable ways for individuals to experience cultural heritage using augmented reality is still through mobile technologies. The availability of AR content, clear visualization, and user interface design are all important factors to consider, ensuring that AR applications provide a positive user experience. The use of smart glasses stands out as the best option when considering users' flexibility to interact with AR technology, ensuring both enjoyment and practicality. As an alternative to engaging

with a mobile touchscreen display, this allows users to free up their hands and achieve experience goals based on gestures.

Gamification patterns are widely utilized in electronic educational resources. The AR tools used for developing exhibits seamlessly integrate game-like behaviors, employing serious game methods or narrative storytelling forms. By incorporating game-related concepts into applications showcasing cultural artifacts, user engagement and collaboration can be heightened. Gamification, as a viable tool, allows participants not only to engage with real elements of cultural artifacts but also to experience deeper layers of cultural heritage content in virtual environments. Utilizing smart glasses in conjunction with portable mobile devices to achieve gamified AR interaction forms, combined with user behaviors, can enhance users' "cultural immersion" experience in museums. Obstacles encountered in the development process of augmented reality interaction technology have led to extended time requirements for development, primarily focused on the need for caution in dealing with specific environments in different locations. This is due to considerations of creative quality, limited financial and time resources, issues related to cultural heritage preservation, or current technological limitations.

While this paper presents a research approach, there are limitations that indicate potential future research directions. The analysis is limited to research on museums published in Scopus and IEEE XPLORE databases, categorizing this article as a literature type. Future researchers may wish to examine conference papers, reviews, editorials, papers, and theses, and it is necessary to include articles from before 2014. This not only broadens the scope of the article but also evaluates whether there have been significant changes in the application of AR interactive technology in museums.

From the perspective of future work, designers can consider creating mobile augmented reality applications that are narrative-driven and gamified, combined with the use of smart glasses. Clouding is also enhancing the visitor's experience in museums. This will be a progression in the field of human-computer interaction.

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There is no conflict of interests.

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# A Content Analysis of Graphic Elements in 2D and 3D Animated Explainer Videos for 3D Laser Scanning in Construction

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## ABSTRACT

*This study attempts to perform a content analysis of the visual components used in animated explainer videos that are both 2D and 3D, with an emphasis on how well they explain 3D laser scanning in the construction industry. The utilization of 3D laser scanning technology in contemporary construction procedures necessitates excellent communication and understanding among stakeholders. This study attempts to find patterns, trends, and best practices in the depiction of 3D laser scanning concepts by a methodical analysis of graphic elements. This study used a qualitative content analysis study of 10 2D and 3D Animated explainer video for 3d laser scanning in construction. To ensure a rigorous analysis, a scoring system will be developed to objectively evaluate the quality and impact of the identified graphic elements. Data will be collected systematically, and the prevalence of different graphic elements will be analyzed using percentages or ratios. A comparative analysis will be conducted to discern any notable differences between 2D and 3D videos in terms of graphic usage. The goal is to draw meaningful conclusions about which graphic elements are most effective in explaining 3D laser scanning in construction. The comparative content analysis of graphic elements in 2D and 3D animated explainer videos for 3D laser scanning in construction reveals an interplay between visual storytelling and technical information dissemination. The utilization of both 2D and 3D animations allows for a comprehensive communication strategy, catering to diverse audience preferences and learning styles within the construction industry. Furthermore, the study underscores the importance of a balanced integration of graphic elements, ensuring that technical accuracy is not compromised for the sake of visual appeal. Striking this equilibrium is essential for maintaining the credibility of the explainer videos within the professional construction community.*

**Keywords:** Graphic element, 2D, 3D, Animated, Laser scanning.



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## 1 INTRODUCTION

The construction industry has witnessed significant advancements in recent years, with 3D laser scanning emerging as a transformative technology for project planning and execution. The construction industry has been engaged in increasing productivity, efficiency, output quality, infrastructure value, and sustainability by implementing emerging technologies, such as Building Information Modelling and 3D laser scanners (Arayici et al., 2011).

As the complexity of 3D laser scanning in construction projects grows, the need for effective communication tools becomes crucial. Animated explainer videos, incorporating both 2D and 3D

graphic elements, have become popular for simplifying intricate concepts and processes. Videos are better at conveying messages because those messages become more memorable than other options such as written instructions or personal seminars. According to the article, "Messages conveyed in video are more engaging and they lead to a higher retention rate. 90% of information transmitted to the brain is visual and visuals are processed 60,000 times faster. Compared to email, video is far more engaging. Studies have shown that the average viewer retains 95% of the message if it is in video form" (Smiley, 2022).

Explainer videos have one of the highest recall rates of any information presentation method available today (Oentoro & Oentoro, 2023). This study explores existing research related to the use of graphic elements in animated explainer videos specifically for 3D laser scanning in construction.

## **2 LITERATURE REVIEW**

### **2.1 Graphic Elements**

Graphic element is the art of combining images, text, and ideas to create works that capture a viewer's attention to tell a specific message. The elements of design are best understood as being the building blocks of any design. There are seven elements of graphic design. Graphic design is a craft where professionals create visual content to communicate messages. By applying visual hierarchy and page layout techniques, designers use typography and pictures to meet users' specific needs and focus on the logic of displaying elements in interactive designs, to optimize the user experience. Graphic Designers create visual concepts to communicate information. They create everything from posters and billboards to packaging, logos, and marketing materials. Graphic Designers use elements such as shapes, colours, typography, images and more to convey ideas to an audience (Khan, 2022).

Graphic elements such as line, shape, form, texture, space, value, and colour can significantly complement textual information, making it more accessible and engaging for the audience. In a world where visuals are omnipresent, the importance of graphic design is magnified. In contemporary communication platforms, be it a social media post, a billboard advertisement, or the homepage of a website, the graphical component assumes a pivotal role in efficiently conveying messages. The process involves the text, images, colours, and symbols, constituting both an art and a science. The deliberate combination of these elements serves the overarching purpose of visually communicating a particular idea or message in a compelling manner (Fanning, 2015).

The visual language that we use to interpret our world, understand information, and make connections. Good graphic design can convey a message or create an impact much more efficiently than words alone. As the saying goes, "a picture is worth a thousand words." For example, in graphic design, a well-crafted logo, a thoughtfully designed website, or a cleverly designed advertisement can convey a complex idea quickly and effectively.

Whether it's building a brand identity, explaining complex data, or guiding the user's navigation on a digital platform, graphic design plays an indispensable role. Graphic design agencies play a critical role in visual communication, serving as collaborators and problem-solvers.

### **2.2 Animated Explainer Videos**

Explainer videos are short films that explain abstract concepts and relationships, usually in an educational context. They apply storytelling techniques and focus on relevant facts using different visualizations. Explainer videos are short films that explain abstract concepts. They apply storytelling techniques and typically last between one and three min, which usually comes with an increased speaking rate (Brame, 2016; Krämer and Böhrs, 2017, 2018).



Animated Explainer Videos can have a positive effect on engagement, particularly if associated with an enthusiastic performance (Findeisen et al., 2019). do not go into detail, and instead focus on the most relevant facts using animations, illustrations, graphics, photos, or text (Krämer and Böhrs, 2017). Animated explainer videos have proven to be a great asset for businesses seeking to produce effective video content. Such videos can transmit an understandable narrative that viewers are able to connect with, and studies show they lead up to 40% more people becoming customers than written words alone.

Explainer videos bring about increased involvement in the customer journey, allowing brands to display their products or services in a captivating fashion. Essentially helping companies stand out from other players on the marketing scene. (Everything You Need to Know About Explainer Videos (2023).

## **2.3 3-Dimensional (3D) Laser Scanning in Construction**

3D scanners are very analogous to cameras. Like cameras, they have a cone-like field of view, and like cameras, they can only collect information about surfaces that are not obscured. While a camera collects colour information about surfaces within its field of view, a 3D scanner collects distance information about surfaces within its field of view. The "picture" produced by a 3D scanner describes the distance to a surface at each point in the picture. This allows the three-dimensional position of each point in the picture to be identified (Ebrahim, M. A. B. 2015). 3D laser scanning is a rapidly evolving technology that is revolutionizing the construction industry. In an era defined by technological advancement, the construction industry has witnessed a transformative shift towards innovative methods and tools. 3D laser scanning technology is a relatively new technique for quickly getting three-dimensional spatial information. It was hailed as another technological revolution in the field of surveying and mapping after global positioning system (GPS) technology which accurately reconstructs the scanned objects and builds high-fidelity, high-precision 3D point clouds (Xu et al., 2015). There are more benefits to deploying the technology on your next project.

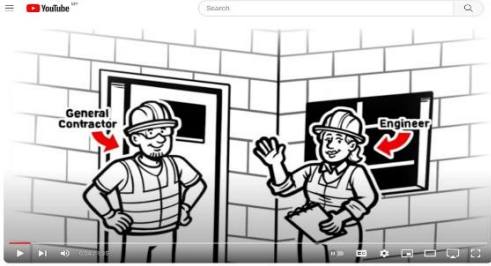



Most significant reasons projects could benefit from laser scanning. Improves quality and accuracy, laser scanning is accurate and allows construction teams to take planning and detail to a whole other level on site. Provides immediate information, Scans can be performed and accessed immediately, thereby improving operations, streamlining productivity, and reducing rework Cuts costs, laser scanning is much faster than conventional methods of project mapping.

Scanned data can be completed in minutes, which is far quicker than conventional methods, many of which can take hours or even weeks. The data scans created empower teams to develop more detailed workflows. Construction is a bottom-line business, so any cost savings that project teams can produce only go to increase profitability on a project. In fact, some estimate that using the technology versus conventional 2D scanning on a project can demonstrate a savings of up to 50%, with the most significant gains coming from an accelerated timeline (Ellis, 2023).

## **3 RESEARCH METHODOLOGY**

The research methodology for the study used a qualitative content analysis of 10 2D and 3D animated explainer videos for 3D laser scanning in construction. To ensure a rigorous analysis, a scoring system was developed to objectively evaluate the quality and impact of the identified graphic elements. Data were collected systematically, and the prevalence of different graphic elements was analysed using percentages or ratios. A comparative analysis was conducted to discern any notable differences between 2D and 3D videos in terms of graphic usage. The goal was to draw meaningful conclusions about which graphic elements are most effective in explaining 3D laser scanning in construction.

**Table 1** Animated explainer videos for 3D laser scanning in construction

No.	Sample video 2D/3D	Year published	Duration
1.	 <p>What is 3D Laser Scanning Explained TruePoint Laser Scanning</p>	2022	1:35 minute
2.	 <p>What is 3D Laser Scanning Explained Challenges</p> <ol style="list-style-type: none"> <li>1. Initial cost</li> <li>2. Training</li> </ol> <p>Scanning</p>	2021	10:43 minute
3.	 <p>WHAT IS SCAN-TO-BIM</p> <p>have heard the term "scan-to-BIM", but what does this actually mean?</p> <p>What is Scan to BIM? The BIM</p>	2017	6:50 minute
4.	 <p>POINT CLOUD (LASER SCAN) +/- 4 mm Scan Accuracy</p> <p>Scan to Revit   BIM Model for Renovation   Existing, Demo and New Integrated BIM</p>	2020	2:59 minute

Scan to Revit | BIM Model for Renovation Existing

5.



How A Laser Scanner Works by Leica

2021

1:21 minute

6.

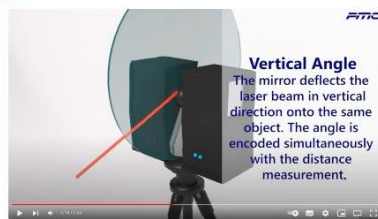


Trimble Field Technology - 3D Laser Scanner

2018

1:17  
minute

7.



How Does a Laser Scanner Work?

2021

0:43  
minute

8.



Benefits of 3D laser scanning surveying for complex projects

2019

1:43  
minute

9.



3D Laser Scanning

2013

0:42  
minute

10

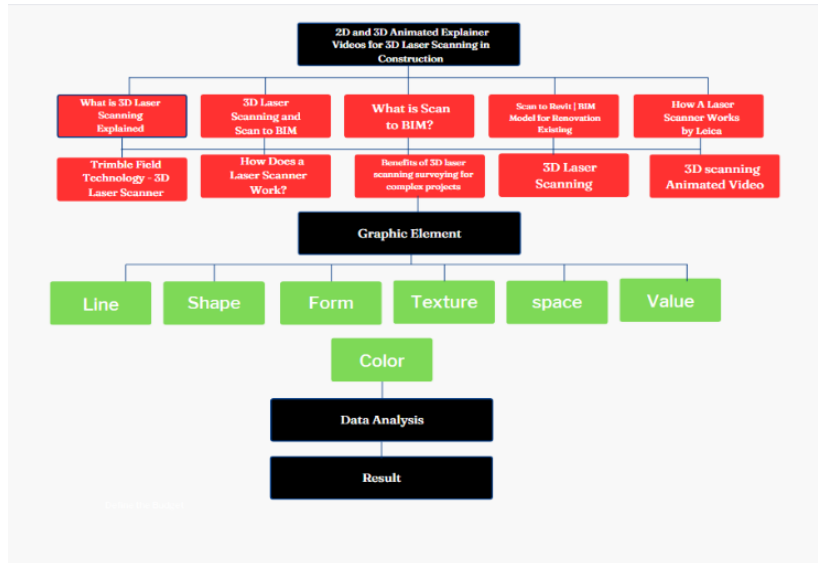


3D scanning Animated Video

2019

:36 minute

## 4 RESEARCH DESIGN



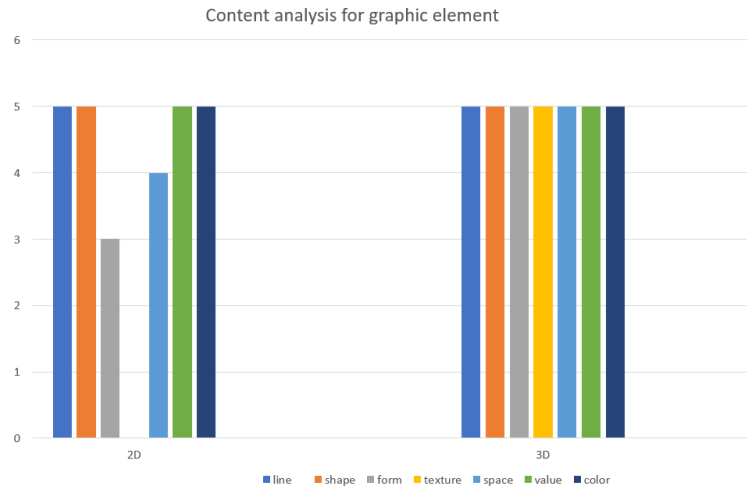
**Figure 1** Research Process

This research was designed to investigate how graphic elements in both 2D, and 3D animated videos contributed to the explanation of 3D laser scanning in the context of construction. To achieve this, a diverse selection of animated videos related to 3D laser scanning in construction was gathered for analysis. The primary focus of the study was on identifying and categorizing graphic elements, such as line, shape, form, texture, space, value, and colour used in these videos. A systematic content analysis approach was employed, wherein each video was carefully watched, and observations regarding the types of graphics utilized were recorded. These observations were then categorized based on their purpose, clarity, and overall effectiveness in conveying information about 3D laser scanning.

**Table 2** Element of design in each animator explainer video sample

Video Sample	Element of Design								
	2D	3D	Line	Shape	Form	Texture	Space	Value	Color
 Sample 1	✓		✓	✓	✓		✓		✓
 Sample 2	✓		✓	✓			✓		✓
 Sample 3		✓	✓	✓	✓	✓	✓	✓	✓
 Sample 4		✓	✓	✓	✓	✓	✓	✓	✓
 Sample 5		✓	✓	✓	✓	✓	✓	✓	✓
 Sample 6	✓		✓	✓	✓		✓	✓	✓
 Sample 7		✓	✓	✓	✓		✓	✓	✓
 Sample 8	✓		✓	✓				✓	✓
 Sample 9		✓	✓	✓	✓	✓	✓	✓	✓
 Sample 10	✓		✓	✓	✓		✓	✓	✓

## 5 RESULT



**Figure 2** Content analysis of graphic elements in 2D and 3D animated explainer videos

## 6 DISCUSSION

The study's findings demonstrated the use of a content analysis of graphic elements in 2D and 3D animated explainer videos for 3D laser scanning in construction. To transmit types of graphic elements commonly used in 2D and 3D animated explainer videos for 3D laser scanning in construction, they would look at 2D, 3D, and the elements of design, such as line, shape, form, texture, space, value, and colour are design elements.

### 6.1 2D

The findings show that 2D animations simplify complex concepts and establish a foundational understanding of 3D laser scanning principles. These graphic elements, such as infographics and simplified diagrams, prove effective in conveying key information about the technology's benefits and applications. Moreover, the use of vibrant colours and engaging visual metaphors enhances viewer retention and comprehension.

### 6.2 3D

The finding for 3D, 3D animations play a pivotal role in providing a more immersive and realistic depiction of 3D laser scanning processes. The dynamic visualization of scanning equipment, point clouds, and construction sites adds a layer of authenticity, aiding in bridging the gap between theoretical knowledge and practical application. The depth and spatial awareness afforded by 3D animations contribute significantly to a more profound understanding of the intricacies involved in 3D laser scanning within the construction context. Through this study, researchers could learn more about the most effective and engaging graphic elements observed and how the elements contribute to conveying complex information.

### 6.3 Comparative analysis of 2D and 3D

The comparative content analysis of graphic elements in 2D and 3D animated explainer videos for 3D laser scanning in construction reveals an interplay between visual storytelling and technical information dissemination. The utilization of both 2D and 3D animations allows for a comprehensive communication strategy, catering to diverse audience preferences and learning styles within the construction industry.

Furthermore, the study underscores the importance of a balanced integration of graphic elements, ensuring that technical accuracy is not compromised for the sake of visual appeal. Striking this equilibrium is essential for maintaining the credibility of the explainer videos within the professional construction community.

## 7 CONCLUSION

In conclusion, the synergy between 2D and 3D graphic elements in animated explainer videos for 3D laser scanning in construction emerges as a powerful tool for knowledge dissemination. This finding data provides valuable insights for content creators and instructional designers, guiding them in crafting effective and informative visual narratives that contribute to enhanced understanding and implementation of 3D laser scanning technologies within the construction industry.

## ACKNOWLEDGEMENT

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## AUTHOR CONTRIBUTIONS / SUMBANGAN PENULIS

All the authors have contributed to the paper meticulously.

## CONFLICT OF INTEREST / KONFLIK KEPENTINGAN

There is no conflict of interests.

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# Exploring The Usage of Motion Graphic Elements in Projection Mapping Video to Promote Agrotourism in Malaysia

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## ABSTRACT

Agrotourism is a rapidly growing industry in the country that tries to attract tourists by showcasing agricultural practices, rural life, and biodiversity. The cutting-edge technology known as projection mapping provides a dynamic platform for the telling of stories and the creation of immersive experiences. The purpose of this study is to explore the use of motion graphic elements in projection mapping videos to promote Agrotourism in Malaysia. By selecting and analyzing 10 videos of projection mapping related to tourism, the research aimed to discover the effectiveness of motion graphic elements in enhancing the promotional impact of agrotourism destinations. The research finding revealed that the usage of motion graphic elements such as vibrant color with pleasing design and sound design plays a pivotal role in captivating viewers' attention. The investigation of motion graphic elements in projection mapping videos for Malaysian agrotourism promotion provides insightful information about the visual and audio elements that are involved in creating an appealing narrative. By understanding and implementing these findings, organization in the agrotourism industry can enhance their promotional efforts, creating more immersive and captivating experiences for tourists.

**Keywords:** Motion graphic element, Projection Mapping, Agrotourism



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## 1 INTRODUCTION

Agrotourism is an expanding tourism concept in Malaysia, where visitors can engage in a variety of activities related to the agricultural sector. Agrotourism refers to rural tourism that incorporates agricultural features for educational purposes, leisure and involvement in conventional management practices. Its primary attribute is the engagement of visitors in farming activity (agricultural productivity) (Baranova, 2019).

Motion graphic elements are increasingly being used to enhance visual storytelling and attract audiences (Khairulah, 2023) and they can be included in projection mapping videos. A motion graphic is an image that has been progressively modified to look like a moving animation (Hapsari, 2019). Motion graphics elements, including animated visuals, typography, and special effects, can add dynamic and visually appealing content to projection mapping videos.

One of the latest techniques for projecting images onto surfaces is called "video mapping," which allows users to create dynamic video displays on practically any surface. Video mapping, also known



as projection mapping, combines audio-visual components to produce the physical illusion of visuals (Yoo, 2014). On the other hand, projection mapping involves projecting visuals onto irregular objects or surfaces, creating a unique and interactive experience for viewers. By combining these elements, designers can create visually stunning and engaging experiences for visitors to agrotourism destinations.

## **2 LITERATURE REVIEW**

### **2.1 Motion Graphic Elements**

Motion graphic elements are widely used in various industries, including agriculture, to enhance visual communication and user experience. Motion graphic elements refer to visual elements that are designed to move or change over time in a digital medium. According to (Shir, 2014) the famous animator John Whitney used the term "motion graphics" for the first time in 1960. The first person to successfully use motion graphics in his works was Saul Bass. Motion graphics or moving graphics are created by video or animation technology and by making a hallucination of movement or changing the appearance of visual factors (Shir, 2014). Motion graphics, comprising animated elements, typography, and visual effects, add dynamism and visual interest to projection mapping videos.

According to Smith (2018), motion graphics are essential for conveying emotions, increasing the overall story, and providing viewers with a visually engaging experience. These elements work as dynamic visual aids that are capable of clearly conveying complicated information regarding farming activities, sustainable practices, and agricultural processes. These elements, which include animated infographics and videos, can help visitors understand complicated concepts more easily and be more interested in what they are viewing. Motion graphics, according to a study by Barnes (2019), are dynamic visual communication tools that can be used to convey information in an engaging, interesting, and effective way. With the presence of motion graphics, agrotourism industries may tell powerful narratives to promote their special offers while creating a stronger bond between visitors and the agricultural environment by using motion graphics to convey storytelling.

### **2.2 Two-Dimensional (2D) Elements**

The use of two-dimensional objects in motion graphics, such as forms, lines, and text, is referred to as 2D elements. Colour, typography, and composition all contribute to the aesthetic appeal of motion graphics, which is why they are necessary for producing visually captivating and captivating images. In motion graphics, 2D elements focus on combining the usual graphic design principles with audio and animation. Creating and enhancing 2D elements for motion graphics is essential to the development of 2D motion graphics creation and rendering, which improves animation technology and its uses. According to Wahyudi & Kusuma (2021), people are typically more engaged in the utilization of two-dimensional elements, particularly when information is being conveyed. Overall, 2D elements are an essential aspect of motion graphics, contributing to their visual appeal and effectiveness in conveying information.

### **2.3 Three-Dimensional (3D) Elements**

3D elements enhance the visual appeal and immersive experience of artwork. According to RedAlkemi (2023), adding 3D elements to designs enhances their visual impact and helps create a unique style. By using 3D modelling software, objects, typography, or entire scenes can be enhanced with realistic textures, lighting effects, and shadow effects. Viewers will be drawn in and the designs will be more interesting as a result.

## 2.4 Projection Mapping Technique

Projection mapping has become increasingly popular as a form of visual expression (Murayama, 2014). It is a projection technique that is used in interactive or video installations to adapt to the shapes of irregularly shaped objects (Katkeviča, 2022). This technology is widely used in a variety of industries, such as architecture, design, and entertainment. This technique allows real-time input to create interactive environments that can immediately respond to changes. The content employed in projection mapping depends on the project's purpose, venue, and creative vision, and the system's ability to adapt to real-time input allows it to create dynamic and interactive environments (T Nishanka, 2021).

In the realm of visual arts, projection mapping allows artists to create immersive, dynamic installations. According to Katkeviča (2022), projection mapping is essential for a strong story, a successful marketing plan, and comprehensive entertainment. In recent years, it has proven to be a powerful urban art technique in which public buildings and icons are used as canvasses. Additionally, by using the right technology and professional skills, it is possible to create an unforgettable environmental performance. Pioneers such as Krzysztof Wodiczko paved the way for projecting onto architectural structures, challenging conventional notions of static art. The technological procedures of projection mapping have progressed with the introduction of high-resolution projectors, advanced mapping software, and real-time content rendering, facilitating intricate and seamless visual experiences.

The use of projection mapping will enhance the visual appeal and impact of the show, creating realistic and fantastical scenes, atmospheres, and effects that would be impossible or impractical with traditional scenery, lighting, or props. Additionally, projection mapping can be used to add versatility and flexibility to stage design, allowing for quick changes between scenes, locations, or moods without requiring physical changes. It encourages creativity and experimentation by enabling designers, directors, and performers to explore different possibilities of projection and performance.

## 2.5 Agrotourism Industry in Malaysia

Agrotourism in Malaysia is a tourism concept that maximizes the use of farm settings and environments, with hospitality in promoting tourism activities. Agrotourism refers to tourism in agricultural areas like orchards, agroforestry farms, herbal farms, and animal farms. Agrotourism is defined by the National Agro-Food Policy 2011-2020 as a leisure activity that combines agricultural practices with tourism and multiplies incomes of agricultural communities and the country's GDP (Mansor, 2015). According to Mansor (2015), agrotourism is also known as farm-based tourism. Through a collaboration between tourism and agriculture, visitors can engage in agricultural-related activities while relaxing and spending time and money for joy and happiness.

Agrotourism in Malaysia has emerged as a significant and growing industry, offering a unique blend of agricultural experiences, local customs, and traditions. The country's rich agricultural heritage, coupled with the appeal of its rural communities, has contributed to the increasing interest in agrotourism among both domestic and international tourists. Mansor (2015) states that agrotourism in Malaysia encompasses both agricultural activities and cultural and traditional aspects of different regions, presenting vast potential for future development. This industry has been identified to revitalize rural economies, particularly in areas where agriculture has traditionally played a dominant role.

Agrotourism has also been recognized as a tool for rural economic progress, offering farmers and rural communities a way to diversify their incomes. Research by (Annamalah et al., 2016) has highlighted the potential of farm-based tourism to generate income, particularly for rural areas through farm-based tourism activities. As Malaysia's economy has transitioned from a heavy reliance on agriculture to a more industrialized base, agrotourism presents a promising avenue for sustaining and promoting agricultural activities, while also providing unique and authentic experiences for tourists. The industry's ability to attract a younger demographic of tourists also highlights its potential for growth and sustainability (Mansor, 2015).

## 2.6 Visual Communication to Enhance Tourist Engagement

Visual communication plays a pivotal role in enhancing tourist engagement, particularly in the context of promoting agrotourism in Malaysia through the usage of motion graphic elements in projection mapping videos. Motion graphic design is one of the powerful elements that are frequently needed for effective informative communication. According to Shir, 2014 the use of graphics, photos, and the variety of images that make up each motion graphic can enhance its visual quality and raise audience attraction. Motion graphics can improve the entire viewing experience. Wang et al. (2020) examine how these features influence viewers' attention spans and emotional responses. Social media is also a powerful tool for promoting tourism. Creating engaging content with impressive videos is the most crucial step to attract more visitors to agrotourism destinations.

## 3 RESEARCH AND METHODOLOGY

This study employed a qualitative method. The research design for this study employed content analysis to analyse the usage of motion graphic elements in projection mapping video. As stated by (Krippendorff, 2013), content analysis is a research method for getting reliable conclusions about texts or other significant material and the contexts in which they are found. A sample of 10 videos of projection mapping in Malaysia and international videos related to tourism was selected for data analysis. The videos were selected based on projection mapping videos that contain content of 2D and 3D elements. The purpose of this research is to explore the effectiveness of motion graphic elements to promote agrotourism in Malaysia which will improve the advertising materials utilised in agrotourism strategies.

### 3.1 Research Flow and Design Methodology

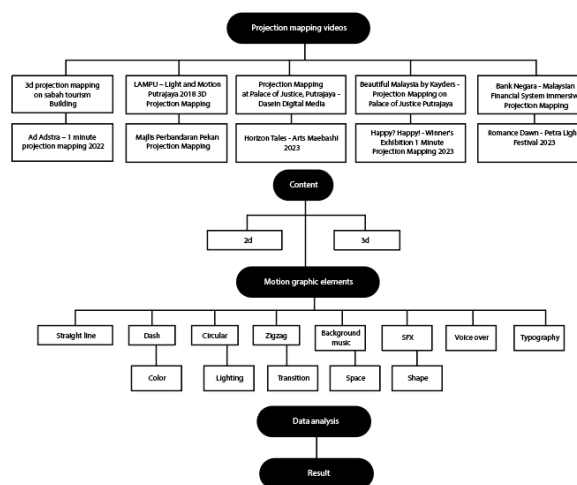







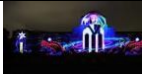




Figure 1 Framework of study

### 3.2 Data Analysis

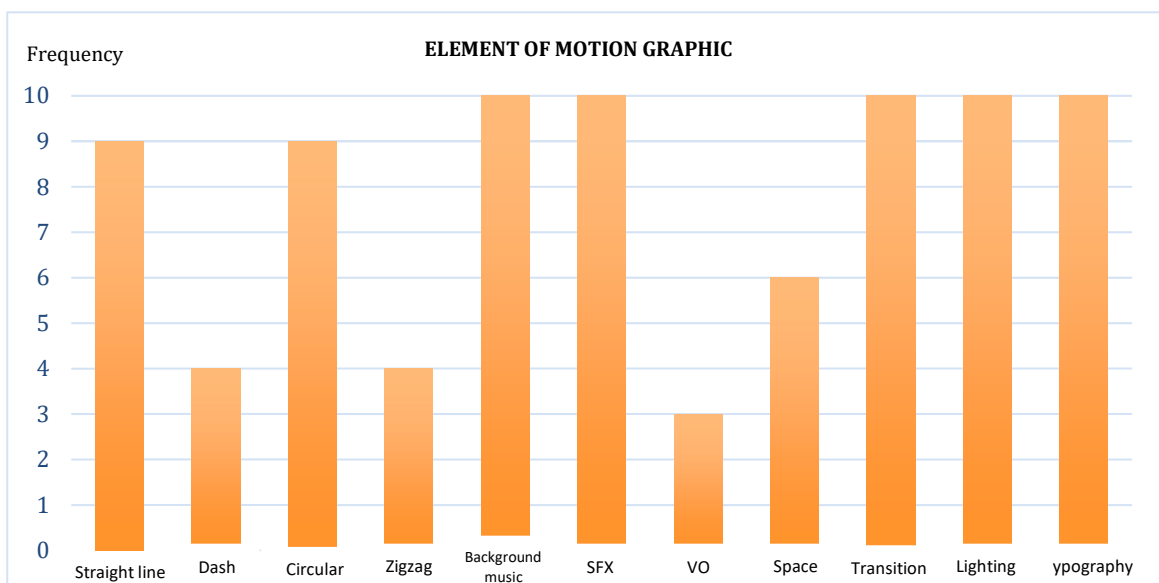
**Table 1** Content analysis of motion graphic elements in projection mapping video

Video						
Details	3d projection mapping on Sabah tourism Building	LAMPU – Light and Motion Putrajaya 2018 3D Projection Mapping	Projection Mapping at Palace of Justice, Putrajaya - Dasein Digital Media	Beautiful Malaysia by Kayders-Projection Mapping on Palace of Justice Putrajaya	Bank Negara - Malaysian Financial System Immersive Projection Mapping	
Number of videos	1	2	3	4	5	
Years of production	2018	2018	2019	2020	2020	
Duration (mins)	7:15	4:27	3:26	5:09	1:36	
Content	2D	/	/	/	/	
	3D	/	/	/	/	
Elements of motion	Straight line	/	/	/	/	
	Dash					
	Circular	/		/	/	
	Zigzag		/	/	/	
	Background music	/	/	/	/	
	SFX	/	/	/	/	
	Voice over				/	
	Typography	/	/	/	/	
	Colour	Bright colour	Bright and vibrant colour	Bright colour	Bright and vibrant colour	Bright colour
	Lighting	/	/	/	/	/
Transition	/	/	/	/	/	
Space	/	/	/	/	/	
Shape	Geometry	Geometry Abstract	Geometry Abstract	Geometry Abstract	Geometry Organic	

**Table 2** Content analysis of motion graphic elements in projection mapping video

Video						
Details	AD ADSTRA – 1 MINUTE PROJECTION MAPPING 2022	Majlis Perbandaran n Pekan Projection Mapping	HORIZON TALES - ARTS MAEBASHI 2023	Happy? Happy! - Winner's Exhibition 1 Minute Projection Mapping 2023	Romance Dawn - Petra Light Festival 2023	
Number of videos	6	7	8	9	10	
Years of production	2022	2023	2023	2023	2023	
Duration (mins)	4:00	8:45	4:00	2:47	3:55	
Content	2D /	3D /	2D /	2D /	2D /	
Elements of motion	Straight line	/	/	/	/	
	Dash	/	/	/	/	
	Circular	/	/	/	/	
	Zigzag	/	/	/	/	
	Background music	/	/	/	/	
	SFX	/	/	/	/	
	Voice over	/	/	/	/	
	Typography	/	/	/	/	
	Colour	Bright and vibrant colour	Bright colour	Bright and vibrant colour	Bright and vibrant colour	Bright and vibrant colour
	Lighting	/	/	/	/	/
Transition	/	/	/	/	/	
Space	/	/	/	/	/	
Shape	Geometry	Geometry Organic Abstract	Geometry Organic Abstract	Geometry Abstract	Geometry Abstract	

## 4 FINDING



T

## 4.1 Discussion

The finding of the research explored the usage of motion graphic elements in projection mapping video to promote agrotourism in Malaysia. The results indicate that this projection mapping video primarily uses two-dimensional content. Two types of motion graphic elements that are frequently employed in lines are 9% of circular and 9% of straight lines. The chart shows the minimal usage of voice over, which is only 3%. This is since voice over usage is not recommended since viewers will find themselves more interested in the displayed graphics and animations than in hearing spoken information. The efficiency of projection mapping videos can also be affected by the colours that are utilized in them. For instance, viewers are probably going to find bright, cheery colours more appealing than dark, muted colours. The sound design of projection mapping videos is also important. The sound design that is used should be appropriate for the tone of the video and striking a delicate balance between not being overly loud or causing distractions. The duration of projection mapping videos should also be considered because effective projection mapping videos are often designed to capture attention quickly and convey a message or evoke emotions within a concise timeframe. Videos that are too short may not be effective in conveying their message, while videos that are too long may losing the viewer's attention.

## 5 CONCLUSION

In conclusion, the findings highlight on the utilization of motion graphic elements in projection mapping videos to promote agrotourism in Malaysia. The predominant use of 2D elements in these videos indicates a current pattern in the industry, possibly influenced by their ease of use and straightforwardness. The common use of straight lines and circular motion graphic elements shows a preference for visually understandable and visually pleasing designs. Furthermore, the impact of colour such as red, blue, yellow and green in projection mapping videos is highlighted, emphasizing the importance of choosing vibrant and cheerful colours to enhance viewer appeal. Additionally, the research emphasizes the significance of sound design, emphasizing the need for background music and sound effects that align with the video's tone without being overly distracted. Considering duration of projection mapping videos is also important because to ensure that they strike a balance between conveying the intended message and maintaining viewer engagement.

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## AUTHOR CONTRIBUTIONS

All the authors have contributed to the paper meticulously.

## CONFLICT OF INTEREST

There is no conflict of interests.

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# Citra Alam: The Malay Male Teenager Characters Design Principle Based on Physical Form and Facial Features for Action Genre

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## ABSTRACT

*A character in an animation is the primary element to tell a story. The character is a medium to help the audience relate and be interested in a story. Particularly, the race of a character allows the audience to relate to the character's lifestyle. However, nowadays, many character designs do not represent their race. For example, the characters in Malay animations lack resemblance to Malay individuals. Malaysian artists are influenced by the popularity of Japanese animation or anime, leading them to create characters akin to those in anime. The current research explored the basis of the design and human anatomy of the Malays to develop a guideline for creating a Malay character. Considering that male teenage characters, aged between 13 and 17 years old, are a recent animation trend, the study focused on creating Malay male teenage characters. Accordingly, this research explored the human anatomy through the use of golden ratio measurement to determine the proportions of a Malay male teenager. Other than that, an interview with specialists in the design field was conducted to validate the developed guidelines. The results of this research findings and the measurements can be used to create a guideline for making a Malay character along with some other factors in design. This research can be further improved in the future by including data for other races in Malaysia to have comprehensible guidelines for creating multi-race characters.*

**Keywords:** Identity, Proportions, Character design, Facial features, Malay Teenager



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## 1 INTRODUCTION

Many components contribute to a story's progress, plot, and climax in animation. Among the most important components are characters. The representation of characters in an animation allows the audience to relate to the story, particularly through factors such as their lifestyle, situation, and race. One of the most relatable aspects for the audience is the character's race. (Lu, 2009) suggests that audience members are more likely to connect with and engage in a story if they share the same racial background as the character. This is through a phenomenon as a result of race projection.



A character's race in an animation is usually determined by its country of origin. This is evidenced by animations from different countries. As an example, Western animations feature Caucasian or African as main characters. On the other hand, Japanese feature Japanese main characters as main characters. This attracts the audience to relate more to the story due to the reflection of their culture, lifestyle, and shared experiences

An animation character's race is usually visualised through their character design. This includes their facial features, common body proportions, clothes, and props. These elements reflect the character's race. However, some character designs do not represent their race. This paper discussed the importance of the character's design to their race in order to develop a guideline for creating a Malay male teenage character for an action genre.

## **2 LITERATURE REVIEW**

A person's facial features are usually closely related to their race. To illustrate, the Chinese have narrower eyes, Indians have a lot of facial hair, and Malays have matured tan skin. Due to these common tropes, it is easy to identify the race of some animation characters. However, most animated characters do not accurately represent their race, causing audiences to be left confused and unable to relate to the animation. According to (Lu, 2009), This holds particular significance in Malay animation, where characters embodying Malay individuals may lack visual authenticity. Following a comprehensive literature review, guidelines have emerged to address this concern, specifically tailored for the depiction of Malay male teenagers. These guidelines aim to enhance cultural representation, acknowledging the importance of accurately reflecting race and identity in characters to facilitate a stronger audience resonance within the realm of animation.

### **2.1 Facial Feature**

According to (Thompson et al., 2005) the pivotal role of anthropological studies in elucidating the intricate nuances of facial features and their profound influence on an individual's racial identity. The variations observed in the nose, orbit, labia-oral region, ear, and facial region extend beyond mere physical distinctions; they serve as powerful markers that distinguish one racial group from another, unveiling a mosaic of height, width, shape, and size disparities. These nuanced variations are not just anatomical but also intricately intertwined with cultural and social backgrounds, emphasizing the dynamic interplay between biology and identity construction. Understanding these facial feature differences enriches our comprehension of the intricate tapestry of human diversity, shedding light on the complex interconnections between physical attributes and the multifaceted nature of racial identity. In Malaysia, the rich cultural tapestry is woven with distinctive facial characteristics among its three (3) main ethnicities—Malays, Indians, and Chinese. These variations encompass differences in skin tone, eye shape, nose size, and hair distribution, contributing to the vibrant diversity that defines the visual identity of each ethnic group in the country.

#### **2.1.1 Golden Ratio**

Utilizing advanced medical technologies and specialized instruments, professionals can delve deeper into facial analysis, employing techniques like 3D imaging and computer-aided measurements. The golden ratio, a mathematical principle, plays a pivotal role in discerning facial harmony by highlighting optimal proportions. This precision in measurement not only aids in cosmetic procedures but also proves valuable in medical diagnostics, allowing for a comprehensive understanding of individual facial nuances and contributing to personalized treatment plans. The classification of facial shapes divided into three (3) main groups, guided by specific ratio values, streamlines the evaluation process, enhancing precision in cosmetic and medical applications: Short (<1.6), Normal (=1.6), and Long (>1.6) (Packirisamy et al., 2012). Utilising this method allows for advancements in understanding the intricate relationships between race and facial features, as well as the complex concept of human identity.

### **2.1.2 Own Race Projection**

The art of storytelling relies on connecting with the audience, and one potent way to achieve this is through authentic representation of a character's race. Known as 'own race projection,' this concept emphasises that people feel a stronger affinity for characters who resemble their own racial or ethnic background (Lu, 2009). By accurately portraying a specific race's lifestyle, traditions, and cultural nuances, storytellers create a profound connection between their characters and the audience, fostering empathy and understanding. This concept bridges diverse cultures, enhances the narrative experience, and promotes cultural appreciation and social cohesion. As a result, the audience could embrace the diverse tapestry of human experiences through authentic racial representation and experience a lasting impression that transcends cultural boundaries and forges a shared emotional journey.

## **2.2 Vitruvian Man and The Golden Ratio of Body Proportions**

According to (Alzyoud et al., 2022), Leonardo da Vinci's masterpiece, the Vitruvian Man, crafted in 1490, transcends its temporal origins to stand as a timeless emblem of the symbiotic relationship between art and mathematics. This renowned drawing not only captures the essence of human anatomy but also serves as a testament to Leonardo's intellectual depth. Inspired by the golden ratio, an enigmatic mathematical concept inherent in both nature and art, the Vitruvian Man meticulously embodies these proportions within the confines of a square and a circle. The harmonious balance achieved in the artwork, where the golden ratio subtly dictates the relationships between the man's body height, the distances from his head to his fingers, and from his navel to the floor, elevates it to an iconic symbol. Enduring through centuries, the Vitruvian Man becomes a source of admiration and awe, a visual manifestation of the profound connection between precision and beauty, leaving an indelible mark on the collective consciousness of generations that continue to marvel at its brilliance.

## **2.3 Character Design**

Character design serves as the narrative cornerstone, influencing how audiences connect with a story. It encompasses various elements, including facial features and expressions, pivotal for fostering engagement. As highlighted by (Liu et al., 2020), distinct traits like large, well-structured eyes can evoke a sense of cuteness and endearment in a character, emphasizing the profound impact design choices wield in shaping emotional resonance and audience attachment within a narrative framework. Moreover, the deliberate exaggeration of body shapes, distinctive characteristics, and unique clothing not only allows a character to stand out but also enhances visibility and recognition among the audience. This intentional amplification serves as a powerful tool for storytelling, enabling characters to leave a lasting impression. Research, exemplified by (Liu et al., 2019b), delves into the global impact of character design, showcasing the recognition and respect accorded to specific styles across cultures. Notably, Western and Japanese character designs have achieved prominence on the international stage, underlining the cross-cultural influence and resonance that well-crafted character designs can achieve in captivating audiences worldwide.

## **3 METHODOLOGY**

In this research, mixed methods were employed to attain comprehensive results. These approaches were categorized into two (2) segments. The initial method involved a qualitative approach, wherein a semi-structured interview was conducted with two specialists. This interview aimed to delve into the intricacies of human proportions and character design, shedding light on valuable insights that contributed significantly to the overall research objectives. The qualitative method provided a nuanced understanding, enriching the study with diverse perspectives from the specialists' expertise. One (1) was a character design specialist, and the other was a doctor who could explain human anatomy. The participants had expertise in their respective fields. The interview delved into the intricate interplay among facial features, body anatomy, and race, with a particular emphasis on the art of crafting characters representative of a specific ethnicity, in this case, focusing on the creation of a Malay

character. The research seamlessly transitioned into the analysis phase, employing content analysis as a crucial methodological tool. This method played a pivotal role in realizing the primary objective of the research, facilitating a systematic examination and interpretation of the gathered qualitative data, thereby enhancing the depth and rigor of the study.

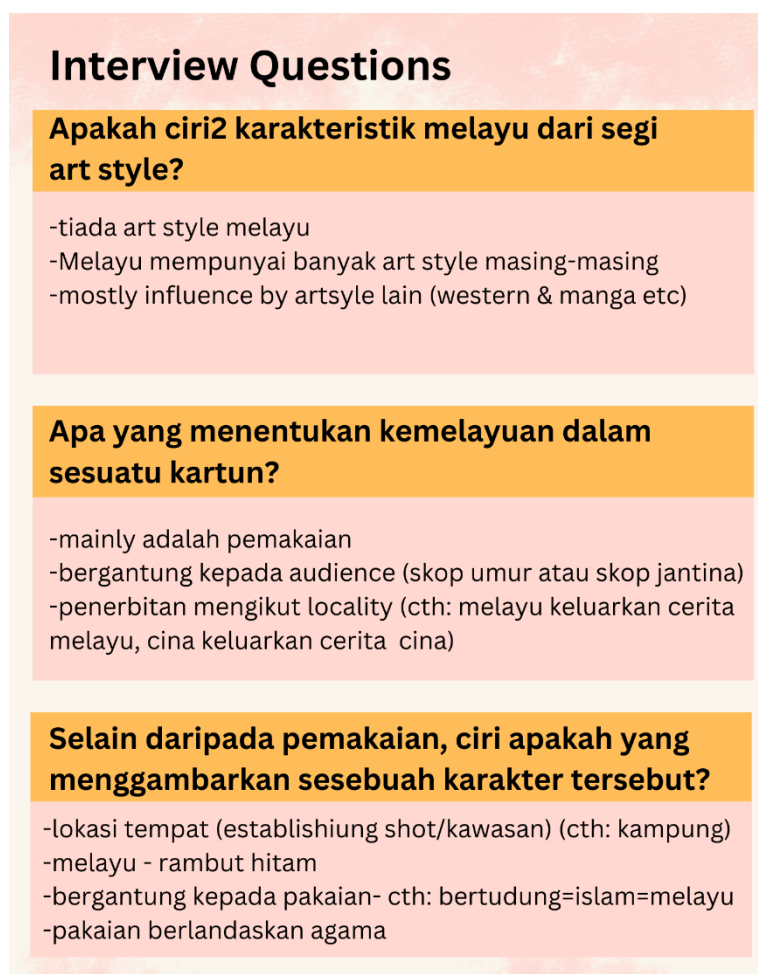
The second method, a quantitative approach, integral to fulfilling the research's second objective. This involved gathering proportional measurements utilizing the Golden ratio, a mathematical concept renowned for its aesthetic significance. The dataset was curated from 10 participants aged 13 to 17 years old, hailing from Sekolah Tahfiz Maahad Muar. Employing rigorous golden ratio calculations, the collected measurements underwent meticulous analysis to ascertain the golden ratio within the dataset. The insights garnered from this quantitative analysis were subsequently employed to initiate character designs, marking the inception of a short animation. The utilization of both qualitative and quantitative methods ensured a holistic exploration of the complex dynamics between human proportions and character design, contributing to a nuanced and well-rounded research outcome.

In the culminating phase of the research, a synergistic approach was adopted, integrating mixed methods to refine the study's outcomes. The Golden ratio served as a guiding principle for crafting specific character designs, seeking to ascertain the feasibility of developing Malay male teenage characters through this mathematical concept. Subsequently, a qualitative method was deployed, involving another interview with Dr Suraya Md Nasir to evaluate the outcomes derived from the character designs. To validate the research's success in establishing guidelines for creating Malay male teenage characters, a survey tailored for audiences aged 13 to 17 years old was meticulously designed and implemented. The synthesis of these diverse methods culminated in the creation of a short animation, acting as a tangible manifestation of the study's findings and providing a visually compelling representation of the guidelines formulated through this comprehensive research endeavour.

## **4 FINDINGS**

### **4.1 Interview Findings**

In the insightful interview with the expert, a depth of knowledge was acquired concerning character design, forming the foundation for creating resonant and culturally authentic characters. By exploring into the intricacies of the target audience's preferences, designers can craft characters that not only captivate but also mirror diverse cultural and ethnic identities. This approach ensures a portrayal that goes beyond aesthetics, fostering meaningful connections between characters and audiences. The expert emphasized the importance of understanding ethnic society contexts and cultural diversity, which play a critical role in character relatability. Figure 1 visually encapsulates the thoughtful questions posed to the participant, illustrating the depth of research undertaken for a well-rounded and relatable character design process. The insights gained from this interview are invaluable for anyone seeking to create characters that truly resonate with and reflect the range of the audience.



**Figure 1** Key questions for Expert in Character Design

The expert stated that no specific art style is exclusively attributed to Malays, as they have various unique styles which are influenced by Western and Manga arts. However, the Malay identity of a character design predominantly depends on the character's appearance, which can be tailored to suit different audience demographics, such as age or gender. Additionally, the production of animated characters often aligns with the cultural background, with Malay producers creating Malay stories and Chinese producers creating Chinese stories. Beyond the character's appearance, other factors also play a role in portraying Malay identity. For example, the story setting or location can help establish a cultural context. In addition to visual cues, cultural and religious nuances are subtly conveyed through characters' interpersonal interactions and rituals. The incorporation of traditional customs, language nuances, and communal traditions serves as a rich tapestry, deepening the portrayal of Malay culture and Islam within the narrative. These elements not only shape individual characters but also contribute to a more immersive and authentic storytelling experience, fostering a greater understanding of the diverse cultural landscape within the context of the narrative.

The character's face remains crucial, as a solid drawing and appeal are essential to captivate the audience. Appealing appearances resonate better with viewers, while unattractive characters may fail to engage the target audience. When portraying a Malay teenager's face, characteristics like youthfulness, dark or tanned skin, non-pointed or larger noses. This is because the indicators of Malay character appearance include tanned or brown skin, non-pointed noses, black hair, and medium-sized eyes. In addition, symbolic elements representing Malay identity, like logos or inscriptions on clothing, are highlighted. The style used by the artist, such as chibi or realistic, may influence this aspect. Interestingly, the character's body shape and proportion do not significantly determine their ethnicity. In general, the interview underscored the significance of combining elements like appearance, clothing, and context that effectively depict the Malay identity in cartoons.

Figure 2 presents crucial inquiries related to human anatomy, particularly focusing on the distinctive characteristics of Malays. This examination unveils notable aspects of Malay facial features, highlighting specific traits such as the distinctive 'M' shaped hairline, well-defined jawlines prevalent among men, broad non-pointed noses, moderately curly hair, average-sized lips and eyes, and moderately thick facial hair. Shifting the focus to body anatomy, the diversity within Malay individuals becomes apparent, with variations observed based on age. This comprehensive analysis sheds light on the nuanced aspects of Malay physiology, offering valuable insights for experts in the field. Typically characterized by small to average-sized bodies, Malays undergo noticeable changes during puberty, usually around 15 to 16 years old. Malay teenage boys, aged 13 to 17, exhibit a remarkable shift in average height, initially registering as relatively short before the onset of puberty (aged 13 to 15). Post-puberty (aged 16 and above), their stature undergoes a significant increase, reaching an average height of 160 cm. Described as apple-shaped, the Malay body shape embodies a unique blend of features, providing valuable insights into the intricacies of their physiological development, during adolescence.



**Figure 2** Key questions for Expert in Human Anatomy

The data analysis underscores the correlation between facial features and ethnicity, highlighting Malays as possessing predominantly average-sized features. Noteworthy distinctions emerge in facial traits across ethnicities, exemplified by fair skin in Chinese individuals, tanned skin in Malays, and dark skin in Indians. These differences serve as discernible markers, particularly in the multicultural landscape of Malaysia. The amalgamation of these unique facial and anatomical characteristics offers a robust basis for ethnicity differentiation. In the Malaysian context, these disparities are pronounced, allowing for a relatively straightforward identification of individuals' ethnic backgrounds through visual cues, contributing to a nuanced understanding of the diverse tapestry of the nation.

## 4.2 Facial Measurements

Following the interview, the study advanced to gauge the facial proportions of 10 male participants, aged 13 to 17, from Sekolah Tahfiz Maahad Muar. According to (Alam et al., 2015) recommended determining the golden ratio by dividing the bizygomatic width by the total facial height. In line with this methodology, Figure 3 showcases a representative participant, serving as an exemplar for the meticulous measurement process employed to analyse facial features and uncover potential correlations with the interview findings.



**Figure 3** The side and front view of a participant

**Table 1** The golden ratio face proportion for students aged 13-17 years old

Students	Upper Facial Height	Middle Facial Height	Lower Facial Height	Total Facial Height	Bizygomatic Width	Golden Ratio
F1(1)	49.75 mm	55 mm	56.45 mm	161.20 mm	112.45 mm	1.45
F1(2)	58.30 mm	58.75 mm	57.00 mm	175.05 mm	117.15 mm	1.50
F2(1)	72.25 mm	63.9 mm	59.10 mm	195.25 mm	117.10 mm	1.65
F2(2)	67.95 mm	62.85 mm	62.15 mm	192.90 mm	120.25 mm	1.60
F3(1)	62.85mm	57.25mm	59.05 mm	179.15 mm	120.20 mm	1.50
F3(2)	65.10 mm	67.2 mm	59.30 mm	191.65 mm	116.10 mm	1.60
F4(1)	67.15 mm	69.95mm	56.95 mm	194.05mm	130.30 mm	1.50
F4(2)	73.00 mm	60.9 mm	67.70 mm	201.50 mm	130.00 mm	1.55
F5(1)	72.55 mm	57.75 mm	69.40 mm	199.70 mm	123.00 mm	1.60
F5(2)	68.95 mm	64.6 mm	62.04 mm	195.54 mm	125.95 mm	1.60
		Mean				1.55

Table 1 provides a concise overview of the meticulously analysed data concerning the golden ratio of facial proportions among students aged 13 to 17. The measurements were conducted with precision, rounding to the nearest decimal for accuracy. Notably, the data reveals that Malay students exhibit a mean golden ratio of 1.55 with a margin of error of  $\pm 0.05$ . This observation implies that, on average, Malay teenagers tend to have facial proportions leaning towards the shorter side within the golden ratio spectrum. In crafting the character's design, this insightful data on Malay students' facial proportions becomes a pivotal foundation, guaranteeing authenticity and accurate representation. The empirical findings guide the nuanced detailing of the character's features for a true-to-life portrayal.

### 4.3 Body Measurements

**Table 2** The participants' upper body measurement data

No.	Age	Height (cm)	Weight (kg)	Measurement in circumference (cm)				
				Neck	Shoulders	Chest	Bicep	Waist
1.	13	139.5	31	28.9	38.2	68.1	19.7	57.3
2.		169.5	52	31.1	44.1	69	22.0	70.6
3.	14	164.8	46.5	31.7	43.1	74	21.6	64.2
4.		167	52	33	45.7	78.2	22	64.6
5.	15	151.5	52.7	36.3	43.8	88.4	28.2	84.7
6.		164.8	59	33.2	40.8	77.2	21.5	69.5
7.	16	174	55.1	35	44	79	27	74
8.		170	68.2	35	47	96.6	30.7	73.4
9.	17	162	66.4	35.9	47	86.3	27.4	76.5
10.		168.4	68.9	37.7	46.3	89.8	28.9	79.2

**Table 3** The participants' upper body measurement data

No.	Age	Length (cm)					
		Arm circumference	Arm length	Arm's length (outspread)	Hand length	Elbow to Armpit	Forearm
1.	13	20.0	42.6	138.1	16.19	17.04	36.45
2.		21.5	47.0	160.0	17.86	18.8	40.21
3.	14	21	53	172	20.14	21.2	45.35
4.		23.4	50	169.5	19	20	42.78
5.	15	25.9	41.8	158.1	15.88	16.72	35.76
6.		22.6	46.5	161	17.67	18.6	39.79
7.	16	25.8	55	178	20.9	22	47.06
8.		26.6	52.6	177	20	21.04	45
9.	17	24.3	46.5	167.8	17.67	18.6	39.8
10.		25.8	46.9	172.6	17.82	18.76	40

Table 2 and Table 3 present the measurements of 10 participants using the golden ratio of Vitruvian Man. According to (Abu-Taieh and Al-Bdour, 2018), there are a few aspects that need to be measured when using the golden ratio of Vitruvian Man. For example, the length of the outspread arms is equal to the height of a man. The data was calculated by comparing the length of outspread arms and the height of each participant using a 1:1 ratio. It is counted as valid if the ratio measurement is correct by  $\pm 5$ cm. The result shows that six (6) out of 10 participants achieved a golden ratio. As for the shoulder, the maximum width of the shoulders is a quarter of the height of a man. The data was calculated by comparing the length of the maximum width of the shoulders and the height of each participant using a 1:4 ratio. It was counted validifies if the ratio measurement was  $\pm 5$ cm.

The result was that eight (8) out of 10 participants achieved a golden ratio. Then, for the forearm, the distance from the elbow to the tip of the hand was a quarter of the height of a man. The data was calculated by comparing the distance from the elbow to the tip of the hand and the height of each participant using a 1:4 ratio. The result was counted as valid if the ratio measurement was correct by  $\pm 5$ cm. This results in 10 out of 10 participants achieving a golden ratio.

Next, the upper arm, the distance from the elbow to the armpit, is  $1/8$  of the height of a man. The data was calculated by comparing the distance from the elbow to the armpit and the height of each participant using a 1:8 ratio. It is counted as valid if the ratio measurement is correct by  $\pm 5$ cm. This results in 10 out of 10 participants achieving a golden ratio. Finally, for the hands, the length of the hand is  $1/10$  of the height of a man. The data was calculated by comparing the length of the hand and the height of each participant using a 1:10 ratio. It is counted as valid if the ratio measurement is correct by  $\pm 5$ cm. This results in 10 out of 10 participants achieving a golden ratio.

## 4.4 Character Design Development

Figure 4 shows the design of the main characters generated from the analysed data. From the data, it is concluded that Malay male teenagers have short facial faces. Other than that, the data confirms that the Malays are mostly medium-sized proportions, including their facial features, such as eyes and distribution of facial hair. Figure 4 and Figure 5 reveal the characters designed based on the information gathered in the study, with more muscular characters presented in Figure 5.



Figure 4 Characters based on measurements



Figure 5 A Malay male based on measurements

## 4.5 Validation Interview

After the characters were meticulously developed, a crucial validation interview with the expert ensued. The expert enthusiastically affirmed that the characters had successfully achieved the objective of authentically resembling Malay individuals. Nevertheless, the dialogue with the expert shed light on the nuanced aspects that must be taken into account to truly instil a Malay identity in a character. It became evident that physical appearance is insufficient to convincingly convey a character's identity to the audience. Elements such as the character's surroundings, activities, actions, and outfits play pivotal roles in shaping and affirming their racial identity. This insight underscores the complexity of character creation, emphasizing the need to delve deeper into the intricacies of cultural context and human behaviour to authentically portray a Malay character. Understanding how these factors interplay with human anatomy is essential in crafting characters that resonate with the audience on a profound level, transcending superficial appearances.



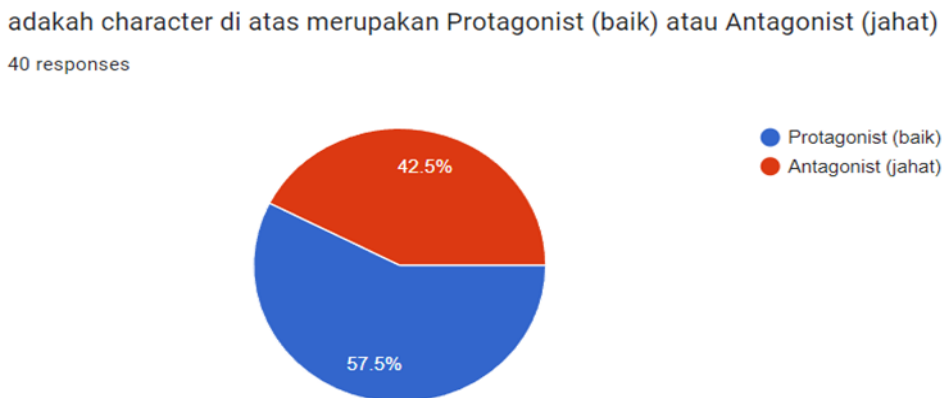
## 4.6 Questionnaire

In addition to the validation interview, participants engaged in a quantitative survey using Google Forms to assess the character designs' effectiveness in representing Malays. The survey revealed a noteworthy 95 percent agreement among participants that the characters accurately portrayed the Malay people, as depicted in Figure 6. This resounding consensus underscores the success of the research in achieving its intended goal. However, it is essential to acknowledge and address a few factors that surfaced during the study, warranting careful consideration for future developments in character representation, including cultural sensitivity, diverse perspectives, and evolving societal norms in various narrative contexts.



**Figure 6** Participants' responses on whether the character looks Malay

Figure 7 visually presents the responses to the question, 'Does the character look like a protagonist?'. The chart indicates a compelling division among respondents, with 57.5% affirming that the characters indeed resembled protagonists, while the remaining 42.5% held a contrary view. Despite the somewhat split feedback, the research deems the endeavour successful, given that a majority—more than half of the participants perceived the characters as protagonists. This outcome underscores the effectiveness of incorporating the golden ratio in protagonist design, highlighting its potential impact on audience perception and acceptance. Further analysis of the dissenting opinions may provide valuable insights for refining future character design strategies.

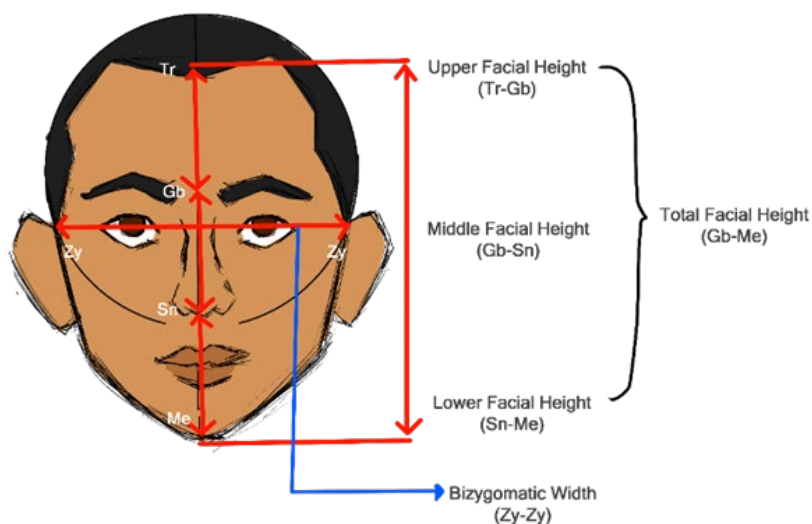


**Figure 7** Chart for the question 'Do these characters look like protagonists?'

## 5 DISCUSSION

### 5.1 Character Guideline Creation

Figure 8 presents the comprehensive guidelines derived from the meticulous data measurements obtained in the current study. Specifically, concerning facial features, it's observed that the bizygomatic width (Zy-Zy) of a Malay male teenager typically constitutes approximately  $\frac{2}{3}$  of the total facial height (Gb-Me), with a mean ratio of 1.55ss. Moreover, the upper, middle, and lower facial heights are ideally distributed at approximately equal distances. Additionally, the proportions of essential facial components such as the eyes, nose, ears, and mouth are recommended to be of medium sizes, ensuring a harmonious facial structure. These guidelines serve as valuable references for various applications, including anthropological studies, medical assessments, and artistic representations, contributing to a deeper understanding of facial morphology within the Malay male teenage population.

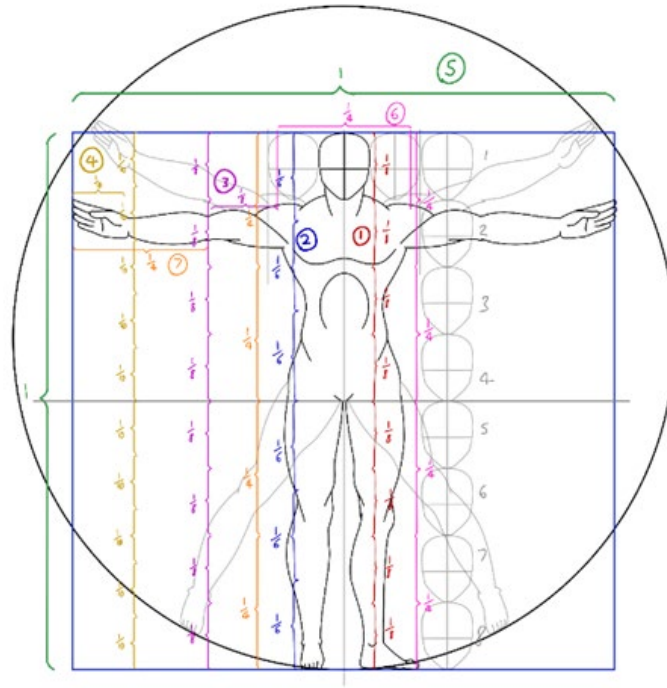


**Figure 8** Framework guideline for facial features

On the other hand, Figure 9 shows the guidelines for body anatomy. There are a few aspects that need to be measured based on the golden ratio of Vitruvian Man. First, for the head, from below the chin to the top of the head, it is  $\frac{1}{8}$  of the height of a man. The data was calculated by comparing the distance from below the chin to the top of the head and the height of each participant using a 1:8 ratio. It is counted as valid if the ratio measurement is  $\pm 5$ cm. Accordingly, 10 out of 10 participants achieved the golden ratio. Second, the measurement between the chest and the top of the head is  $\frac{1}{6}$  of the height of a man. The data was calculated by comparing the distance from above the chest to the top of the head and the height of each participant using a 1:6 ratio. It is counted as valid if the ratio measurement is correct by  $\pm 5$ cm. All participants (10) achieved the golden ratio. Third, the upper arm, the distance from the elbow to the armpit, is  $\frac{1}{8}$  of the height of a man. The data was calculated by comparing the distance from the elbow to the armpit and the height of each participant using a 1:8 ratio. The finding is valid if the ratio measurement is  $\pm 5$ cm. Accordingly, all participants achieved the golden ratio. Fourth, the length of the hand is  $\frac{1}{10}$  of the height of a man. The data was calculated by comparing the length of the hand and the height of each participant using a 1:10 ratio. It is counted as valid if the ratio measurement is by  $\pm 5$ cm. The study found that 10 out of 10 participants achieved the golden ratio.

In addition to the aforementioned anthropometric measurements, the study delved into further proportions, unravelling the intricacies of human body ratios. Fifth, the revelation that the outspread arms' length equals a man's height, meticulously calculated with a 1:1 ratio and validated within a  $\pm 5$ cm range, highlighted a noteworthy trend. Surprisingly, 6 out of 10 participants exhibited adherence to the golden ratio in this aspect. Moving on to the sixth observation, the revelation that the maximum width of shoulders amounts to a quarter of a man's height, assessed through a 1:4 ratio with a tolerance of  $\pm 5$ cm, showcased an intriguing alignment. Astonishingly, 8 out of 10 participants manifested the

golden ratio in this dimension. The seventh metric explored the distance from the elbow to the tip of the hand, emphasizing a 1:4 ratio in tandem with the participant's height, and validated within a  $\pm 5$ cm range. Remarkably, the study unearthed a unanimous adherence to the golden ratio, as all 10 participants impeccably aligned with this particular anthropometric proportion. These findings not only contribute to understanding of human body proportions but also underscore the prevalence of the golden ratio across diverse aspects of anatomical measurements, shedding light on the fascinating harmony inherent in the human form.



**Figure 9** Framework Guideline for Body Proportion

## 6 CONCLUSION

In conclusion, while it is certainly possible to construct a character that visually embodies a particular race, it should not be considered an absolute mandate, given the influential factors of the character's surroundings, accessories, and general demeanour. The successful creation of a Malay character through a meticulous examination of human anatomy, facial traits, and the essentials of character design attests to the efficacy of extensive research. Moving forward, the evolution of this research can be amplified by further exploration into diverse character designs, paving the way for the development of a comprehensive framework that authentically represents various races, thereby ensuring the preservation of race identity in the realm of animation. This continuous refinement of character portrayal not only broadens creative horizons but also contributes significantly to fostering cultural diversity and inclusivity in the evolving landscape of animated storytelling, ultimately enriching narratives and resonating more deeply with diverse audiences worldwide.

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## AUTHOR CONTRIBUTIONS

All the authors have contributed to the paper meticulously.

## CONFLICT OF INTEREST

There is no conflict of interests.

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# Unveiling Design Gaps: An Examination of Eid Envelope Design Elements in Malaysian Banks

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## ABSTRACT

Malaysia celebrates its diverse cultural heritage through various festive traditions, including exchanging money packets during significant occasions such as 'Hari Raya Aidilfitri', 'Angpow' for the Chinese, and 'Purple Packets' for Indians. This study investigates the design elements of Eid envelopes and their impact on consumer behaviours. Specifically, it explores whether these designs are exclusive to Eid or generic, reflecting broader corporate branding strategies. Understanding consumer preferences regarding Eid envelope design can inform banks on enhancing cultural relevance and consumer engagement. The research aims to contribute insights into cultural representation and community engagement in Malaysia's multicultural context. The study seeks to inform interventions promoting inclusive cultural practices and social cohesion across diverse communities by analysing design aesthetics, cultural symbolism, and consumer perceptions. Through this investigation, the study endeavours to bridge gaps between design, cultural identity, and consumer behaviours in Malaysia's dynamic socio-cultural landscape, fostering a deeper understanding of the role of design in shaping cultural narratives and promoting social cohesion.

**Keywords:** Money Packets, Angpow, Design Elements, Bank Malaysia



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## 1 INTRODUCTION

Malaysia greatly values and honours its diverse multi-ethnic citizenry, embracing its unique cultural backgrounds and beliefs. The country's population consists of three primary ethnic groups, namely, the Malay, Chinese, and Indian, each bringing their distinct heritage and traditions to the country. Aside from these major ethnicities, Malaysia is also enriched by the presence of other indigenous groups that further contribute to its opulent multicultural society. The tradition of giving money packets usually happens during the major festive of these three major ethnics. As for Malay, it is called "Duit Raya"; for Chinese, it is called "Angpow" while Indians call it "Purple Packet".

The country's diversity is manifested when these multicultural groups blend to commemorate and honour their respective major festivities, which play significant roles in the country's socio-economic growth and development. Noteworthily, Islam holds a distinguished role as Malaysia's official religion, as established in the constitution (Nor, 2011). As such, one of Malaysia's most notable and widely celebrated festivities is 'Hari Raya Aidilfitri', which is significant for the Muslim community and is observed with much enthusiasm nationwide.

The 'Hari Raya Aidilfitri' is celebrated for an entire month nationwide, specifically during Syawal, the tenth month in the Islamic Hijri calendar. A significant aspect of this revered tradition is offering money or 'duit raya' in rejoicing to the occasion, commonly given in a money packet or the 'sampul duit raya'. It is perceived that handing out money during this festive period is an act of charity, which promotes camaraderie among families, friends, and neighbours (Rusli, 2017). Nevertheless, the 'duit raya' is primarily given to children and may be extended to young adults who are not yet employed or to older people as a sign of remembrance. Importantly, it was expounded by Shah (2018) that this serves as an opportunity to advocate the virtues of sharing and selflessness while imparting the values of decorum in the recipients. It is customary for the 'duit raya' to be enclosed within sealed money packets, which are typically distributed by banks or companies as complimentary offerings after a transaction as the month of festivity is approaching.

This research aims to observe whether the elements of design for the Eid envelope attract consumers to keep the money envelope and whether the elements being used are exclusively made during Eid or randomly designed. This research is being implemented because most corporate banks have their own identity as, the typography, colour, element, and composition.

## 2 MONEY ENVELOPES

In Malaysia, banks may provide various services related to money packets, especially during festive seasons or special occasions. At the same time, the specific offerings can vary between banks and over time. It's important to note that offerings can vary, and banks may change their promotions or services over time. These practices differ across different cultures, and the significance of giving money during festive occasions often includes blessings, good wishes, and hope for prosperity in the coming year (Ling, 2021). Using decorative envelopes adds a lively and ceremonial touch to giving and receiving money. Money envelopes can be divided into four categories.

### 2.1 Duit Raya Packets

Many Malaysian banks release special "Duit Raya" packets during the Islamic festival of Eid al-Fitr. These packets usually contain new banknotes in smaller denominations and are designed with festive and cultural themes. The purpose is to facilitate the tradition of giving and receiving money (Duit Raya) during the festive season.



**Figure 1** Example of Duit Raya Packets by RHB Bank  
(Source: Adib, 2021, Copyright Consent: Permissible to Publish)

## 2.2 Special Edition Banknotes

Some Malaysian banks issue special edition banknotes or coins to commemorate certain events, anniversaries, or festivals. These collectables may be packaged in special envelopes or packets for distribution.



**Figure 2** Example of Special Edition Coin to Commemorate Malaysia's 45<sup>th</sup> Independence Day (Source: Adib, 2021, Copyright Consent: Permissible to Publish)

## 2.3 Promotional Campaigns

Banks in Malaysia often run promotional campaigns during festive seasons, offering special incentives, gifts, or packets containing small amounts of money to attract customers. These promotions may be part of marketing efforts to encourage new account openings or increase banking service usage.

## 2.4 Customised Corporate Packets

Some businesses or corporate clients may work with banks to create customised money packets for distribution during events, celebrations, or corporate gifts. These packets may feature the company's branding or customised designs.

In the vibrant tapestry of Malaysian culture, money packets have emerged as symbols of unity, goodwill, and tradition. Their significance extends far beyond the monetary value they hold. They are the threads that weave together the diverse communities of Malaysia, fostering harmony and understanding (Nurul & Nuraisyah, 2013). As we celebrate our cultural diversity, we must recognise the enduring importance of these humble envelopes, for they are not just gifts of money but of tradition, blessings, and love. In their simplicity, money packets encapsulate the essence of Malaysia's cultural richness and its people's unwavering commitment to preserving their heritage.

## 3 METHODOLOGY

The researcher employs a simple random sampling technique to carry out this study. Gathering a research sample devoid of any predetermined pattern or bias is called simple random sampling, recognised as the most productive means of gathering data from the larger population.

Acquiring data from various sources is necessary to support this research endeavour. Both primary and secondary data are indispensable to substantiate and reinforce the research findings. Consequently, this study will adopt a quantitative approach, which entails distributing questionnaires to gather primary data. These questionnaires constitute crucial and essential components during the preliminary data collection phase. Despite the inclusion of recurring queries grounded in objective facts or perspectives,

the questionnaires distributed in this investigation will serve as a valuable tool to analyse many characteristics and correspondences, encompassing attitudes, beliefs, values, perceptions, observation, and comprehension. Thus, the collected responses from the questionnaire and analysis will yield a comprehensive understanding of the research subject.

The questionnaire was distributed electronically through Google Forms, allowing the respondents to respond to the given inquiries through their mobile devices and personal computers. The researcher has meticulously devised various inquiries, bearing the title "An Examination of Eid Envelope Design Elements in Malaysian Banks", to ensure the acquisition of pertinent and comprehensive data.

## 4 LITERATURE REVIEW

### 4.1 Money Packets

In Malay customs, Duit Raya is usually presented in an envelope size 154mm x 79.5mm in green, and it is often decorated with Islamic patterns that give the vibes of Syawal. In Chinese tradition, the envelope is usually red, representing prosperity, longevity, or good fortune. By adopting this tradition, Indians also have their purple money packet to be given during Deepavali festive.

The amount of money dispensed within money packets may vary and is contingent upon many factors, including but not limited to the giver's interpersonal relationship with the recipients, personal inclinations, and prevalent traditions. Although bestowing monetary packets is customary, it is important to highlight that the custom encompassing these endowments may vary across different communities and geographical expanses of Malaysia (Ling, 2021).

Giving money packets, or the "ang pow" in Chinese tradition, may hold distinctive cultural and symbolic significance in various societies. Presenting money packets to others is entrenched, especially within Asian cultures, including Chinese and Malay (Chee, 2011). Although not compulsory, giving money packets during special occasions or celebrations is customary as a gesture of good fortune and blessings for the recipients. The money packets often contain fresh and crisp banknotes symbolising affluence and prosperity while expressing heartfelt wishes for the receivers' well-being, success, and good fortunes in the upcoming year or during momentous milestones.

Other cultures across the globe also possess a rich tapestry of long-standing customs, giving money packets on significant occasions, including cultural festivals, religious events, weddings, and other important commemorations (FasterCapital, 2023). These enduring traditions, deeply ingrained within the very fabric across various cultures, are integral. Noteworthy, this act of bestowing and receiving monetary packets is often accompanied by spoken expressions of well-meaning intent and greetings, further amplifying the profundity of these gestures.

Monetary packets may be a pragmatic manifestation of aid or assistance and are perceived as fulfilling a socio-cultural practice in various instances. For instance, when money packets are given to the newlyweds, the money given can prove invaluable in starting their new married life journey. Additionally, such financial contributions can significantly alleviate any expenses during festivities. Children are also frequently given money packets on various occasions to educate them about saving and the value of money while exhibiting the importance of sharing and giving to charity. Meanwhile, the customary practice of giving money packets to the elders in some societies is a profound testament to the admiration and reverence of the wisdom and experience of the elders. It is also a tangible way to pay homage while exhibiting gratitude towards the elders, strengthening the bond, and fostering unity.

It is necessary to highlight that the reasons for giving money packets vary from one culture to another and even across various parts of the same society. The act is saturated in tradition and symbolism, reflects the giver's personal and cultural beliefs, and, more importantly, helps to extend social links. Nevertheless, giving and receiving money packets is more directed toward the symbolic gesture and



cultural implications than monetary worth. The amount in the money packets can also differ according to socio-economic situations and personal preferences. More interestingly, the design and aesthetics of the money packets can exhibit perceivable variations, often showcasing ornamental patterns and symbols closely associated with the specific occasion or cultural elements.

## 4.2 Design Elements

According to Corrigan (2021), typography is the deliberate and strategic placement of type to enhance written language's readability and visual appeal. However, Carton (2020) views typography as incorporating the art of skilfully arranging a typeface in various combinations of font, size, and spacing, which are indispensable in all forms of design, whether in print or digital format. The choice of typeface can either make or break a design, as it can reflect the personality and essence of the creation on the page. Thus, when executed precisely and carefully, a typeface should effectively transmit the intended emotions and sentiments in the design.

As Yadav, Chakrabarti & Bisovi (2014) mentioned, the alphabet was created to communicate through written symbols; it now serves another purpose: to create design. Typography is a major function of design. Typography is the art or process of setting and arranging typefaces to stylise their appearance. Typography can do everything from adding meaning to drawing attention and using it right can mean the difference between mediocrity and stardom in advertising. The specific shape of a typeface may elicit an emotional or cognitive reaction in the reader, a sense of mood, personality or beauty. The type also serves to represent the expression of various actions.

As Lupton (2010) mentioned, typography plays a significant role in user experience in graphic design. One key factor is font choice, with different fonts conveying different emotions and attitudes. For example, serif fonts are often associated with traditional, formal settings, while sans-serif fonts are seen as more modern and informal. Typographers are very interested in typography designed for likeability and clarity of content because such focus is closely connected to the motivational aspects of reading actions (Unger, 2018). Typographers regularly draw on visual cueing techniques, such as grouping, hierarchy, and emphasis created through visual relationships determined by typeface, colour, or placement. Readers are also more likely to group description words or see them as members of the same category when they appear in the same typeface (Oppenheimer and Frank, 2008).

We are surrounded by many different and vibrant colours, which are immensely significant, especially in advertising. Colours are visual stimuli that evoke emotions, create connections, and leave a lasting impression on the audience. The colours can convey any intended message aligned with the promoted products or services (Vikaliuk, 2020). Meanwhile, the New Design Group (2021) stipulated that colours are the first element that captures the audience's attention even before textual contents are perceived. Hence, a well-thought advertisement design possesses the potential to deliver a profound and impactful message to its viewers through careful selection and utilisation of appropriate colours. The intricate interplay between colours and human perception is fascinating and seeks a deeper understanding of the intricacies of the minds and how people interpret their surroundings. Colours could immensely influence emotions, thoughts, and, ultimately, actions. Therefore, the impact of colours is fundamental to reaching the target audience on a profound and subconscious level.

The influences that colours must communicate in ways surpassing words' limitations are intriguing. Colours have a transformative influence on a person's mood and possess the unique capacity to evoke various associations and stimulate the imagination in unparalleled ways (Iakovleva, 2016). More interestingly, colours have distinct characteristics that can invoke certain emotional responses (Roohi & Forouzandeh, 2019). Colour psychology's profound effects on people eventually gained prominence and is extensively employed in brand management. For instance, warm colours, which are in the red

region of the colour spectrum, which include red, orange, and yellow, are able to invoke the emotions of warmth and comfort or anger and hostility. On the contrary, cool colours on the blue spectrum, including blue, purple, and green, would frequently be described as calm, but they can also evoke feelings of sadness or indifference (Cherry, 2020). Realising that colours profoundly impact consumer emotions and perceptions of products and services, and advertisers make it an integral aspect of their strategies.

The profound impact of colours on human emotions and perceptions is a phenomenon that cannot be denied, as its ability to evoke a myriad of emotions in a person exceeds the limitations of words. Studies on the effects of colour psychology and associations of different colours have provided insights into how colours can be exploited to shape and influence human experiences. Therefore, the significance of understanding and utilising colours and typefaces in designing money packets should be further investigated.

A single colour can have many different meanings and has the potential to communicate different meanings in different cultures. In Asia, orange is a cheerful, spiritually enlightened, and life-affirming colour, while in the US, it is a colour of road hazards, traffic delays, and fast-food restaurants. Colours can symbolise a rite of passage, differentiate a premium from a discount brand, and distinguish between fun and serious, young and old, male and female. In addition to all the traditional meanings associated with colours in various cultures (those linked to birth, weddings, funerals or even the colour of the mailbox), there are also those layers of meaning brought about by international marketing and communication: for instance, Coca-Cola red (Thomas, Kelly & Martin, 2000).

The meanings associated with different colours are essential to marketers because the tools used to communicate brand image are mechanisms of meaning transfer. The presence of such patterns opens the possibility of managing colour to create and sustain brand and corporate images across international markets. Colour combinations are considered culturally bound with certain ideologies and traditions (Geboy, 1996). It is important to remember that religion is an important part of culture and that colours have their associations with all religions. Inappropriate use of colour can be perceived as offensive. Colours are important as the banks in Malaysia are associated with their corporate colour.

## 5 FINDINGS AND DISCUSSIONS

An initial question was asked on the purpose of using the money envelopes. 77.6% of the respondents used money envelopes mainly during festivals like Eid and Chinese New Year. Meanwhile, another 54.1% used money envelopes for weddings, 16.3% used them for birthdays, and 28.5% used them for all the festivities mentioned above and celebrations. However, only 12.2% of the respondents claimed to have never received Eid money envelopes from local banks, whereas a significant 87.8% reported that they had received the packet at least once. This indicates that over half of the respondents obtained their envelopes from local banks.

72.2% of respondents received Eid money envelopes from Maybank. Another 46.4%, 35.1%, and 33% received envelopes from other local banks namely, CIMB Bank, Bank Islam Malaysia, and RHB Bank. When asked about their preference for the money envelope design on a scale of 1 to 5, 51% of the respondents favoured the horizontal type, while 13.3% preferred the vertical type. The preferred design is further inquired in the eleventh question. A significant 76.5% of the respondents preferred the rectangular shape, while a minimum of 5.1% preferred a square shape. Nevertheless, an observable 18.4% did not prefer either shape.

One of the questions focused on the colours that should be used for Eid money envelopes. 37.8% selected bright colours, 66.3% selected cool colours, 45.9% chose pastel colours, and only 2% preferred black. The subsequent question was whether the money envelope should be universal or reserved solely

for certain occasions. 62.2% agreed that the money envelope's design should be appropriate for a specific celebration, such as Eid, the Chinese New Year, Diwali, and others, while 37.8% preferred a standard design.

The survey participants were queried regarding the Eid money envelope designs. Of the respondents, 39.8% opted for all the above design features, whereas 43.9% favoured Islamic Art design, 34.7% chose 2D or cartoon-based design, and 33.7% looked for typographic design. Nevertheless, one respondent expressed no preference for aesthetically pleasing design. The participants were also asked whether they preferred traditional or modern styles for money envelopes. The findings revealed that 56.1% preferred modern and traditional designs, whereas 29.6% preferred modern designs and 14.3% favoured traditional designs.

Regarding the font style for Eid money envelope designs, 64.3% of the survey participants chose handwritten script, 30.6% preferred serif, 13.0% favoured San-serif. In comparison, another 13.3% selected both San-Serif and Serif. The remaining 20.4% of the participants opted for all the above font styles. Additionally, when asked if any of the Eid money envelope designs matched the organisation's image, 81.6% responded positively, while 18.4% expressed otherwise.

Furthermore, question 13 asked the respondents to indicate their preferred design for the Eid celebration. Of those surveyed, 66% favoured minimalist design, 10% preferred a complete design on a money envelope, and the remaining 23.7% stated that it made no difference to them whether the design was full or minimalist.

Question 16 asked which bank they preferred to exchange their money at for Eid, 81.4% (79 respondents) of the participants selected Maybank, 45.4% (44 respondents) opted for CIMB bank, 29.9% (29 respondents) chose Bank Islam Malaysia, and 19.6% (19 respondents) selected Public Bank Berhad. RHB bank followed behind with 16.5% (16 respondents), while Bank Rakyat received 13.4% (12 respondents) of the votes. Ambank and Hong Leong bank received 12 votes, equivalent to 12.4% of the total responses. Bank Simpanan Nasional was chosen by 9.3% (9 respondents), whereas Al-Rajhi Bank received 8.2% (8 respondents). Additionally, 7.2% (7 respondents) of participants preferred HSBC Bank Malaysia, Affin Bank, Standard Chartered Bank Malaysia, and Citibank Malaysia for exchanging their money for Eid. Both Alliance Bank and Agrobank were selected by 5.2% (5 respondents), and Co-Op Bank Pertama and MBSB Bank Berhad received 4.1% (4 respondents) of the votes.

It is recommended that the designer of these money packets consider the elements and colour used before designing. It is compulsory to inject the elements of each major ethnicity's tradition to maintain the unique identities and culture, besides showing love and appreciation. It is hoped that more research like this can be done to study the role of elements of the money packet in the future in more detail.

## **6 CONCLUSIONS AND RECOMMENDATIONS**

This study concludes that an underlying guide for graphic designers and money packet producers is to aid them in including traditional and cultural elements into corporate designs for any festivities and specific celebrations. The results from this study also provide the opportunity to enhance the design and elements involved in the production of money packets, especially for corporate and business organisations in Malaysia. It may further expand the development of innovative designs for money packets in the corporate banking sector while correctly placing the cultural and traditional elements. Aligning contemporary insights on culture and values could harness a harmonious relationship between corporate banks or business organisations and society. In addition, this research can serve as an indispensable parameter for printing owners and corporate banks when designing money packets for different festivities or any specific celebrations.

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## AUTHOR CONTRIBUTIONS

All the authors have contributed to the paper meticulously.

## CONFLICT OF INTEREST

There is no conflict of interests.

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# Batik Inspiration of Shibori Tie-dye Techniques

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## ABSTRACT

*This article presents the study of the tie and dye subject in the Fashion Design Program, College of Creative Arts and Design, UiTM Perak, Malaysia, which focuses on how the program's first-year diploma students are experimenting with exploring colours by using related tie-dye Shibori techniques with batik inspiration on fabric which can be incorporated and utilised in many ways for fashion design work. This article addressed the background of tie-dye Shibori techniques within the realm of batik inspirations, expanding the traditional understanding of the ancient Japanese art of tie-dyeing. The study aims to explore the students' experimental level of activities on techniques of tie-dye Shibori by focusing on the types of Shibori outcome techniques and the pre-and post-activity learning experience in the experiment process. The methodology mainly the Action research design involves closed observations by participatory approach, interactive process and reflective practice in which students critically show their actions and outcomes to learn from the process of tie-dye Shibori techniques. Findings of the results indicate the three tie-dye Shibori techniques that students have chosen and each of the techniques highlights the significant uniqueness and challenges in the process. This article concludes by exploring students' skills and understanding, the young fashion designers stage can prove that the subject of tie-dye Shibori has its potential. These can be seen in terms of students' perceptions towards self-appreciation in their work art performance. These various perceptions can significantly impact fashion design student's motivation, job satisfaction, and overall well-being at work after graduating from their studies and in the future sustainable community.*

**Keywords:** Tie-Dye Shibori, tie-dye Shibori techniques



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## 1 INTRODUCTION

The Fashion Design Program, College of Creative Arts and Design, UiTM Perak, Malaysia, has introduced tie and dye as an elective subject at the diploma level since 2018. The subject learning objective of this subject is to let students be creative in exploring colours by using related batik techniques on fabric which can be incorporated and utilised in many ways for fashion design work. Batik is a traditional textile art form that involves dyeing fabric using a resist technique. Batik production commonly employs the wax-resist dyeing approach, utilizing hot wax to form designs on textiles (Pereiz, 2023). This process involves applying wax and dye to the material, a well-established method in batik creation. Batik and tie-dye share a connection through their pattern-making techniques, which involve resisting dyeing. Tie-dye is characterized by the application of geometric manipulations to a base material before dyeing it (Guo et al., 2013). Specifically, in batik, a method called batik *jumput* incorporates tie-

dyeing by binding the fabric with strings before dyeing, (Prawoto, 2019). Widiastuti in 2023 describes the tie-dye technique as a distinctive method for crafting patterns on fabric by using ties to obstruct certain areas from coloration.

The subject of tie-dye *Shibori* techniques offers students a unique opportunity to develop their creative abilities by delving into the principles of colour, pattern, and design. These techniques, while fostering artistic expression in textile arts, necessitate meticulous experimental efforts. This study offers insights into the educational journey through the tie-dye *Shibori* techniques, which share similarities with the traditional batik design. Through detailed observation and analysis, the study presents the experimental outcomes achieved by the students. This study involved with 20 second-semester diploma students from the Fashion Design Program, which durations throughout two and a half years. The instructor or the lecturer in charge provided an initial briefing and demonstration to ensure students had the foundational preparation for the course.

The results represented the outcome of the experiment by revealed challenges and responses to the progress of the tie-dye process from all participating students. The final stage of the experiment was completed by the application of tie-dye *Shibori* outcome into the student final assessment fashion design.

## 2 BACKGROUND OF TIE-DYE *SHIBORI* TECHNIQUES

Tie-dye is a skill that has been commonly practised in many parts of the world. The tie-dye craft is also seen as a decoration of the people and is used extensively in homes and public places to beautify. The creative characteristics of tie-dye influence consumers to crave them if they are well-finished. Taste and respect for tie-dye as well as the acceptable norms and traditions reflect the type of tie-dye that is produced (Ghartey et. al., 2022).

Tie-dye is also a term used to describe several dyeing techniques and the resulting dyed products of these processes. The process of tie-dye typically consists of folding, twisting, pleating, or crumpling fabric or a garment before binding it with string or rubber bands, followed by the application of dye or dyes (Guo et al. (2013). The manipulations of the fabric before the application of dye are called resists, as they partially or completely prevent ('resist') the applied dye from colouring the fabric. More sophisticated tie-dye may involve additional steps, including an initial application of dye before the resist, multiple sequential dyeing and resist steps, and the use of other types of resists (stitching, stencils) and discharge (Barasa et. al.,2020).

In addition, tie-dye is a method of bonding the fabric together to avoid the absorption of dye to a specific area Ladna, (2019). Ladna added stitching to the techniques used to prevent the absorption of dye to a particular area. Jodivan (2020) on the other hand adds that the quality of the string should be strong as strings are tied in various ways before immersing it in the dye bath. He again reiterated that the colour is absorbed in all except the tied areas thus revealing a patterned result which is seen by untying the dyed material.

From hippies influenced in the '70s to the '90s, tie-dye came back to the global market in the world. According to Kaupke (2022) influential designers like Stella McCartney, MSGM and Gucci are giving tie-dye go products and fast-retailers like Zara, Pull & Bear, and Asos are jumping on the psychedelic bandwagon.

Lucy Pickford (2020) describes *Shibori* as an ancient Japanese art of tie-dyeing, renowned for its signature blue colour. This technique stands out due to its innovative methods of manipulating textiles, which go beyond mere dyeing to produce intricate patterns. The name '*Shibori*' translates to actions such as squeezing or pressing, reflecting the process of binding the fabric to create designs that resist dye in specific sections (Behera, 2017). Modern tie-dye involves similar techniques to *Shibori*, such as folding and twisting fabric, but it also includes new techniques, such as crumpling and using rubber bands to create distinctive patterns. Tie-dye continues to be a favoured trend in contemporary fashion, as evidenced by its frequent inclusion in designer lines and its widespread appeal as an enjoyable crafting pursuit for individuals across various age groups (Meng, 2023).

In the modern era, the art of tie-dye has become a widespread and easily accessible technique for personalizing apparel and fabrics. It stands as an emblem of individuality and artistic flair, particularly with the advent of economical dyes that have popularized transforming clothes into vibrant, psychedelic works of art (Bristi, 2018). Furthermore, various educational and community programs have embraced tie-dye, offering workshops and courses to foster artistic talents and vocational skills (Widihastuti, 2023; Yanti, 2023). Tie-dye also serves as a practical tool in education, where it is incorporated into chemistry curricula to demonstrate scientific principles such as polymerization (Bopegedera, 2017).

### **3 METHODOLOGY**

This study is based on the qualitative paradigm study, this is because the nature of the study required the researchers to rely entirely upon closed observation of the process. The Action research design was adopted for the study. This was used because it is a methodology that typically involves a collaborative approach where researchers work closely with participants. The goal is to engage those affected by the problem in the research process to ensure that the solutions are relevant and effective. It's particularly prevalent in fields like education, social work, and community development. This study applies a purposive sampling technique as this method involves selecting participants based on specific criteria relevant to the research objectives. This study applies the Pre- and Post-Activity Analysis as a systematic approach used to evaluate the outcomes of tie-dye activities on students of fashion design. This method involves a thorough examination of changes in student knowledge before and after their participation in tie-dye activities. The process begins with the collection of baseline data, which provides a snapshot of the student's knowledge before the activity (Nipriansyah et. al., 2021). This initial step is crucial as it establishes a reference point against which post-activity outcomes can be compared. The final step involves a detailed analysis of the extensive observation data to determine the extent and nature of any changes. Following the activity, observations and documentation of the student's knowledge and perceptions are conducted to capture the immediate effects of the activity.

### **4 STUDENTS APPLICATION OF SHIBORI TIE-DYE (BATIK) TECHNIQUES**

In 2018, the Fashion Department at the College of Creative Art and Design, UiTM Perak, incorporated the tie-dye technique into its curriculum as an elective course for diploma students. This addition offered students the opportunity to explore this vibrant textile art form, enriching their educational experience and skill set in the realm of fashion design. The syllabus required each student to do hands-on learning with the tie-dye *Shibori* techniques. This is to ensure that students understand the application of the fundamental knowledge and



understanding of tie and dye. Six Shibori techniques have been taught in the syllabus, such as *Kanoko Shibori*, *Kumo Shibori*, *Itajime Shibori*, *Arashi Shibori* and *Nui Shibori* (Nernere, 2012).

#### 4.1 The Process of Tie-Dye Experiment

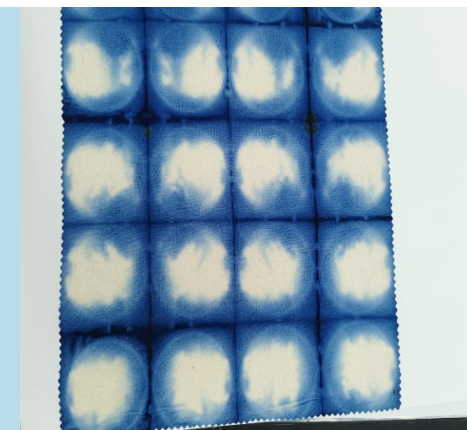
The experiment took place in a fully equip workshop allocated in the campus of UiTM Perak. The process begins by exploring the various monochromatic colour schemes as an option to be used rather than using the traditional blue colour for the *shibori* technique. The material fabrics used are pure cotton from calico fabric and viscose rayon, and the batik colour uses synthetic dye, “resistance dye batik” colours monochrome such as pink, blue, red, green, black and yellow used for the samples.

Then the student needs to prepare tools such as A4 size fabric, Remazol dye, rubber bands, industrial gloves, a basin and a strainer. Next, the instructor in charge will give a demonstration of Folding Techniques, Binding Techniques and Stitches Techniques in one sequence. To produce a quality design, the resulting motive tie and dye will be worked out in the appropriacies of Shibori techniques and colour combination with emphasis on elements of balance and assertion. After putting in some dyes, the fabric must dry either in direct sunshine or at room temperature. To finishing the batik tie dye, silicate is used for permanenting the colour into the product or fabric. The process of completion of the Tie-dye experiment will take about an hour duration however the process of drying took within 24 hours. The expected results for each student experiment will be the production of a Tie-dye *Shibori* pattern and students will be given options to apply them to a shirt design or any fashion product such as a bag, trousers, skirt or hat.

The student results of the *Shibori* experiment on A4 size fabric are shown in Figures 1, 2 and 3. The final fashion product design on tie-dye shibori application techniques are shown in Figures 4, 5, 6, 7, and 8.



**Figure 1** *Nui shibori*  
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**Figure 2** *Itajime Shibori*  
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**Figure 3** *Kumo shibori*  
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**Figure 4** *Spiral shibori* on shirt and *stripe shibori* on trousers  
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**Figure 5** *Itajime shibori* on pario  
*Sources: Author (2023)*  
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**Figure 6** *Nemaki shibori* on a bag  
*Sources: Author (2023)*  
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**Figure 7** *Stripe shibori* on shirt  
*Sources: Author (2023)*  
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**Figure 8** *Nui Shibori* on jacket  
*Sources: Author (2023)*  
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**Figure 9** *Itajime shibori* on blouse and skirt.  
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## 5 EXPERIMENT RESULTS AND EXPLANATION OF SHIBORI TECHNIQUES

The process began with the collection of baseline data, which provided the level of the student's knowledge before the tie-dye *Shibori* experiment activities. After the completion of the experiments, a reference point against which post-activity outcomes from the students can be compared. This final step involves a detailed analysis of the extensive observation data to determine the extent and nature of any changes.

In capturing the immediate effects of the activity, this study revealed challenges to the progress of the tie-dye process time-consuming. The results of this observation on the experiment have shown the accomplishment of students' participation in producing three types

of *Shibori* tie-dye design. From the analysis of the observation, students took part and successfully produced the Tie-dye *Shibori* patterns within the duration time given which was 24 hours. There were some difficulties during the experiment, however, the instructor managed to guide the struggle of all students and reached the understanding on basic application of the fundamental knowledge of tie and dye techniques.

### 5.1 Results of Nui *Shibori*

Figure 1 shows the Nui *Shibori*, a traditional Japanese tie-dye technique that involves stitching or gathering fabric before dyeing to create textured and intricate patterns. The term "nui" translates to "stitch" in English, reflecting the sewing aspect of this technique on A4 fabric. The uniqueness of this *Shibori* gives students alternative options for pattern creation design using stitching techniques in the process. The difficulties of this *Shibori* will be depends on the quality of the stitching technique which almost all students found it much challenging to begin with.

### 5.2 Results of Itajime *Shibori*

Figure 2 shows the Itajime *Shibori*, a traditional Japanese tie-dye technique that involves folding and clamping fabric between wooden or plastic shapes to create geometric patterns. The word "itajime" translates to "board clamp" in English, which refers to the method of securing the fabric with wooden boards or shapes before dyeing. The uniqueness of this *Shibori* gives student a lot of room to be created by repeating patterns they have imaging for the design. By using a special folding technique, pattern of this *Shibori* looks more structure and dominant. The outcome results of this *Shibori* will mainly depend on the fabric folding technique and the neatness of the tying process.

### 5.3 Results of Kumo *Shibori*

Figure 3 shows the Kumo, also known as "spider web" or "spiderweb" *Shibori*, is a type of tie-dye technique that creates intricate, radial patterns resembling spiderwebs on fabric. This technique involves manipulating the fabric to create tension and binding it with thread or string to resist the dye. The uniqueness of this *Shibori* pattern will depend on the winding tension thread which is much more complex. This is why, a high level of creativity and a consistent level of skills will be the top preferences for an artistic *Shibori* design.

In summary, the analysis of the student's level of understanding and skills was increased by the differences in tie-dye *Shibori* outcome techniques. In addition, the level of work art appreciation has also emerged in the observation by looking at the students' perceptions towards self-appreciation in their work performance. These are self-recognition, positive self-talk, seeking feedback, celebrating small wins, setting personal goals, reflective practices, sharing successes, rewarding oneself, and maintaining a positive attitude. These later various of perceptions can significantly impact student's motivation, job satisfaction, and overall well-being at work after graduating from their studies and in future. The immediate response was students as the participants in this social experiment were excited to produce more different fashion products for their final assessment at the end of the semester.

Even though it was only an elective Diploma in Fashion Design subject in the aspect of tie and dye, this subject gave creative ideas and techniques for fashion students to explore more in advance the *Shibori* potential techniques. The creativity uses different colours to make a variety of colours for meeting the fashion market trend and demand nowadays.

## 6 CONCLUSION

In conclusion, tie-dye techniques play a significant role in the creation of patterns and designs in all fashion design production. The tie-dye process, characterized by geometric operations and colour blocking, aligns with the resist dyeing method used in batik, contributing to the rich cultural heritage and artistic value of these textile art forms. Having said so, it is a very structured method of producing the end product that can be appreciated by fashion designers and their communities. This study's objective was to achieve an understanding of tie-dye *Shibori (Batik)* techniques that are still proven can be used in the fashion design industry. Exploring students' skills and understanding who are only at the young fashion designers stage can prove that the subject of tie-dye *Shibori* has its potential. These can be seen in terms of students' perceptions towards self-appreciation in their work art performance. These various perceptions can significantly impact fashion design student's motivation, job satisfaction, and overall well-being at work after graduating from their studies and in the future sustainable community.

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## AUTHOR CONTRIBUTIONS

Lilinieta Talib developed the study and case study, and Nur Fatin Umar and Zolina Mohamad examined the intonation and clarity of the language used in this paper.

## CONFLICT OF INTEREST

There are no conflicts of interest.

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# The Impact of Digital Yao Jewelry on Cultural Inheritance

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## ABSTRACT

*Incorporating digital technology into cultural preservation endeavors has gained growing importance in recent years. This abstract is a study that examines the influence of digitalization on the cultural transmission of Yao jewelry, a traditional skill deeply rooted in the historical and cultural heritage of the Yao population. The Yao people, renowned for their exceptional silversmithing mastery, have a profound heritage of crafting jewelry that encapsulates their cultural essence and principles. The study examines using digital resources, such as 3D modeling and virtual reality, to document, showcase, and promote Yao jewelry. The main objective is to investigate the capabilities of modern technologies in improving the visibility and recognition of this art form, specifically among younger generations and a worldwide audience. While digitalization offers advantages like improved accessibility and broader audience reach, there are apprehensions about the authenticity and conservation of the traditional craftsmanship employed in the production of Yao jewelry. The study investigates the equilibrium between utilizing digital technology and preserving the authenticity of the craft. This study employed quantitative analysis to examine the utilization of digital technology in the conservation and advancement of Yao jewelry among various regions of the Yao community. The research seeks to discern patterns and themes about using digital tools to preserve culture, specifically in lesser-known rural regions where traditional traditions may be in danger of extinction. The study's primary objective is to enhance the ongoing discussion over the impact of digital technology on the conservation and advancement of traditional cultural practices.*

**Keywords:** Digitalization, Yao Jewelry, 3D Design, Cultural Inheritance



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## 1 INTRODUCTION

In a time characterized by the swift evolution of technology, the convergence of tradition and digital innovation has emerged as a significant concern for conserving culture. The Yao ethnic jewelry exemplifies the cultural legacy of the Yao people and demonstrates how digital technology may impact and potentially reshape cultural heritage. This introduction establishes the context for examining digitalization's diverse and profound influence on the conservation and dissemination of traditional art forms, with a specific emphasis on the complex and symbolic Yao jewelry.

The Yao people, who reside in many areas throughout southern China, possess a rich heritage of artistic expression, particularly in the intricate creation of silver jewelry that holds profound cultural and social importance. Historically, these artifacts not only function as decorations but also act as representations of one's individuality, social standing, and cultural stories. With the world's growing digitalization, one must consider the impact of this technological shift on the cultural legacy of

traditional crafts. The emergence of digital technology has resulted in a fundamental change in how cultural objects are viewed, conserved, and distributed. The Yao jewelry industry has embraced advancements such as 3D modeling, virtual displays, and online marketplaces. These technological innovations provide unique chances for increased visibility and interaction. These digital channels facilitate the global dissemination of Yao jewelry and serve as a means for engagement and education, promoting a more profound comprehension and admiration of the artistry involved. However, shifting to digital representation is full of difficulties. The cultural significance of Yao jewelry is closely tied to the authenticity and authentic experience of traditional craftsmanship. Consequently, it is crucial to treat the digitization process cautiously to guarantee that it enhances rather than undermines the authenticity of the art. The study focuses on the delicate equilibrium between innovation and preservation. This study seeks to assess the impact of digital Yao jewelry on cultural preservation by conducting a thorough analysis of the current state of digital technology in connection to traditional art forms. The objective is to explore how digital tools might be utilized to improve the exposure, recognition, and dissemination of Yao jewelry. Additionally, it aims to tackle the potential hazards and ethical concerns linked to digitalization.

This study will employ a quantitative analysis methodology, which involves gathering data through surveys from designers, artisans, cultural experts, and consumers. Additionally, quantitative data analyses will examine digital engagement and market trends. This dual approach will offer a comprehensive understanding of the influence of digitalization on Yao jewelry and its cultural legacy. This research is predicted to have numerous contributions. The objective is to offer a deeper understanding of how digital technology contributes to preserving culture, expand the existing knowledge on the digitalization of traditional crafts, and propose sustainable approaches that honor and highlight the cultural importance of Yao jewelry. The main objective of this study is to initiate a broader discussion on how tradition and technology cross in the framework of cultural legacy.

## **2 LITERATURE REVIEW**

### **2.1 Digital Jewelry Design Technology**

In the current age of digital technology, the design of jewelry brands presents exceptional chances and problems that have never been experienced before. The utilization of digitalization and technical innovation has had a significant influence on the process of designing, manufacturing, and marketing jewelry companies. Jewelry designers employ digitalization and technology innovation to investigate and exploit technical methods, expanding the potential and creating novel opportunities for jewelry firms. Digital jewelry is a novel concept that has emerged in recent years. It encompasses the virtual models created using computer software driven by digital technology. These models are then transformed into physical jewelry products using hardware technology, primarily 3D printing. Additionally, digital jewelry includes intelligent wearable products that are personalized, intelligent, virtual, and convenient. This is made possible through continuous advancements in science and technology, particularly on the Internet, big data, the Internet of Things, cloud computing, and virtual reality. The ultimate goal is to create intelligent wearable jewelry products (He &Hao, 2017).

The utilization of digitization in jewelry brand design is initially evident in the design process. The production process in the gold jewelry business has been stagnant for centuries, with no substantial innovations in jewelry design and manufacturing. In the past few decades, the gold industry has started using technological inventions from the twentieth century, such as electroforming, CNC machining, rapid prototyping, laser soldering, and metal injection molding (MIM), in their production process. This has resulted in significant innovations in the industry (Damiano Zito, 2017). In the present era, the jewelry industry relies on conventional manufacturing processes characterized by expensive labor and

unrefined craftsmanship. There is a need for more efficiency in these methods and an improvement in the quality of the end product (Ferreira et al., 2013). Typically, traditional jewelry designs are created through hand-drawing or handcrafting. Nevertheless, due to the advancement of digital technology, many jewelry designers opt to use computer-aided design tools like Midjourney, Matrix, Rhino, 3D printing, Procreate, CNC, and other cutting-edge technologies for their design process. Using this innovative digital program, designers can produce jewelry design sketches within a virtual setting and make immediate adjustments and modifications to the design, resulting in a notable enhancement in the design's adaptability and productivity. Simultaneously, the software can replicate jewelry's natural appearance and texture, aiding designers in effectively showcasing their design work. Using digital technology in jewelry brand design enables designers to showcase their creativity and concepts with enhanced speed and precision. Furthermore, implementing digital and technical advancements has led jewelry brands to emphasize personalization and customization in their design. Consumers can engage in jewelry design and personalize jewelry to suit their preferences and requirements using digital technologies. Jewelry manufacturers can utilize virtual reality (VR) and augmented reality (AR) technology to enable consumers to immerse themselves in a virtual setting where they may explore and select their preferred jewelry styles, materials, and accessories. This personalized and customized jewelry design mode not only caters to consumers' specific preferences but also boosts the market competitiveness of jewelry manufacturers.

## 2.2 Yao Jewelry

The Yao people are an ethnic minority in China, primarily residing in Guangxi, Hunan, Guangdong, Yunnan, and Jiangxi provinces. Some Yao individuals have also migrated to other countries, including Vietnam, Thailand, Laos, and Myanmar in Southeast Asia, as well as the United States and France in Europe. The Yao people have a lengthy historical background and a prosperous culture, renowned for their distinctive cultural customs, abundant ethnic essence, and the portrayal of a diligent and brave demeanor (Yang, 2023).

The jewelry tradition of the Yao people has a lengthy and traceable lineage dating back to prehistoric times. The Yao people have consistently preferred silver jewelry, which they adorn daily, during marriage ceremonies, and at significant festivals. The silver jewelry culture of the Yao people holds a crucial place. It carries significant meaning in the hearts of the Yao people, serving as an integral component of their intangible cultural legacy. The Yao people lack a written vocabulary, relying solely on their spoken language. Consequently, preserving their nation's historical memory relies solely on transmitting their language from one generation to the next. During the migration process, the ancestors of the Yao people would inscribe significant totems and objects onto jewelry patterns to preserve their culture for future generations (Yan, 2019). The costume accessories of the Yao people are crafted from various materials, predominantly metals like gold, silver, and copper, as well as natural elements such as bamboo, wood, animal bones, and feathers. Initially, the Yao accessories predominantly consisted of materials derived from nature. Subsequently, metal jewelry increasingly supplanted them, with silver jewelry emerging as the predominant adornment. This is because silver is an inherent form of currency with distinct economic worth. Nevertheless, while it may not possess the same level of value as gold, it surpasses the value of copper, tin, and other metals. Silver, commonly used for crafting silver jewelry, has also emerged as a viable alternative for numerous other natural adornments. Furthermore, silver possesses the qualities of malleability, excellent ductility, vibrant hue, and corrosion resistance, making it an ideal material for crafting jewelry among the Yao people. The silver jewelry produced is aesthetically pleasing and possesses enduring worth, making it a prevalent accessory in various ethnic clothing cultures (Deng, 2023).





**Figure 1 Yao Silver Headdress**  
(Source: Guangdong Yao Museum Photographed by the author)



**Figure 2 Yao Silver Collar**  
(Source: Guangdong Yao Museum Photographed by the author)



**Figure 3** Yao Silver Chest and Neck Jewellery  
(Source: Guangdong Yao Museum Photographed by the author)

## 2.3 Cultural Inheritance

Presently, there is a heightened focus on the role and significance of culture in sustainable development. Cultural elements are distinctive attributes that can be included in products to ensure culture's sustainable dissemination and its value transformation (Hartley,2019). Consequently, it is vital to verify the techniques for incorporating cultural components into the design of creative products. Previous studies have identified several aspects that influence cultural and creative product design. These factors include aesthetics, creativity, practicality, and commercial value. They are carefully considered during design (Hsueh,2022). The cultural significance of traditional elements is evident in the following aspects: First and foremost, traditional aspects serve as a crucial medium for preserving the national cultural legacy, symbolizing the nation's historical recollection and cultural history. Furthermore, historic elements possess distinctive artistic worth, exemplifying a nation's artistic aptitude by their profound significance, aesthetically pleasing appearance, and meticulous craftsmanship. The traditional principles encompass profound philosophical concepts, such as the "unity of heaven and mankind" and "harmonious coexistence," which continue to hold valuable guidance for advancing contemporary society. Traditional symbols possess significant social cohesion, enhancing national identity, fostering pride, and facilitating social peace and stability (Jin, 2022).

Traditional symbols encompass various design components and forms, including patterns, colors, shapes, and techniques. The components and forms are intricately interwoven to provide the distinctive allure of traditional symbols. Patterns are a significant means of expressing cultural symbols, showcasing a country's artistic skill with deep significance, aesthetically pleasing patterns, and meticulous craftsmanship. Furthermore, colors also have a significant impact on traditional symbols. Varying color combinations can evoke distinct emotions and convey specific meanings. For instance, red is often associated with feelings of excitement and good fortune, while blue is commonly linked to a sense of tranquility and profoundness. Regarding modeling, conventional symbols again underscore the utilization of lines, the fusion of form and essence, and the abundance of meanings portrayed in a minimalist fashion. Regarding handicrafts, the traditional emblems embody the distinctive artistry of several historical times, including techniques like confetti, embroidery, and ceramics. They showcase

the national culture's extensive range and profound nature through their exceptional abilities and distinctive artistic approaches (Chen&Sharudin,2023).

### 3 METHODOLOGY

This study will utilize a quantitative analysis methodology, which entails collecting data through questionnaires from designers, craftspeople, cultural specialists, and consumers. In addition, the quantitative data studies will assess digital engagement and market developments. Broadly speaking, this study uses quantitative methodologies to analyse data. The main objective of quantitative research is to employ statistical methods to examine data and identify correlations. Large-scale survey research is carried out by using organised interviews or questionnaires, which produce statistics through quantitative research and are quickly distributed to a substantial sample of participants (Dawson, 2007a). Sekaran (2003), Creswell (2014), and Dawson (2007) assert that employing a quantitative technique facilitates a swift and effective engagement with a substantial number of participants. Furthermore, as stated by Polit and Beck (2010), evaluating a study's quality greatly depends on its generalizability, which can be attained through qualitative methods. Furthermore, quantitative statistics are widely acknowledged for their standardization and reproducibility, making them a reliable source of exact and unbiased information (Frechting, 2002). Accordingly, data will be collected just once throughout the research duration of this study to evaluate the relationship between the specified parameters.

The study sought to determine the relationship between digital technology and the cultural history of Yao jewelry, as previously stated. The researchers employed quantitative analysis methodologies in their examination. Quantitative methodologies are better suited for social sciences rather than humanitarian studies. The data utilized consisted of quantitative numbers, such as statistics, percentages, and graphs. Using quantitative analysis in digital Yao jewelry design allows researchers and designers to acquire valuable knowledge regarding market trends, consumer preferences, design efficiency, and manufacturing processes by employing a data-driven methodology. The jewelry business in China's domestic market has experienced substantial expansion, especially in economically thriving cities and areas. Regions such as the northern areas, with Beijing as the leading force, and the Jiangsu and Zhejiang areas, with Shanghai as the leading force, together with the Greater Bay Area, with Guangzhou and Shenzhen as the leading forces, have more excellent representation. The study explicitly targets the Guangshen area within the broad bay region as the subject of sampling. This decision is influenced by the proximity of the area to Hong Kong and Taiwan, where advanced design concepts and development models were implemented at an early stage. The expansive bay area is widely regarded as the earliest and most highly developed location, showcasing a jewelry design pattern that epitomizes China's most usual and all-encompassing design style.

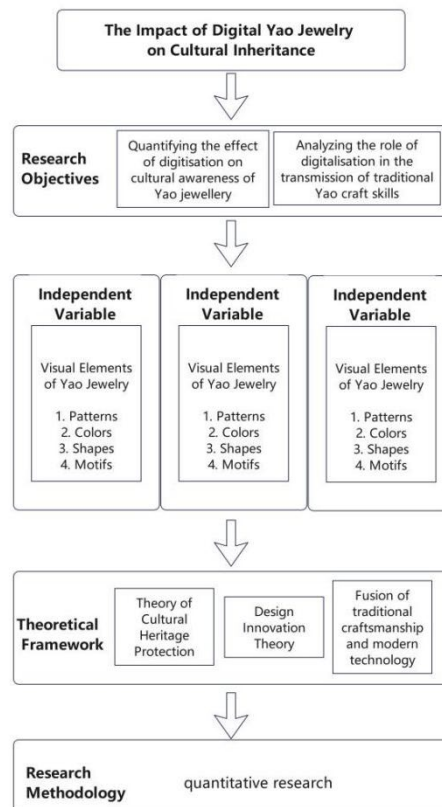


Figure 4 Research Design

## 4 RESEARCH FINDING

The combination of digital technology and traditional crafts has recently led to the emergence of a new style in jewelry production known as digital Yao jewelry. The fusion has profoundly influenced the cultural heritage of the Yao people, encompassing their own history and creative customs.

### 4.1 Conservation of Traditional Artistry

Incorporating digital technology into conventional handicrafts has dramatically benefited the preservation of the opulent legacy of elaborate designs, such as those seen in Yao jewelry. The accuracy of contemporary instruments has created new opportunities for protecting and disseminating these cultural artifacts. 3D scanning technology, specifically, has demonstrated its transformative impact. It allows for the generation of intricate digital designs of Yao jewelry, accurately capturing every contour, spiral, and etching with great precision. Preserving the jewelry's cultural relevance and artistic integrity relies heavily on this level of detail. After being scanned, these digital models can be stored eternally, protecting against the potential loss or deterioration of the physical elements in the future. Furthermore, digitization enables the dissemination of Yao jewelry creations worldwide. Yao craftsmanship can be accessed and appreciated by folks worldwide through internet media. Enhanced visibility encourages cultural diversity and cultivates a more profound comprehension and admiration of the cultural tales inherent in each jewelry item.

Moreover, converting Yao jewelry designs into digital format enables artisans and designers to enhance their creativity and develop new ideas. Utilizing a digital model as a foundation allows them to explore various materials, scales, and interpretations of conventional designs. This enables them to

produce modern items that attract new consumers while paying homage to their historical roots. Combining traditional elements and contemporary design ideas guarantees that Yao jewelry maintains its relevance and vibrancy worldwide. 3D modeling enhances the efficiency of the production process. Designers can replicate the production process, detect possible obstacles, and make modifications before utilizing any tangible materials. This conserves time and resources and reduces waste, which aligns with contemporary sustainability objectives.

Overall, the emergence of digital technology has significantly influenced the conservation and widespread distribution of Yao jewelry. The technology has facilitated the precise replication of intricate designs, thereby preserving the old craftsmanship and patterns and making them more widely available to a larger audience. The application of 3D scanning and modeling techniques has played a crucial role in capturing the fundamental nature of these cultural items, establishing a solid basis for their ongoing appreciation and development in the digital era.

## **4.2 Expanding the Influence Of Yao Culture**

The digital revolution has brought about a new age in the recognition and admiration of cultural arts, specifically the detailed and richly symbolic patterns of Yao jewelry. The worldwide stage has been prepared for the world to observe the remarkable beauty and expert artistry of the Yao people, thanks to the advent of digital Yao jewelry. The digital transformation has made Yao jewelry readily available. It has also sparked the curiosity and appreciation of many audiences, particularly the younger generations, who are increasingly attracted to combining traditional and contemporary elements. The digital renditions of Yao jewelry function as mere duplicates and act as portals to individualized modification and self-expression. The technology empowers craftspeople to provide a higher degree of customization, enabling consumers to actively participate in the creation process and infuse their jewelry with their own narratives and artistic preferences. This customization not only amplifies the uniqueness of each piece but also encourages the individuality of Yao craftsmanship, resulting in each piece becoming a one-of-a-kind representation of the wearer's identity.

Furthermore, the internet domain has allowed Yao artists to exhibit their craftsmanship to a broader clientele, surpassing geographical limitations. The growth of this industry has resulted in a significant increase in the need for customized and culturally diverse jewelry, establishing Yao craftsmanship as a highly desirable artistic expression in the international market. The outcome is a dynamic interchange of cultural legacy that enhances worldwide culture while safeguarding and advocating the distinctive customs of the Yao people. The influence of digital Yao jewelry extends beyond its visual appeal and ability to be customized to individual preferences. This signifies a notable advancement towards implementing sustainable practices in the jewelry sector. It is possible to reduce waste and optimize resource utilization by enabling digital designs before physical production. This approach is in line with current values of sustainability and environmental awareness, guaranteeing that the attractiveness of Yao jewelry can be appreciated without harming the integrity of our earth.

To summarize, the advent of digital Yao jewelry has increased the availability of this magnificent art form and revitalized the recognition of Yao culture globally. Technology has facilitated the connection between a new generation and traditional creativity, customized expression, and sustainable methods. This ensures that the legacy of Yao's artistry thrives in the digital age.

## **4.3 Fostering Cultural Identity and Promoting a Sense of Pride**

Digitalizing Yao jewelry has increased prominence and significantly strengthened the Yao community's cultural identity and pride. The use of digital platforms has allowed for the display of the

intricate craftsmanship of Yao jewelry, serving as a potent means of cultural validation. This has facilitated the Yao people's ability to rediscover and embrace their cultural past within a contemporary framework. The Yao people's cultural inheritance is now more accessible than ever, thanks to the compelling digital exhibition of their traditional handicrafts, which has instilled a sense of pride in their community. The convenience of access has played a crucial role in promoting a stronger feeling of community and collective history among the Yao people while reinforcing a revitalized sense of pride and contentment in their cultural traditions.

Furthermore, the digital medium has created an interactive platform that allows the Yao people to participate actively in preserving and promoting their cultural legacy. Online forums, social media, and virtual exhibitions provide platforms for individuals to discuss and share their thoughts on the cultural importance of Yao jewelry. This contact has fostered a dynamic community life that flourishes through recognizing and perpetuating traditional values. The influence of digital Yao jewelry extends to the younger cohorts, who are now more predisposed to adopt and perpetuate their cultural legacy. Digital technology has facilitated the younger generation's acquisition and admiration of traditional craftsmanship, guaranteeing the preservation and evolution of the art of Yao jewelry creation for future cohorts.

Moreover, the internet domain has created fresh economic prospects for the Yao community. The capacity to access a worldwide audience has resulted in a surge in the demand for genuine Yao jewelry, bolstering the economic sustenance of artisans and craftspeople. The economic empowerment of the Yao people is a clear demonstration of their ability to bounce back from challenges and adjust to new circumstances. They have effectively utilized technology to maintain their cultural traditions. The emergence of digital Yao jewelry has acted as a catalyst for the revitalization and sense of cultural identity within the Yao community. Utilizing this method has empowered the Yao community to regain and commemorate their cultural heritage in a modern and easily understood manner, promoting a deep feeling of togetherness and contentment that extends throughout the community and beyond.

#### **4 FOSTERING INNOVATION AND CREATIVITY**

Incorporating digital technology into crafting Yao jewelry has brought about a revival of creativity and resourcefulness, revitalizing an age-old form of artistic expression. Designers are now free from the limitations of conventional materials and techniques, enabling them to explore new realms of artistic innovation. Designers have a wide range of new materials to explore in the digital realm, including sustainable and eco-friendly possibilities and innovative materials with distinctive qualities. These novel materials expand the possibilities in jewelry design and respond to the contemporary consumer's inclination toward ethical and innovative items.

In addition, digital technology has brought forth many novel techniques to produce Yao jewelry. Methods such as 3D printing, laser cutting, and computer-numerical control (CNC) machining have facilitated designers in creating intricate and elaborate patterns that would have been exceedingly difficult, if not unattainable, using conventional manual techniques.

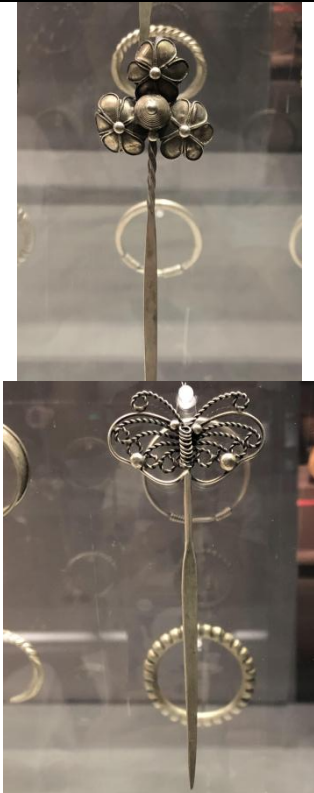
Designers are interested in using new technology and maintaining the essential ideas of ancient Yao craftsmanship. The Yao culture seamlessly integrates artistic aspects with modern design, creating a harmonic fusion of traditional and contemporary influences. This combination results in unique and contemporary artworks that convey a narrative, a cultural legacy, and a progressive outlook. The appeal of these groundbreaking yet culturally authentic works has drawn a wide range of customers. Customers who cherish the distinctiveness of traditional craftsmanship blended with contemporary aesthetics find



these objects highly valuable. The increased clientele includes traditional art enthusiasts and individuals interested in contemporary designs with a significant narrative.

Moreover, the digitization of Yao jewelry creation has facilitated increased customization and personalization. Customers now have the opportunity to engage in a collaborative process with designers to produce unique artworks that embody their personal preferences and interests while still paying homage to the esteemed tradition of Yao craftsmanship. Ultimately, integrating digital technology into the art of crafting Yao jewelry has ignited a surge of creativity that has rejuvenated the industry. Designers are expanding the limits of what can be achieved, producing unique and contemporary artworks that engage a broader audience and guarantee the ongoing development and significance of Yao jewelry in the worldwide art and culture scene.



Digital Yao jewelry's impact on cultural heritage preservation is significant. It has conserved ancient artisanal skills, expanded the influence of Yao culture, strengthened cultural identity and pride, and fostered innovation and creativity. The rapid advancement of technology presents a vast opportunity for digital Yao jewelry to enhance and spread this valuable cultural heritage.


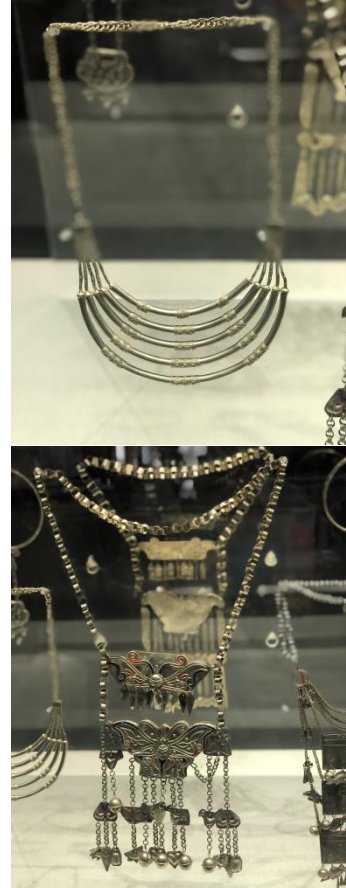
Table 1. Types of Yao Jewelry




Batch	Types of Jewelry	Jewelry Name	Jewelry Pictures	Jewelry Meaning
1	Head Jewelry	Silver Hairpin		<p>The silver hairpin is an ornament that Yao women put in their hair, with a flat head and only one, which is aesthetically pleasing and has value for use. Silver hairpin is a kind of historical memory of Yao folk craft, a kind of remembrance and inheritance left by Yao ancestors to their descendants.</p>


Batch	Types of Jewelry	Jewelry Name	Jewelry Pictures	Jewelry Meaning
2	Head Jewelry	Silver Earrings		<p>The earrings of Yao jewelry are mainly in large circles, and the earrings are in the shapes of fans, plum blossoms, cones, etc. Yao women like to wear them regardless of their age. Some of the complex and flexible patterns engraved with various totems convey the Yao people's worship of historical heroes and ancestors as well as their good wishes for good fortune and avoidance of misfortune.</p>
3	Head Jewelry	Silver Crown		<p>The Silver Magic Crown is a fan-shaped silver jewelry that resembles a flame in shape, is usually a decoration fixed to a woman's hat and is also sewn onto her clothes when in full regalia. Not only can it indicate their honourable status, but also a manifestation of might.</p>



Batch	Types of Jewelry	Jewelry Name	Jewelry Pictures	Jewelry Meaning
4	Head Jewelry	Silver Tree		<p>The silver tree is the unique headdress of Yao men, and it is the headdress of men who have status and prestige in the local villages of Yao people. It is shaped like a small tree with various shapes of flowers, birds, fishes and insects carved on it and decorated with colourful threads, and at the top of it is the statue of the national hero-worshipped by the local Yao people.</p>
5	Head Jewelry	Silver Cone		<p>A silver cone is a type of silver jewelry whose head is shaped like a cone, an ornament that can be added to the head, hat, or tiara. It can be worn by both men and women and is worn at grand festivals or at weddings. As part of the silver jewellery of the Yao people, it carries the cultural connotations of the Yao people for thousands of years and has accumulated the religious beliefs of the Yao ancestors.</p>

Batch	Types of Jewelry	Jewelry Name	Jewelry Pictures	Jewelry Meaning
6	Neck Jewelry	Silver Collar		<p>The Yao people wear silver collars around their necks regardless of gender. Twelve collars are worn during grand festivals, tied up with red threads, and usually, only one is worn during regular times. Each of the twelve collars is engraved with a different pattern, representing different blessings and meanings.</p>
7	Neck Jewelry	Silver Necklace		<p>A silver chain is used to connect the silver collar, adorned with rich shapes underneath, mainly flowers, bats, unicorns and other motifs representing auspicious symbols, each layer of which symbolizes a different meaning and represents the good wishes of the Yao people.</p>

Batch	Types of Jewelry	Jewelry Name	Jewelry Pictures	Jewelry Meaning
8	Chest Jewelry	Silver Lock		<p>It is a traditional custom for Yao people to wear silver locks. It is similar to a rectangular shape, modelled like a lock. It is engraved with words such as "long life" and "long life and wealth" and is hung on the chest with a silver chain, meaning it can ward off evils and wish for a long life.</p>
9	Chest Jewelry	Silver Drum		
10	Hand Jewelry	Silver bracelet		<p>There are three types of bracelets for the Yao people: large flat round bracelets, flat head bracelets, and coil bracelets. Bangles are one of the more common types of jewelry, and almost every Yao woman carries one in her hand.</p>

Batch	Types of Jewelry	Jewelry Name	Jewelry Pictures	Jewelry Meaning
11	Hand Jewelry	Silver ring		It is a love token for young Yao men and women. Woven with silver thread symbolizes the unity of the Yao people.

Source: Author's field research

## 5 CONCLUSIONS

The investigation of the impact of digital Yao jewelry on cultural inheritance has highlighted the significant influence of technology on the conservation and spread of traditional art forms. Digitalization has become a means of documenting and a dynamic platform that rejuvenates the cultural narrative of the Yao people. This study has revealed that digital Yao jewelry acts as a medium for cultural exchange, surpassing geographical limitations and involving a worldwide audience in the diverse legacy of the Yao people. The combination of 3D design and virtual reality has specifically emphasized the capacity of immersive technologies to capture the complex features and symbolic significance of Yao jewelry. This enhances the aesthetic appeal and enlightens viewers on the cultural value inherent in each artwork. The study has demonstrated that digital representations may coexist with and enhance

traditional craftsmanship, thereby preserving the essence of Yao's creativity and celebrating it in the digital domain. Nevertheless, the process of achieving a digital cultural legacy is challenging. It is crucial to carefully handle the equilibrium between technological advancement and safeguarding genuine cultural traditions. When undertaking digitalization, it is of utmost importance to prioritize the preservation of the cultural identity of the Yao community. This means taking measures to prevent the erosion of cultural value or displacement of traditional artisans as they shift to digital platforms.

The results of this study support the idea of a cooperative strategy in which digital platforms and the Yao community collaborate to select and distribute digital Yao jewelry carefully. This collaboration can result in a more profound recognition and comprehension of Yao culture, promoting a feeling of common humanity and cultural variety. To summarize, the impact of digital Yao jewelry on cultural preservation is complex, presenting both advantages and obligations. At the crossroads of history and technology, it is crucial to carefully utilize digital innovation to ensure the ongoing success and inspiration of Yao jewelry for future generations. When approached with cultural awareness and respect, the digital sphere can serve as a valuable tool in protecting and promoting the abundant cultural history of the Yao people.

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## **AUTHOR CONTRIBUTIONS**

YanLi contribute to this research, including data collection, analysis, writing etc. Emilia Manan guided author to do this research.

## **CONFLICT OF INTEREST**

No conflict of interest declared for this paper.

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## Visual Revisions: Sweet Charity Group's 1980 – 1984 Album Covers

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### ABSTRACT

*An album can be evaluated using a variety of different approaches. Making record covers with artwork that is visually appealing and captivating is an approach that has shown to be incredibly effective. As a consequence of this, the purpose of this study is to analyze the influence that visual modifications have had on the album cover of Sweet Charity Group. During the course of this research, a comparative methodology was applied to investigate the album covers of five different albums: Pelarian (1980), Sejuta Wajah (1981), Penunggu (1982), Batu (1983), and Koleksi Sweet Charity (1984). An examination of record covers was carried out in order to ascertain the visual approach that architects and designers most frequently employ. Without a shadow of a doubt, the subfield of visual arts has seen substantial transformations, particularly with regard to the influence of visual components. Visual components will be used to evaluate and judge the outcomes of the chats as well as the results. Ultimately, the researchers came to the conclusion that photography, color, and typography are three essential elements that have the potential to impact the design of album covers.*

**Keywords:** Album Cover, Visual Revisions, Photography, Color, Typography.



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## 1 INTRODUCTION

The emergence of rock music in the mid-1980s had a favorable impact and began to acquire popularity in Malaysia with the release of Sweet Charity's first album in the early 1980s. An album cover denotes a compilation of songs that have been recorded by an artist or band without any original composition or alteration of the music. Album covers have various functions in the realm of musical composition. The album cover serves as both a protective layer for the content and a visual representation for marketing purposes, attracting viewers and promoting the product. Producers must meticulously assess the present circumstances, particularly in the realm of music art, as it serves as a wellspring of inspiration for album cover designers.

Album covers have a significant impact on client attraction and purchasing choices. Visually captivating album covers function as a potent means of communication among the publisher, the artist, and their customers. Salziana Ibrahim (2020) argues that record covers are highly effective in communicating content to society. Designers adeptly create these covers to ensure the audience can

readily comprehend the content and see visual imagery that functions as packaging for products such as phonograph records, cassette tapes, or compact discs. The album cover is an exceptional work of art, featuring a meticulous graphic design and deliberate selection of visuals that successfully communicate a specific and all-encompassing message. Photography is a universally understood mode of communication, encompassing numerous variations and countless artistic approaches. Photographic methods in visual creation can effectively communicate information, evoke emotions, provide documentation, and showcase beauty. Norhaslinda (2018) argues that photography possesses an omnipresent, worldwide, and long-lasting influence.

## 2 LITERATURE REVIEW

Record albums have been around since the 1920s, when album covers were made to look like picture albums. In 1938, Columbia Records hired Alex Steinweiss as their art director. Steinweiss became famous for coming up with new ideas for record covers. Eventually, "album" came to mean a 12" LP record that was played at 33 $\frac{1}{3}$  RPM. By the 1950s, this style for albums was the standard that most people used. By taking this method, artists could show how they felt and what they were thinking through both music and art. In the 1960s, the music business grew a lot, giving artists the chance to show who they were through both their album covers and their songs. Psychedelia came on the scene in the middle of the 1960s, and albums like *"The Psychedelic Sounds of the 13th Floor Elevators"* by the Zombies, *"Odessey and Oracle"* by the Beatles, and *"Sgt. Peppers"* by the Beatles were very complicated. Beginning in the late 1980s, artists like The Smiths started to find their own style by using photos on the covers of their albums. (Evans, 2010).

Malay recordings from the 1980s are decorated with names such as P. Ramlee. The album cover design is distinctive, including a classic aesthetic and a crisp visual presentation. The album cover draws significant inspiration from album covers originating in western countries, while also incorporating distinct elements that reflect a definite Malay aesthetic. Analysis of trends from the 1980s reveals that photography is the predominant medium used for record covers. Thus, the artist's music style and genre are strengthened by the careful consideration of the shooting composition and the selection of suitable clothing colours. While the album cover may be seen as a form of packaging, it successfully communicates the atmosphere and idea of the artist's music to a certain target demographic. It is a form of artistic representation that differentiates one category of music from another, while simultaneously showcasing the individuality and distinctive style of the artist or musician. Hence, the album cover ought to be seen as a visual depiction of photography. Even now, several individuals still highly regard album covers as cherished artifacts, not just for their emotional significance but also for enhancing the enjoyment of listening to music.

A cover album might create a favourable impression by arousing curiosity and wanting to go more into the product. The pictures displayed on album covers exhibit a wide range of forms and techniques. The artistic appeal of many forms of creative contribution, such as photography, graphic design, illustration, typography, or the combination of images and words, enhances its charm as an art. The design approach of the album cover is contingent upon the production variables of the album and the designer's proficiency in properly conveying their ideas for approval. (Mustapha, 2017).

Individuals evaluated a man's worth by assessing the dimensions of his record shelf, the calibre of his collection, and the level of meticulousness he exhibited in maintaining it. The acquisition and exhibition of a vinyl record or album cover provided insight into the proprietor's identity. The individual's choice of sleeves indicated their affinity for either the Stones or Beatles, their preference for listening to Dylan or Donovan, their admiration for Elvis or Cliff in the rockabilly genre, and their inclination towards Pink Floyd or Doors in the stoner genre. The album cover holds immense cultural and historical significance. The band's global record sales propelled the artwork to achieve worldwide recognition as a symbol for the band and its music. (Evans, 2010).



### 3 METHODOLOGY

By utilizing a suitable research approach, the researcher can systematically and efficiently acquire all the essential information, streamlining and improving the analytical process. Despite the availability of alternative research methods, the researcher has opted to utilize comparative studies in order to determine the pattern of visual revision in Sweet Charity Group's album cover from 1980 to 1984. The comparative studies research approach begins with the researcher completing structured observations and questionnaires and concludes with semi-structured interviews.

### 4 DATA ANALYSIS

#### 4.1 Structure Observations

The primary objective of this study is to identify patterns and aesthetics in the album covers of Sweet Charity Group between the years 1980 and 1984. The examination and study of the structure were carried out with a specific focus on the use of images in five album covers: *Pelarian* (1980), *Sejuta Wajah* (1981), *Penunggu* (1982), *Batu* (1983), and *Koleksi Sweet Charity* (1984).

#### 4.2 Questionnaires

Table 1 shows that 44 individuals completed the initial questionnaire. Students enrolled in the Photography and Creative Imaging program were provided with a questionnaire to get initial input on the album cover of the Sweet Charity Group from the years 1980 to 1984. 88.64% of individuals are aware of the Sweet Charity album cover, while 11.36% refuse or disavow it. Nevertheless, a majority of 79.55% express satisfaction with the album cover of Sweet Charity, while a minority of 20.45% report feeling unsatisfied. Out of the 44 respondents, 41, or 93.18%, agreed that photographs have a significant impact on album covers, while 6.82% disagreed. Photographs have been shown to play a significant role in the formation of album covers.

**Table 1** The proportion of 44 Photography and Creative Imaging students who participated in a questionnaire to gather preliminary feedback on the Sweet Charity album cover

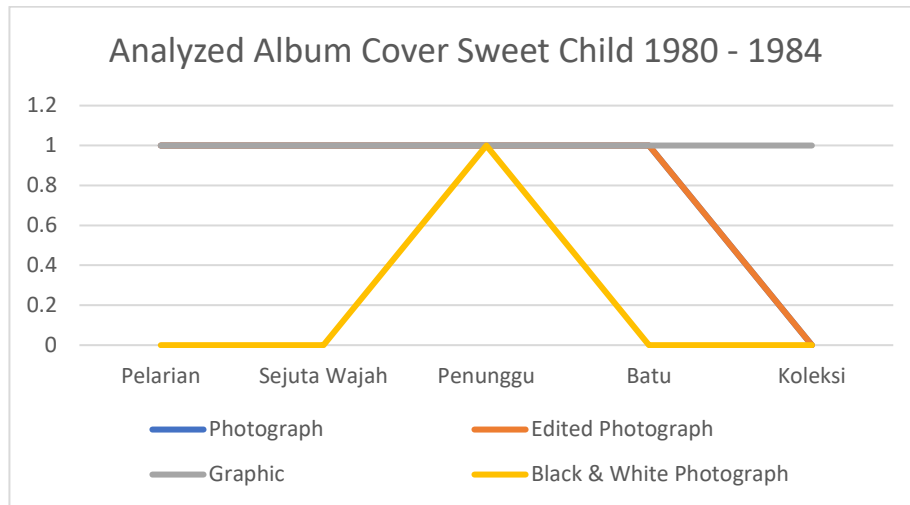
Questionnaire	Yes	No
Are you aware of the Sweet Charity album?	88.64%	11.36%
Are you satisfied with the selection of photographs used in the Sweet Charity album?	79.55%	20.45%
Do you believe that photographs have a significant influence on album cover?	93.18%	6.82%

#### 4.3 Semi-Structure Interviews

In this research, a semi-structured interview was conducted with Mr. Mustafa Ahmad @ Tapa, a Malaysian album cover designer. This approach aims to collect valuable data regarding the alterations made to the album cover photographs of the Sweet Charity Group. The focus is specifically on five album covers: *Pelarian* (1980), *Sejuta Wajah* (1981), *Penunggu* (1982), *Batu* (1983), and *Koleksi Sweet Charity* (1984). The semi-structured interviews had a duration of around 1 hour. Both organized and unstructured interviews are components of the semi-structured interview process. The researcher prepared a list of questions to ask during the interview session. The researcher posed supplementary inquiries during the interview session to get further information.

## 5 RESULT AND DISCUSSION

### 5.1 Research Analysis



**Figure 1** Analysis on album cover of Sweet Charity in year 1980 – 1984 to assemble element implement on the album cover

Based on the analysis in Figure 1, the researcher concluded that changes in the album cover are due to the change in the year and the acceptance of fans in terms of different social years. Social change is based on a specific year; it's essential to consider significant movements and shifts in societal norms and values during that time period. For example, consider the research on Visual Revisions: Sweet Charity Group's 1980–1984 Album Covers.

### 5.2 Result

**Table 2** The compilation of album cover Sweet Charity in year 1980 – 1984

Album Pelarian, 1980	Album Sejuta Wajah, 1981	Album Penunggu, 1982	Album Batu, 1983	Album Koleksi, 1984

The band Sweet Charity produced the albums *Pelarian* (1980) and *Sejuta Wajah* (1981), as depicted in Table 2. The analysis of the *Pelarian* and *Sejuta Wajah* album covers demonstrates that the predominant element is photography, specifically highlighting the visual representation of the members of the musical ensemble. The comprehensive portrayal of promotional images, showcasing the members of the band, has rapidly gained widespread recognition, and has become a symbol of the lasting impact of Sweet Charity. The cover has sparked several adaptations and tributes and remains an enduring symbol of the band's impact and cultural importance. Nevertheless, the musical group Sweet Charity employed the technique of portrait photography for their album covers *Penunggu* and *Batu*, released in 1982 and 1983 respectively, as depicted in Figure 2. The study concluded that the Sweet Charity album covers of *Penunggu*, 1982, and *Batu*, 1983, utilize portrait photography for three specific objectives. Firstly, for establishing a personal relationship. Portrait photography enables artists to establish a personal connection with their audience by prominently featuring their image on the album cover. This can facilitate fans in establishing a more profound bond with the music and the artist's

persona. Furthermore, in terms of visual depiction, Portraits have the ability to graphically depict the themes, feelings, and message communicated via the music. The expression, posture, and setting of the photograph can offer contextual information and provide a deeper understanding of the mood conveyed in the album. The third aspect pertains to the manifestation of artistic creativity. Portrait photography offers artists a platform to creatively express themselves.

Photographers can be engaged to collaborate in order to capture the desired artistic vision and effectively communicate the individual's individuality through visually captivating means. Portrait photography for cover albums is a diverse and impactful choice that enables musicians to develop their brand, connect with their audience, and express themselves creatively. Ultimately, the album covers of *Koleksi* 1984 exclusively emphasize the utilization of visual imagery. Graphic design involves the integration of multiple effects that can lead to a diverse range of visual appearances. Therefore, it is crucial to recognize the problem of arranging variables in order to improve the control of visual elements when utilized in a composition. The visual composer includes various visual elements, including color, direction, size, proximity, and form.

## **6 CONCLUSION**

The primary objective of this study is to examine the influence of visual alterations on the album cover of Sweet Charity Group during the period from 1980 to 1984. According to the study's data analysis, conclusions, and discussion, it is indisputable that photography serves the central role on the album cover. It is well acknowledged that compelling images has the ability to attract attention, arouse the curiosity of potential listeners, and motivate them to explore the music further. A compelling photograph can function as a powerful marketing instrument, captivating individuals and stimulating curiosity in the album.

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## **CONFLICT OF INTEREST**

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# A Guide for Positivist Research Paradigm: From Philosophy to Methodology

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## ABSTRACT

Asserting that reality is objective, observable, and governed by universal laws through empirical investigation and logical reasoning, positivism continues to serve as a foundation in scientific inquiry. This paper provides a thorough examination of the positivist research paradigm, tracing its philosophical underpinnings and methodological implications. The epistemological foundation of positivism rests on objectivism, which posits that knowledge is independent of individual perceptions and can be verified through empirical evidence. Ontologically, positivism asserts a realist perspective, asserting a singular reality that exists external to human cognition. Axiologically, positivism emphasises value-free research to ensure objectivity and replicability of findings. This paper explores these philosophical beliefs and their application in research design, data collection techniques such as surveys and experiments, and data analysis methods, including statistical tools like SPSS and SmartPLS. By interpreting these aspects, this paper serves as a comprehensive guide for researchers adopting a positivist research paradigm, offering insights into its strengths, limitations, and ongoing relevance in present scientific inquiry.

**Keywords:** Positivism, Objectivism, Naive Realism, Value-Free Research, Research Methodology



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## 1 INTRODUCTION

The positivist research paradigm stands as a hallmark of scientific inquiry, characterised by its adherence to empirical observation, logical deduction, and the quest for objective knowledge. Rooted in the Enlightenment ideals of reason and empirical evidence, positivism gained prominence in the 19th century through the works of Auguste Comte and continues to influence various disciplines, from the natural sciences to the social sciences (Comte, 1858). This paradigm posits that reality is stable and can be observed and described from an objective viewpoint, free from the influence of the researcher (Neuman, 2014).

The philosophy of positivism asserts that the only authentic knowledge is scientific knowledge, which emerges from the positive affirmation of theories through strict scientific method (Kerlinger & Lee, 2000). Auguste Comte, often regarded as the father of positivism, advocated for a systematic approach to the study of society, emphasizing the need for a scientific foundation for social research (Cohen, 1988). This scientific approach entails the use of quantitative methods, which allow for the measurement and analysis of data, leading to the discovery of general laws and principles that govern phenomena (Creswell & Creswell, 2017).

Positivism has significantly shaped the methodological approaches employed in contemporary research. It emphasizes the importance of objectivity, replicability, and the use of statistical techniques to test hypotheses (Bryman, 2016). Researchers operating within this paradigm typically employ structured methodologies such as experiments, surveys, and longitudinal studies, which facilitate the collection of quantifiable data. These methods are designed to produce reliable and valid results that can be generalized to larger populations (Trochim & Donnelly, 2008).

Moreover, the positivist paradigm underscores the importance of theory in guiding research. Theories provide a framework for understanding the relationships between variables and for making predictions about future occurrences (Sekaran & Bougie, 2016). This theoretical orientation aligns with the positivist belief in the possibility of cumulative knowledge, where scientific progress is achieved through the gradual accumulation of verified facts and principles (Field, 2018).

Despite its many contributions, positivism has also faced criticism. Critics argue that it overlooks the subjective dimensions of human experience and the complexities of social phenomena (Silverman, 2016). They contend that the emphasis on quantification and objectivity may lead to a reductionist understanding of reality, where important qualitative aspects are disregarded (Maxwell, 2013). Nonetheless, positivism remains a foundational paradigm in research, offering a rigorous and systematic approach to the study of both natural and social worlds (Denzin & Lincoln, 2018).

This paper aims to provide a comprehensive guide to the positivist research paradigm, exploring its philosophical foundations, methodological approaches, and applications in contemporary research. By delving into the core principles of positivism, we seek to elucidate its enduring relevance and its contributions to the advancement of scientific knowledge across various fields.

## **1.1 Philosophical Foundations: Epistemology**

Epistemologically, positivism subscribes to objectivism, asserting that knowledge exists independently of individual perceptions and can be apprehended through systematic observation and experimentation (Crotty, 1998). This perspective contrasts with subjectivist approaches that emphasize the role of subjective experiences and interpretations in shaping knowledge. According to positivist epistemology, reality is external and can be objectively measured and quantified. This approach is deeply rooted in the works of early positivists like Comte and later expanded by philosophers such as Karl Popper and the Vienna Circle, who argued for the demarcation of scientific knowledge based on empirical falsifiability (Popper, 2002).

## **1.2 Philosophical Foundations: Ontology**

Ontologically, positivism espouses a realist view, positing that there is an objective reality external to human consciousness (Guba & Lincoln, 1994). This ontological stance aligns with naive realism, which holds that the world is as it appears, directly accessible to observation and measurement. According to this perspective, reality exists independently of our perceptions, beliefs, and interpretations, and can be understood through systematic observation and empirical investigation (Crotty, 1998).

## **1.3 Philosophical Foundations: Axiology**

Axiologically, positivism advocates for value-free research, aiming to minimise the influence of researcher biases and values on the research process (Hammersley, 2008). This commitment to objectivity ensures that findings are independent of subjective perspectives, enhancing the reliability and replicability of research outcomes. Positivist researchers adhere to the principle of detachment, striving to eliminate personal biases that may skew the interpretation of data. By maintaining a clear separation between facts and values, positivists believe that research can yield universal truths that are applicable across different contexts (Neuman, 2014; Bryman, 2016).

## 2 LITERATURE REVIEW

This paper will delve into a detailed literature review to explore how positivism has been applied across various disciplines, examine specific methodological approaches and techniques employed in positivist research, discuss the implications and critiques of the positivist paradigm, and conclude with reflections on its enduring significance in contemporary research practices.

Positivism, as a research paradigm, has profoundly influenced the philosophy and methodology of scientific inquiry. This section provides an extensive review of the literature, examining key philosophical assumptions, research strategies, and empirical applications of positivism across different disciplines.

### 2.1 Epistemological Assumptions of Positivism

Positivism's epistemological stance of objectivism asserts that knowledge is objective, verifiable, and rooted in empirical evidence (Crotty, 1998). This perspective emphasizes the role of observation and experimentation in acquiring valid knowledge, aiming to uncover universal laws and causal relationships that govern phenomena. Objectivist epistemology, as embraced by positivists, entails that the researcher's values and biases can and should be kept separate from the research process to ensure the purity and neutrality of the findings (Phillips & Burbules, 2000).

This epistemological stance supports the use of rigorous methodologies to uncover universal laws and truths that are replicable and generalizable. The reliance on empirical evidence and logical reasoning forms the backbone of positivist inquiry, with a strong emphasis on the validation and reliability of data through repeatable experiments and observations (Bryman, 2016). In contrast to interpretivist paradigms, which focus on understanding the meaning and context of human behavior, positivism aims to explain and predict phenomena by identifying cause-and-effect relationships (Neuman, 2014). This predictive capability is a key strength of the positivist approach, enabling the development of theories that can be tested and refined over time.

By adhering to the principles of objectivism, positivist researchers strive to produce knowledge that is free from personal or cultural biases, thus contributing to the cumulative advancement of science (Creswell, 2017). The objectivist nature of positivist epistemology has profound implications for the types of questions posed, the methodologies employed, and the interpretation of results. It mandates a structured and systematic approach to inquiry, where hypotheses are formulated based on existing theories, and data is collected and analysed to either support or refute these hypotheses. This process is iterative, with findings contributing to the ongoing refinement and development of scientific knowledge (Trochim & Donnelly, 2008).

### 2.2 Ontological Assumptions of Positivism

Ontologically, positivism adopts a realist perspective, positing the existence of an external reality that exists independently of human perception (Guba & Lincoln, 1994). This realist ontology supports the idea that reality can be studied and understood through systematic observation and measurement, aligning with the principles of naive realism.

Positivist ontology is grounded in the belief that the natural and social worlds operate according to laws and mechanisms that are discoverable through scientific inquiry. This belief in an objective, knowable reality underpins the positivist commitment to the empirical verification of theories and the use of rigorous methodologies to uncover truths about the world (Blaikie, 2007). The realist ontology of positivism thus provides the philosophical foundation for its emphasis on measurement, quantification, and the search for causal relationships.

Realism, in the positivist sense, asserts that objects and phenomena have an existence and properties that are independent of human thought. This perspective contrasts with relativist ontologies, which argue that reality is socially constructed and contingent upon human experience and interpretation (Creswell & Poth, 2018). By adhering to a realist ontology, positivism maintains that scientific knowledge is not merely a reflection of subjective perspectives but a reflection of an objective reality that can be observed, described, and understood.

The ontological stance of positivism has profound implications for research practice. It underlines the importance of objectivity and the need for researchers to remain detached from the phenomena they study to avoid bias and ensure the validity of their findings (Lincoln & Guba, 1985). This commitment to objectivity and the belief in a discoverable reality drives the positivist emphasis on experimental and quasi-experimental designs, where control and manipulation of variables are crucial for testing hypotheses and establishing causality.

In summary, the realist ontology of positivism asserts that an objective reality exists independently of human perception and can be systematically studied through empirical methods. This ontological foundation supports the positivist commitment to scientific rigor, objectivity, and the search for universal laws that explain natural and social phenomena.

## **2.3 Axiological Position of Positivism**

Axiologically, positivism advocates for value-free research, asserting that researchers should strive to maintain objectivity by minimizing personal biases and subjective interpretations (Hammersley, 2008). This commitment to value neutrality aims to ensure the reliability and replicability of research findings, allowing for the formulation of general laws and theories.

The axiology of positivism also entails a rigorous methodological approach where objectivity is paramount. Researchers utilize standardized instruments and procedures to collect data, ensuring consistency and precision in measurement (Trochim & Donnelly, 2008). This methodological rigor is underpinned by the belief that the natural world, including social phenomena, operates according to immutable laws that can be discovered through empirical investigation. Thus, positivist research is characterized by the systematic testing of hypotheses through controlled and replicable experiments or observations (Creswell, 2017).

Additionally, the value-free ideal in positivism is reflected in the emphasis on statistical analysis, which allows for the quantification of relationships between variables without the interference of the researcher's subjective judgment (Field, 2018). Statistical techniques provide a means to objectively assess the validity of hypotheses and the generalizability of findings, contributing to the cumulative nature of scientific knowledge (Kerlinger & Lee, 2000).

Critics of positivism, however, argue that complete objectivity is an unattainable ideal. They suggest that all research is influenced to some extent by the values and perspectives of the researcher, whether consciously or unconsciously (Patton, 2015; Maxwell, 2013). Despite these criticisms, the axiological stance of positivism remains influential, guiding researchers in their pursuit of unbiased and replicable findings.

## **2.4 Methodological Approaches in Positivist Research**

Positivist research methodologies emphasize deductive reasoning and quantitative analysis. Deductive reasoning involves formulating hypotheses based on existing theories and empirical observations, followed by rigorous testing through systematic data collection and analysis (Bryman, 2016). This deductive approach allows researchers to make predictions based on theoretical frameworks and evaluate these predictions through empirical data (Saunders et al., 2009).



Quantitative methods play a pivotal role in positivist research for their ability to generate numerical data that can be statistically analysed to uncover patterns, relationships, and generalizable conclusions (Creswell & Creswell, 2017). Surveys, experiments, and statistical techniques such as regression analysis and structural equation modelling are commonly employed to analyse quantitative data, enabling researchers to draw statistically valid conclusions and generalize findings to larger populations.

The systematic application of these methodologies ensures that positivist research adheres to principles of objectivity, replicability, and the rigorous testing of hypotheses (Bryman, 2016). By employing standardized instruments and statistical procedures, positivist researchers aim to minimize biases and subjective interpretations, thereby enhancing the reliability and validity of their findings (Creswell & Creswell, 2017).

## **2.5 Research Strategies in Positivist Paradigm**

Research strategies within the positivist paradigm predominantly employ experimental designs and large-scale surveys to test hypotheses and gather empirical evidence (Campbell & Stanley, 2015). Experimental designs enable researchers to manipulate variables and control conditions rigorously, facilitating the establishment of cause-and-effect relationships (Cohen et. al., 2002). These designs are structured to minimize bias and confounding factors, thereby enhancing the reliability of findings.

In addition to experiments, surveys play a crucial role in positivist research strategies by systematically collecting data from representative samples of a population (Fowler, 2014). Surveys utilize standardized questionnaires or interviews to gather quantitative data, allowing researchers to generalize findings and draw statistical inferences about broader populations (Johnson & Christensen, 2019).

These methodological approaches underscore the positivist emphasis on objectivity, replicability, and the systematic testing of hypotheses through quantitative means (Bryman, 2016). By employing such rigorous strategies, positivist researchers aim to uncover general laws and principles that govern phenomena, contributing to the cumulative advancement of scientific knowledge (Creswell, 2017).

## **2.6 Application Across Disciplines**

Positivism has been applied across various disciplines, including psychology, sociology, economics, and the natural sciences, shaping research practices and methodologies in each field (Phillips & Burbules, 2000; Bryman, 2016). By emphasizing empirical verification and systematic observation, positivism has contributed to the development of scientific knowledge and the advancement of theoretical frameworks in diverse domains.

In psychology, positivism's emphasis on empirical evidence and objective measurement has influenced research methodologies such as experimental designs and quantitative analysis (Cohen et. al., 2002). This approach allows psychologists to test hypotheses rigorously and draw conclusions based on observable phenomena.

Similarly, in sociology, positivism has provided a methodological framework for studying social structures and behaviours through surveys, statistical analysis, and longitudinal studies (Creswell, 2017; Bryman, 2016). By applying positivist principles, sociologists aim to uncover general laws and patterns governing human interaction and societal dynamics.

In economics, positivism has guided the development of econometric models and statistical techniques for analysing economic data (Field, 2018). This approach enables economists to make predictions, formulate policies, and understand economic phenomena within a scientific framework.

In the natural sciences, positivism underpins the experimental method, where hypotheses are tested through controlled experiments and empirical observation (Kerlinger & Lee, 2000). This systematic approach has been fundamental to advancements in fields such as physics, chemistry, and biology, facilitating discoveries and innovations.

Across these disciplines, positivism's insistence on objectivity and systematic inquiry has played a crucial role in expanding the frontiers of knowledge. By integrating empirical evidence with theoretical frameworks, researchers have been able to address complex questions and contribute to the cumulative growth of scientific understanding.

## 2.7 Critiques of Positivism

Despite its widespread adoption, positivism has faced criticisms regarding its oversimplification of complex social phenomena and its neglect of qualitative dimensions (Lincoln & Guba, 2000). Critics argue that positivist methodologies may overlook contextual nuances, cultural differences, and subjective experiences that shape human behaviour and social interactions. Additionally, the emphasis on quantitative data may limit the exploration of meanings, interpretations, and subjective realities that are central to understanding human experiences.

Lincoln and Guba (2000) further assert that positivist approaches tend to prioritize objectivity and replicability at the expense of understanding the unique contexts in which social phenomena occur. This critique suggests that positivism's reliance on standardized methods and statistical analysis may not fully capture the richness and complexity of human behaviour and social interactions in their natural settings.

Moreover, qualitative researchers argue that human experiences are inherently subjective and cannot be fully understood through quantitative measures alone. Qualitative methods, such as ethnography, phenomenology, and narrative inquiry, offer alternative approaches that emphasize the exploration of meanings, perspectives, and lived experiences of individuals and communities (Denzin & Lincoln, 2018).

In addressing these critiques, researchers have increasingly recognized the complementarity of quantitative and qualitative approaches within mixed-methods research designs. By integrating both types of methods, researchers can achieve a more comprehensive understanding of complex social phenomena, acknowledging both the statistical regularities and the contextual nuances that shape human experiences (Creswell & Plano Clark, 2017).

Therefore, while positivism continues to provide a rigorous and systematic framework for scientific inquiry, its limitations in capturing the full breadth of human experience have prompted scholars to embrace a more pluralistic approach to research methodology, one that integrates diverse perspectives and methods to enrich our understanding of the social world.

## 2.8 Contemporary Perspectives and Integrations

Contemporary research practices often integrate positivist approaches with interpretivist or critical perspectives to enrich methodological pluralism (Guba & Lincoln, 1994). Mixed-methods research, for instance, combines quantitative and qualitative approaches to provide a more comprehensive understanding of research problems, incorporating both numerical data and in-depth insights into social contexts and subjective experiences (Creswell & Plano Clark, 2017).

This integration acknowledges the limitations of purely positivist or purely interpretivist approaches, recognizing the value of triangulation in research, where multiple methods converge to offer a more complete picture of complex phenomena (Johnson et al., 2007). By combining quantitative

rigor with qualitative depth, researchers can better address the multifaceted nature of research questions and enhance the validity and reliability of their findings (Tashakkori & Teddlie, 2010).

Moreover, the inclusion of critical perspectives alongside positivist methods encourages reflexivity and awareness of power dynamics within research contexts (Denzin & Lincoln, 2018). Critical theory, for example, challenges dominant paradigms and seeks to uncover underlying structures of power and inequality, complementing positivist approaches that focus on empirical validation and generalizability (Maxwell, 2013).

By embracing methodological pluralism, contemporary researchers not only expand the methodological toolkit available but also foster richer, more nuanced understandings of complex social phenomena. This approach not only contributes to theoretical development but also enhances the applicability of research findings to real-world contexts, thereby addressing practical and ethical considerations within research (Patton, 2015)..

### **3 METHOD**

The method section outlines the specific methodologies and techniques employed within the positivist research paradigm, focusing on data collection and analysis strategies that emphasise objectivity, replicability, and statistical rigour.

#### **3.1 Data Collection Techniques**

Positivist research relies heavily on structured data collection techniques to gather empirical evidence and test hypotheses. Common methods include:

##### **a) Surveys**

Surveys are widely used in positivist research to collect quantitative data from large samples of respondents using standardised questionnaires (Fowler, 2014). Surveys allow researchers to measure attitudes, behaviours, and perceptions across diverse populations, facilitating statistical analysis and generalisation of findings.

##### **b) Experiments**

Experimental designs are employed to establish causal relationships between variables by manipulating independent variables and observing their effects on dependent variables (Campbell & Stanley, 2015). Controlled experimentation enables researchers to test hypotheses under controlled conditions, providing empirical evidence to support or refute theoretical predictions.

These techniques enable positivist researchers to gather reliable and valid data, which is essential for testing hypotheses and deriving generalizable conclusions in scientific inquiry.

#### **3.2 Data Analysis Techniques**

Positivist research relies on rigorous data analysis techniques to interpret quantitative data and derive meaningful conclusions from empirical evidence. Fundamental to this approach are statistical analysis tools such as SPSS and AMOS, which enable researchers to conduct statistical tests, regression analyses, and structural equation modelling (SEM) to uncover relationships and patterns among variables (Pallant, 2020; Byrne, 2010; Field, 2018). These tools facilitate the formulation of hypotheses and theoretical frameworks by providing robust statistical validation.

Moreover, the Rasch model plays a pivotal role in positivist research by analysing categorical data and measuring latent traits in psychometric studies (Bond & Fox, 2013). This model ensures the

reliability and validity of measurements, offering a structured framework for assessing latent variable hierarchies and comparing individuals based on their latent trait scores.

In addition to these core tools, positivist researchers often utilize software like Stata for comprehensive statistical capabilities, R for its flexibility and extensive statistical methods, and Excel for basic statistical calculations and data management. Furthermore, specialized programs such as Mplus support advanced statistical modelling, NVivo facilitates qualitative data analysis, and SAS provides robust analytics and predictive modelling functionalities. Matlab, known for its numerical computing capabilities, also offers statistical tools through its Statistics and Machine Learning Toolbox, catering to complex data analysis needs in positivist research.

These tools collectively contribute to the rigorous and systematic approach of positivist research, ensuring that empirical findings are grounded in robust statistical validation and contributing to the advancement of knowledge across various disciplines.

## 4 DISCUSSION

The positivist research paradigm as shown in Fig.1 offers several strengths that underscore its enduring significance in scientific inquiry. By prioritizing empirical observation, logical reasoning, and systematic data collection, positivist research facilitates the generation of reliable, replicable, and generalizable knowledge (Phillips & Burbules, 2000). The use of quantitative methods allows researchers to quantify phenomena, test hypotheses, and establish causal relationships, thereby supporting evidence-based decision-making and policy formulation across various domains.

Despite its strengths, positivism has not been immune to criticism. One of the primary critiques is its reductionist approach, which tends to oversimplify complex social phenomena (Lincoln & Guba, 2000). Critics argue that positivist methodologies may overlook contextual factors and neglect subjective interpretations and meanings that are crucial for understanding human experiences. The emphasis on objectivity and value-free research may also limit the exploration of diverse perspectives and alternative paradigms that offer complementary insights into research problems.

In response to these critiques, contemporary research practices often integrate positivist approaches with interpretivist or critical perspectives to enrich methodological pluralism (Guba & Lincoln, 1994). Mixed-methods research, for example, combines quantitative and qualitative approaches to provide a comprehensive understanding of research problems. This approach integrates numerical data with in-depth insights into social contexts, meanings, and subjective experiences, thereby adopting a more holistic approach to inquiry (Creswell & Plano Clark, 2017).

Moreover, the integration of positivist and interpretivist paradigms acknowledges the strengths of each approach while mitigating their respective limitations. This methodological pluralism enables researchers to address research questions from multiple angles, fostering a deeper and more nuanced understanding of complex phenomena. It also encourages reflexivity and the consideration of researcher biases, promoting a more transparent and inclusive research process.

Looking forward, the future of positivist research lies in its continued adaptation and integration with emerging paradigms and methodologies. Embracing advancements in data analytics, computational methods, and interdisciplinary collaborations can further enhance the rigor and relevance of positivist research in addressing contemporary societal challenges. By embracing methodological diversity and reflexivity, positivist inquiry can continue to evolve as a robust framework for advancing scientific knowledge and informing evidence-based practices.

PHILOSOPHICAL ASSUMPTIONS			METHODOLOGY					
EPISTEMOLOGY	ONTOLOGY	AXIOLOGY	Research Approaches	Research Choices	Research Strategies	Time Horizon	Data collection techniques	Data analysis techniques
Objectivist	Naive Realism	Value free	Deductive	Quantitative	Experiments, Surveys	Cross-sectional	Questionnaire, Observation	SPSS, SmartPLS, AMOS, Rasch Model

**Figure 1** Positivist philosophical assumptions and methodology

## 5 CONCLUSION

In conclusion, this paper has provided a comprehensive guide to the positivist research paradigm, elucidating its philosophical foundations, methodological approaches, and applications in contemporary research. Positivism's steadfast commitment to objectivity, empirical validation, and quantitative analysis has been instrumental in advancing scientific knowledge across various disciplines. By emphasizing systematic and rigorous methods, positivist research has enabled researchers to generate reliable, replicable, and generalizable findings that inform evidence-based decision-making and policy formulation.

Despite criticisms regarding its potential for oversimplification and its historical neglect of qualitative dimensions, positivism remains a valuable framework for conducting disciplined inquiry. Its structured approach to hypothesis testing and causal inference has proven indispensable in addressing pressing societal challenges and advancing knowledge in fields ranging from natural sciences to social sciences.

As we navigate the complexities of contemporary research landscapes, positivism stands as a robust foundation for scientific inquiry, continuously evolving to meet the demands of an ever-changing world. By harnessing the strengths of positivist methodologies while acknowledging and addressing their limitations, researchers can propel scientific knowledge forward, making meaningful contributions to both academic scholarship and practical applications.

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## CONFLICT OF INTEREST

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# Research on the Application of Chinese Papercutting Craft in Modern Fashion Design

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## ABSTRACT

Chinese papercutting is a folk art, which is made on paper by cutting or carving, and has a history of development of thousands of years. In ancient times, its use can be roughly divided into four categories: posting, i.e., pasted on doors, windows, walls, and some furniture as decoration; embellishment, used to embellish gifts, sacrificial offerings, etc.; embroidery sampler, used for clothing, shoes, hats, and bedding embroidery patterns; printing and dyeing, as a printing plate. Since its development, the paper-cutting technique has been widely used in several artistic disciplines, by the diversity of its compositional methods and the flexibility of its expressive forms. In the field of fashion design, designers have extended the paper-cutting technique to a variety of fabrics, such as cotton, linen, and leather. By using paper-cutting techniques on different fabrics, designers can create different textures and visual effects. This study explores the aesthetic expression of paper-cutting craft in clothing by analysing its innovation and application in modern fashion design. This study uses literature review and case study methods to summarize and analyse the different ways in which the art of papercutting can be used in fashion design. Using the method of practical research, the paper-cutting technique was applied to three different fabrics, to compare the different styling effects they present. This study aims to argue the application value and development potential of the art of paper-cutting in the fashion industry through the combination of theoretical analysis and practical research.

**Keywords:** Chinese paper cutting, Fashion design, Openwork, Technique, Traditional culture



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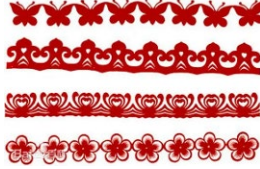





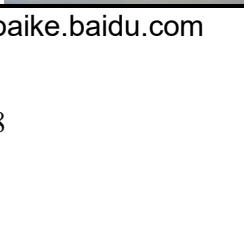
## 1 INTRODUCTION

### 1.1 Summary of Chinese Paper-Cutting

Paper was invented in the Han Dynasty of China in B.C. The earliest paper-cutting in China discovered by experts through archaeology now appeared in the Northern Dynasties period (386-581 A.D.), but before the Han Dynasty, people used thin sheets of material to make crafts through the technique of hollowing out and carving, which had been popular even before the emergence of paper. The techniques of cutting and carving were applied to gold leaf, leather, silk, and even leaves by people. Since 2006, the art of paper-cutting in various parts of China has been inscribed on national intangible cultural heritage lists, and in 2009 the Chinese paper-cutting project was inscribed on the United Nations Educational, Scientific and Cultural Organization's Representative List of the Intangible Cultural Heritage of Humanity.

Chinese papercutting is divided into three types, monochrome paper-cutting, coloured paper-cutting, and three-dimensional paper-cutting, and each type is divided into several performance techniques. Table 1 lists a few of the more common paper-cutting techniques used in daily life, and briefly describes the characteristics of their performance.

**Table 1** Examples of Paper Cutting Techniques

Type	Technique	Example	Characteristics
Monochrome	Fold		Symmetrical, coherent and easy to make
Coloured	Silhouette		Hollowing out, and with a focus on the outer contours
	Spot dyeing		Like watercolour painting, easy to stain and artistic
	Color using several overlaid images		Large area openwork; usually in three or four colours, focusing on contrasting colour relationships
Three-dimensional	Color filling		Paper cutting combined with painting
			Like relief, making the paper cuts three-dimensional
			

Source: All images in the table are from <https://baike.baidu.com>



## 1.2 The Application of Paper-cutting Elements in Fashion Design

For a long time, the inheritance and continuous development of paper-cut art in the folk made it still very common today. Ancient folk paper-cutting is good at combining a variety of objects together, so that it makes exists in people's ideals of a beautiful mood to show, such as a good harvest of grain, or a big fish, which stems from the people's desire for a happy life; deer and cranes are symbols of longevity; eagles and rabbits are widely used in folk weddings wedding room decorations, alluding to men and women in love, reflecting the cult of reproduction. There are also some paper cuttings for the purpose of narrative, showing some legends and stories on the paper cuttings, which are used as window grilles. In modern art, the elements of papercutting are widely used in packaging design, architectural design, fashion design, book covers, animation, etc. People try to integrate the traditional patterns, artistic symbols, and visual features of paper-cutting into their works, so that the art of papercutting can be innovated in combination with various disciplines (Liu, 2023).

The application of paper-cutting in fashion design is specifically manifested in the pattern, structure and craftsmanship. Designers can design paper-cut patterns into appropriate sizes and shapes, and paste or sew them onto garments after production, a method that allows them to combine and superimpose patterns, giving them a rich and diverse decorative effect. For example, Thom Browne Fall 2013 (Figure 1). In addition, traditional paper-cutting patterns can also be applied to garments through printing and dyeing or embroidery, reflecting the unique aesthetics of Chinese folk crafts.



**Figure 1** Thom Browne Fall 2013  
Source: <https://www.vogue.com>

Fashion designers can use cutting, stitching, and three-dimensional treatment to design clothing according to the structure of paper cuts (Pan, 2023). Designers can use the shapes and lines of paper cuttings to create unique shapes on the neckline, sleeves or hemlines of garments, etc. In Yiqing Yin Couture Fall 2012 (Figure 2), the designer combines and superimposes different shapes of paper cut-outs to make the garments fit the human body and at the same time have a sense of three-dimensionality, with an overall symmetrical and harmonious effect.



**Figure 2** Yiqing Yin Couture Fall 2012  
Source: <https://wwd.com>

Chinese folk craftsmen usually use a variety of techniques such as hollowing, splicing, printing and dyeing to modify the paper material when creating paper-cutting works (Pan, 2023). While traditional paper-cutting uses cutting and carving as the main techniques to create works on paper, modern papercutting applies more techniques such as cutting, bending, folding, and inserting (Hao et al., 2023). In modern fashion design, designers can similarly use these techniques to recreate fabrics. In LAN YU COUTURE FALL WINTER 2016/17 (Figure 3), the designer sewed paper-cut butterflies onto silk fabrics of the same color, either centrally or separately, to make the overall style of the garment look more balanced and to show the elegance of the classical Orient.



**Figure 3** LAN YU COUTURE FALL-WINTER 2016/17  
Source: <https://www.sohu.com>

### 1.3 Problem Statement

This study first screened the literature with the keywords "Intangible Cultural Heritage" and "traditional Chinese culture", and then conducted a secondary survey to look for research on the application of Intangible Cultural Heritage and traditional Chinese culture in modern art design and clothing design. It was found that the role of paper-cutting art in art design was explored in most of the relevant literature and appeared more frequently than other elements such as "Suzhou embroidery" and "brocade". Liu (2023) noted that paper-cutting art has unique modelling and remarkable artistic expression, from the point of view of aesthetic consciousness or creative form, there is an inevitable connection between traditional paper-cutting art and modern art and design, and the innovation and development of modern art and design need to be inspired by the origin of this folk culture, and to find a new form of art and language symbols integrated into the modern design concept. The art of paper-cutting breaks geographical limitations, is widely spread among the folk of all parts of China, has developed different techniques and characteristics in various regions, and still has not stopped developing, which can bring infinite research space to researchers. However, its theoretical system is too large, resulting in each researcher having his own research angle, and most of them are theoretical research, seldom using the method of practical research to prove the point of view, therefore, this research takes the application of paper-cutting art in clothing as an entry point, and describes the three typical ways of applying paper-cutting techniques on clothing, and demonstrates paper-cutting techniques on fabrics using fabric reconstruction. The research objectives are as follows:

1. To find the three most frequently used paper-cutting techniques in the case study of fashion design.
2. To use the paper-cutting techniques on different fabrics to demonstrate their practicability and usefulness.
3. To prove the value of the research by combining theory and practice to fill the research gap.

## 2. LITERATURE REVIEW

This study reviews the literature from two aspects: the suitability of the art of paper-cutting with other art disciplines; and the usefulness and significance of paper-cutting techniques in clothing design. Papercutting is a Chinese folk art with a long history of using common tools, simple production, and a wide variety of materials and styles. There are static window decorations and realistic shadows that can be manually controlled for dynamic performance (Yu, J, 2022). Chang et al. (2023) noted that based on realism, paper cuts still have abstraction and imagery, but they pay more attention to the shaping of the imagery to express the image in the creators' minds. This cultural basis also affects the content and the form of paper cuts. Gao (2019) noted that the art of paper-cutting, through its unique cultural connotation and artistic charm, has a wide range of uses in different fields and promotes product innovation in various fields. Cao (2023) noted that in the modern development of the art of paper-cutting, a notable trend is the cross-border cooperation and diversification of expression, and the works resulting from such cross-border cooperation are no longer limited to traditional graphic visual art forms but have expanded to a variety of forms such as three-dimensional installations, architectural facades, and fashion accessories. Its application in contemporary art design can inject new vitality into modern art and give more traditional cultural characteristics. However, the application of traditional paper-cutting in contemporary art design should not just be a simple imitation of the form of expression and compositional techniques, but should be based on the inheritance of its symbolic and decorative characteristics, and combined with the needs of the design object, so as to make paper-cutting, which was originally belonging to the spiritual level, obtain a wider range of functional attributes (Liu, 2023). Ye (2023) noted that the use of traditional paper-cutting cultural elements in modern art design not only helps to pass on and protect traditional culture, but also enriches the expression and visual effect of modern art.

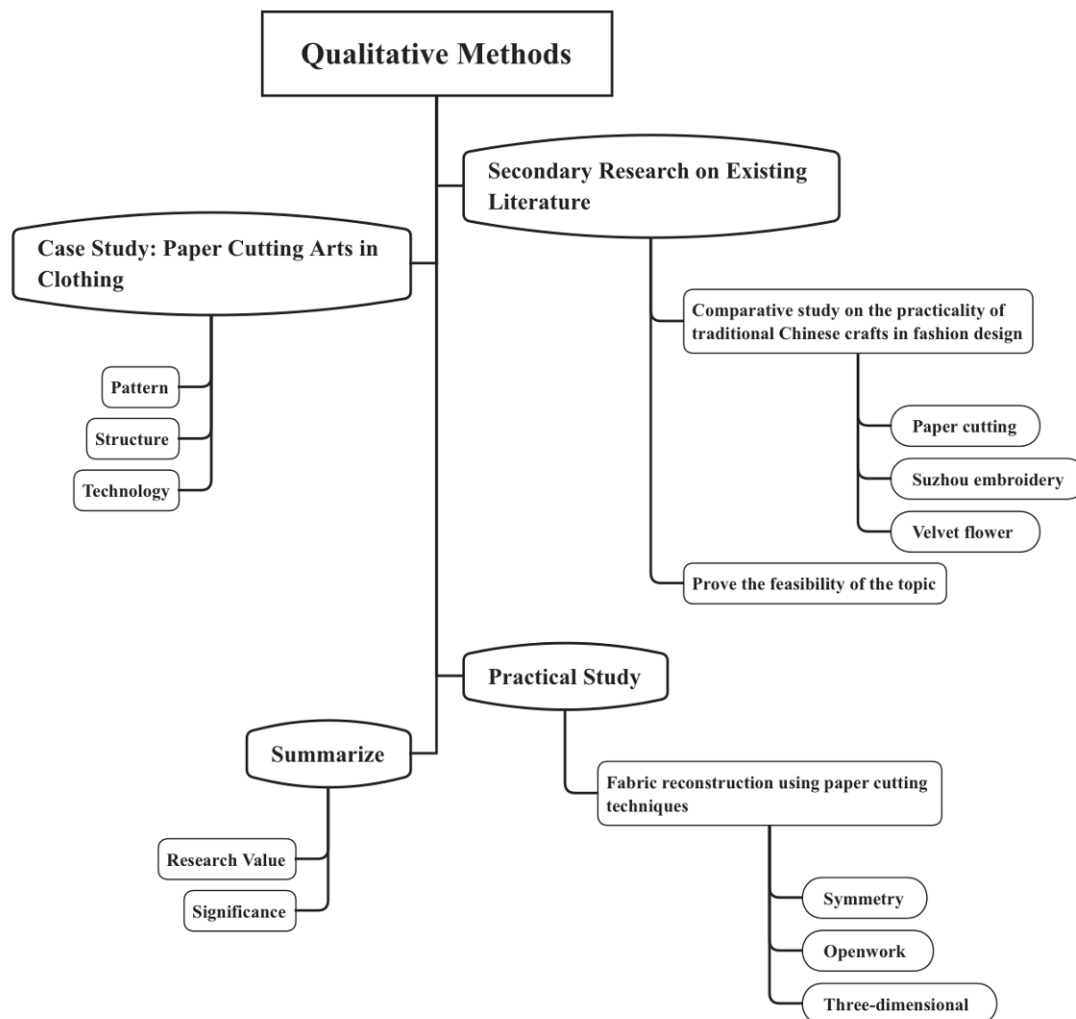
In fashion design, designers mainly present the art of paper-cutting through patterns, structures and techniques. The use of paper-cutting patterns in modern clothing design mainly includes three aspects: first, the use of representational patterns, through the printing technique to directly apply the pattern in

clothing design, not only use for local but also overall expression; second, the use of imagery patterns, the profound symbolism behind the paper-cutting infiltrated into the concept of clothing design; the third is to deconstruct the traditional paper-cutting patterns, break the limitations of the traditional design of paper-cutting, and enrich the Modern Clothing Design Creativity (Hu, 2023). Paper-cutting patterns have a lot in common with clothing design in terms of composition and use of lines. Paper-cut patterns incorporate basic geometric elements such as symmetry and perspective, which are also commonly used in clothing design, integrating paper-cut patterns into clothing design, and by combining and utilizing these elements, a more layered and three-dimensional effect can be created (Xu, 2023). Extract the most expressive part of the paper-cut pattern, and then make a secondary design of these elements to make it meet the modern aesthetic needs and reflect the national characteristics of contemporary clothing at the same time (Lei, 2022). Paper-cut compositional modelling has an important role in clothing design, and the rational and scientific use of planarized compositional modelling can enhance the rationality of clothing layout (Ha,2021). The geometric aesthetics in paper-cutting help designers to create unique structures and forms, and the use of symmetry and geometric patterns can develop new cutting methods, these methods emphasize the lines and shapes of garments, creating garments that are both visually striking and ergonomic (Chen, 2024). The versatile modelling of paper-cutting, as opposed to the planar form of traditional paper-cutting, emphasizes the sense of space. Paper-cutting folds and bends under the action of force, transforming the two-dimensional plane into a three-dimensional space, which, when combined with three-dimensional tailoring and clothing design techniques, allows paper-cutting to form a spatial inclusion that achieves the purpose of wrapping around the human body (Chen & Zheng, 2023). Traditional papercutting techniques involve folding and cutting paper to create intricate patterns and lines, and fashion designers often apply this technique to materials such as leather to create garments that are as delicate and uniquely textured as paper cutting (Lei, 2023). Designers can also use processes such as cutting, carving, hollowing, printing, dyeing, and splicing to present unique visual effects, in order to improve the texture of garments (Hu, 2023). Designers would be inspired by the intricate patterns found in paper cuttings and would use layering or cutting techniques to mimic the fine craftsmanship of the paper cuttings, thus creating a similar visual effect on the garments (Chen, 2024).

Based on the above literature review, it is possible to clearly understand the inspiration of paper-cutting art to the field of clothing design in terms of innovation, as well as the help of paper-cutting techniques to clothing cutting and fabric reconstruction, which provides a theoretical basis for the research value of this research topic.

### **3. METHODOLOGY**

This study uses qualitative and descriptive research methods, a secondary research approach to analyse existing data and theories in the literature, multiple perspectives to explore and explain the practical significance and value of using paper-cutting techniques in apparel design, and finally three simple practical studies to confirm the validity of this study. The research procedure is seen in Figure 4.



**Figure 4** Research process  
Source: Produced by the author







## 4. RESULTS

### 4.1 Comparative Study of Traditional Chinese Crafts

This study analyses and summarises the characteristics of three traditional Chinese crafts through a secondary study of existing literature, to demonstrate the feasibility of using paper-cutting techniques in clothing design. The comparison of the advantages and limitations of the three traditional Chinese crafts is seen in Table 2.

Through the results of the comparative study, it is found that paper-cut is easier to start and combine with clothing design, although, in the professional category, Suzhou embroidery and velvet flower technology are more closely related to the field of clothing design, but for the majority of designers, mastering the two traditional crafts of Suzhou embroidery and velvet flower is far more difficult than learning paper-cut techniques. Therefore, the application of paper-cut techniques to clothing design is a way to quickly provide aesthetic value and artistic value for clothing.

**Table 2** Comparison of three traditional crafts

Type	Making Method	Finished Product	Advantage	Limitation
Paper cutting			Creators can design simple or complex patterns according to their ideas and harvest the finished product after cutting it.	The traditional paper-cut technique is relatively flat; and it is not suitable for all fabrics, such as some fabrics that are easy to detach.
Suzhou Embroidery			There are dozens of embroidery stitches, and the patterns produced are exquisite and lifelike, with high aesthetic value.	The creator needs to be proficient in Suzhou embroidery crafts.
Velvet Flower			The production process is divided into nine procedures, with unique modelling and high artistic value.	The production process is complex, and the finished product is usually small, making it unsuitable for large-area application on garments.

Source: All images in the table are from <https://image.baidu.com/>

## 4.2 Application of Paper-cut Technology in Fabric

In this study, the element of butterfly, which is commonly found in paper cuttings, was applied to fabric using three different ways and displayed on a 1/2 size mannequin, and the following are the results of the practical study for each of the three methods.

### Design 1

This work is inspired by the "cocoon into a butterfly" in nature, as shown in Figure 5. The main material used in this work is corduroy (a chemical fibre blend), and the secondary material is hard netting. Firstly, the fabric is cut into the shape of an openwork butterfly according to the size of a mannequin as the upper part of the skirt; the bottom of the skirt is made of corduroy and the top of the skirt is made of irregularly spliced mesh fabric to imitate a "cocoon". This design aims to combine the paper-cut pattern with the shape of the garment, making it both a pattern and part of the structure of the garment.



**Figure 5 Design 1**  
Source: Produced by the author

## Design 2

The main fabric used in this work is faux leather, followed by corduroy. Two methods are used in this work, cutting and pasting. Applying the paper-cut pattern directly to the fabric and splicing the corduroy fabric underneath the cut-outs give the garment a sense of hierarchy and to enrich the colour scheme of the garment. The chest is embellished with a butterfly cut out of mirrored plastic to brighten up the overall colour palette of the garment. As shown in Figure 6.



**Figure 6 Design 2**  
Source: Produced by the author

## Design 3

The materials used in this piece are black stiff netting and mirrored plastic. The netting is used as the fabric for the dress, and then butterflies of different sizes cut out of plastic are attached to it, in random positions. The wings of the butterflies are folded into the shape of a butterfly falling on some

object, meanwhile, the mirrored plastic reflects the natural light and shadows, giving each butterfly a different lightness and darkness, and bringing a sense of vibrancy to the overall costume. The purpose of this work is to give a three-dimensional feel to the garment pattern by using the paper-cutting technique. As shown in Figure 7.



**Figure 7 Design 3**  
Source: Produced by the author

## 5 DISCUSSIONS

In this study, through the way of practical research, the use of paper-cut techniques for fabric reconstruction, to test the suitability of different paper-cut techniques and clothing materials to verify the feasibility of its implementation in clothing. In the course of practice, it is found that, in addition to artificial leather/leather fabrics that have been widely used to make openwork shapes, some synthetic fibre fabrics that are not easy to shed silk can also be used to make openwork effects; due to the weak elasticity of synthetic fibre materials, which makes it easy to fit the human body curves, and at the same time, it is not easy to be deformed, therefore, it is very suitable for the application of paper-cut creativity. The combination of mirrored plastic and fabric also has unexpected effects: in terms of colour, the colour palette of mirrored plastic is the same as that of the fabric, for example, the work in Figure 7 uses black fabric, so that under natural light, the colour of mirrored plastic ranges from grey to black; in terms of material, mirrored plastic have strong plasticity, and can be moulded into different shapes, capable of rendering any desired three-dimensional state on the fabric.

Through this experiment, we were not only able to verify the reasonableness of the application of paper-cutting techniques on garment fabrics, but also learned that the use of different materials in combination also helps to develop inspiration. For example, the combination of mirrored plastic and different coloured fabrics can reflect different colours (in natural light), and it can be found that the colour of the light can also have an effect on the mirrored plastic, so combining it with clothing and complementing it with different coloured lights can transform the clothing into a work of installation art, making the clothing have a deeper level of artistry. Therefore, it can be judged that the art of papercutting can directly or indirectly provide the field of clothing design with ways to improve the artistry of clothing, which is conducive to making clothing design and other art disciplines integrate with each other and bring about a broader research space.



## 6 CONCLUSIONS

This paper discusses the feasibility, rationality and practicality of applying paper-cutting techniques in clothing design. In the study of literature and case studies, it is found that papercutting can be used not only as a pattern in clothing design but also to modify the details. Effectively transforming and integrating paper-cutting patterns, such as turning paper-cutting patterns into a part of garments, such as collars and hemlines, can make them adaptable to different styles of garments, and get rid of the limitation of applying patterns directly on fabrics.

This study supports the theoretical viewpoints through practice, analysing the characteristics of several materials and the way of application, exploring the combination methods of the paper-cutting process and clothing from different angles, and providing referable cases for the field of clothing design, which is a simple process but relatively clear and concise, making it easier to refer to.

Taking clothing as a carrier and applying the aesthetic principles of paper-cutting on it, is to transform two-dimensional art into three-dimensional, static into dynamic, paper art into fabric art, which can not only improve the artistry and aesthetic value of clothing, but also play a positive influence on the dissemination of Chinese paper-cutting art. Based on the artistic characteristics and cultural connotations of paper-cutting, the designers take the traditional paper-cutting form as a reference, combine it with contemporary aesthetic trends, simplify the pattern, adapt to the shape of the garment, combine a variety of crafts, break through the limitations of traditional paper-cutting, and make paper-cutting realize more possibilities in the garment.

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## AUTHOR CONTRIBUTION

Zhu Ziwei oversaw finding literature and cases, writing the article, and producing the work; Asliza Aris was in charge of guiding Zhu Ziwei in each work; Hasma Binti Ahmad was in charge of checking and perfecting the paper. All authors read and approved the final manuscript.

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## CONFLICT OF INTEREST

No conflict of interest declared for this paper.

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# The Fabric of the City: Weaving a Sustainable Urban Identity through Kuala Lumpur's Fashion Districts

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## ABSTRACT

*This research explores the integration of Malay, Chinese, and Indian cultural elements within Kuala Lumpur's fashion districts, explicitly focusing on the Central Market. This cultural synthesis enhances the city's international image in a globalised context. Central Market is a prime example of how fashion innovation can foster cultural appreciation, social cohesion, and economic sustainability. The market's unique blend of historical heritage and contemporary fashion underscores the potential for cultural landmarks to drive sustainable urban development. This study investigates the intricate relationships between fashion, urban geography, and cultural identity by employing a methodology that includes observation and interviews with designers and industry stakeholders. Findings highlight the role of the fashion sector in celebrating Kuala Lumpur's diverse cultural heritage while promoting sustainable development through eco-friendly production practices and multicultural integration. Key brands like NALA, Coconutshop, Borneo Pearls, and TENMOKU POTTERY are beacons of successful sustainable practices, ranging from natural and recycled materials to innovative design approaches that minimise environmental impact. These practices contribute to environmental sustainability and bolster the market's economic vitality by attracting a diverse consumer base, painting a promising picture for the future of sustainable fashion. The study suggests that strengthening policy frameworks and fostering strategic partnerships within the fashion industry can help consolidate Kuala Lumpur's status as a hub for multicultural fashion heritage. Kuala Lumpur can further its global standing in the fashion industry by addressing challenges and leveraging opportunities within a competitive environment. This article underscores the importance of cultural diversity and creativity in promoting sustainable urban development in an interconnected world. It offers practical recommendations for urban planners and policymakers in Kuala Lumpur and other cities to harness the potential of fashion districts in driving economic growth, cultural vibrancy, and sustainability.*

**Keywords:** *Multicultural Fashion Heritage, Sustainable Urban Development, Eco-Friendly Fashion practice, Cultural Integration and Innovation, Kuala Lumpur Central Market*



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## 1 INTRODUCTION

### 1.1 Background

Urban cultural identity and economic development are facing unprecedented changes and challenges in the wave of globalisation. Globalisation accelerates the exchange and integration of cultural elements

and reinforces the role of cities as platforms for cultural exchange. Consequently, the cultural identity of cities has become a focal point of global attention, with its transformation directly impacting the shaping of urban image and international status.

Urban cultural identity is undergoing significant transformation in the context of globalisation. Globalisation not only promotes cultural exchange and integration but also has a profound impact on urban cultural identity. Studies show that a critical issue is how cities maintain and develop their unique cultural identities amidst globalisations. For instance, Jan Nijman explores the reconstruction of Amsterdam's urban cultural identity under the influence of globalisation (Nijman, 1999). Similarly, HA Nia's research highlights globalisation's challenges to urban cultural identity (Nia, 2023).

At the same time, the fashion industry must be considered a critical driver of urban cultural and economic development. Research indicates that the fashion industry can significantly boost cities' economic development and cultural innovation (Nia, 2023). For example, E Chilese and AP Russo's study points out that Barcelona's fashion policies enhance cultural diversity and creativity, thereby driving economic growth (Erica & Russo, 2009). Frederic Godart's research on the power structures within the fashion industry reveals how fashion capitals leverage globalisation and creativity to dominate the industry, thereby influencing the cultural and economic landscapes of global cities (Godart, 2014).

As the intersection of culture and economy, the fashion industry plays a pivotal role in shaping urban cultural identity and driving economic development. It serves as a mode of urban cultural expression and a crucial force driving economic growth. Research shows that the fashion industry promotes urban economic vitality and global competitiveness by creating jobs, attracting international investments, and enhancing urban brand value. Understanding this dynamic is crucial for urban planners, policymakers, and individuals interested in urban cultural development and globalisation's impact on cities.

In Kuala Lumpur, mainly along Jalan Tuanku Abdul Rahman, the vibrant "textile district" attracts numerous tourists with its lively outdoor environment and cultural festivals such as Ramadan markets and Hari Raya celebrations. This area focuses on creative textiles, drawing inspiration from global fashion districts, aiming to become a centre for innovation and cultural heritage fusion in the fashion industry. The high pedestrian traffic and presence of traditional shops within walking distance add unique visual and cultural characteristics to the area, offering a variety of fabrics and festive attire, further enhancing its fashion appeal (Samadi et al., 2012). The Central Market, located in Kuala Lumpur, was built by the British in 1888 and initially served as an open market for locals and tin miners. After several expansions, by 1933, the market reached its current size. During the rapid development of Kuala Lumpur in the 1970s, there were plans to demolish the market, but the intervention of the Malaysian Heritage Society preserved this historically significant building. In 1985, the Central Market was renovated into a vibrant and colourful cultural market, and this role has continued ever since (Jamaludin & Kadir, 2012). The market features corners representing various ethnic characteristics and stalls divided according to ethnic traits, including Lorong Melayu, Straits Chinese, and Lorong India, making it a must-visit tourist destination (Jamaludin & Kadir, 2012).

The changing urban landscape and social behaviours in Asian cities, including Kuala Lumpur, lead to a fusion of global culture and residents' perceptions and experiences of the city. Studies show how historical urban sites in Kuala Lumpur influence locals' perceptions, knowledge, emotions, and memories, depending on personal experiences, roles, duration of interactions, and age. The attachment of city residents to these places is primarily influenced by their economic and cultural dependence on them, highlighting the importance of preserving Kuala Lumpur's cultural diversity and multi-ethnic identity. Despite the close connections and awareness of Kuala Lumpur's architectural heritage among

its residents, maintaining the unique identity of these places poses a challenge due to the complexity of urban environments and lifestyles (Ujang, 2016).

While research on how specific fashion districts enhance urban cultural identity and international image is relatively scarce, especially in multicultural Asian cities, the Central Market in Kuala Lumpur presents a unique and promising research opportunity. As a fashion district integrating Malay, Chinese, and Indian cultural elements, the Central Market is a living example of how the fashion industry can influence urban fashion image. By studying this impact, this research can help improve and strengthen urban cultural identity in the face of globalisation. It provides valuable information for city planners, decision-makers, and people interested in urban culture and how globalisation affects cities.

## 1.1 Research Objective

This study explores how the Central Market in Malaysia, as a specific fashion district, influences the construction of Kuala Lumpur's urban fashion image. By investigating the attitudes and practices of designers and brands within the Central Market, the study seeks to understand their approaches toward urban fashion sustainability. Additionally, it analyses how this fashion district enhances Kuala Lumpur's international image by integrating Malay, Chinese, and Indian cultural elements.

## 1.2 Research Questions

1. What are the attitudes and practices of designers and brands within the Central Market regarding urban fashion sustainability?
2. How does this fashion district enhance Kuala Lumpur's international image by integrating multicultural elements?

The study aims to explore how the Central Market in Kuala Lumpur contributes to the cultural and economic development of the city. It also seeks to propose strategies for leveraging the fashion industry to enhance urban image and socio-economic development.

## 2 LITERATURE REVIEW

### 2.1 Urban Fashion and Cultural Identity

Urban fashion plays a significant role in the interaction between fashion and the urban environment, reflecting cultural, economic, and social characteristics. Natural fibres, such as lemongrass and other spices, promote sustainability and cultural preservation (Asri, 2022). Urban wandering, an essential activity in fashion practice, allows designers to accumulate an emotional understanding of a place, enhancing fashion presentation and contributing to the ambience of the space (Handcock & Joannides, 2021). Fashion is viewed as a multidimensional phenomenon, redefining urban spaces and representing urban activities, underscoring its crucial role in modern cities (Zhang et al., 2024).

Furthermore, cities' fashion districts are hubs of commercial activity and significant manifestations of cultural identity and international image. By showcasing unique urban landscapes and lifestyles, fashion districts enhance cultural identity and shape the city's brand image globally. Studies indicate that the interaction between fashion and urban cultural diversity in Milan enriches the city's cultural layers and fosters creativity across different cultural backgrounds, showcasing inclusivity and innovation (Bovone, 2006). Fashion cities intertwine cultural identity with urban growth, exploring how creativity and cosmopolitanism synergise to enhance cultural participation and regional development (Cerisola & Panzera, 2022). They cultivate a sense of environmental identity, transforming "spaces"

into "places," which is crucial for urban illumination culture and sustainable development, reflecting sociocultural trends in modern urban environments (Lekus, 2018). Cities establish unique cultural identities to attract investment and affluent residents in the competitive global market, leveraging branding strategies to stand out and promote growth (Masiya, 2012). In Kuala Lumpur, the central areas have evolved due to globalisation and colonial influence, shaping the nation's socioeconomic development and prosperity. Studies on Kuala Lumpur's millennial consumers indicate a growing interest in sustainability, suggesting a shift towards environmentally conscious consumer behaviour in the fast fashion industry. These converging factors highlight the dynamic and diverse nature of Kuala Lumpur's urban fashion environment. Research exploring Malaysian visual culture reflects the urban landscape's historical, value-based, and aesthetic elements, emphasising the persistence of cultural patterns, including fashion, in Malaysia's visual environment (Blankenship & Tan, 2020).

## **2.2 The Central Market as a Cultural and Fashion Landmark**

The Central Market in Kuala Lumpur is a Malaysian cultural and heritage landmark that showcases multicultural and traditional crafts. It is a hub for shopping and tourism and promotes cultural heritage and art through various activities and exhibitions, such as DIY batik painting, fish spa treatments, and henna tattoos. These cultural and artistic activities enhance Kuala Lumpur's appeal as a cultural tourism destination, fostering cultural exchange and social cohesion. The market's role in preserving historical elements and promoting cultural values makes it an essential landmark for Malaysian culture and heritage. Its historic architecture reflects the unique blend of Malaysian ethnic cultures, contributing to its cultural significance (Zamri et al., 2023). Additionally, preserving heritage buildings like the Chan Clan Association enriches the city's cultural value, attracting local and international tourists and highlighting the importance of retaining historical sites for cultural arts and humanities (Kristiningrum, 2014).

Moreover, the architectural features of traditional shophouses in Malaysia, influenced by climate, colonial standards, and cultural assimilation, emphasise the importance of preserving traditional architectural designs to maintain the historical character of urban areas (Peng & Ng, 2018). Focusing on the Central Market as a fashion district that integrates Malay, Chinese, and Indian cultural elements, this study fills a research gap in understanding how such districts can enhance urban cultural identity and international image, particularly in multicultural Asian cities. By exploring the fashion industry's impact on Kuala Lumpur's urban fashion image, this study aims to reveal the pathways for reconstructing and enhancing urban cultural identity in globalisation.

## **2.3 Application of Sustainability in the Fashion Industry**

The global fashion industry progressively incorporates sustainable practices through eco-friendly materials and focuses on efficient energy and resource utilisation in production processes. As a leading fashion capital, Milan has begun to adopt sustainable materials and optimise production processes to minimise environmental pollution. These practices have improved environmental quality and enhanced enterprises' social responsibility image (Jansson & Power, 2010). Through these sustainable fashion practices, public awareness of environmental protection is elevated, and the environmental values reflected in fashion products further propel society toward overall sustainable development. Cultural continuity and heritage preservation have become integral to this transformation, emphasising the protection of traditional crafts and local knowledge (Brown & Vacca, 2022). Moreover, incorporating sustainable practices into fashion design not only aids economic development and job creation but also enhances the overall appeal of cities. By promoting the circular economy, implementing legislation, and encouraging sustainable consumerism, the industry can move towards a more sustainable future, benefiting both the environment and society.

Sustainable fashion design plays a crucial role in urban society by addressing social and environmental impacts, as evidenced by sustainable development in Indonesia (Brown & Vacca, 2022). Cities and the fashion industry can develop sustainable relationships by embracing changes and prioritising social and ecological responsibilities. This includes adopting economically viable practices that benefit society and the environment. In an urban context, the support and implementation of sustainable practices by various stakeholders, including businesses, consumers, and policymakers, are critical to this relationship. Their collective efforts can create a new fashion culture that aligns with sustainable development principles (Ozdamar Ertekin et al., 2020). Additionally, the fashion industry can contribute to urban sustainability through circular economy practices, aligning with sustainable development goals, the Green New Deal, and the New Urban Agenda, taking a more environmentally and socially responsible approach (Pastran et al., 2021).

In urban fashion communities like Kallio in Helsinki, clothing designers and tailors are increasing value and extending the lifespan of materials through upcycling old garments into new ones. These designers prioritise slow fashion, creating timeless clothing at a thoughtful pace driven by creativity and environmental considerations rather than adhering to the fast-paced cycles of large corporations. Challenges include balancing the desire for innovation with sustainable development principles as designers strive to create unique, recognisable pieces without succumbing to the pressures of fast-trend cycles. Kallio's approach reflects the broader sustainability trend in the fashion world, focusing on quality, longevity, and waste reduction in alignment with contemporary urban cultural values (Gurova & Morozova, 2018).

### **3 METHODOLOGY**

This study employs a qualitative approach, utilizing field observations and in-depth interviews for data collection. Three field observations were conducted at the Central Market in Kuala Lumpur, with representative designers and brand founders selected from five speciality shops for semi-structured interviews. Criteria for selection encompassed distinct product features, utilization of natural and eco-friendly materials, incorporation of artistic elements, and cultural significance. The initial list of interviewees was established through internet searches, site visits, and market recommendations. Contact with interviewees was made via email and telephone to elucidate the study's objectives and schedule interviews, both orally and in writing.

The data analysis process was rigorous, involving qualitative content analysis that incorporated coding and thematic analysis of interview and observation data. We meticulously scrutinized transcriptions of all interviews and written responses, along with field notes, to identify prevalent themes and patterns. Open coding was used to organize data into overarching themes, while thematic analysis aimed at comprehending the interrelations between themes and systematically interpreting research inquiries. The interviews, conducted in accordance with Patton's (1990) guidelines, were recorded and transcribed with participant consent, lasting between 60 to 90 minutes. The focus of content analysis was on sustainable fashion practices at the Central Market. We gleaned insights through categorization, abbreviation, comparison, and integration of data at both individual and aggregate levels. Primary issues were assessed alongside secondary concerns to enhance reliability, with the researcher's consensus on the central issues presented subsequently.

**Table 1** Participants profiles

<b>ID</b>	<b>Gender</b>	<b>Age</b>	<b>Position</b>	<b>Brand</b>	<b>Brand Description</b>
A	Female	35	Designer & Founder	NALA	Heritage-Inspired Fashion Store: NALA is in the heart of the Central Market, specialising in innovative fashion that blends traditional Malaysian patterns and craftsmanship. The core philosophy is to preserve and promote local cultural heritage using natural fibres and eco-friendly dyes, ensuring minimal environmental impact. NALA collaborates with local artisans to revive traditional crafts and hosts workshops and cultural lectures to enhance consumer cultural identity and engagement.
B	Male	40	Store Manager	Coconutshop	Coconut Shell Fashion Items: Coconutshop, situated on a market corner, specializes in fashionable items made from coconut shells, such as bowls, plates, and jewellery. The brand aims to convert natural waste into high-value fashion products using simple processing techniques without chemicals, ensuring environmental friendliness. Customers can choose their preferred patterns and shapes, participating in product design, enhancing product uniqueness and consumer satisfaction.
C	Female	36	Designer	Borneo Pearls	Natural Flower and Pearl Jewelry: Borneo Pearls, located in a prominent spot in the market, is renowned for its exquisite jewellery made from natural flowers and pearls. The store uses sustainable natural materials and accepts recycled pearls into unique pieces. Customers highly appreciate and welcome the brand's eco-friendly and personalised design philosophy, with the pearl recycling project going viral.
D	Female	38	Store Manager	TENMOKU POTTERY	Handcrafted Pottery: TENMOKU POTTERY, situated on a central passage of the market, displays and sells various handcrafted pottery items. The brand uses locally sourced natural clay and non-toxic glazes to ensure environmental friendliness. Handcrafting reduces energy consumption and imparts a unique character to each piece. TENMOKU POTTERY frequently holds pottery workshops, attracting many consumers interested in handicrafts.
E	Male	30	Designer & Founder	ekha Plastic Recycling Design Brand	Plastic Recycling Design Brand: Located at the entrance of the second floor of the Central Market, this store specialises in bags and accessories made from recycled plastic. The core philosophy is to convey environmental protection concepts through design and reduce plastic pollution. The store offers various recycled plastic materials for customers and involves them in the design process, enhancing environmental awareness and product uniqueness. The market response to these eco-friendly products is very positive, with customers appreciating their unique designs and environmental principles.



## 4 RESULTS

This study identified the determinants of sustainable fashion practices in the Central Market through in-depth interviews analysed using Michael Porter's diamond model (Patton, 1990). The results indicated four key factors: factor conditions, demand conditions, associated and supporting industries, and company strategy, structure, and competition.

Participants operating speciality shops mentioned the rich source of local materials and crafts available in the market, which supports sustainable design and production. For example, NALA and TENMOKU POTTERY founders highlighted the abundance of skilled artisans and natural materials that facilitated their sustainable practices. The unique location and historical context of the Central Market provide inspiration and resources for fashion brands. NALA benefits from access to traditional fabrics and eco-friendly dyes. At the same time, Coconutshop utilizes abundant coconuts for eco-friendly products, and Borneo Pearls combines local pearls and flowers in their designs.

Demand conditions in the market are favourable, with high consumer acceptance and interest in sustainable fashion. TENMOKU POTTERY attracts tourists and residents willing to pay for unique, eco-friendly handicrafts. The increasing consumer interest in products that allow participation in the design process enhances brand competitiveness. Organizing events and workshops further raises consumer awareness and interest in sustainable fashion.

The Central Market also benefits from a network of associated and supporting industries. Relationships with local artisans and material suppliers, as seen with NALA and TENMOKU POTTERY, ensure the sustainability and distinctiveness of products. Borneo Pearls' collaboration with local flower suppliers and pearl farms guarantees a consistent supply of high-quality materials.

Corporate strategy and structure are crucial for success. Brands in the Central Market adopt innovative business models that enhance uniqueness and competitiveness through customer engagement. Coconutshop, for example, offers personalized design services, enhancing customer satisfaction and loyalty. Collaboration with local government and cultural organizations can promote sustainable fashion by leveraging cultural and tourism resources.

The study revealed that the five featured shops in the Central Market successfully implement sustainable fashion practices through their distinctive approaches and innovative ideas. These businesses meet market demands and promote environmental protection and sustainability. The positive consumer response indicates significant market potential for sustainable fashion. The findings provide valuable insights for future research and practice, helping to explore further the application and promotion of sustainable fashion in urban settings.

## 5 DISCUSSION

### 5.1 Utilising Historical and Cultural Heritage

Interview participants unanimously agreed that actively leveraging Kuala Lumpur's cultural and artistic resources is essential for revitalising the Central Market as a sustainable fashion district. To survive the intense competition from other major cities and online retailers, the Central Market must attract more tourists and consumers by showcasing the unique brand value of local small and medium-sized cities. Kuala Lumpur's Central Market, a cultural landmark that bridges the past and present, has a unique historical and cultural background. By utilising this distinctive cultural heritage and historical resources, the market can develop a fashion district with unique characteristics that promote sustainable fashion and enhance Kuala Lumpur's urban brand value. Participants noted that when the Central

Market is mentioned, people naturally associate it with its rich cultural heritage and unique shopping experience. By narrating the market's historical stories and displaying traditional handicrafts, the Central Market can attract more attention and tourists.

"The unique image of Kuala Lumpur's Central Market is already appealing. The harmonious blend of historical heritage, traditional crafts, and modern fashion creates a romantic coexistence of past and present" (B).

NALA's founder mentioned that many buildings and shops in the market have profound historical significance, similar to London's Liberty department store, which conveys a "Kuala Lumpur sensibility" through unique stories and product selections.

"Many shops in the Central Market have their own historical stories, much like London's Liberty department store. It has tremendous potential to become an iconic venue showcasing Kuala Lumpur's culture and fashion" (A).

Most participants emphasised the importance of incorporating Kuala Lumpur's cultural arts into each fashion street's unique themes and concepts. Unique themes characterised by art and culture attract many tourists and consumers.

One participant explained the cases of Shoreditch in London and Mitte in Berlin, highlighting how old and impoverished alleys could be rejuvenated through art.

"Shoreditch has transformed from one of London's poorest districts into one of its hottest spots. Streets full of murals and vintage charm have made it a haven for artists. Berlin's Mitte is similar; by developing galleries and antique markets, these areas have become city landmarks that attract young consumers" (C).

The Central Market has effectively shaped Kuala Lumpur's urban image by integrating Malay, Chinese, and Indian cultural elements. In the interviews, NALA's founder mentioned that their design inspiration comes from the unique fusion of Malaysia's multicultural heritage, showcasing harmonious coexistence through traditional patterns and handicraft techniques in their garments. This cultural integration attracts residents and numerous tourists, enhancing Kuala Lumpur's international image as a city of cultural diversity.

"Our designs embody the essence of Malaysia's multiculturalism. Each piece tells a story of the blend of Malay, Chinese, and Indian cultures, attracting local customers and tourists worldwide" (A).

The discussion highlights several key points:

The Central Market's unique historical and cultural heritage can be a significant asset in developing a sustainable fashion district that stands out in a competitive market.

Leveraging these cultural resources can enhance the market's appeal, attracting tourists and consumers by offering a unique shopping experience that integrates traditional crafts with modern fashion.

The Central Market serves as a model of cultural integration, effectively blending Malay, Chinese, and Indian elements to create a distinctive urban identity that resonates locally and internationally.

Revising the Central Market by strategically using its historical and cultural assets can significantly contribute to Kuala Lumpur's urban fashion image. The market enhances its brand and promotes the city's cultural diversity and international appeal by fostering a sustainable fashion environment that values heritage and innovation.

## 5.2 Designers and Brands' Sustainable Practices

Designers and brands within the Central Market demonstrate a positive attitude and proactive practices toward sustainable fashion. Through interviews, it was discovered that many brands, such as Coconutshop and Borneo Pearls, focus on using natural and eco-friendly materials and implementing sustainable production processes. For example, Coconutshop creates fashionable items from coconut shells, reducing waste and producing high-value products. On the other hand, Borneo Pearls recycles used pearls to reduce resource waste and craft unique jewellery.

"We use coconut shells to make our products, which is not only environmentally friendly but also provides customers with a unique shopping experience. Each product is one-of-a-kind" (B).

"By recycling used pearls, we not only reduce waste but also offer personalised design choices to our customers" (C).

The Central Market is an exemplary model for adopting sustainable practices within the fashion industry. Designers and brands' commitment to sustainable practices is evident through their innovative use of materials and production methods. This addresses environmental concerns and enhances the market's attractiveness by offering unique, eco-friendly products.

The sustainable practices embraced by brands such as Coconutshop and Borneo Pearls reflect a broader trend within the fashion industry toward environmental responsibility. These brands create sustainable and distinctive products using materials that would otherwise be discarded, such as coconut shells and used pearls. This approach minimises waste and adds a unique value proposition for consumers increasingly seeking products that align with their environmental values.

Moreover, the success of these brands highlights the potential for sustainable practices to drive economic and social benefits. By prioritising sustainability, brands can differentiate themselves in a competitive market, attract a conscientious consumer base, and contribute to broader environmental goals. This alignment of business practices with sustainability principles is crucial for fostering a more sustainable and resilient urban fashion ecosystem.

In summary, the sustainable practices adopted by designers and brands within the Central Market underscore the vital role of innovation and environmental responsibility in the fashion industry. These practices contribute to waste reduction and resource conservation, enhance the market's appeal, and support the development of a sustainable urban fashion image for Kuala Lumpur. The Central Market's commitment to sustainability sets a precedent for other fashion districts, illustrating how heritage and modernity coexist harmoniously while promoting environmental stewardship and economic vitality.

## 5.3 The Contribution of Fashion Innovation to Urban Development

Fashion innovation is crucial in the Central Market, enhancing cultural appreciation, social cohesion, and economic vitality. The founder of TENMOKU POTTERY highlighted that their handcrafted items are not merely fashion products but also forms of artistic expression, attracting numerous customers interested in culture and art. Hosting pottery workshops not only increases

customer engagement but also fosters social cohesion within the community. The founder of a plastic recycling design brand mentioned that through environmentally friendly fashion innovations, they have successfully attracted young consumers with solid environmental awareness, stimulating the market's economic vitality.

“Our handmade products are more than just items for sale; they are an artistic experience. By conducting workshops, we not only sell products but also strengthen social cohesion within the community” (D).

“Eco-friendly fashion has attracted many young consumers who are passionate about our brand, significantly boosting the market's economic vitality” (E).

Fashion innovation in the Central Market significantly contributes to urban development by fostering a vibrant and sustainable urban culture. The efforts of brands like TENMOKU POTTERY demonstrate how fashion can serve as a medium for artistic expression and community engagement. Their pottery workshops are an excellent example of how hands-on activities can deepen customer involvement and promote a sense of community. This approach not only enhances the cultural fabric of the area but also encourages a participatory culture where individuals feel more connected to their local environment.

Similarly, plastic recycling design brands' emphasis on environmentally conscious fashion showcases the market's commitment to sustainability and innovation. By creating products that appeal to eco-conscious consumers, these brands are tapping into a growing market segment that values sustainability. This drives economic growth and aligns with broader environmental goals, creating a more sustainable urban ecosystem.

The impact of these innovations extends beyond immediate economic benefits. They also play a pivotal role in shaping the identity and image of Kuala Lumpur as a forward-thinking and culturally rich city. Integrating traditional crafts with modern sustainability practices creates an appealing and meaningful blend. This fusion of old and new preserves cultural heritage and ensures its relevance in a contemporary context.

Moreover, fashion innovation at the Central Market enhances social cohesion by providing platforms for community interaction and collaboration. Events and workshops organised by local artisans offer opportunities for residents and visitors to engage with each other, fostering a sense of belonging and mutual understanding. This social cohesion is vital for the overall well-being of the urban population, contributing to a more harmonious and resilient community.

In summary, fashion innovation at the Central Market significantly contributes to the cultural, social, and economic development of Kuala Lumpur. These innovative practices create a dynamic and sustainable urban environment by promoting cultural appreciation, fostering social cohesion, and driving economic vitality. The Central Market is a testament to how fashion can be a powerful tool for urban development, merging heritage with modernity and sustainability with economic growth.

## **CONCLUSION**

This study analyses Central Market's contributions to Kuala Lumpur's urban image and sustainable development. By integrating Malay, Chinese, and Indian cultural elements, Central Market enhances Kuala Lumpur's international reputation while promoting environmental awareness and economic dynamism through sustainable fashion practices (Luxon, 2019). Renowned for its unique historical and

cultural heritage, the market is a landmark blending the city's past and present. Leveraging these heritage assets, Central Market cultivates distinctive fashion districts that foster sustainable practices and elevate Kuala Lumpur's urban brand.

Interviews with stakeholders highlighted the market's rich cultural heritage and its ability to attract tourists with a unique shopping experience. The founder of NALA emphasized the market's deep historical roots, like London's Liberty department store, showcasing Kuala Lumpur's cultural heritage and fashion prowess. Designers and brands at Central Market, such as Coconutshop and Borneo Pearls, demonstrate a commitment to sustainability by using natural and eco-friendly materials. For instance, Coconutshop creates fashion items from coconut shells, reducing waste, while Borneo Pearls recycles used pearls to minimize resource wastage.

Fashion innovation at Central Market fosters cultural appreciation, social cohesion, and economic vitality. TENMOKU POTTERY's handmade pottery appeals to customers interested in culture and art, and their workshops enhance community engagement. Similarly, ekha, a brand specializing in plastic recycling designs resonates with environmentally conscious consumers, driving economic vitality.

To further promote sustainable fashion, it is recommended that the government enhance policy support and industry collaboration. Measures include establishing funds for eco-friendly materials, encouraging innovation through tax incentives, and building industry alliances to facilitate resource sharing. The government could lead in organizing seminars and exchange activities to foster cooperation and innovation.

Implementing these strategies could drive sustainable development within the Central Market and enhance Kuala Lumpur's global standing in the fashion industry, attracting international attention and investment. Future research should focus on similar fashion districts to compare and enrich existing findings, exploring variations in sustainable practices across different cultural contexts. Additionally, studying consumer behaviour can provide insights into perceptions and purchasing decisions regarding sustainable fashion, promoting these concepts more effectively.

Adopting these recommendations and pursuing future research can further advance sustainable fashion development in Kuala Lumpur and other cities, leading to coordinated economic, social, and environmental growth. This would enhance the city's international image, promote cultural identity and cohesion, and drive sustainable economic expansion. Insights from this study can inform fashion retail courses, using sustainable practices at Central Market as case studies for visual merchandising and fashion consumer behaviour courses. Research on small and medium-sized cities can help students understand the fashion industry's nuances across different urban scales, enhancing their learning experience.

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## CONFLICT OF INTEREST

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# Innovation of Embroidery: Exploring the Integration of Biomimicry and Embroidery

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## ABSTRACT

*Embroidery, an age-old art form, is being reinvigorated through the fusion of traditional craftsmanship and contemporary innovation. This paper delves into the amalgamation of biomimicry, a design concept drawing on nature's paradigms, into embroidery to enhance both aesthetics and utility. A thorough investigation encompasses a literature review and diverse case studies to scrutinize the integration process. The analysis reveals the transformative power of biomimetic practices to generate pioneering embroidery patterns and skillsets, suggesting substantial impact across fashion, textiles, and eco-friendly design sectors. The study provides pivotal data underscoring the role of biomimicry in propelling embroidery into a new epoch while honoring its historic essence.*

**Keywords:** Embroidery, Biomimicry, Integration, Fashion Design, Nature's paradigms



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## 1 INTRODUCTION

Over the years, embroidery, a traditional Chinese art, has ushered in the incorporation of modern technologies and words into design concepts. Just a few recent years have brought a considerable upsurge in the adoption of biomimicry principles just for the sake of embroidery and have completely revolutionized innovation and creativity in this industry. It opens new dimensions in the linkage of traditional skill with design inspired of nature. For example, biomimicry has been shown to provide inspiration for new patterns, textures, structures, and so forth, inspired by the designs of nature. That has been noted as a means through which the structures of plant cells or patterns of animal skins have led to burgeoning techniques within embroidery that can seek to mimic the beauty and complexity that natural morphology represents. Moreover, the use of biomimetic sustainable and biodegradable materials has placed this integration as the major contribution to eco-friendly practice in the realm of textiles and fashion.

## 2 LITERATURE REVIEW

### 2.1 Biomimicry in Embroidery: Exploring Nature's Paradigms

Biomimicry in terms of embroidery would be translating nature's paradigms into designing the creation of the pattern. New complementary forms of the possibilities, both aesthetically and functionally, can be discovered in an approach. Observing such patterns as spirals in seashells or fractal branching of trees, designers will transpose such forms into embroidery designs to portray a unique appeal. (Ellison, 2013; Wood, 2019).



This goes even further to bring functional enhancement besides aesthetic purposes. For example, imitation of the water-repellency of the lotus leaf or strength of spider silk through embroideries can thus provide such characteristic functions to the fabric. This further extends the application of embroidered textiles, which aligns with the increasing demand for sustainable and eco-friendly products. (Błachowicz et al., 2021; Eadie & Ghosh, 2011).

The more the extraneous field of embroidery takes inspiration from and divulges into biomimicry, the more obvious this integration heralds great promise for the future of the industry: revolutionary strides in design, craftsmanship, sustainability, and the making of innovative materials. (Wang, 2019) A deep dive into biomimic embroidery would be the best example of what may redefine the boundaries of creative output and function within the realm of fashion, textiles, and environmental consciousness. (Daukantienė, 2022).

## **2.2 Evolution of Embroidery Techniques**

The same process happens with the integration of biomimicry in embroidery: a design approach that uses nature's paradigms to design and create typical embroidery patterns. This makes the exploration of new possibilities both for their aesthetics and functionality into a spiral motion a seashell or fractal tree branching in the patterns of most trees can be turned into an embroidered pattern to reach some unique organic form in the embroidery process.

Furthermore, it achieves many functionalities other than the mere cosmetic. By using embroidery techniques to enable the imitation of wettability in lotus leaves or the structural strength of spider silk, fabrics are endowed with new functions. This goes a long way in increasing utility in embroidered textiles, and it goes only together with developing interest in durable and eco-friendly products.

## **2.3 Synergistic Potential of Biomimicry and Embroidery**

The research discusses the theoretical framework that supports the inclusion of biomimicry in embroidery, focusing on the way this symbiotic relationship can be developed to foster environmental sustainability and creative design. The use of the principles of biomimicry in combination with the technique of embroidery is a resource available to designers in the fashion industry to further develop textiles that are not only visually appealing but also functional and sustainable.

# **3 METHODOLOGY**

This is a qualitative work at a general level to elicit the use of biomimicry in an embroidery context based on theoretical and empirical data. A methodology is presented that explicates the process by which principles of biomimicry can be applied to embroidery in a manner commensurate with innovative, sustainable, and culturally significant textile design outputs.

## **3.1 Theoretical Framework**

The theoretical framework was founded on design and sustainability theories focused on biomimicry, the process of learning from nature's strategies for solving human problems. This framework intimates how natural structures and systems can trigger new embroidery designs and, at the same time, restore the past and the culture-bound meaning of traditional embroidery techniques.

## **3.2 Data Collection**

To ensure practical comprehension of biomimicry in embroidery, this research will make use of data collection through the below methods:

### 3.2.1 Literature Review

For this study, the methodological basis of work will be the generalization of available sources both about biomimicry and traditional and modern methods of embroidery as part of the problems of sustainable textile design. The main sources for the research paper are academic periodicals, books, and industry reports that help in understanding both the theoretical and practical sides of biomimetic design. The literature review elaborates on the key principles of biomimicry and their application in embroidery (Błachowicz et al., 2021; Daukantienė, 2022).

### 3.2.2 Case Studies

Detailed case studies have been analysed and the process of embroidery with work in the integration of biomimicry principles carried out. These case studies would benefit from the emerging of specific examples that integrated natural patterns and structures:

·Iris van Herpen's "Voltage" Collection: This collection uses biomimetic approaches taken from naturally created electrical designs—such as lightning bolts and electric eels—to automatically draft dynamic, strong, and visually well-embroidered designs (Eadie & Ghosh, 2011).



**Figure 1** Iris van Herpen's "Voltage" Collection

·Natsai Audrey Chieza's "BioSteel Silk": Conceived in collaboration with bioengineers, the capability merges together the mechanical powers of silk and the biomimicry of spider silk, giving it the ability to generate new fabrics with enhanced properties (Wood, 2019).



**Figure 2** Natsai Audrey Chieza's "BioSteel Silk"

·Sarah Angold's Geometric Embroidery: Inspired and informed by the complex geometries of coral reefs and honeycombs, the biomimicry potentials of Angold's designs mimic pushed boundaries of today's new traditional craft's complexity and beauty (Ellison, 2013).



**Figure 3** Sarah Angold's Geometric Embroidery

### **3.3 Thematic Analysis**

Thematic analysis is undertaken on data obtained from literature, case studies, and interviews to elicit similarities in patterns and themes through coding into categories of design innovation, sustainability, cultural significance, and technical advancements. The thematic analysis thus helps in understanding how biomimicry applies to the different domains associated with embroidery and textile design.

### **3.4 Stages of Integration**

Biomimicry into the integration of embroidery is a systematic procedure cut into three key elements: observation, adaptation, and innovation.

#### **3.4.1 Observation**

The first step is to observe and study intricate patterns, and structures available in nature. It involves analysing the unique characteristics, textures, and functional properties of natural elements that would give a plethora of inspiration when one tries to transform them into embroidery patterns. For instance, this may involve the spirals of different seashells or the fractal branching of trees. (Ellison, 2013).

#### **3.4.2 Adaptation**

In the next step, designers develop the natural patterns and structures observed further into embroidery designs. The process elaborates on understanding the underlying principles of the natural elements and creatively adjusting them to suit the specific requirements of embroidery. Such might include the water-repelling ability of lotus leaves or the structural strength of spider silk (Błachowicz et al., 2021).

#### **3.4.3 Innovation**

The innovation stage comes last: in this stage, through adaptation, the natural forms and patterns, the designers come up with unique and sustainable embroidery designs. Lastly, varied stitching techniques with materials and production technology are experimented with in bringing the designs inspired by biomimetics to life, merging creativity with ecologically conscious innovation (Daukantienė, 2022). Conclude

## **4 DISCUSSIONS**

The incorporation of biomimicry into embroidery might subsequently have the potential to greatly reduce the environmental effects of textile manufacture. The combination leads to less consumption of chemicals and an increase in the life of the textiles. Supplementarily, the research showcases the issues of the adoption of commercial embroidery, in terms of scalability and cost efficiency. The present paper discusses how the use of biomimicry as the inspiration source for design in embroidery improves the process of sustainability and eco-friendliness in the textile production cycle.

## **CONCLUSION**

In summary, this study examined the possibility of realizing biomimicry in embroidery and how it can be used as a game-changer in the textile industry. The integration of biomimicry with embroidery is largely composed of observation, adaptation, and innovation. Designers observe the natural elements, concepts, and systems, and adapt the observed patterns to develop unique and sustainable solutions in embroidery design. The integration is supposed to offer a reduction in the environmental

burden of the industry, fostering innovation as well as the creation of textiles that are beautiful and green. Future research work might overcome practical limitations in integrating biomimicry within large-scale textile manufacture, therefore rationalizing the possibilities of developing functional textiles inspired by efficient natural processes.

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## **AUTHOR CONTRIBUTIONS**

All authors played equal contributions to this research.

## **CONFLICT OF INTEREST**

No conflict of interest declared for this paper.

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